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ABSTRACT

A compilation of 89 structural frameworks or classifications of outcomes of higher education is presented. Each classification system or model is discussed according to the time it entered the literature. The classifications are grouped into three areas: impacts on individuals, impacts on society, and impacts on individuals and society. Some of the classifications that center on individuals have specific subtopics: eight focus on intellectual development; seven focus on emotional, cultural, and social development; and nine focus on physical and psychomotor development. Frameworks focusing on intellectual development cover effects of education on the acquisition of cognitive skills, knowledge, and understanding. A total of 35 of the classifications cover broad outcomes that affect the individual. Of the four classifications concerned with impacts on society, one covers research and development outcomes of education, and another, the social purposes of public schools. Twenty-two classifications have a broader focus on both the individual and societal outcomes of education. Included is information on the outcomes structure developed by the National Center for Higher Education Management Systems. In addition to narrative descriptions of the frameworks, charts and flowcharts provide further illustration. (SW)

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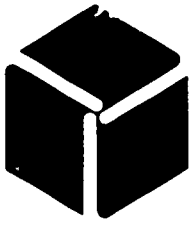

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Previous Attempts to Structure Educational Outcomes and Outcome-Related Concepts: A Compilation and Review of the Literature

by
Oscar T. Lenning

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NATIONAL CENTER FOR HIGHER EDUCATION MANAGEMENT SYSTEMS
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Preface

In early 1974, NCHEMS undertook development of an outcomes structure (a taxonomy, or classification) that would cover the full range of possible educational outcomes in postsecondary education. After some initial conceptualizing, two extensive literature reviews were inaugurated in late 1974.

One was designed to explore the meaning of the concept educational outcome, and to derive a definition for this concept that would be appropriate for planning, management, and policy-development purposes. Various people have viewed postsecondary-education outcomes in different ways, and a special concern was whether a single definition of outcome would suffice for the NCHEMS Outcomes Structure or whether the definition would have to be adjusted according to the context of use.

The second literature review explored (1) literature in the field of taxonomy for principles or criteria that should be considered in developing an outcomes classification structure, (2) the literature describing previous attempts at classifying educational outcomes and outcome-related concepts, such as goals and objectives, and (3) the literature on specific postsecondary-education outcomes that could be used to generate a broad list of outcomes for use in testing the NCHEMS Outcomes Structure.

In the second literature review, over 80 previous attempts to structure educational outcomes and related concepts were found. Each previous attempt was

concisely summarized and the summaries were compiled to assist the staff in developing the NCHEMS Outcomes Structure. Over the course of time, the compilation was seen by outside consultants for the project, by people interested in outcomes who happened to be visiting NCHEMS, and by a number of researchers and others outside NCHEMS. Many found the compilation interesting and useful, and suggested that NCHEMS should make the compilation available to the research community. The present document is the result of those suggestions.

The author wishes to thank the outcomes staff at NCHEMS and others who reviewed the compilation and stimulated the publication of this document. Special thanks are due to Sidney Micek of the NCHEMS staff for his support and assistance in this endeavor, and to Cheryl Pedersen for typing the drafts and final manuscript and for drawing the diagrams. NCHEMS is indebted to the many publishers and authors who gave permission to reprint figures or major excerpts from copyrighted works.

Oscar T. Lenning
August, 1977

Chapter I

Introduction

Over the years, there have been numbers of attempts to structure and order educational outcomes so that the relationships of outcomes and outcome-related concepts to one another and with other factors can be clearly shown. Many of the attempts involved developing classifications or models of outcome-related concepts such as educational goals, objectives, and purposes, while others focused on the outputs of education and/or the impacts of those outputs, that is, on outcomes. The present document reviews the structural frameworks resulting from these efforts. All of them have something to say about outcomes and about structuring outcomes, and they provided useful insights for an NCHEMS effort to develop a new and comprehensive structure designed to organize information about the entire range of postsecondary education outcomes. On the other hand, they differ greatly in their degree of sophistication and complexity (some of them are only simple lists of categories), in their logic (many are quite logical, but some are strictly arbitrary), and in their coverage (many are limited to a very narrow area of focus). In addition, some focus on abstract constructs, while others deal with more concrete, observable outcomes.

OUTCOME CLASSIFICATIONS APPEARING AFTER THE REVIEW WAS COMPLETED

The review summarized in this document began in late 1974 and covered the literature up to the beginning of 1975. It is believed that the coverage

is comprehensive to that point in time. Some new educational outcome classifications have appeared since then, however, and those coming to the author's attention are summarized here, including the newly developed NCHEMS Outcomes Structure.

The Florida Community/Junior College IRC Taxonomy of Community Service.

Because people did not agree on what should be considered a community service, and because of the problems in interinstitutional communication and reports to state agencies resulting from such confusion, in 1974 the Florida Community/Junior College Interinstitutional Research Council (IRC) inaugurated a project to identify community service program objectives for two-year community colleges and to develop a useful taxonomy of such objectives (Nickens, 1976). Representatives from 17 Florida community colleges were divided into four groups in a workshop setting. Members of each group individually developed a list of objectives they felt were important. Then tabulations were determined, and the group as a whole refined the wording of each objective and assigned relative priorities. The 10 objectives ranked highest for each group were joined by the 10 highest priority objectives from the other three groups, and the IRC staff further refined them as a group and arranged them into a logical classification. The taxonomy and the objectives therein were then reviewed and critiqued by the Florida Commission on Community Services. In addition, samples of community service students and faculty at the participating colleges rated the importance of each objective, which further validated its appropriateness. The taxonomy is perceived to have utility as a universe of community service objectives from

which community colleges can choose, in the light of the resources available to them and the needs within their respective communities. Figure 1 represents an outline of this taxonomy. See Nickens (1976) for details about each category.

The Yale Dimensions of Undergraduate College Performance. Members of a research team at Yale University (Taber and Hackman, 1976) were concerned that ". . . in actual practice, the success or failure of undergraduates is assessed almost exclusively with a small set of very limited criteria, which do not begin to encompass the goals and ideals of higher education" (p. 546). Therefore, they designed an extraordinary project to identify behavioral measures and indicators that would clarify the full range of beliefs at Yale as to what constitutes undergraduate student success and failure there. Their study is a model approach that researchers at other institutions would do well to consider for their campuses.

Interviews were conducted among all segments of the college community, and all persons interviewed were asked to: (1) identify four undergraduate students considered by them to be "most successful" at Yale, (2) identify four undergraduate students considered by them to be "least successful" at Yale, and (3) state the reasons for each choice in terms of specific actual and observed behaviors or characteristics (if the response was too abstract, the interviewer probed for concrete examples of what they meant). The 4,500 separate behaviors and characteristics extracted from the interview tapes were then grouped into 73 cluster categories; definitions were

Figure 1

THE FLORIDA COMMUNITY/JUNIOR COLLEGE IRC TAXONOMY

FOR COMMUNITY SERVICES*

1.00 Instructional Services

- 1.10 General-Cultural Services
  - 1.11 Community and Civic Affairs
  - 1.12 Family Life
  - 1.13 Leisure Time and Recreational Activities
  - 1.14 Personal Health
  - 1.15 Cultural Heritage and Enrichment
- 1.20 Occupational Services
  - 1.21 Development of General Attitudes and Skills for a Career
  - 1.22 Development of Specific Attitudes and Skills for a Career

2.00 Noninstructional Services

- 2.10 Coordination
  - 2.11 Individuals
  - 2.12 Groups
  - 2.13 Agencies
- 2.20 Consultation
  - 2.21 Consultation with Individuals
  - 2.22 Consultation with Groups
  - 2.23 Consultation with Agencies
- 2.30 Research and Development

3.00 Facility Services

*Abstracted from Nickens (1976, pp. 13-18).

formulated for each category; three trained raters were used independently to check the clarity and validity of each category; and revisions were made as indicated. Next nine performance statements that applied best to both the "most successful" and "least successful" groups were listed for each category, the statements were all mixed together, and a new and larger set of trained judges was asked to categorize the statements. A scale was also used to rate the distinctiveness and clarity of each category identified. Based on the results of this step, 67 categories--and behaviors for each that were selected because of their clarity and strong relation to the category--were incorporated into a College Criteria Questionnaire. After being thoroughly tested and refined, the interviewing procedure done initially was repeated with a stratified random sample of 434 faculty, students, administrators, and other staff--except that this time the two "most successful" and the two "least successful" students were described on the 67 scales of the instrument. Race and sex of those interviewed were varied to control for bias, as was the order of the scales to which they responded. In the second set of interviews, the scales allowed the respondents to identify many more differentiating behaviors and characteristics than had been true in the initial open-ended response setting.

Data from the group of 376 respondents, out of the 434 in the sample, were subjected to factor analysis followed by Varimax rotation. A total of 14 factors for the "most successful" group and 12 factors for the "least successful" group were identified. The results for the two groups seemed to fit quite well, showing two general groups of factors--academic and

nonacademic. Evidence indicated that some of the items were not concrete enough and could be refined, but the problem was not serious. Furthermore, although there was good evidence for the instrument's comprehensiveness at Yale College, it probably is not comprehensive for other settings--for example, church-related colleges. Internal consistency was good, although reliability evidently was lower at the upper end of the categories. Concerning validity, the dimensions, along with their assigned categories, "make sense" according to findings in the literature. Furthermore, when correlations of categories with grade point averages and SAT scores were calculated, where the effect of being in the "least successful" or "most successful" group was partialled out, statistically significant correlations were often found in spite of the restricted ranges on both ends which would be expected to reduce the observed correlations appreciably from their true values.

From their extensive results, Taber and Hackman (1976) concluded the following:

> The performance categories are not to be considered as standards of college success. Neither, at this stage in their development, can the categories be used to counsel or evaluate individual students. Rather, the CCQ is an instrument for organizing, understanding, and communicating the many dimensions of performance believed to be part of the concept of undergraduate success. It is valid as a tool for describing groups of students or conceptions of success held by groups of respondents. From the CCQ information, it is possible to draw instructive profiles of an institution's perceptions of success and to use the profiles as input to college policy deliberations. . . . Although the College Criteria Questionnaire still requires more refinement, validation, and extension to other institutions, we believe that it can contribute to solutions of problems raised by the limitations of current traditional criteria of student performance. [P. 557]

In addition to the 16 factors common to the two groups, for subsequent analyses Taber and Hackman used five additional dimensions that did not load heavily on

the common factors but which were found to have practical usefulness and to add to one's insight into student undergraduate performance. The dimensions and categories of undergraduate performance that were empirically derived by this study at Yale in effect constitute a taxonomy of student performance dimensions. One possible outline of this taxonomy is presented in Figure 2.

Williams' Behavioral Typology of Educational Objectives for the Cognitive Domain. Concern was felt at the Southern Illinois University School of Medicine about the inability of instructors to translate their intuitively held cognitive objectives into behavioral form, because of such factors as inexperience in preparing behavioral objectives and lack of time (Williams, 1977). A comprehensive set of model objectives could help this situation, but the use of Bloom's taxonomy for the cognitive domain was inadequate to the task. It was found to be too complex; the terms and definitions used are so vague that it was difficult to achieve consensual agreement on classification of behavioral objectives; and the categories are defined in terms of cognitive learner processes rather than concrete, observable characteristics of tasks presented to the learners. Therefore, Williams and his staff inaugurated the development of a typology (which unlike a taxonomy is not concerned with the order of categories) for the cognitive domain which would overcome the problems with the Bloom taxonomy. The new typology was intended to improve communication among instructors and allow those inexperienced in developing behavioral objectives to develop concrete, observable objectives corresponding to the wide range of cognitive objectives that they intuitively hold for their students. Development of the typology

Figure 2

THE YALE DIMENSIONS OF UNDERGRADUATE COLLEGE PERFORMANCE*

1.0.0 GENERAL ACADEMIC DIMENSIONS

- 1.1.0 Students' Intellectual Growth/Development**
- 1.2.0 Students' Cognitive Proficiency
  - 1.2.1 Their demonstrated intelligence
  - 1.2.2 Their demonstrated ability to abstract ideas
  - 1.2.3 Their demonstrated ability to analyze ideas
  - 1.2.4 Their demonstrated ability to synthesize ideas
  - 1.2.5 Their demonstrated ability to handle a foreign language
  - 1.2.6 Their demonstrated ability to handle mathematical concepts
- 1.3.0 Students' Communication Proficiency
  - 1.3.1 Their demonstrated ability to communicate in writing
  - 1.3.2 Their demonstrated ability to communicate orally
- 1.4.0 Students' Intellectual Perspective and Curiosity
  - 1.4.1 Their demonstrated ability to integrate content from various fields
  - 1.4.2 Their demonstrated intellectual curiosity
  - 1.4.3 Their demonstrated breadth of knowledge and understanding
  - 1.4.4 Their demonstrated ability to consider different points of view
  - 1.4.5 Their demonstrated ability to apply abstract concepts
  - 1.4.6 The intellectual growth they exhibit
  - 1.4.7 Their demonstrated ability to be intellectually creative
- 1.5.0 Students' Creative Performance**
- 1.6.0 Students' Academic Effort and Achievement
  - 1.6.1 Their demonstrated commitment to learning
  - 1.6.2 Their demonstrated academic achievement
  - 1.6.3 Their demonstrated success or indicators of success in gaining admission to graduate or professional school
  - 1.6.4 Their demonstrated willingness to do unassigned work
  - 1.6.5 Their demonstrated ability to fulfill course requirements
  - 1.6.6 Their demonstrated ability to be organized and efficient
  - 1.6.7 Their demonstrated amount of academic effort and exertion
  - 1.6.8 Their demonstrated amount of general goal achievement
  - 1.6.9 Their demonstrated amount of general effort and exertion
  - 1.6.10 Their demonstrated ability to realistically evaluate their own interests
- 1.7.0 Students' Self-Directed Behavior
  - 1.7.1 Their demonstrated ability to direct themselves and be autonomous
- 1.8.0 Students' Career Goals
  - 1.8.1 Their demonstrated ability to make career plans
  - 1.8.2 Their demonstrated ability to develop personal goals
  - 1.8.3 Their demonstrated commitment to a career field

2.0.0 SPECIFIC ACADEMIC DIMENSIONS

- 2.1.0 Students' Mathematical Proficiency**
- 2.2.0 Students' Foreign Language Proficiency**
- 2.3.0 Students' Artistic Performance
  - 2.3.1 Their demonstrated involvement in artistic activities
  - 2.3.2 Their demonstrated artistic achievement

*Abstracted from Taber and Hackman (1976) and from information provided directly by Judith D. Hackman.

**These five dimensions did not load heavily on the factors common to the two study groups but were found to be important in subsequent analysis.

Figure 2 (continued)

3.0.0 PERSONAL DIMENSIONS

- 3.1.0 Students' Personal Growth
  - 3.1.1 Their demonstrated personal growth and development
- 3.2.0 Students' Optimism and Emotional Stability
  - 3.2.1 Their demonstrated personal enjoyment of life
  - 3.2.2 Their demonstrated ability to act in an easygoing and relaxed manner
  - 3.2.3 Their demonstrated ability to act in an optimistic manner
  - 3.2.4 Their demonstrated mental stability and adjustment
  - 3.2.5 Their demonstrated ability to cope with stress
  - 3.2.6 Their demonstrated common sense
- 3.3.0 Students' Ethical Behavior
  - 3.3.1 Their demonstrated ability to be guided by personal values
  - 3.3.2 Their demonstrated honesty in relations with others
  - 3.3.3 Their demonstrated ability to behave ethically
  - 3.3.4 Their demonstrated ability to be dependable and trustworthy
- 3.4.0 Students' Athletic Performance
  - 3.4.1 Their demonstrated interest and participation in athletics
  - 3.4.2 Their demonstrated athletic achievement

4.0.0 INTERPERSONAL DIMENSIONS

- 4.1.0 Students' Participation in Organizations
  - 4.1.1 Their demonstrated student contributions to the college
  - 4.1.2 Their demonstrated participation in student organizations and activities
  - 4.1.3 Their demonstrated interest and participation in community activities and concerns
  - 4.1.4 Their demonstrated interest and participation in political activities and concerns
  - 4.1.5 Their demonstration of a wide range of activities and interests
  - 4.1.6 Their demonstrated development of a balance between academics and nonacademics in their lives on campus
  - 4.1.7 Their demonstrated ability to be leaders
  - 4.1.8 Their demonstrated ability to be forceful and assertive in their actions
- 4.2.0 Students' Interpersonal Sociability
  - 4.2.1 Their demonstrated ease of socialization
  - 4.2.2 Their demonstrated amount of interaction with others
  - 4.2.3 Their demonstrated sense of humor
- 4.3.0 Students' Interpersonal Responsiveness
  - 4.3.1 Their demonstrated ability and inclination to be sensitive to and understanding of other's feelings and views
  - 4.3.2 Their demonstrated ability and inclination to be open to and tolerant of others
  - 4.3.3 Their demonstrated ability and inclination to be helpful to others and altruistic
  - 4.3.4 Their demonstrated ability and inclination to interact with others and help one another
  - 4.3.5 The amount they are liked and respected by others
  - 4.3.6 The amount and manner in which they relate to the opposite sex
- 4.4.0 Students' Behavior Related to Discrimination Issues
  - 4.4.1 Their demonstrated ability to deal effectively with sexist issues
  - 4.4.2 Their demonstrated ability to deal effectively with interracial issues

5.0.0 INSTITUTIONAL DIMENSIONS

- 5.1.0 Students' Persistence Toward Graduation**
- 5.2.0 Students' Congruence with the College
  - 5.2.1 Their demonstrated suitability to the Yale environment
  - 5.2.2 Their demonstrated enjoyment of Yale
  - 5.2.3 Their demonstrated use of the resources at Yale
  - 5.2.4 Their demonstrated ability to persist at Yale

**These five dimensions did not load heavily on the factors common to the two study groups but were found to be important in subsequent analysis.

was supported by funds from the Fund for the Improvement of Postsecondary Education, and much of the development rested on evaluations of the Bloom taxonomy and the work of selected learning theorists.

The Williams typology is built on the assumption that most learning tasks placed on students consist of: (1) content and (2) generic cognitive operations that are applied to the content. Seven types of content have been identified by Williams: facts, concepts, principles, procedures, objects, properties of objects, and events. ("Objects," "properties of objects," and "events" could be subsumed under "concepts," but were separated out because of the common usage of these terms.) Six generic cognitive operations have been identified: memorization, summation, instantiation, prediction, application, and evaluation. To illustrate each of these operations, Williams gave the following example:

> Operation refers to the way in which the content is used. "A stitch in time saves nine" is an often quoted principle or rule. As such, it is content which is often learned. Once learned, this content may be used in various ways. It may be recited verbatim (Memorization). It may be restated in different words (Summarization). Cases where the rule has been applied may be identified (Instantiation). The rule may be used to anticipate the consequences of certain acts (e.g., sewing or failing to sew up small rips in clothing) (Prediction). The rule or principle may also be used to arrange conditions so that a desired outcome results (Application). Finally, knowledge of the rule may be used in conjunction with values to select the most desirable action in a given situation (Evaluation). These same intellectual operations may be applied to almost all types of content. [P. 40]

The typology also has a third dimension called test mode that provides two ways the operation and content of the behavioral objective can be tested to

aid in placing such objectives into the typology, and most operation and content combinations can be tested in either or both ways. The first way of testing the objective is called "recognition mode," and it involves selecting from alternative choices--much as in multiple choice or true-false tests. The second way is called "production mode," and it is open-ended in its determination of choices--analogous to essay tests or performance measures.

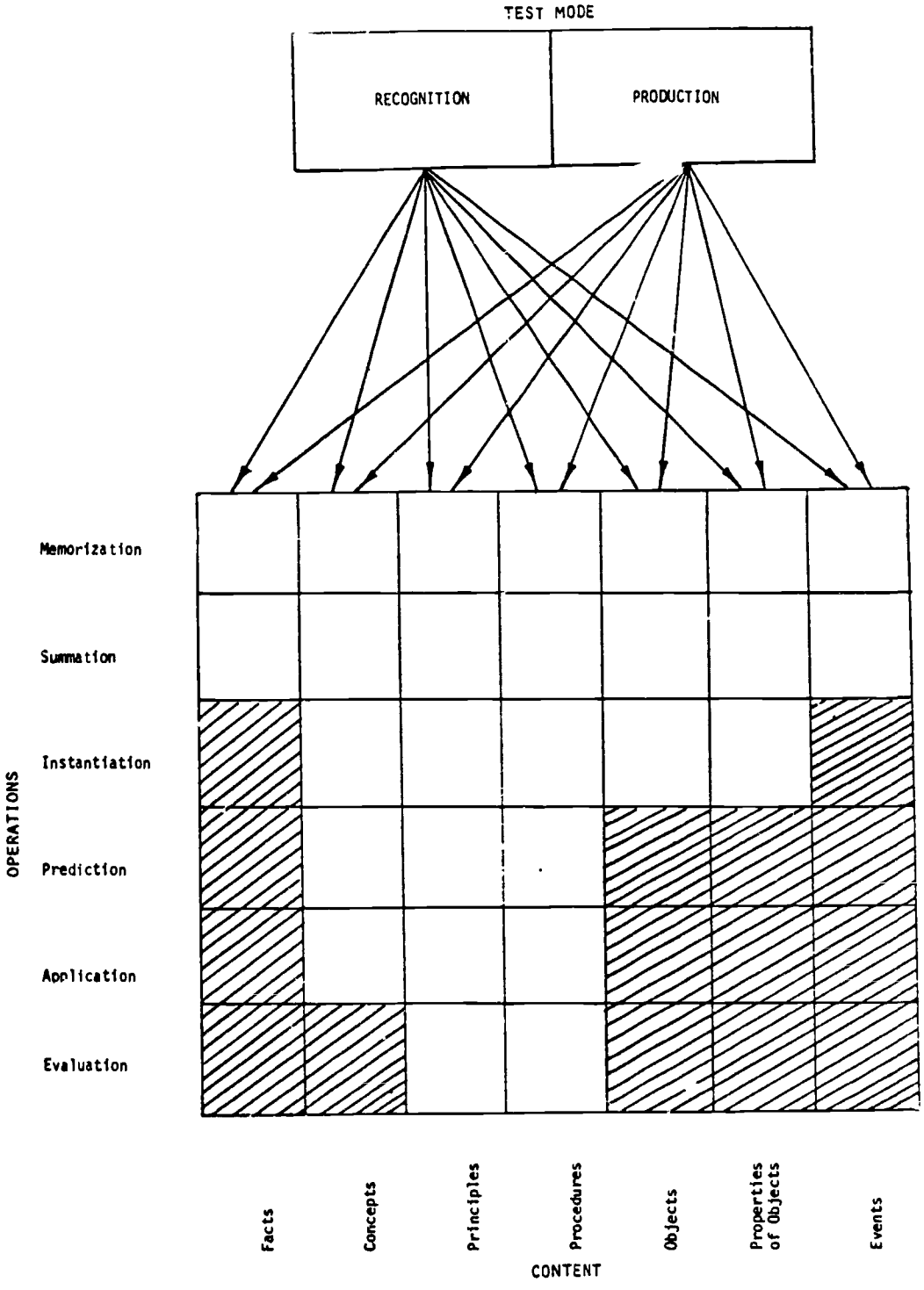
The Williams taxonomy is illustrated graphically in Figure 3. Note (see the shaded areas) that certain operations do not apply for some types of content. Williams also indicates that the recognition test mode cannot be applied to the following operation/content combinations: application/concepts, application/principles, and application/procedures.

For each unshaded cell in Figure 3, Williams lists sample generic behavioral objectives and provides testing instructions for the test modes which apply. The generic objective shows the combination of elements a behavioral objective or a test item must have in order to be assigned to that cell in the framework. *In a personal conversation, Williams requested that an oversight in his article be corrected here--the first generic objective listed in the production mode column for the "evaluation" operation (Table 1 on page 44 of his article) is by definition a recognition mode objective rather than a production mode objective as shown.*

Empirical testing of the typology suggests that the criteria stipulated for it prior to development were largely met. With only a minimum of training time, independent raters were easily able to classify, with great accuracy, objectives that had been written or selected to fit categories of the framework. Problems in classifying unclearly stated objectives can be readily

Figure 3

A GRAPHICAL ILLUSTRATION OF WILLIAMS' BEHAVIORAL TYPOLOGY OF EDUCATIONAL OBJECTIVES FOR THE COGNITIVE DOMAIN*



*Abstracted from Williams (1977). For each useful (unshaded) cell of the operations/content matrix Williams has provided generic behavioral objectives which help define the cell, integrate the three dimensions, and aid those using the typology to identify and construct objectives for any particular cell.

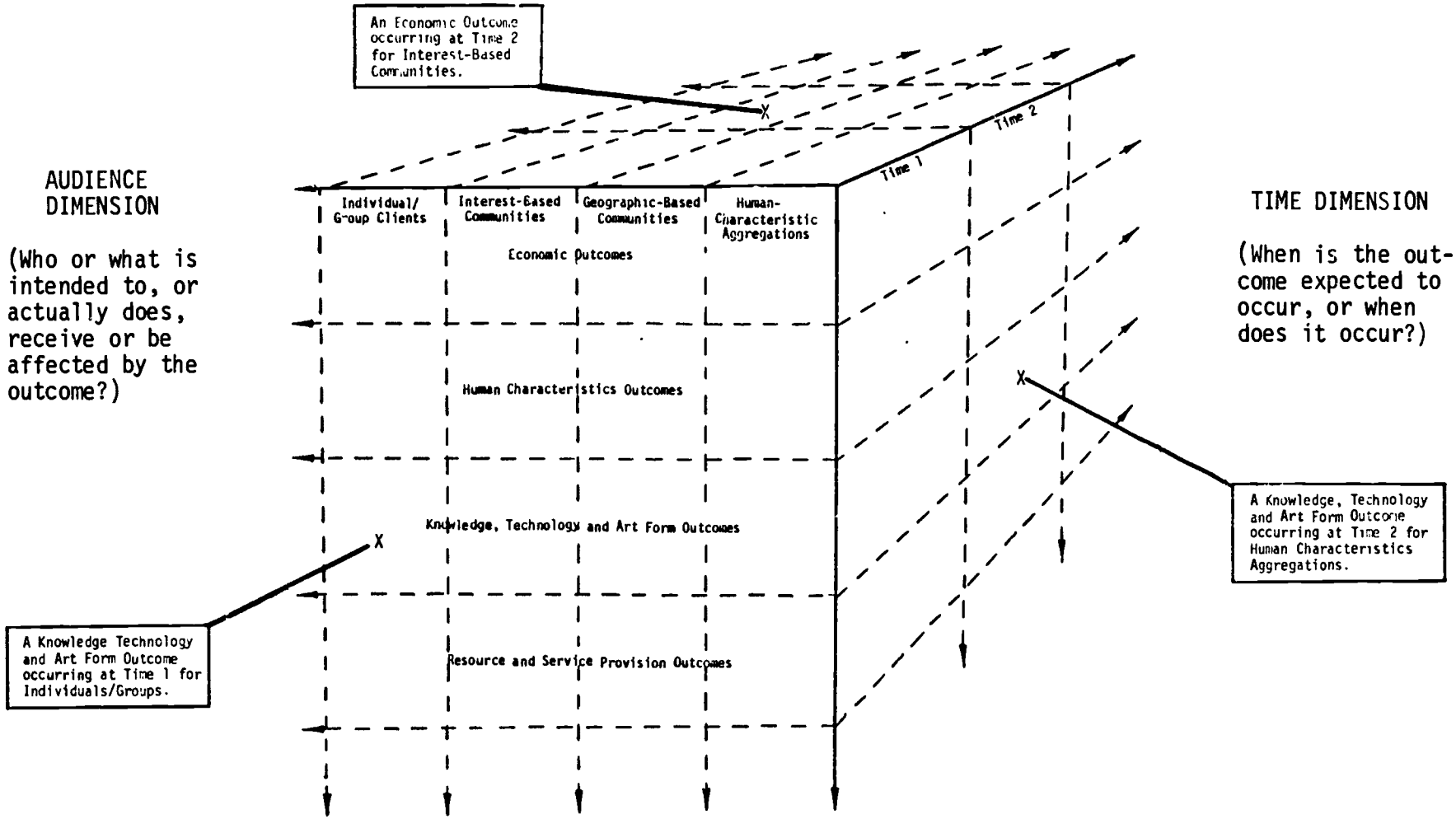
identified and solved using this typology. Anecdotal evidence suggests that the typology should have important practical use for instructors and instructional designers, as well as for those doing research on instruction, learning, and behavioral objectives. As stated by the author: "The typology not only helps individuals see new possibilities, but also directs the process of writing objectives which will elicit this competency on the part of the students" (p. 46).

The NCHEMS Outcomes Structure. The compilation and review of outcomes classifications contained in this document was done specifically for the purpose of developing a foundation for development of a system that could be used to effectively organize information about the full range of potential postsecondary education outcomes for purposes of classification, analysis, and decision making. After over two years of concentrated effort, an "outcomes structure" that includes a three-dimensional classification framework and a supporting conceptual framework for educational outcomes was published (Lenning, Lee, Micek, and Service, 1977; Lenning, 1977). The classification framework is outlined in Figures 4-6. Standard definitions, along with illustrative measures and indicators that apply, are provided for each of the detailed subcategories of the "type-of-outcome" dimension. In addition, step-by-step procedures are outlined for applying the framework to different practical uses that have been tested in a preliminary manner.

The conceptual framework revolves around a presentation of six attributes of an educational outcome (form, change status, focus, neutrality, measurability, and output/impact) and five other factors that are important for fully understanding a particular educational outcome (producer/facilitator, audience,

Figure 4

DIAGRAMMATIC OVERVIEW OF THE NCHEMS OUTCOMES STRUCTURE*



*Reprinted from Lenning, Lee, Micek, and Service (1977, p. 23).

Figure 5

CATEGORIES AND SUBCATEGORIES FOR THE "AUDIENCE" DIMENSION OF THE NCHEMS OUTCOMES STRUCTURE*

10. Individual/Group Clients--This category refers to persons or groups of persons who are direct clients of the postsecondary education unit of concern and/or their immediate associates, such as family and relatives or peers.
    11. Students--Individuals or groups of individuals who currently are enrolled in the program, institution, or system of postsecondary education.
    12. Former Students--Individuals or groups of individuals who formerly were enrolled in the program, institution, or other system of postsecondary education.
    13. Family and Relatives of Students or Former Students
    14. Peers and Associates of Students or Former Students
    15. Faculty
    16. Staff Other than Faculty
    17. Other Individual/Group Clients--An example would be an individual who is none of the above but is served by an advisory service offered by the college
20. Interest-Based Communities--This category refers to large groups that are identified as entities working toward a *well-defined interest or mission*
    21. Private Enterprise Communities--Communities where a major purpose is financial remuneration and profit--for example, corporations, small businesses, and farmers.
    22. Association Communities--Communities where members belong on the basis of affiliation rather than employment, such as unions and professional societies.
    23. Government Communities--Communities designed to administer government regulations and services, such as city hall, state department of education, and legislative communities.
    24. Nongovernmental/Public Service Communities Other than the Institution Producing the Outcome--Nonprofit service organizations, such as schools, hospitals, welfare agencies, philanthropic foundations, colleges (other than the college producing the outcome), and research organizations.
    25. Institution or Institutional Unit Producing the Outcome--The postsecondary institution and/or units within that institution that are perceived as the producer/facilitator of the outcome(s) of concern.
    26. Other Interest-Based Communities--An example would be an ad hoc coalition task force of representatives from two or more of the above areas.
30. Geographic-Based Communities--This category refers to large groups defined on the basis of *functional territorial boundaries.*
    31. Local Community--A township, city, county, metropolitan area or other type of locality having particular boundaries. It is not necessarily restricted to the legal or jurisdictional boundary, but the functional one in which the impact of the institution is (or should be) directly and physically felt. The boundaries will vary with the institution/program and outcome of concern.
    32. The State
    33. A Region--An aggregation of states or parts of states.
    34. The Nation
    35. An International Community
    36. Other Geographic-Based Communities--An example would be a research discovery that affects primarily people living in the coldest latitudes, or where it snows a lot.
40. Aggregates of People--This category refers to subpopulations of people *distinguished by particular characteristics that may indicate common concerns, needs or wants,* but who do not necessarily have a common interest or mission, and therefore do not constitute communities.
    41. Ability Level Subpopulations--Subpopulations defined according to level of ability/proficiency on general intellectual functioning or specific skills--for example, gifted, typical, disadvantaged, or skilled, semi-skilled, unskilled.
    42. Age Subpopulations
    43. Educational Level Subpopulations
    44. Income Level Subpopulations
    45. Occupation Subpopulations
    46. Physical Disability Condition Subpopulations
    47. Race Subpopulations
    48. Sex Subpopulations
    49. Other Such Aggregates
50. Other Audiences--Examples would be the natural environment that is affected by university-sponsored research (which in turn would be expected to have impacts on audiences such as individuals and communities) and populations of animals (such as the animals affected by efforts to keep depleted species from becoming extinct or by the development of veterinary medicines).

*Reprinted from Lenning, Lee, Micek, and Service (1977, p. 24).

Figure 6

CATEGORIES AND SUBCATEGORIES FOR THE "TYPE-OF-OUTCOME"

DIMENSION OF THE OUTCOMES STRUCTURE*

Category** Code Number	Entity Being Maintained or Changed
1000	ECONOMIC OUTCOMES
1100	Economic Access and Independence Outcomes
1110	Economic Access
1120	Economic Flexibility, Adaptability and Security
1130	Income and Standard of Living
1200	Economic Resources and Costs
1210	Economic Costs and Efficiency
1220	Economic Resources (including employees)
1300	Economic Production
1310	Economic Productivity and Production
1320	Economic Services Provided
1400	Other Economic Outcomes
2000	HUMAN CHARACTERISTICS OUTCOMES
2100	Aspirations
2110	Desires, Aims, and Goals
2120	Dislikes, Likes, and Interests
2130	Motivation or Drive Level
2140	Other Aspirational Outcomes
2200	Competence and Skills
2210	Academic Skills
2220	Citizenship and Family Membership Skills
2230	Creativity Skills
2240	Expression and Communication Skills
2250	Intellectual Skills
2260	Interpersonal, Leadership, and Organizational Skills
2270	Occupational and Employability Skills
2280	Physical and Motor Skills
2290	Other Skill Outcomes
2300	Morale, Satisfaction, and Affective Characteristics
2310	Attitudes and Values
2320	Beliefs, Commitments, and Philosophy of Life
2330	Feelings and Emotions
2340	Mores, Customs, and Standards of Conduct
2350	Other Affective Outcomes
2400	Perceptual Characteristics
2410	Perceptual Awareness and Sensitivity
2420	Perception of Self
2430	Perception of Others
2440	Perception of Things
2450	Other Perceptual Outcomes
2500	Personality and Personal Coping Characteristics
2510	Adventurousness and Sensitivity
2520	Autonomy and Independence
2530	Dependability and Responsibility
2540	Dogmatic/Open-Minded, Authoritarian/Democratic
2550	Flexibility and Adaptability
2560	Habits
2570	Psychological Functioning
2580	Tolerance and Persistence
2590	Other Psychological Outcomes
2600	Physical and Physiological Characteristics
2610	Physical Fitness and Traits
2620	Physiological Health
2630	Other Physical or Physiological Outcomes

CONTINUED

*Reprinted from Lenning, Lee, Micek, and Service (1977, p. 27).

**Each of the most detailed categories shown can be further subdivided into "maintenance" (a fourth digit of "1") and "change" (a fourth digit of "2").

Figure 6 (continued)

Category Code Number	Entity Being Maintained or Changed
2000	HUMAN CHARACTERISTICS (continued)
2700	Status, Recognition, and Certification
2710	Completion or Achievement Award
2720	Credit Recognition
2730	Image, Reputation or Status
2740	Licensing and Certification
2750	Obtaining a Job or Admission to a Follow-up Program
2760	Power and/or Authority
2770	Job, School, or Life Success
2780	Other Status, Recognition, and Certification Outcomes
2800	Social Activities and Roles
2810	Adjustment to Retirement
2820	Affiliations
2830	Avocational and Social Activities and Roles
2840	Career and Vocational Activities and Roles
2850	Citizenship Activities and Roles
2860	Family Activities and Roles
2870	Friendships and Relationships
2880	Other Activity and Role Outcomes
3000	KNOWLEDGE, TECHNOLOGY, AND ART FORM OUTCOMES
3100	General Knowledge and Understanding
3110	Knowledge and Understanding of General Facts and Terminology
3120	Knowledge and Understanding of General Processes
3130	Knowledge and Understanding of General Theory
3140	Other General Knowledge and Understanding
3200	Specialized Knowledge and Understanding
3210	Knowledge and Understanding of Specialized Facts and Terminology
3220	Knowledge and Understanding of Specialized Processes
3230	Knowledge and Understanding of Specialized Theory
3240	Other Specialized Knowledge and Understanding
3300	Research and Scholarship
3310	Research and Scholarship Knowledge and Understanding
3320	Research and Scholarship Products
3400	Art Forms and Works
3410	Architecture
3420	Dance
3430	Debate and Oratory
3440	Drama
3450	Literature and Writing
3460	Music
3470	Painting, Drawing, and Photography
3480	Sculpture
3490	Other Fine Arts
3500	Other Knowledge, Technology, and Art Form Outcomes
4000	RESOURCE AND SERVICE PROVISION OUTCOMES
4100	Provision of Facilities and Events
4110	Provision of Facilities
4120	Provision or Sponsorship of Events
4200	Provision of Direct Services
4210	Teaching
4220	Advisory and Analytic Assistance
4230	Treatment, Care, and Referral Services
4240	Provision of Other Services
4300	Other Resource and Service Provision Outcomes
5000	OTHER MAINTENANCE AND CHANGE OUTCOMES
5100	Aesthetic-Cultural Activities, Traditions and Conditions
5200	Organizational Format, Activity, and Operation
5300	Other Maintenance and Change

intended/unintended, functional area, and time). Two of the attributes were combined to develop the "type-of-outcome" dimension of the classification framework, and two of the "other factors" provided the basis for the second and third dimensions of the classification framework. In addition, a number of the other attributes and factors are useful in applying the structure to practical tasks on campus and elsewhere--for example, in developing lists of concrete priority outcomes.

OTHER TYPES OF CLASSIFICATIONS THAT SHOULD BE CONSIDERED

Certain types of concepts--such as programs, environment, and student and social characteristics--do not refer to the ends or objectives of education, but have important relationships to outcomes and can influence what the outcomes will be. Furthermore, a change in status of one of these concepts may in fact define a particular outcome. Therefore, it is important to consider classifications of such concepts in the development of outcome classifications. An illustrative classification and its potential importance for outcomes classification is provided in this section for each of the following concepts: programs, environment, student characteristics, and social characteristics.

Programs. As pointed out by Topping and Miyataki (1973), the outcomes of postsecondary education result from institutional programs (and combinations of programs). Therefore, they included outcome information as one of six categories of information (or measures) that can be used to describe program elements, as follows:

1. Resource Information Information about the personnel involved, the facilities and equipment utilized, and the supplies and services consumed

2. Financial Information--The funds obtained from various sources; the capital investment expenditures incurred for land, buildings, and equipment; and the operating expenditures spent for personnel, supplies, and services

3. Beneficiary Group Information--The groups of people who benefited

4. Target Group Information--The people, places, or things toward whom or at which the activities of the program element were directed

5. Activity Information--The types and levels of activities conducted

6. Outcome Information--The outcomes or products generated as a result of the activities of the program element

Under each of the thirty subprogram categories of a Program Classification Structure published by NCHEMS a year earlier (Gulko, 1972), Topping and Miyataki listed specific quantitative indicators (program measures) for each of the information types. Their approach is illustrated graphically in Figure 7. Included for each subprogram were lists of outcome indicators, relating specific postsecondary outcomes to particular programs and to the other five types of information being used to describe the programs. It must be kept in mind, however, that any particular outcome is probably the result of a combination of different programs and program components--it is a "joint product." Topping and Miyataki's diagram in Figure 7 does not make this apparent.

The NCHEMS Program Classification Structure (Gulko, 1972) split postsecondary programs up into seven major program types, three of them "primary" programs (instructional programs, organized research programs, and public service

Figure 7

ONE ALTERNATIVE OF HOW THE PROGRAM MEASURES

RELATE TO THE PROGRAM CLASSIFICATION STRUCTURE*

STRUCTURE	PROGRAM MEASURES					
PCS Program by PCS Levels	Resources	Financial	Beneficiary Groups	Target Groups	Activities	Outcomes
Instruction						
Organized Research						
Public Service						
Academic Support						
Student Service						
Institutional Support						
Independent Operations						

*Reprinted from Topping and Miyataki (1973, p. 34).

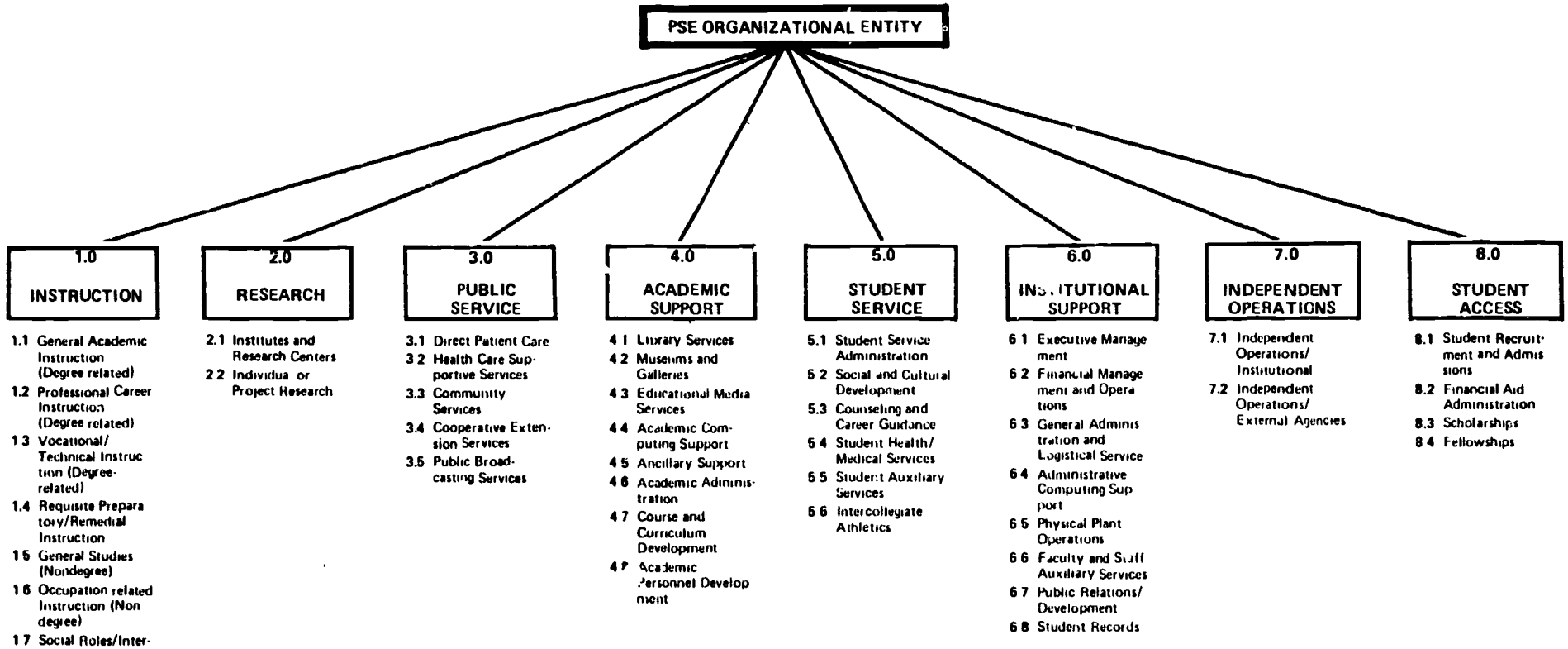
programs) and four of them "support" programs (academic support programs, student service programs, institutional support programs, and independent operations programs). These program types constituted the top level in a multilevel, hierarchical classification system having six different levels: program, subprogram, program category, program sector, program subsector, and program element. Thus, it was designed to allow information to be collected and applied at very broad or very specific programmatic levels, depending on the information need.

The NCHEMS Program Classification Structure proved to be quite useful when applied to traditional higher education programs. However, since 1972, a much broader concept than higher education, called "postsecondary education," became prominent. Also, attitudes and understandings about "program-oriented planning" were changing appreciably. Thus, planners of postsecondary education programs provided by proprietary institutions, business and industry, labor unions, community groups, and so forth, felt that this structure should be able to describe their program activities also. Furthermore, nontraditional collegiate programs such as multidisciplinary programs, external degree programs, and adult/continuing education programs started to become prominent. Therefore, a revised version of the NCHEMS Program Classification Structure was developed that more nearly meets the planning needs of the full range of postsecondary education programs (Collier, 1976), and it is illustrated in Figure 8. For the programs and subprograms in Figure 8 provision is made for coding information about subject area classification, student or instructional offering level, whether an instructional program is "for credit" or

Figure 8

REVISED

NCHEMS PROGRAM CLASSIFICATION STRUCTURE*



*Reprinted from Collier (1976, p. 4).

"not for credit," and the types of activities being carried out. The final edition of this revised version of the Program Classification Structure is scheduled to be published in the fall of 1977.

Environment. The preceding discussion about program structure dealt with a topic that some in education have referred to as "process." However, whether it is referred to as process or program, the primary focus was not on what has come to be known as "institutional environment," that is, the atmosphere or climate and surroundings in which the educational activity is taking place. Certainly the institutional environment would be expected to influence the institution's outcomes, just as would its planned activity process. In addition, however, it is not unusual for educators to treat (either implicitly or explicitly) particular environmental conditions as educational outcomes in and of themselves--for example, a high faculty-to-student ratio, a noticeable intellectual atmosphere on campus, informal personal interaction among faculty and students, the extent and overall adequacy of facilities.

One of the outcome classifications discussed later in this document (Pace and Baird, 1966) relates outcomes to environment. Holland (1966, 1973) has formulated a theory for which much empirical support has been found that postulates that there are six basic personality types and six basic environment types of the same name. When the personality pattern for a student is similar to the environment pattern at his or her college, Holland's theory predicts optimum adjustment to college and maximum student attainment. Astin

(1968) and others have also found important relationships between college environment and student outcomes.

Various questionnaires have been developed to measure institutional environment: College Characteristics Index, College and University Environment Scales, Environmental Assessment Technique, College Characteristics Analysis, Institutional Self-Study Survey, Institutional Functioning Inventory, College Student Questionnaires, Student Reactions to College, and so forth. The list of scales for each instrument could be considered to be a classification of institutional environment. On the other hand, the NCHEMS staff has surveyed the various measurement instruments in this area and developed a preliminary Inventory of Institutional Environment Variables and Measures. The categories in this inventory are presented in Figure 9. Potential measures and indicators for each category are also provided, but not in Figure 9.

Student Characteristics. The research literature on college student outcomes has indicated strong support for the "pipeline theory" of student outcomes, that much of what comes out of the college experience (output) depends primarily on what went in at the beginning of that experience (student input). It is clearly true that students' interests, abilities, motivations, and other characteristics will greatly influence the academic learning and other student outcomes that occur. In addition, however, these same student characteristics are the phenomena on which change is desired as an outcome of the educational experience. Changes on many of these characteristics are

Figure 9

PRELIMINARY VERSION OF THE NCHEMS INVENTORY OF INSTITUTIONAL ENVIRONMENTAL VARIABLES AND MEASURES*

1.0 Instructional/Research Environment

1.01 Intellectual Environment
- The intellectual climate promoted by the institution as a whole (e.g., seeking of new knowledge, synthesis of existing knowledge, reasoning).

1.02 Curriculum
- The mix, both breadth and depth, of available courses of study.

1.03 Institutional Freedom

1.04 Innovation

1.05 Academic Aptitude Mix
- The distribution of students across scholastic aptitude levels.

1.06 Instructional Processes
- The general mode of instruction that prevails in the institution (includes class size, use of graduate students as instructors, etc.).

1.07 Faculty Background and Experience

1.08 Faculty Availability to Students

1.09 Faculty Teaching Ability

1.10 Faculty Research Ability
- The ability of the faculty to undertake inquiries leading to the creation of new knowledge or the reorganization and revision of existing theories and knowledge

1.11 Faculty/Staff Values and Attitudes
- The values and attitudes of the faculty/staff relative to a wide range of variables (e.g., political, racial, ethical, religious, etc.).

1.12 Instruction/Research Resource Availability
- The accessibility of libraries, audio/visual services, museums and galleries, computing support, instructional facilities and equipment, and other instructional materials to the students and faculty/staff.

1.13 Extrainstitutional Resource Availability
- The accessibility and use of experts and facilities in the local community, state, and region.

2.0 Physical Environment
- The adequacy, maintenance, appearance, and general comfort of the physical plant and grounds.

3.0 Organizational Environment

3.01 Governance and Organization

3.02 Intrainstitutional Communications

3.03 Extrainstitutional Communications
- The exchange of ideas, information, and opinions between the institution and other institutions, agencies, and the community.

3.04 Institutional Support Programs
- The activities within the institution that provide support for other programs (e.g., administrative services, fiscal operations, physical plant operations, etc.).

3.05 Institutional Planning and Management
- The emphasis an institution gives to planning, management, resource allocation decisions, and the utilization of resources.

3.06 Student Services
- The accessibility of student services to the general student population and special interest groups (e.g., ethnic groups, vocational or avocational groups).

3.06.1 Social and Cultural Services
3.06.2 Counseling and Career Guidance
3.06.3 Supplemental Education
3.06.4 General Student Support Programs
3.06.5 Recreational Programs

4.0 Social Environment

4.01 General Student Demographic Characteristics
- General vital statistics of the student populations.

4.02 General Faculty Demographic Characteristics
- General demographic characteristics of the faculty.

4.03 Social Interactions
- The social relationships and participation in social activities among faculty, staff, and students.

4.04 Faculty/Student Health
- The physical and mental health of faculty, staff, and students.

4.05 Community Values and Attitudes
- The values and attitudes of the community relative to a wide range of variables (e.g., politics, ethnic relations, religion, etc.).

4.06 Community Socioeconomic Characteristics
- The level of material life conditions in the community (i.e., the general wealth and social status within the community).

5.0 Economic Environment

5.01 Institutional Financial Status
- The financial position of the institution.

5.02 Student Financial Aid
- The availability of financial support for students at the institution in the form of scholarships, fellowships, grants, loans, or employment.

5.03 Student Economic Status
- The general financial position of the student population.

5.04 Student Costs
- The amount of money required in the form of tuition and fees, room and board, and other expenses for student attendance at the institution.

*Reprinted from Micek and Arney (1974, p. 7).

included in the outcome and outcome-related classifications reviewed in the body of this document. Other such potential outcomes may be suggested, however, by looking at the scales of the many student characteristics instruments of various kinds which have been developed. As indicated in the previous section on environment, a listing of the scales in such an instrument could in itself be considered a classification of educational outcomes. Some of the instruments are standardized and have demonstrated empirical validity, while others are deficient in many respects, even though the constructs they purport to measure may be valid. The broad categories into which instruments measuring student characteristics (including achievement status) are grouped for review by Buros (1972) are listed in Figure 10. Development of a comprehensive inventory of student characteristics and measures has evidently yet to be attempted, but perhaps Buros would be a place to start for such an undertaking.

Social Characteristics. Figure 11 reprints a matrix from Gross (1966) that illustrates the large number, the diversity, and the complexity of social systems that can potentially be impacted by postsecondary education institutions. Any one of those categories in the figure consists of a multitude of specific social systems having unique characteristics. For example, the category of single enterprise units includes businesses and industries of all kinds, varying all the way from a popcorn stand to a large factory. They can vary in their size, their form of ownership, their organization, their philosophy, the types of workers they employ, and a whole host of other factors. To illustrate, Perrow (1970, pp. 82-83) classified industrial

Figure 10

CLASSES OF STUDENT CHARACTERISTICS FOR WHICH BUROS' SEVENTH MENTAL MEASUREMENT YEARBOOK REVIEWED INSTRUMENTS*

1. Academic Achievement and Aptitude (General)
2. Business Education Achievement
3. Character, Personality, Values, and Attitudes
4. Clerical Aptitude and Skills
5. Courtship and Marriage Readiness
6. Driving and Safety Education
7. Education Achievement
8. English Achievement
9. Fine Arts Achievement
10. Foreign Language Achievement
11. Health and Physical Education
12. Home Economics Achievement
13. Industrial Arts Achievement
14. Intelligence
15. Interests
16. Listening Comprehension
17. Manual Dexterity
18. Mathematics Achievement
19. Mechanical Ability
20. Philosophy Achievement
21. Psychology Achievement
22. Reading
23. Religious Education
24. Science Achievement
25. Sensory-Motor Skills
26. Social Studies Achievement
27. Socioeconomic Status
28. Speech and Hearing
29. Study Skills
30. Vocations
31. Miscellaneous

*Abstracted from Buros (1972).

Figure 11

ILLUSTRATION FROM GROSS (1966) OF THE VARIETY AND COMPLEXITY OF SOCIAL SYSTEMS THAT CAN BE AFFECTED BY POSTSECONDARY EDUCATION INSTITUTIONS*

TABLE 3.3
VARIETIES OF SOCIAL SYSTEMS

	*People**	*Groups**		*Formal Organizations**				*Territorial Entities†*
Levels		*Informal Groups*	*Families*	*Associations*	*Enterprises*	*Government Agencies*	*Governments*	
Micro-systems	Individuals	Small groups	Nuclear families	Single associations	Single enterprise units	Single agencies	Local governments	Villages Local communities Neighborhoods
System clusters		Mobs Crowds	Extended families	Local, state, and regional federations	Multiunit enterprises or groups	Agency groups	Intergovernmental bodies State and regional	Towns and cities Metropoli Megalopoli Intranational states and regions
System constella-tions			Tribes	National federations	National multiunit enterprises or groups	Nationwide agencies	National states (unitary) or federal	Nations
Macro-systems				International federations	International multiunit enterprises or groups	International agencies	International regions or systems "Worldwide" governmental federations	International regions World

* These columns include only *simple* systems. *Complex* systems are networks composed of formal organizations (usually different types), groups, and individuals.

† As here defined, "territorial entity" includes a variety of other social systems within its spatial boundaries. Almost every territorial entity is a complex system.

*Reprinted from "The State of the Nation: Social Systems Accounting" by B.M. Gross in Social Indicators, edited by R.A. Bauer, with permission of the publisher, M.I.T. Press, Cambridge, Massachusetts, 1966, page 173.

organization activities according to whether they were routine or nonroutine and came up with categories such as continuous processing, routine manufacturing, nonroutine manufacturing, research and development, engineering, engineering prototype development, craftmanship, and custom craftsmanship.

The "audience" dimension of the NCHEMS Outcomes Structure discussed earlier (see Figure 5) is a classification of social groupings. Too often, post-secondary education administrators and faculty do not even think about many of those categories in terms of the potential impact of their institution and programs. Once certain categories have been selected for concern, additional subgroupings may be called for to arrive at a more concrete level that will help guide outcome planning.

THE ORGANIZATION OF THE BODY OF THIS REPORT

Although educational outcomes may also be thought of as being effects on small groups of people and on private organizations, outcome-oriented classifications have generally focused only on outcomes or outcome-oriented concepts for individuals, for society, or for individuals and society. (Of course, depending on the group or organization, these may be subsumed and treated under the terms "individual" and "society.") Therefore, this compilation is organized into separate chapters that discuss classifications which focus on "Impacts on Individuals," "Impacts on Society," and "Impacts on Individuals and Society."

Within every chapter of the document, each classification system or model is discussed according to the time it entered the literature. In the initial stages of development of the compilation, it was felt that a more meaningful progression of discussion would be desirable. Strong consideration was given to ordering discussion according to the sophistication and complexity of the classification, that is, discussing the simpler, least sophisticated systems first and the most complex and sophisticated systems last. However, there was a serious judgment problem with doing this--for example, some systems were more complex in some ways but simpler in others. Furthermore, some of the later, less sophisticated systems were greatly influenced by earlier, more complex and sophisticated systems. Thus, the 1961 Educational Policies Commission Classification, which will be discussed shortly, is far less complex and well thought out but was undoubtedly influenced by the Bloom taxonomy published in 1956. Not only would a time dimension make the order of discussion clear cut, but it would allow any influences of earlier classifications to be presented more effectively. It was also felt that using a time dimension would, in the majority of cases, lead to discussion of less complicated classifications first.

Chapter II

Impacts on Individuals: Classifications Focusing on Intellectual Development

A wide variety of specific educational outcomes can be hypothesized for students enrolled in postsecondary education. These outcomes, which supposedly result in outcomes for the person after graduation, are generally the main reasons students enroll in postsecondary education (for example, see Sugarman, 1969). Postgraduate benefits that accrue to the family of the graduate and directly to the business firm or other organization that hires the graduate can also be included in this category. Such outcomes are generally more similar to individual outcomes than they are to outcomes for society, although like outcomes for individuals they may often be expected to eventually lead to social impacts.

Some of the classification systems reviewed have been limited to the effects on the thinking and learning of individuals that education is supposed to bring about. Included in this area are effects on the knowledge and understanding a person has acquired and cognitive skills such as analyzing and problem solving, comprehension, abstract thinking, creativity, planning, and so forth. Classifications of such outcomes will be reviewed here.

The Harvard List of General Education Behavioral Goals. In 1943, President James Conant of Harvard appointed a University Committee on the Objectives

of General Education in a Free Society. In their report, the Committee listed four behavioral goals for general education on which Harvard should focus (Harvard Committee, 1945). Those goals are listed in Figure 12.

Figure 12

GENERAL EDUCATION GOALS LISTED BY THE HARVARD COMMITTEE*

General education at Harvard should help students:

1. To think effectively
2. To communicate thought
3. To make relevant judgments
4. To discriminate among values

*Abstracted from Harvard Committee (1945).

The Bloom and Associates Taxonomy of Cognitive Objectives. This taxonomy, more than any other, caused educators to become interested in the classification of educational objectives. It has probably been used, critiqued, and empirically tested more than any other educational taxonomy, and is by far the best known.

Bloom and his associates developed their taxonomy to cover the cognitive domain, one of what they perceived to be three areas of individual student

development--the other two areas being the affective domain and the psychomotor domain. Their taxonomy was especially intended to help educators with communication, curriculum development, and evaluation. Ideas for the taxonomy were gathered and discussed at a series of small-group meetings from 1949-53 (two dozen people participated in those meetings) that grew out of an informal meeting of "college examiners" attending the 1948 convention of the American Psychological Association. A committee of five was then delegated the task of developing the taxonomy, which was published three years later (Bloom, 1956). They began by putting together an extensive list of educational objectives through surveying the literature and looking at the objectives of their own institutions.

Krathwohl (1964), in an article discussing the taxonomy's use in curriculum building, characterized the taxonomy as an "educational-logical-psychological" classification system. Payne (1968) agreed with this characterization and expanded it as follows:

> . . . The taxonomy represents an "educational" system as the categories correspond to those about which a teacher is concerned in developing curriculum and selecting learning experiences. It is "logical" because its categories are precisely defined and can be subdivided. It is "psychological" because it is consistent with current thought in the psychological sciences, although it is not tied to any particular theory. [P. 16]

Four major principles guided the development of the taxonomy. First, the distinctions between the classes of the taxonomy were to conform to the distinctions made by teachers (in what they say and do) among types of student behavior. Second, the taxonomy was to be logical (have

logical and logically ordered subdivisions) and internally consistent (terms to have a consistent definition and to be used in a consistent manner throughout the taxonomy). Third, the taxonomy was to be consistent with the current understanding of psychological phenomena. Fourth, the taxonomy had to be a "purely descriptive scheme in which every type of educational goal can be represented in a relatively neutral fashion" (Bloom, 1956, p. 14).

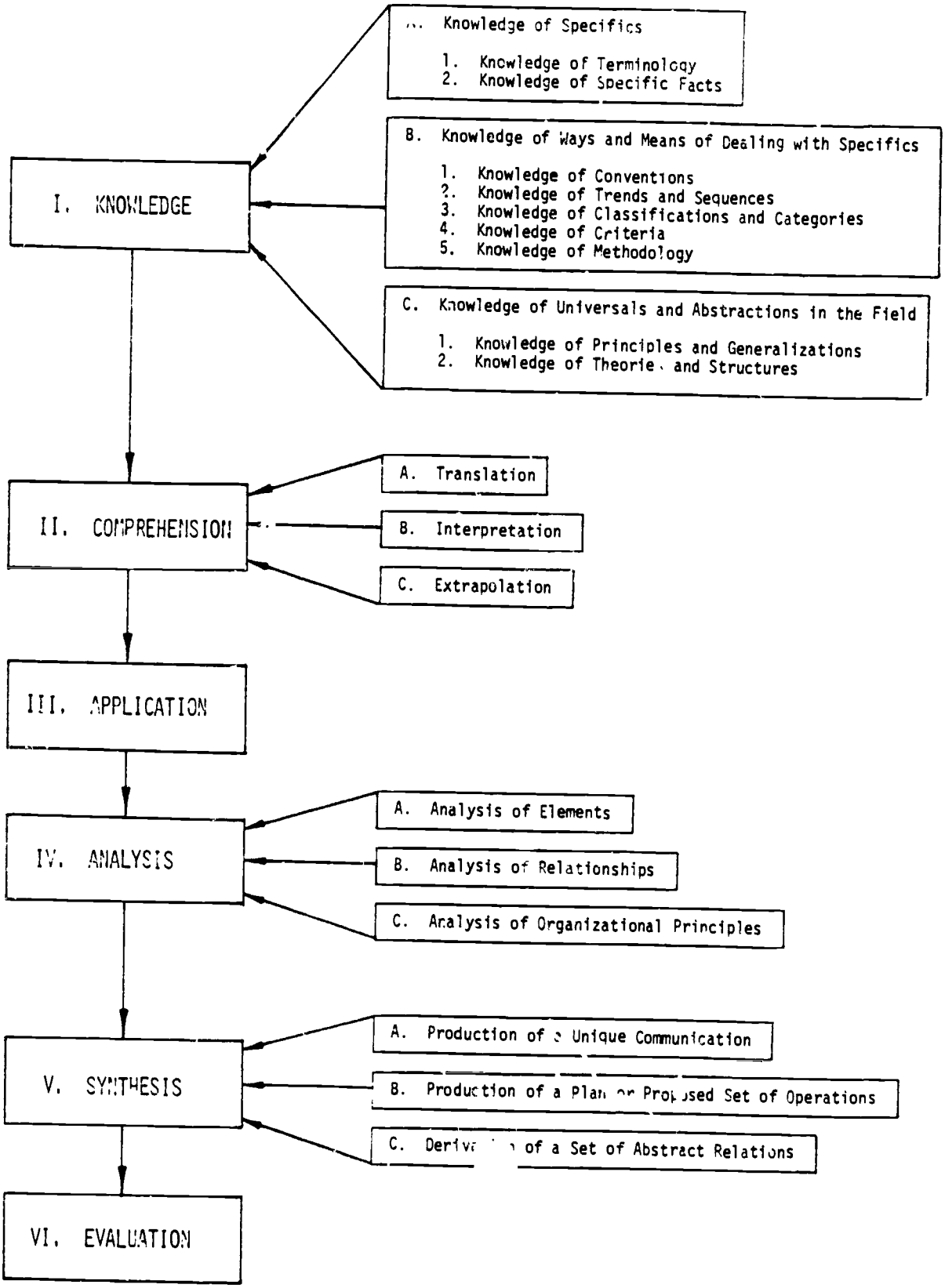
The taxonomy consists of a hierarchy of six major classes of cognitive (intellectual) learning that extend from single mental processes on one end of a continuum to complex thinking and learning processes on the other end of the continuum. In addition to being arranged from the simple to the complex, the categories go from the concrete to the abstract. Furthermore, they are supposedly cumulative, in that the skills characterizing a level require that the skills from the less complex levels have been mastered. For example, mastery at the knowledge level is necessary before mastery can take place at the comprehension level, which in turn is necessary for mastery at the application level.

Four of the six classes of the Bloom taxonomy are subdivided into more specific subclasses that also are supposedly hierarchical in nature. A skeleton of the taxonomy is presented in Figure 13.

As indicated previously, many studies of the validity of this "learning taxonomy" have been conducted. But as has been discussed by Kropp, Stoker, and Bashaw (1966), there are many serious problems in validating such a

Figure 13

THE BLOOM TAXONOMY OF COGNITIVE OBJECTIVES*



*Abstracted from Bloom (1956).

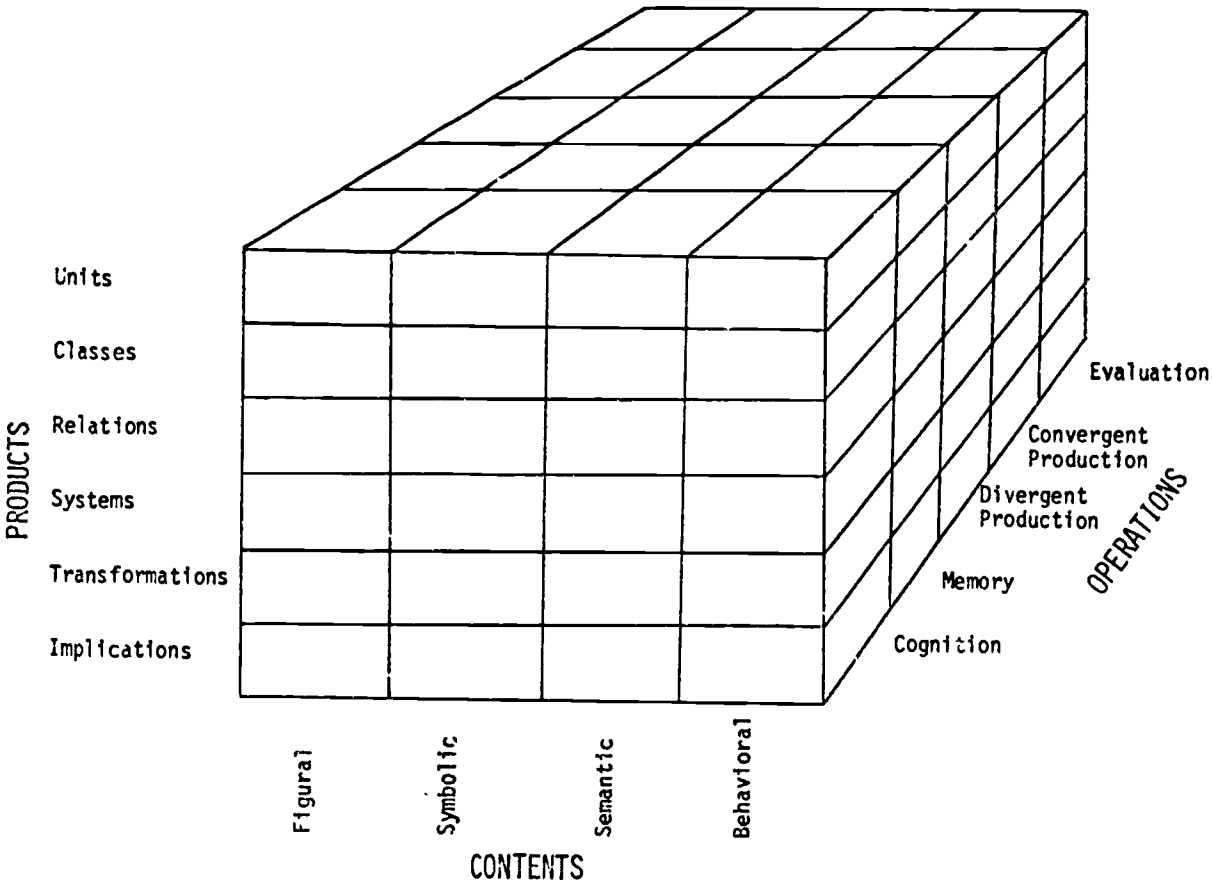
taxonomy. For an annotated bibliography that summarizes some of the major studies, see Cox and Unks (1967). The taxonomy has been found to be useful. Also, there has been empirical support for the order of the major categories toward the more simple, concrete end of the continuum. There have been difficulties in studying the validity of the order at the other end of the continuum, however, and the support has been very weak in some cases (for example, see Johnson, 1966).

Guilford's Structure of Intellect. Over a period of years Guilford and his associates had been working on a "structure of intellect" (1956), and this effort finally resulted in a cubical model to represent the structure (1959, 1967). It was discovered by factor analysis that there seemed to be three general ways they could classify the various factors that had been ascertained in their previous factor analytic studies: (1) according to the basic kind of process or operation performed, (2) according to the kind of material or content involved, and (3) according to the general kinds of products involved. Five general classes were found in the first case, four in the second case, and six in the third. Guilford's model is presented in Figure 14.

The 1961 Proclamation of the Educational Policies Commission. In 1961, the Educational Policies Commission of the National Education Association and of the American Association of School Administrators published a statement about what they saw to be the central and overriding purpose of American education--the development of the rational powers of man. In

Figure 14

GUILFORD'S STRUCTURE OF INTELLECT*



*Adapted from Guilford (1959, 1967).

the Foreword to their document they stated that they did not mean to "mark other educational purposes as subordinate but rather to convey the idea that it is the thinking person who can bring all valid purposes into an integrated whole, that rationality is a means as well as an end."

The statement of the Commission was not based on concrete, empirical data (it is a philosophical statement of the perceptions of the Commission members), and no members of that group thought of themselves as developing a classification scheme for this purpose of education. Their statement did, however, include a breakdown into what they perceived to be the components of rational development. Furthermore, although it was undoubtedly influenced greatly by the Bloom taxonomy, it added something new:

> The free man, in short, has a rational grasp of himself, his surroundings, and the relation between them . . . [an individual's] strength springs from a thinking, aware mind, a mind that possesses the capacity to achieve aesthetic sensitivity and moral responsibility, an enlightened mind. These qualities occur in a wide diversity of patterns in different individuals. It is the contention of this essay that central to all of them, nurturing them and being nurtured by them, are the rational powers of man. . . . There is a unique, central role for the rational powers of an individual, however, for upon them depends his ability to achieve his personal goals and to fulfill his obligations to society. <u>These powers involve the processes of recalling and imagining, classifying and generalizing, comparing and evaluating, analyzing and synthesizing, and deducing and inferring</u>. These processes enable one to apply logic and the available evidence to his ideas, attitudes, and actions, and to pursue better whatever goals he may have. [Pp. 4-5]

Although it does not go into detail or contain definitions as the Bloom taxonomy does, and although it was undoubtedly greatly influenced by that taxonomy, the Commission's statement takes a different classification approach and interjects new concepts into the scheme of things. The

pairs of concepts listed could be considered to be in hierarchical order from most simple and concrete to most complex and abstract, but within each pair there also could be considered to be a similar hierarchical arrangement, such as "recalling" feeding into "imagining," "classifying" feeding into "generalizing," and so forth. In addition, as one looks at the pairs, it seems that the concepts within a pair are generally more similar to one another than they are to concepts within other pairs.

There are discrepancies between the order presented here and the order in the Bloom taxonomy for some of the same concepts. For example, in the Bloom taxonomy, "evaluation" is located lower in the hierarchy (more toward the abstract end) than "analysis" and "synthesis," while in the Commission's listing "evaluation" comes before "analysis" and "synthesis."

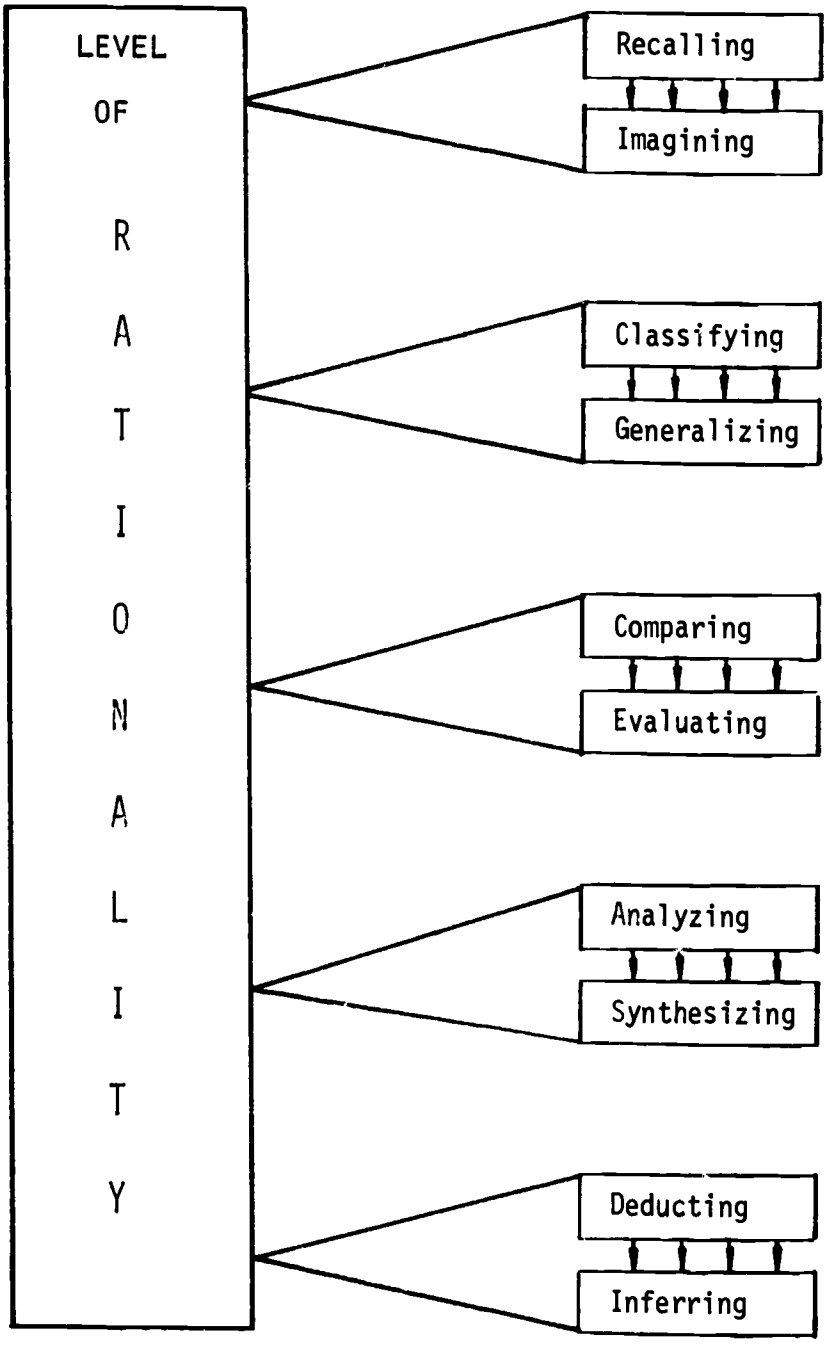
The Commission's "classification system," if it were formalized, could look something like the presentation in Figure 15. There are other ways it could be presented, also.

Taba, Levine, and Elzey's Categories of Thought Processes. Taba, Levine, and Elżey (1964) made a comprehensive review of the literature on studies of thinking, and based on that formulated categories of thought processes for use in a study on the thinking of elementary school children. In addition, they broke each process down into subprocesses or operations. This classification of thought processes is presented in Figure 16.

Figure 15

COMPONENTS OF COGNITIVE LEARNING SUGGESTED

BY THE EDUCATIONAL POLICIES COMMISSION*



*Abstracted from Educational Policies Commission 1961, pp. 4-5).

Figure 16

TABA, LEVINE, AND ELZEY'S CATEGORIES OF THOUGHT PROCESSES*

A. Grouping and Classification of Information (concept development)

1. Differentiating the specific properties of objects or events.
2. Grouping
3. Labeling

B. Interpretation of Data and Making Inferences

1. Assembling concrete information (recall and retrieval of previously learned information for assimilating new information)
2. Explaining or giving reasons for certain events
3. Relating different points of processed information
4. Formulating a generalization or inference

C. Application of Known Principles and Facts to Explain New Phenomena

1. Predicting
2. Establishing the parameters either of logical relationships or of information by which to test the validity of predictions

*Abstracted from Taba, Levine, and Elzey (1964).

Gagné's Learning Model. Gagné (1965, 1970) also developed a hierarchical classification of different types of cognitive learning that extend from the more simple and concrete to the more complex and abstract. However, his eight major categories differ appreciably from the Bloom categories and the Commission's categories.

Gagné took a much more empirical approach to the development of his classification system than did the Bloom committee. (Logic had been the primary basis of the Bloom taxonomy.) This is pointed out in the following quote from Gagné (1970):

> The plan to be followed in this volume is to classify some everyday observations about learning, and thus to identify and distinguish some varieties of situations in which learning occurs. Once these varieties of learning have been identified, an account can be given of the conditions that govern the learning occurrences. This will lead to a description of the factors that determine learning, derived insofar as possible from available evidence in controlled experimentation. By this means it will be possible to differentiate several kinds of learning, each requiring a different set of conditions for its occurrence. [Pp. 20-21]

Gagné also appears to have relied more on psychological theory than did the Bloom group, even though one of the guiding principles of that group had been to have its taxonomy classifications conform to the current understanding about psychological phenomena. Gagné spent much of one chapter in his 1970 book reviewing various theoretical traditions in psychology that applied to learning, and those traditions clearly influenced the developmental direction taken by his classification system.

Similarly to the Bloom and associates idea, each type of learning in the Gagné scheme cannot develop in an individual until the more simple, concrete types of learning ability have been developed (they are pre-requisites). Furthermore, as pointed out in the above quote, each of the eight types of learning requires a specific set of conditions for it to occur. In addition, each type of learning is the result of a particular

capability that is not mastered until the first time this learning takes place.

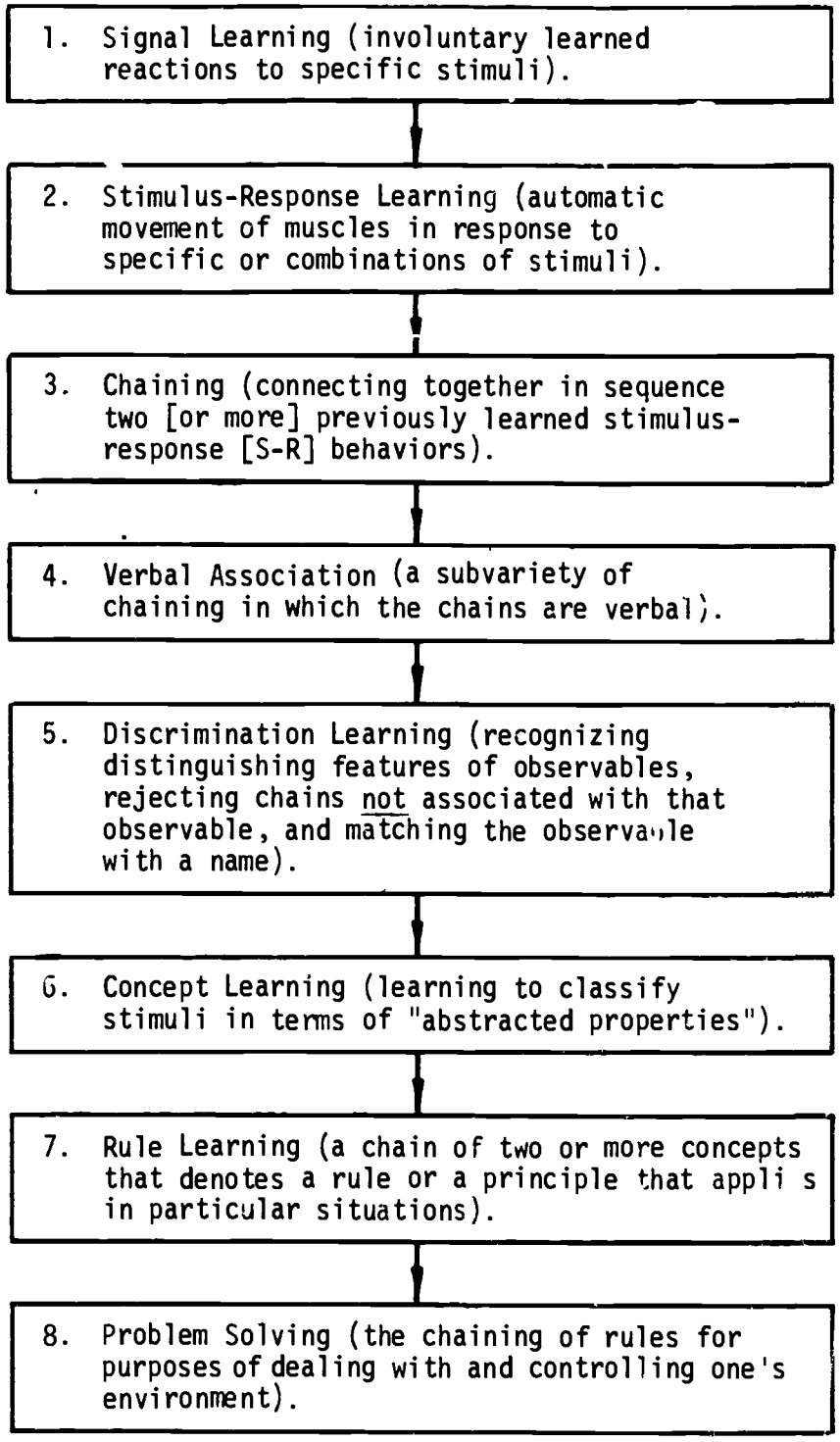
All eight learning types involve a common time sequence that has four components. The four phases of a learning sequence are: (1) Apprehending Phase (attending to the stimulus, perceiving the stimulus, and coding the stimulus), (2) Acquisition Phase (acquiring performance capability), (3) Storage Phase (memory and retention of the new capability), and (4) Retrieval Phase (recognition and recall of the stored capability and transferring the capability to new situations).

Gagné's hierarchical categories of learning are presented in Figure 17. Note that none of his major classes of learning are broken down into subclasses. For each class, however, Gagné listed the specific necessary conditions for that type of learning to occur, and these could have been included in the diagram. For example, for "chaining" there are four conditions: (1) each stimulus-response connection (link) of the chain must have been learned previously, (2) the learner must reinstate the links one after another in the proper order, (3) the links in the chain must be executed close together in time and in succession, and (4) repetition must occur.

The Florida Taxonomy of Cognitive Behavior. In 1967, staff members at the University of Florida developed a system that would enable an observer in a classroom to efficiently and effectively view and record cognitive

Figure 17

GAGNÉ'S LEARNING MODEL*



*Abstracted from Gagné (1965, 1970).

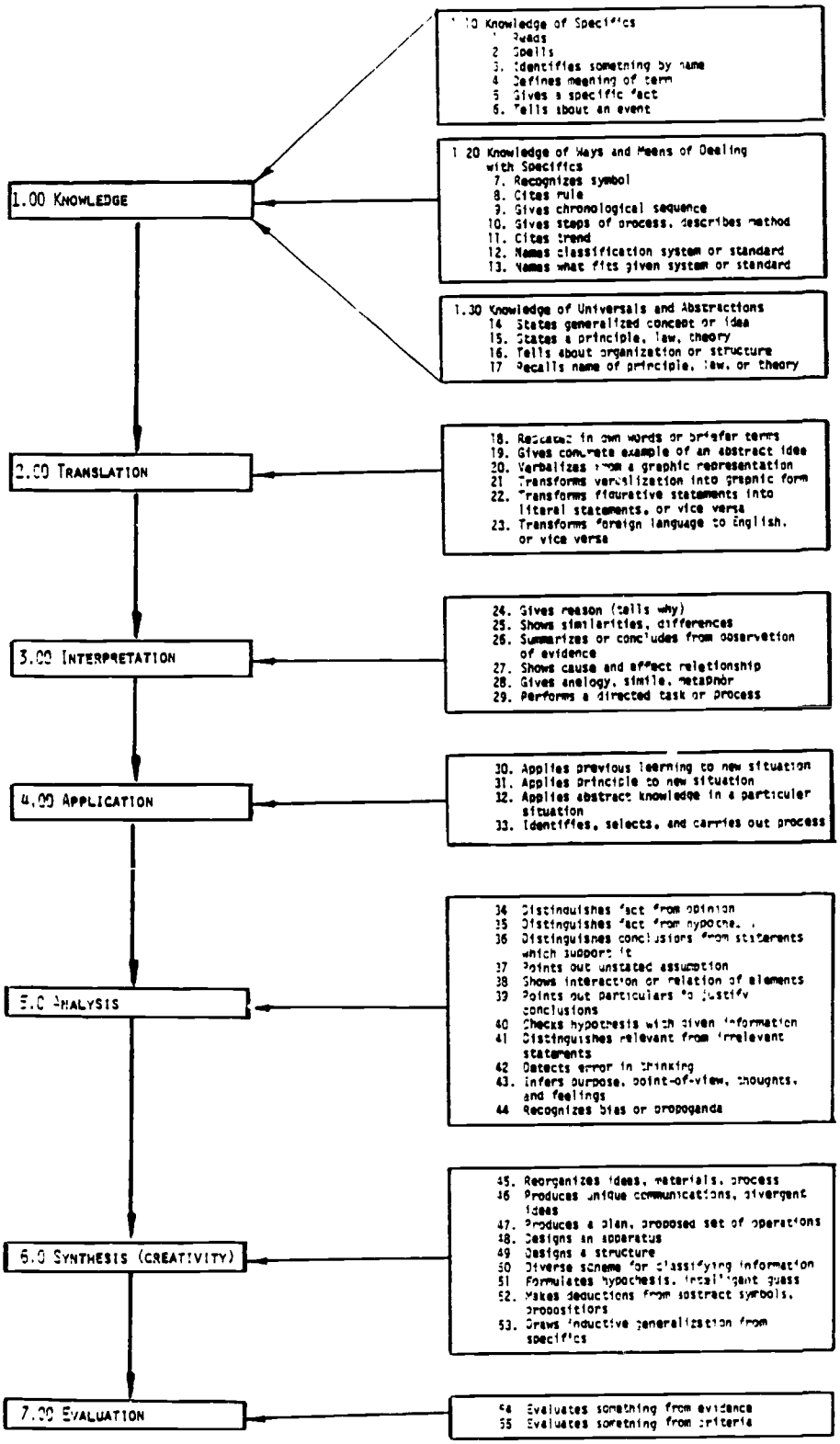
behavior in relevant terms (Webb, 1970). The Bloom taxonomy was modified, based on later research, into a taxonomy with seven major levels. Since it had been found that translation and interpretation, two components of comprehension in the Bloom schema, represent distinct kinds of thinking, the Florida group treated these two concepts as separate levels in their instrument. In addition, some of the subcategories are different from the Bloom taxonomy.

A point was made that although their classification is cumulative and follows a complexity continuum, it does not utilize a concreteness-abstractness continuum. They point out that "it is perfectly possible to deal with concrete objects at a complex intellectual level or to have knowledge of a highly abstract idea, which would represent the lowest cognitive level" (p. 26). The Florida taxonomy was tried out in pre-service and in-service education in Alabama, Florida, Georgia, and West Virginia, and has been found to be useful for the purposes for which it was designed. The taxonomy is presented in Figure 18.

Payne's Lists of Cognitive Objectives from Ebel and the AAAS Commission on Science Education. In his book on specifying and measuring learning outcomes, Payne (1968) categorized Ebel's (1965) discussion of cognitive educational objectives into a list of seven objectives. He also looked at the school science curriculum developed during the middle 1960s by the Commission on Science Education of the American Association for the Advancement of Science (AAAS). They had prepared curriculum models

Figure 18

THE FLORIDA TAXONOMY OF COGNITIVE BEHAVIOR*



*Abstracted from Webb (1970).

structured under the classes of outcomes desired. For various outcome areas appropriate to the primary grades and to the intermediate grades in elementary school, they had prepared booklets of behavioral objectives, for use by science teachers, that were published under the title Science--A Process Approach. For the primary grades, science education behavioral objectives were developed for the following outcomes: observing, recognizing and using number relations, measuring, recognizing and using space/time relations, classifying, communicating, inferring, and predicting. For the intermediate grades, the cited outcomes were formulated hypotheses, making operational definitions, controlling and manipulating variables, experimenting, formulating models, and interpreting. Payne included in his book a list of nine overall cognitive objectives that were based on the classes of objectives formulated by the AAAS Commission.

Payne's listings of the Ebel and AAAS cognitive objectives are presented in Figure 19. Although they are both simply lists of objectives, they constitute two quite different classifications of cognitive objectives.

Figure 19

PAYNE'S LISTS OF COGNITIVE OBJECTIVES FROM

EBEL AND THE AAAS COMMISSION ON SCIENCE EDUCATION*

Ebel (1965)	AAAS Commission (mid-sixties)
1. Understanding of terminology, vocabulary	1. Identifying
2. Understanding of fact or descriptive detail	2. Distinguishing
3. Ability to explain or illustrate	3. Naming
4. Ability to calculate	4. Ordering
5. Ability to predict under specified conditions	5. Describing
6. Ability to recommend appropriate action	6. Applying rules
7. Ability to make an evaluation judgment	7. Stating rules
	8. Demonstrating
	9. Interpreting

*Excerpted from Payne (1968, p. 24).

Chapter III

Impacts on Individuals: Classifications Focusing on Emotional, Cultural, and Social Development

A person may be a genius intellectually, possessing an abundance of all the cognitive skills referred to in the previous section, and still be a complete failure in our society because he or she lacks feelings, maturity, interpersonal skills, and so forth. Almost every event in a person's life involves feeling and emotion, and most psychologists and counselors would consider it important that a person have many such affective qualities, and that they not be superficial and suppressed. On the other hand, these advisers would contend that it is also important that one be able to control his or her emotions (maturity), using cognitive reasoning or "common sense," so that they do not get "out of hand." Autonomy, flexibility, openness, willingness to take a stand, and independent attitudes and values, on one hand, are tempered by such factors as social and cultural teachings and expectations (socialization) concerning individual responsibilities, attitudes, values, interpersonal relations, practices, and actions. Conceivably, if proper development in this broad area takes place, what should result is a happy, satisfied, secure (both vocationally and mentally), confident, interpersonally effective, and socially concerned individual. Classifications that have focused on this type of development are reviewed in this section.

The Cardinal Principles of Education Set Forth in 1918. In 1913, a Commission on the Reorganization of Secondary Education was formed, and in 1918 the Commission issued a report that listed what they considered to be the main objectives of education. The Commission made it clear that these applied to all levels of education, not just to secondary education. The emphasis in these was completely on the noncognitive. Although the objective "command of fundamental processes" included mention of reading, writing, arithmetical computations, and the elements of oral and written expression, and these have definite cognitive components, even here the cognitive was not emphasized. Of course, preparing people for a vocation will have a large cognitive component for many people also, but once again the cognitive aspect was played down. The Commission's thinking is embodied in the following quote:

> The purpose of democracy is so to organize society that each member may develop his personality primarily through activities designed for the well-being of his fellow member, and of society as a whole. . . . In order to determine the main objectives that should guide education in a democracy it is necessary to analyze the activities of the individual. Normally he is a member of a family, of a vocational group, and of various civic groups, and by virtue of these relationships he is called upon to engage in activities that enrich the family life, to render important vocational services to his fellows and to promote the common welfare. It follows, therefore, that worthy home-membership, vocation, and citizenship, demand attention as three of the leading objectives. . . . Leisure, if worthily used, will recreate his powers and enlarge and enrich life, thereby making him better able to meet his responsibilities. . . . To discharge the duties of life and to benefit from leisure, one must have good health. . . . There are various processes, such as reading, writing, and arithmetical computations, and oral and written expression, that are needed tools in the affairs of life. . . . And, finally, the realization of the objectives already named is dependent upon ethical character. [Pp. 9-10]

The Commission believed that "distinguishing and naming" these objectives would direct more attention and effort to their fulfillment. And it was clear that they perceived that these should definitely be the "principal aims in education." The seven principal aims of education set forth by the Commission are listed in Figure 20. There was no indication why they listed and numbered them in this order.

Figure 20

THE CARDINAL PRINCIPLES OF EDUCATION SET FORTH IN 1918*

1. Health
2. Command of Fundamental Processes
3. Worthy Home Membership
4. Vocation
5. Citizenship
6. Worthy Use of Leisure
7. Ethical Character

*Abstracted from Commission on the Reorganization of Secondary Education (1918).

Bobbitt's Ten Goals for Education. In his History of Problems of Education, Brubacher (1966) discussed a set of educational goal areas that had been

proposed by Bobbitt (1924) in the early twenties, which expand on the Seven Cardinal Principles discussed previously. Brubacher states:

> To arrive at sound educational objectives and thence at an effective curriculum Bobbitt proposed to make an "activity analysis" of the broad range of human experience into its major fields. After a wide examination of materials ranging from newspapers to the Encyclopedia Britannica and from literature to science, he proposed ten major fields. In arriving at these ten he was apparently no little influenced by the Seven Cardinal Principles of Secondary Education, which preceded his own list by half-dozen years; these principles in turn bore an obvious resemblance to Spencer's What Knowledge Is Most Worth? [Pp. 283-284]

Bobbitt's ten goals are listed in Figure 21.

Figure 21

BOBBITT'S TEN GOALS FOR EDUCATION*

1. Language Activities
2. Health
3. Citizenship
4. General Social Contacts
5. Keeping Mentally Fit
6. Leisure Occupations
7. Religious Activities
8. Parental Responsibilities
9. Unspecialized Practical Activities
10. Vocational Activities

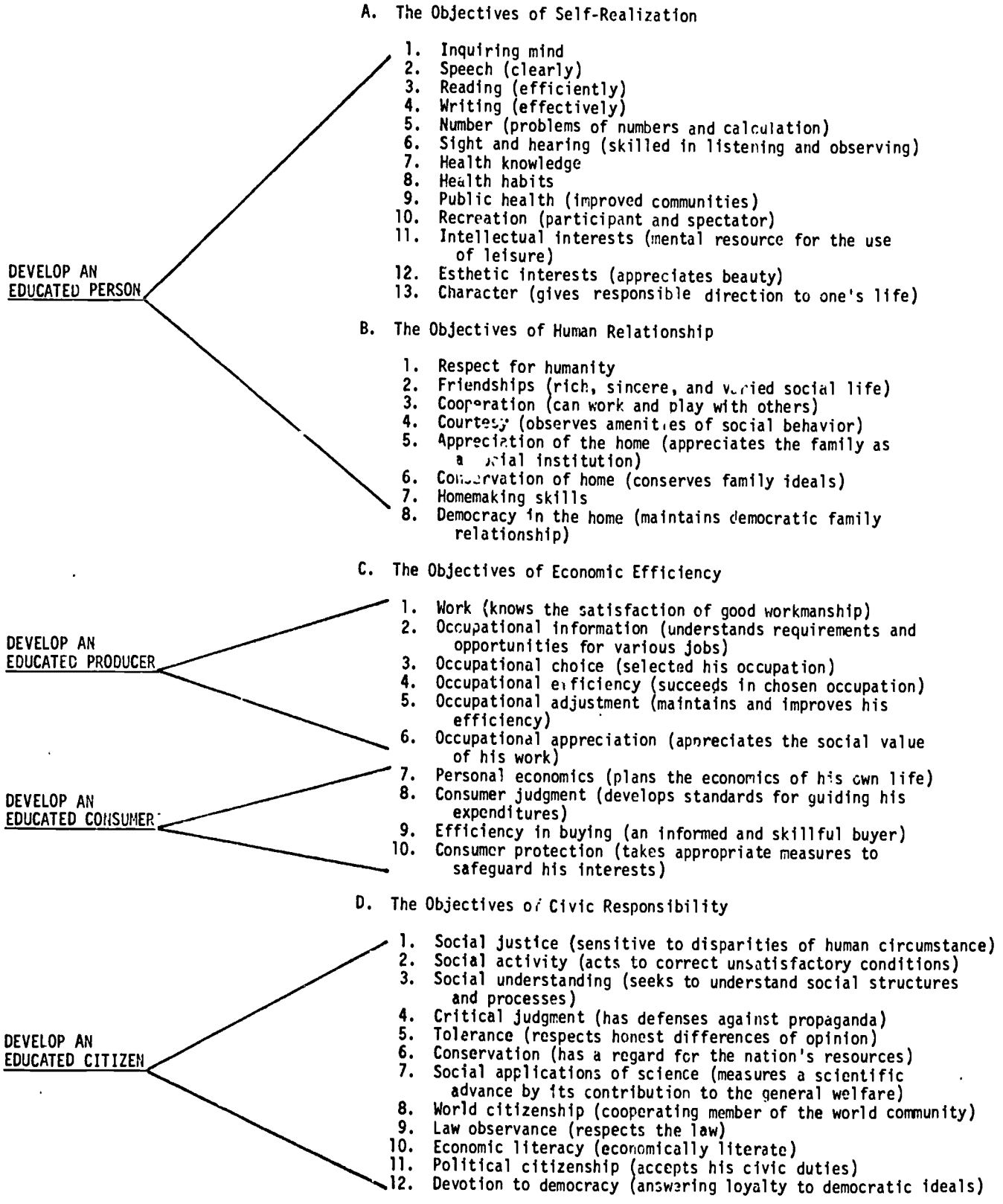
*Excerpted from Brubacher (1966, p. 284).

The Principal Aims of Education Set Forth in 1938. In 1938, the Educational Policies Commission of the National Education Association published a book that discussed in great detail what they saw as the primary purposes of education in American democracy. They formulated a large number of objectives and organized them under four headings: self-realization, human relationships, economic efficiency, and civic responsibility. However, none of the objectives emphasized cognitive development. The classification prepared by the Commission is shown in Figure 22.

The Krathwohl, Bloom, and Masia Taxonomy of Affective Objectives. Because of the success of the Bloom taxonomy of cognitive objectives, and because most of the affective goals mentioned in the literature were so general that they had little real meaning, Krathwohl, Bloom, and Masia (1964) proceeded with the development of a similar taxonomy for the affective domain. Not only were the affective objectives listed in the literature far less clear and specific than had been the case in the cognitive domain (in addition, little empirical research or evaluation activities had been conducted in this area), but appropriate continuums for classifying and ordering affective objectives were not as apparent as had been the case for the cognitive domain; "simple to complex" and "concrete to abstract" did not seem appropriate. Finally, after an analysis of the range of meanings for terms like interests, attitudes, values, appreciation, and adjustment, the concept of "internalization" (similar in concept to the commonly referred to "socialization") was used.

Figure 22

THE PRINCIPAL AIMS OF EDUCATION SET FORTH IN 1938*



A. The Objectives of Self-Realization

1. Inquiring mind
2. Speech (clearly)
3. Reading (efficiently)
4. Writing (effectively)
5. Number (problems of numbers and calculation)
6. Sight and hearing (skilled in listening and observing)
7. Health knowledge
8. Health habits
9. Public health (improved communities)
10. Recreation (participant and spectator)
11. Intellectual interests (mental resource for the use of leisure)
12. Esthetic interests (appreciates beauty)
13. Character (gives responsible direction to one's life)

B. The Objectives of Human Relationship

1. Respect for humanity
2. Friendships (rich, sincere, and varied social life)
3. Cooperation (can work and play with others)
4. Courtesy (observes amenities of social behavior)
5. Appreciation of the home (appreciates the family as a social institution)
6. Conservation of home (conserves family ideals)
7. Homemaking skills
8. Democracy in the home (maintains democratic family relationship)

C. The Objectives of Economic Efficiency

1. Work (knows the satisfaction of good workmanship)
2. Occupational information (understands requirements and opportunities for various jobs)
3. Occupational choice (selected his occupation)
4. Occupational efficiency (succeeds in chosen occupation)
5. Occupational adjustment (maintains and improves his efficiency)
6. Occupational appreciation (appreciates the social value of his work)
7. Personal economics (plans the economics of his own life)
8. Consumer judgment (develops standards for guiding his expenditures)
9. Efficiency in buying (an informed and skillful buyer)
10. Consumer protection (takes appropriate measures to safeguard his interests)

D. The Objectives of Civic Responsibility

1. Social justice (sensitive to disparities of human circumstance)
2. Social activity (acts to correct unsatisfactory conditions)
3. Social understanding (seeks to understand social structures and processes)
4. Critical judgment (has defenses against propaganda)
5. Tolerance (respects honest differences of opinion)
6. Conservation (has a regard for the nation's resources)
7. Social applications of science (measures a scientific advance by its contribution to the general welfare)
8. World citizenship (cooperating member of the world community)
9. Law observance (respects the law)
10. Economic literacy (economically literate)
11. Political citizenship (accepts his civic duties)
12. Devotion to democracy (answering loyalty to democratic ideals)

*Abstracted from Educational Policies Commission (1938).

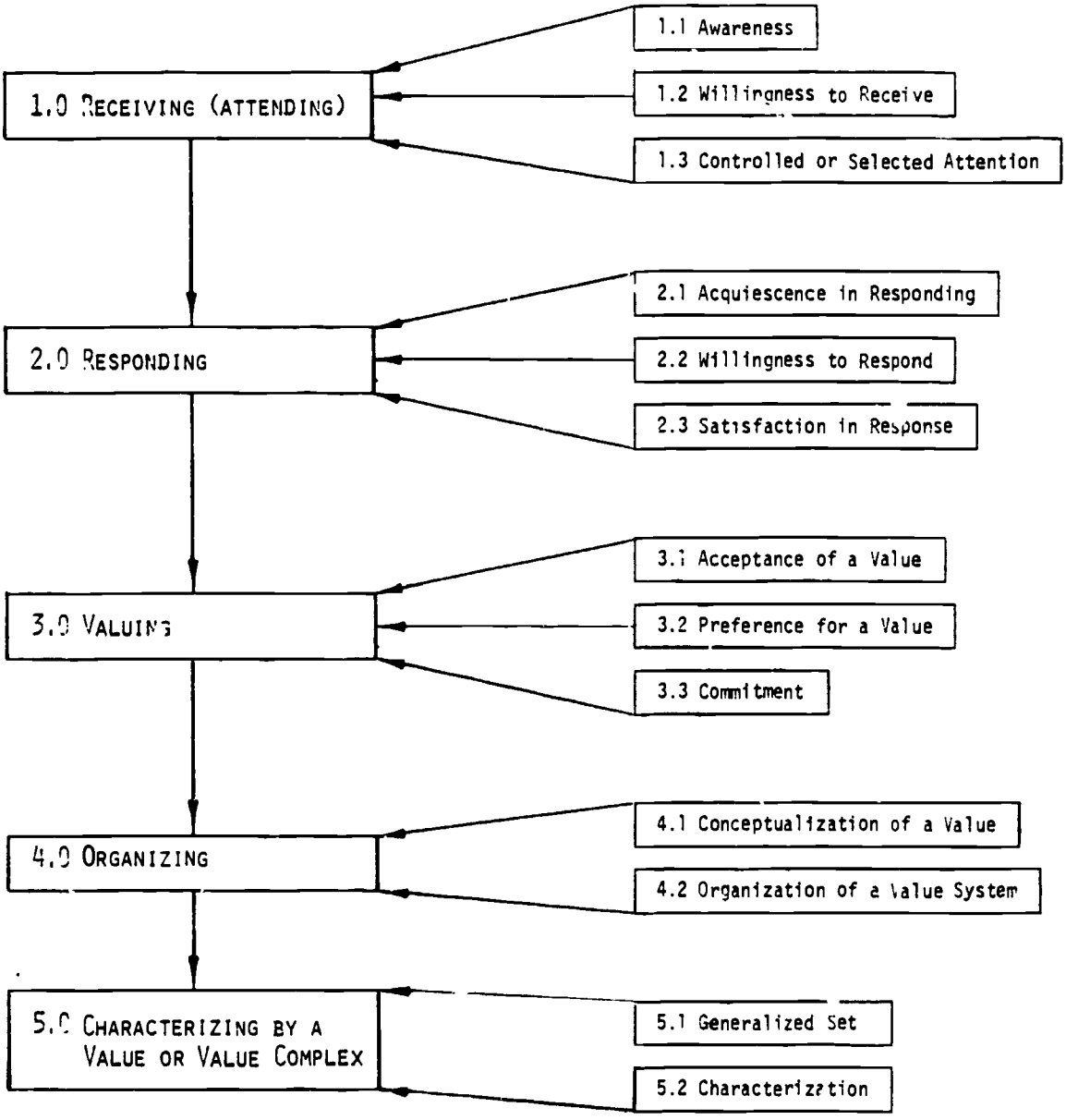
A skeleton for their taxonomy is shown in Figure 23. The subcategories within a level are in a hierarchical order according to their location on the internalization continuum. The taxonomy can be applied to a variety of affective concepts, such as adjustment, appreciation, attitudes, commitment to a person or task, enjoyment, interest, satisfaction, value, and so forth.

Harvey's Proposed Model for Educational Effects on Belief Systems. Harvey (1972) has found evidence of and worked with four specific belief systems that are located on a continuum from concrete to abstract. Based on a variety of research studies, he listed twelve indicators of greater concreteness in beliefs:

1. Simpler cognitive structure in regard to domains of high involvement
2. Greater tendency toward more extreme judgments of one way or the other
3. Greater reliance upon status and power than upon information and expertise as guidelines to beliefs and judgments
4. Greater intolerance of ambiguity and uncertainty (high scores on measures of authoritarianism and dogmatism)
5. Greater sense of discomfort when inconsistency is made apparent (extols the virtues of being consistent in beliefs and is unknowingly more inconsistent in beliefs than the abstract person)
6. Greater rigidity in solving complex and/or changing problems
7. Greater insensitivity to subtle clues in the environment
8. Less capacity to "act as if," to assume the role of the other, or think and act in terms of a make-believe or hypothetical situation
9. Greater strength of opinions, and more certainty that the opinions will not change

Figure 23

THE KRATHWOHL, BLOOM, AND MASIA TAXONOMY OF AFFECTIVE OBJECTIVES*



*Abstracted from Krathwohl, Bloom, and Masia (1964).

10. Greater need for structure, rule orientation, dictation of procedure, and frequency of use of explained rules, less flexibility and encouragement of individual responsibilities and originality--more dictatorial

11. Greater tendency toward trite and normative behavior

12. Greater tendency to form and generalize impressions of other people from highly incomplete information

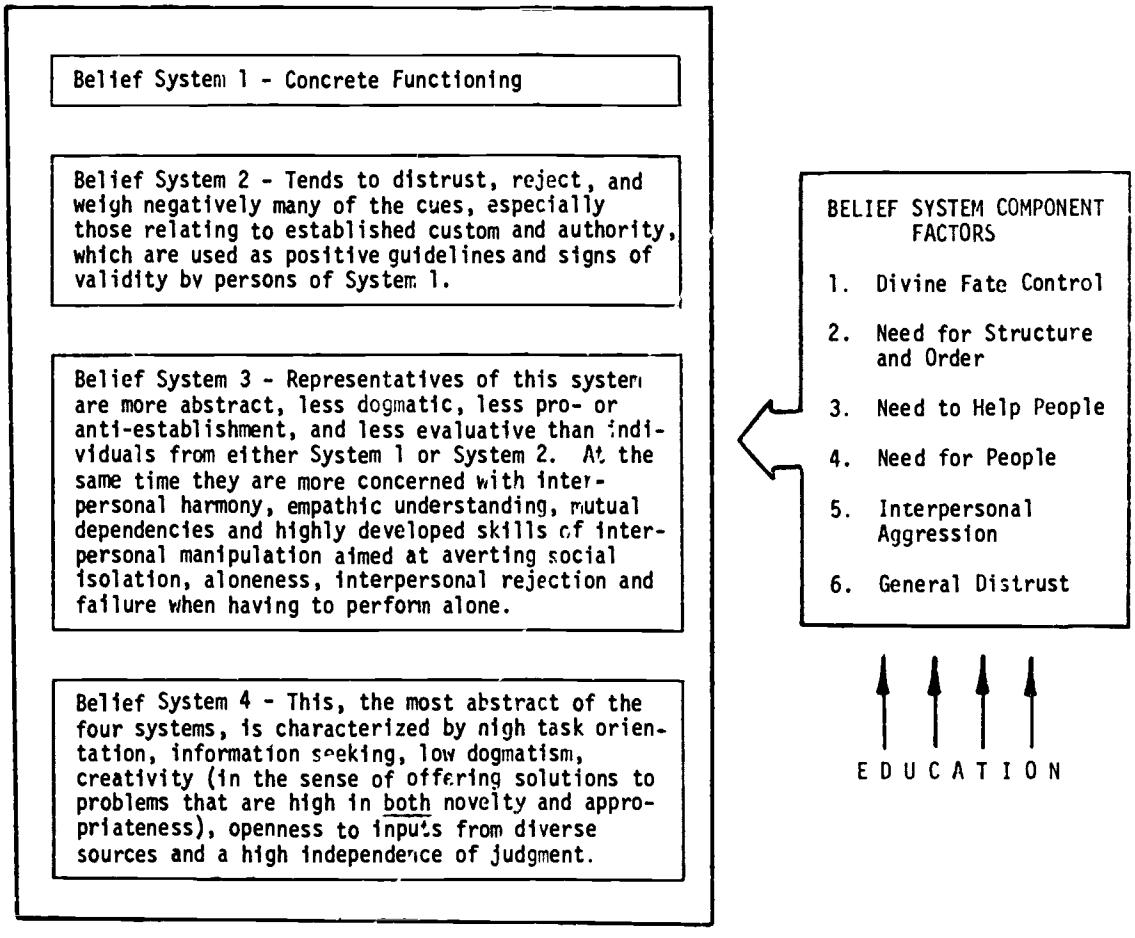
Cluster analysis of the scores on a conceptual systems test that had been successfully used to place respondents into the four belief systems yielded six highly consistent clusters. Furthermore, Harvey and his associates found that under certain conditions education can move belief systems toward System No. 4, the most abstract one, which he favors. A diagram depicting one possible view of Harvey's scheme is shown in Figure 24.

Crawford and Twelker's Affective Outcomes of Simulation Games. Crawford and Twelker (1972) identified affective outcomes of simulation games that "have been repeatedly reported across observers, games, classes of learners, and repeated trials" (p. 134). They admitted that there were serious problems in the observational methods used (e.g., observers not impartial), but members of their own staffs, as well as others from a variety of institutions, had consistently observed the same things. Seven different affective outcomes were included in their list and are presented in Figure 25.

Figure 24

HARVEY'S PROPOSED MODEL FOR EDUCATIONAL

EFFECTS ON BELIEF SYSTEMS*



*Abstracted from Harvey (1972).

Figure 25

CRAWFORD AND TWELKER'S AFFECTIVE OUTCOMES OF SIMULATION GAMES*

1. Involvement
2. Emotion
3. Perception of others
4. Attitudes
5. Self perception
6. Expression of feelings
7. Interaction among students

*Abstracted from Crawford and Twelker (1972).

The Klopfer Structure for the Affective Domain in Relation to Science Education. Klopfer (1973) developed a classification matrix for the affective domain in science education that used the Krathwohl, Bloom, and Masia classification for one axis and science phenomena for the other axis. His structure is presented in Figure 26.

Figure 26

THE KLOPFER STRUCTURE FOR THE AFFECTIVE DOMAIN

IN RELATION TO SCIENCE EDUCATION*

PHENOMENA	BEHAVIORS												
	RECEIVING			RESPONDING			VALUING			ORGANIZATION		CHARACTERIZATION OF A VALUE COMPLEX	
	AWARENESS	WILLINGNESS TO RECEIVE	CONTROLLED OR SELECTED ATTENTION	ACQUIESCENCE IN RESPONDING	WILLINGNESS TO RESPOND	SATISFACTION IN RESPONSE	ACCEPTANCE OF A VALUE	PREFERENCE FOR A VALUE	COMMITMENT	CONCEPTUALIZATION OF A VALUE	ORGANIZATION OF A VALUE SYSTEM	GENERALIZED SET	CHARACTERIZATION
EVENTS IN THE NATURAL WORLD Biological events Physical events													
ACTIVITIES Informal (generally outside of school) science activities science-related activities Formalized science learning activities in school													
SCIENCE Science as a source of knowledge about the natural world science in general any content area in science Science as an enterprise organized to gain understanding of the natural world Science in its interrelationships with society Scientists as people													
INQUIRY Processes of scientific inquiry Scientific inquiry as a way of thought Inquiry as a way of thought in association with phenomena and problems in science in association with phenomena and problems not in science													

*Adapted from Klopfer (1973, p. 25).

Chapter IV

Impacts on Individuals: Classifications Focusing on Physical and Psychomotor Development

The Bloom and Krathwohl group had postulated a third domain for their taxonomy of educational objectives, a psychomotor domain which emphasizes muscular or motor skill or coordination and physical dexterity and manipulation. However, their search of the literature revealed few educational objectives in this area, so they did not proceed to develop a psychomotor classification system. Since that time there has been a heightened interest in this area, however, and a number of attempts to develop such a classification have been made.

Most people have considered psychomotor objectives to be important primarily for the elementary and secondary school levels of education. However, the following quote from Ragsdale (1950) about elementary education applies also to postsecondary education:

> Every classroom subject and also every extra-curriculum activity includes motor behavior of some kind. It may be no more than speech or handwriting or a general postural base for social or intellectual activity; in many cases, however, the motor behavior in itself is the most important thing to be learned. [P. 66]

It is certainly true that college courses in physical education, science (laboratory courses), music, drama, art, speech, and so forth, require

primary emphasis on motor activity and coordination. Professional programs such as medicine, engineering, and architecture also emphasize this area. Furthermore, if an outcomes taxonomy is to cover all of postsecondary education, the vocational programs that enroll millions of students must also be considered. Most of these programs emphasize psychomotor skills such as perception, dexterity, and coordination.

The psychomotor domain also involves cognitive and affective behaviors. Just as the cognitive and affective domains are not mutually exclusive, neither is the psychomotor domain separate from either of the other domains. Nevertheless, as pointed out by Krathwohl, Bloom, and Masia (1964), teachers and curriculum developers do make distinctions in their educational objectives "between problem solving and attitudes, between thinking and feeling, and between acting and thinking or feeling" (p. 7).

The psychomotor area is merely one part of the area of physical health and development. This entire broad area has long been considered especially important by some in postsecondary education as evidenced by the formation in 1920 of the American College Health Association and the publication of a number of books and monographs in this area, for example, College Health Services in the United States (Farnsworth, 1965). Although some taxonomies have focused specifically on psychomotor educational objectives, however, none were found in the literature to have focused exclusively on the broader health area (even at the elementary school level, where there is almost universal acknowledgment about the importance of physical health and development). This area was acknowledged in a number of the still broader, overall classifications to be discussed in a later chapter of the document, however.

The Ragsdale Categories of Motor Activities. Ragsdale (1950) felt that it would be helpful for teaching objectives and curriculum development to group motor activities into three categories based on the focus toward which the activity is directed: (1) a focus on manipulating or acting with direct reference to some object; (2) a focus on using body movements to construct or apprehend symbols for communication or information, for example, speaking, writing, eye movements; and (3) a focus on communicating emotion or feeling. The focus in each of these categories is in two directions: pattern ("style, form, internal organization, and coordination with external objectives or events" [p. 70] and efficiency (time and energy saving). A skeleton for Ragsdale's classification is shown in Figure 27. Note that the three categories are hierarchical in that there is a continuum from "concreteness" to "abstract" on which they fall.

Figure 27

RAGSDALE'S CATEGORIES OF MOTOR ACTIVITIES*

	Pattern	Efficiency
(1) Object-Motor Activities		
(2) Language-Motor Activities		
(3) Feeling-Motor Activities		

*Abstracted from Ragsdale (1950).

Guilford's System of the Psychomotor Abilities. Another early attempt to develop a structure of the psychomotor domain was made by Guilford (1958). During a period of three years, he had developed a hierarchical "'structure of intellect,' in which the known intellectual factors have found places and a number of unknown factors have been predicted by the system" (p. 164). In addition to new concepts of cognitive functioning being suggested by the system, the system made clear the "interrelationships of abilities within a functioning individual." Therefore, Guilford decided to try to develop a similar system for the psychomotor domain, based on studies that had been reported in the literature. The name of each factor found in the literature was typed onto an index card along with its reported properties and names of tests that had been found to identify it. Then an analytical sorting process was used to develop the two-way classification shown in Figure 28.

The Abernathy and Waltz Framework for Human Movement. Abernathy and Waltz (1964) believed that physical education should become an acknowledged discipline, and they felt that the place to start was to develop a systematic way of examining the phenomena of movement. Three principles that they felt were important in developing such a framework were that the framework should: (1) emphasize the three main relevant variables "man," "movement," and "environment"; (2) foster "generation of testable hypotheses" and a "synthesis of the expanding knowledge" in the area; and (3) provide a coherent view of these complex phenomena. A beginning effort toward such a frame of reference "was diagrammed by Waltz for use with freshman students," and his diagram is shown in Figure 29. The horizontal lines represent the relevant variables

Figure 28

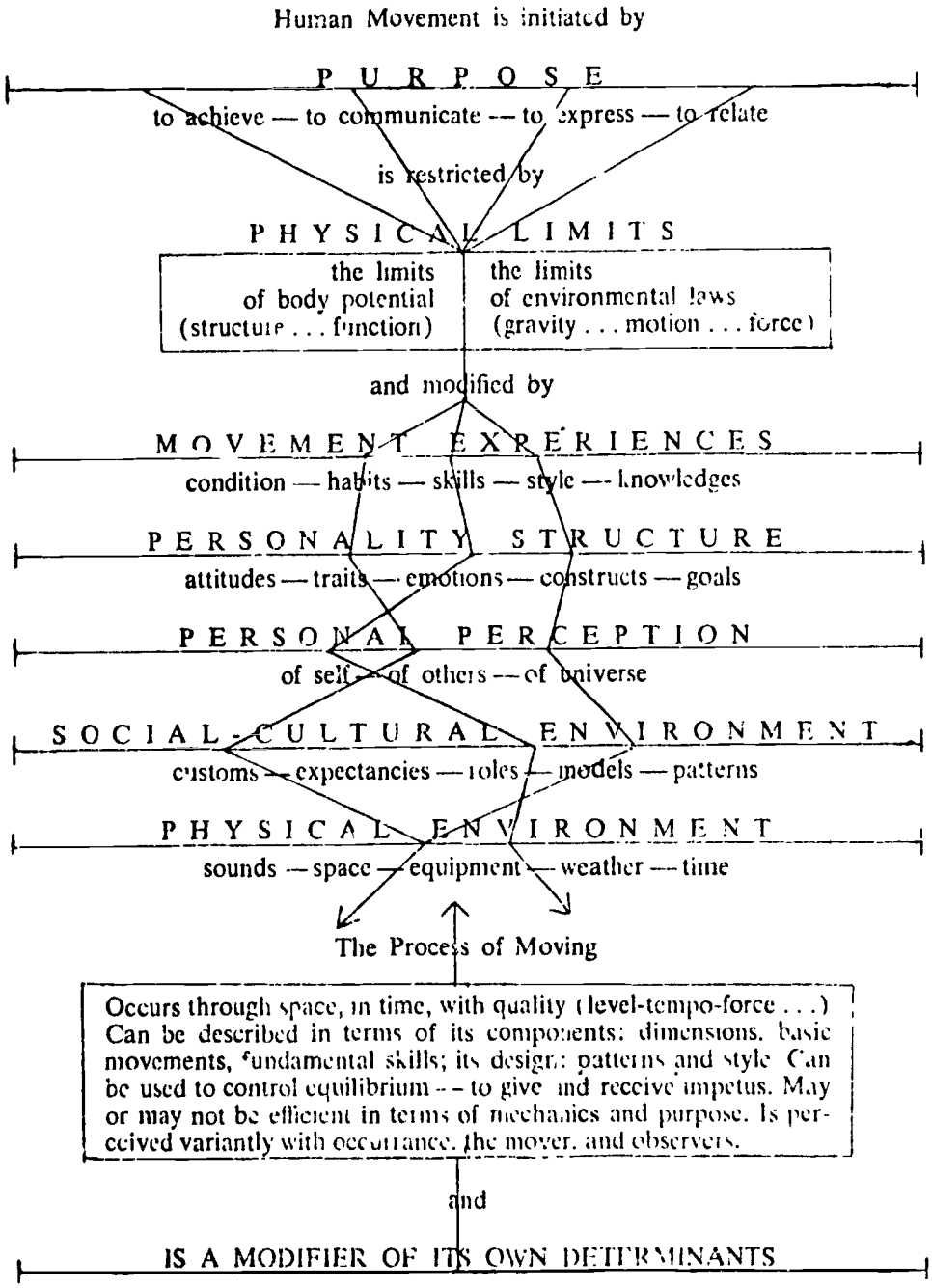
GUILFORD'S SYSTEM OF THE PSYCHOMOTOR ABILITIES

Part of the Body Involved	Type of Ability: Strength	Impulsion	Speed	Static Precision	Dynamic Precision	Coordination	Flexibility
Gross	general strength	general reaction		static balance	dynamic balance	gross bodily coordination	
Trunk	trunk strength	time					trunk flexibility
Limbs	limb strength	limb thrust	arm speed	arm steadiness	arm aiming		leg flexibility
Hand		tapping			hand aiming	hand dexterity	
Finger			finger speed			finger dexterity	

*Adapted from Guilford (1958, p. 165).

Figure 29

THE ABERNATHY AND WALTZ FRAMEWORK FOR HUMAN MOVEMENT*



*Reprinted from Abernathy and Waltz (1964).

that affect movement, with the name of the variable posted above the line and basic components of the variable identified below the line. The diagonal lines signify the many potential interactions of the various factors. The top part of the chart represents the internal and external initiators, limiters, and modifiers of movement; lower down the focus changes to a description of the process of moving and then to a focus on the effects of movement experiences. Abernathy and Waltz claim the following for their model:

> The model was designed to emphasize the interrelationships of what were assumed to be the major descriptive and theoretical constructs, and to promote a "situations" or "relations" approach wherein movement would be studied in the context of occurrence. Variables were represented as continuums interacting in, and in relation to, a physical-social-internal environment to avoid any suggestion of additive segments or of one-to-one causal connections, and to imply the necessary reference to duration in time. Other considerations in the selection of design and content included efforts to show the relatedness of the movement phenomenon to concerns derived from other fields of inquiry, and to establish some operational boundaries by which the breadth of study might be limited. Numerous assumptions, including an obvious idiomatic and emergent approach to the nature of man, are implicit in the model. [P.4]

The Simpson Taxonomy of Psychomotor Objectives. Simpson (1966) was the first person to provide the literature with a classification designed specifically to give detailed structure to the third domain posited by the Bloom and Krathwohl group. Her primary organizational principle was complexity, and she had a hierarchy of major categories going from simple to complex. In addition, each of these categories was a necessary sequential step toward the performance of a motor act. Four of the five major categories in her initial classification were divided into subcategories that

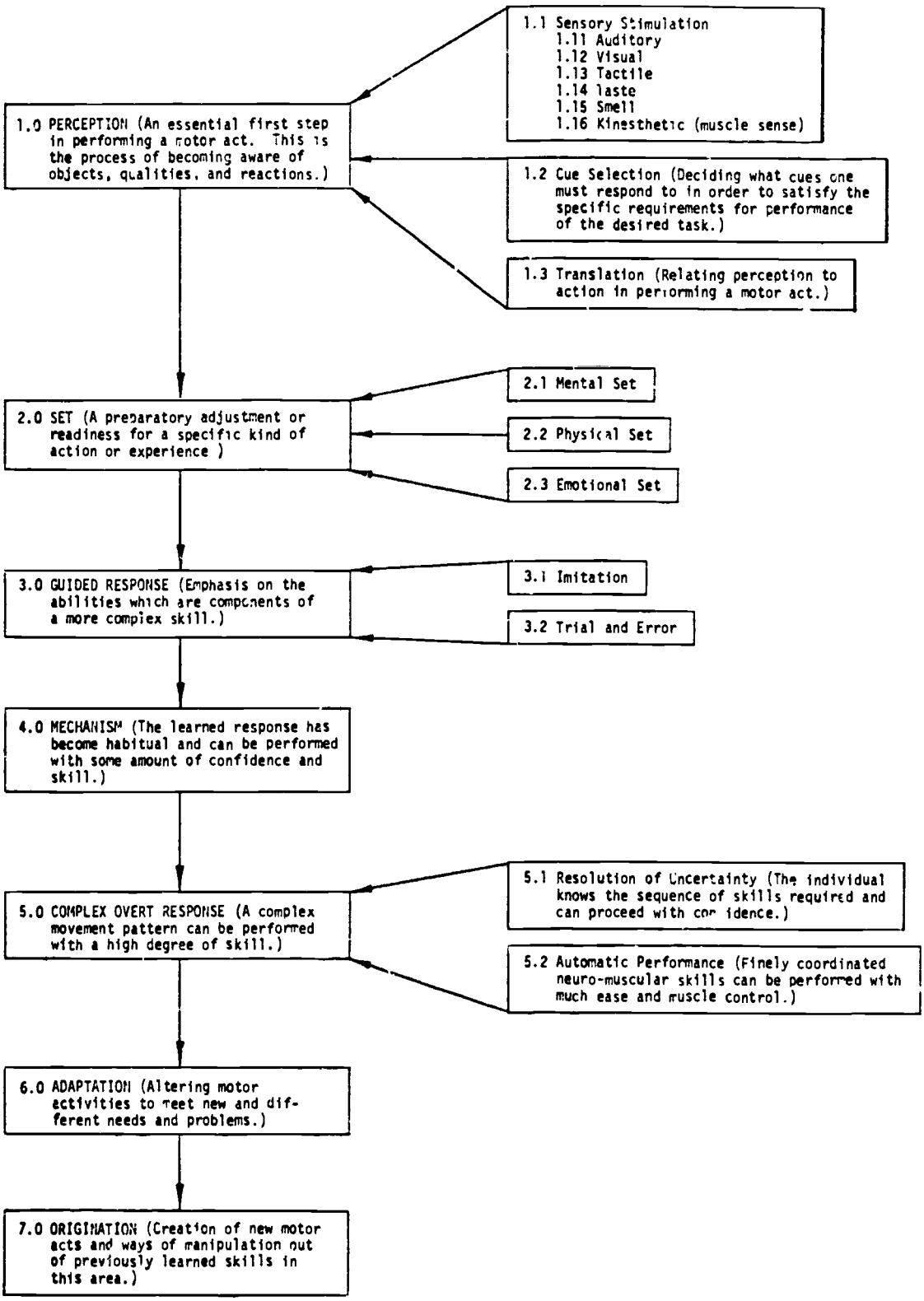
were also sequential in nature and seemed somewhat to meet the complexity principle. After receiving reactions to her initial classification from a number of interested persons who had read it, Simpson added two more major categories (1972), making a total of seven.

The work was initiated in 1964-65 by a small grant from the Bureau of Educational Research at the University of Illinois. After a comprehensive review of the literature focusing particularly on previous ways of classifying psychomotor activities, her research team collected and analyzed the behavioral objectives that they were able to find for this domain. Then laboratory analysis of selected tasks was undertaken to explore the nature of each activity by observation and introspection. Her final method of "sorting things out" consisted of "conferences with scholars who have specialized knowledge of the nature of psychomotor activity, development of classification systems for educational objectives, and of the areas of study where educational objectives in the psychomotor domain are of paramount concern" (1972, p. 46).

The organizing principle used for the development of the taxonomy was the definition for psychomotor objectives given by Krathwohl, Bloom, and Masia (1964): Those objectives which "emphasize some muscular or motor skill, some manipulation of material and objects, or some act which requires neuromuscular coordination" (Simpson, 1966, p. 17). A skeleton for the Simpson taxonomy is presented in Figure 30.

Figure 30

THE SIMPSON TAXONOMY OF PSYCHOMOTOR OBJECTIVES*



*Abstracted from Simpson (1966, 1972).

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Simpson presented an application of her scheme and reported that it had been tried out and used successfully to describe educational problems (1972, pp. 54-55). Complex problems such as "learning to use the sewing machine in garment construction" consist of many specified educational objectives that fall within more than one level of her taxonomy.

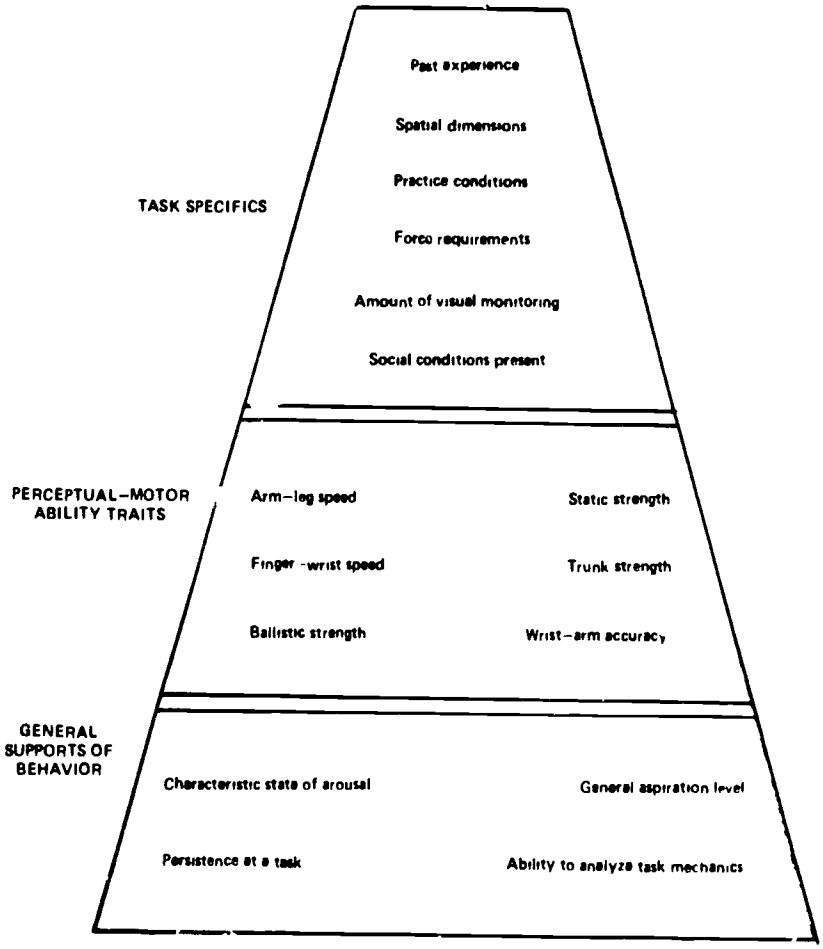
Another conclusion reached in Simpson (1972) was that many broad objectives involving much motor activity should not be classified in the cognitive domain but rather in a broader category:

> Another problem, one that is frequently encountered in analyzing educational objectives in all three domains, had to do with the lack of specificity of objectives as given in many curriculum guides. That is, many that certainly involved a great deal of motor activity, almost equally also involved the other domains. These were broad objectives, such as: Ability to give a successful party. Ability to conduct a meeting. Ability to conduct a play for small children. These investigators finally concluded that these were in an "action-pattern" domain (a term coined by Loree [1965]), hence beyond and encompassing the other three domains. [P. 48]

Cratty's Framework for Psychomotor Learning Outputs. Cratty (1969) developed a framework based on the assumption that factors at three levels influence educational performance and learning outputs: "general supports of behavior," "ability traits for the area of concern," and "factors specific to the task and situation." He applied it especially to the psychomotor area, but made clear his belief that the same sort of framework applied to other areas of learning also. A diagrammatical presentation that Cratty developed for his framework is shown in Figure 31. It is a triangle divided into three levels, described as follows:

Figure 31

CRATTY'S FRAMEWORK FOR PSYCHOMOTOR LEARNING OUTPUTS*



*From Cratty (1969, p. 27).

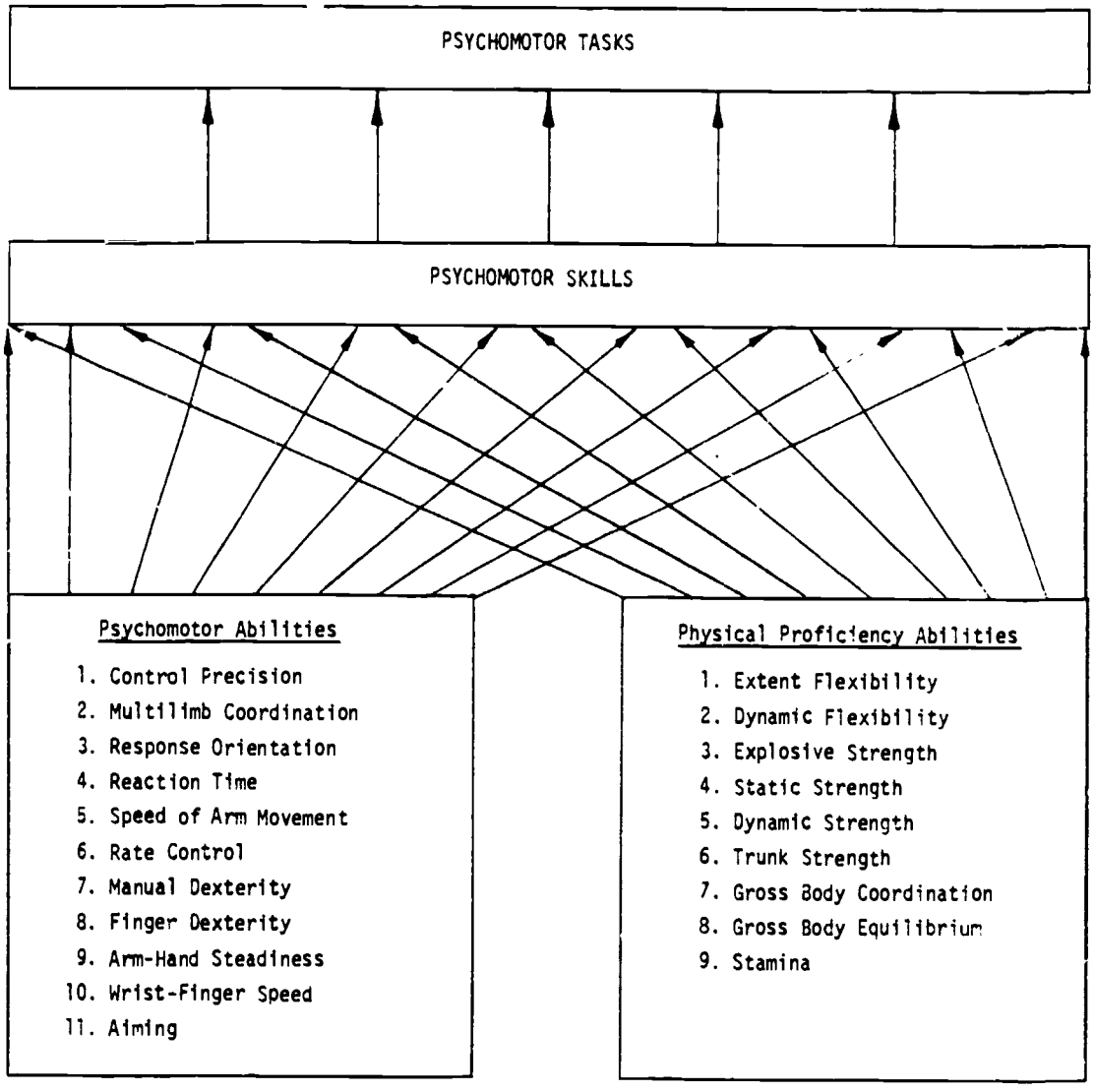
> At the base level are general behavioral supports, including aspiration level, arousal, ability to analyze a task, and perhaps various perceptual abilities. Attributes at this level, it is believed, can be demonstrated to influence a variety of kinds of human behavior, including verbalization, cognition, tasks which might be classified as intellectual as well as perceptual-motor abilities. These qualities at the base of our pyramid are relatively fixed but in turn are influenced and modified by an individual's self-assessments of performance attained.
>
> At the second level are various perceptual-motor factors spawned by the factorial studies. . . . These intermediate traits are influential or perceptual-motor performance and are usually not demonstrated as supportive of cognition or verbal behavior.
>
> At the apex of the triangle are placed factors specific to the task and situation. Such factors as the unique energy demands of the task, the immediate values impinging upon the motivational state of the performer, the perceptual components specific to the task, the unique kinds of past experiences in the task, the practice conditions, the social characteristics of the situation in which the task is performed, as well as the task's specific movement patterns (i.e., force requirements and velocities) may be found there. [Pp. 24-25]

Fleishman's "Structure" of Psychomotor and Physical Proficiency Abilities. Over a period of 18 years, Fleishman (1972) and his associates at the American Institutes for Research "investigated more than 200 different (psychomotor) tasks administered to thousands of subjects in a series of interlocking studies" (p. 59). Correlational and factor analyses revealed 11 distinct psychomotor abilities and nine distinct physical proficiency abilities. In addition, for each ability, they identified and described the tasks (tests) which best measure that ability. The abilities for the two areas that determine success in learning or performing psychomotor skills are presented in Figure 32. An ability "refers to a more general trait of the individual which has been inferred from the correlations

Figure 32

THE PSYCHOMOTOR AND PHYSICAL PROFICIENCY "STRUCTURE"

IDENTIFIED BY FLEISHMAN*



*Abstracted from Fleishman (1972).

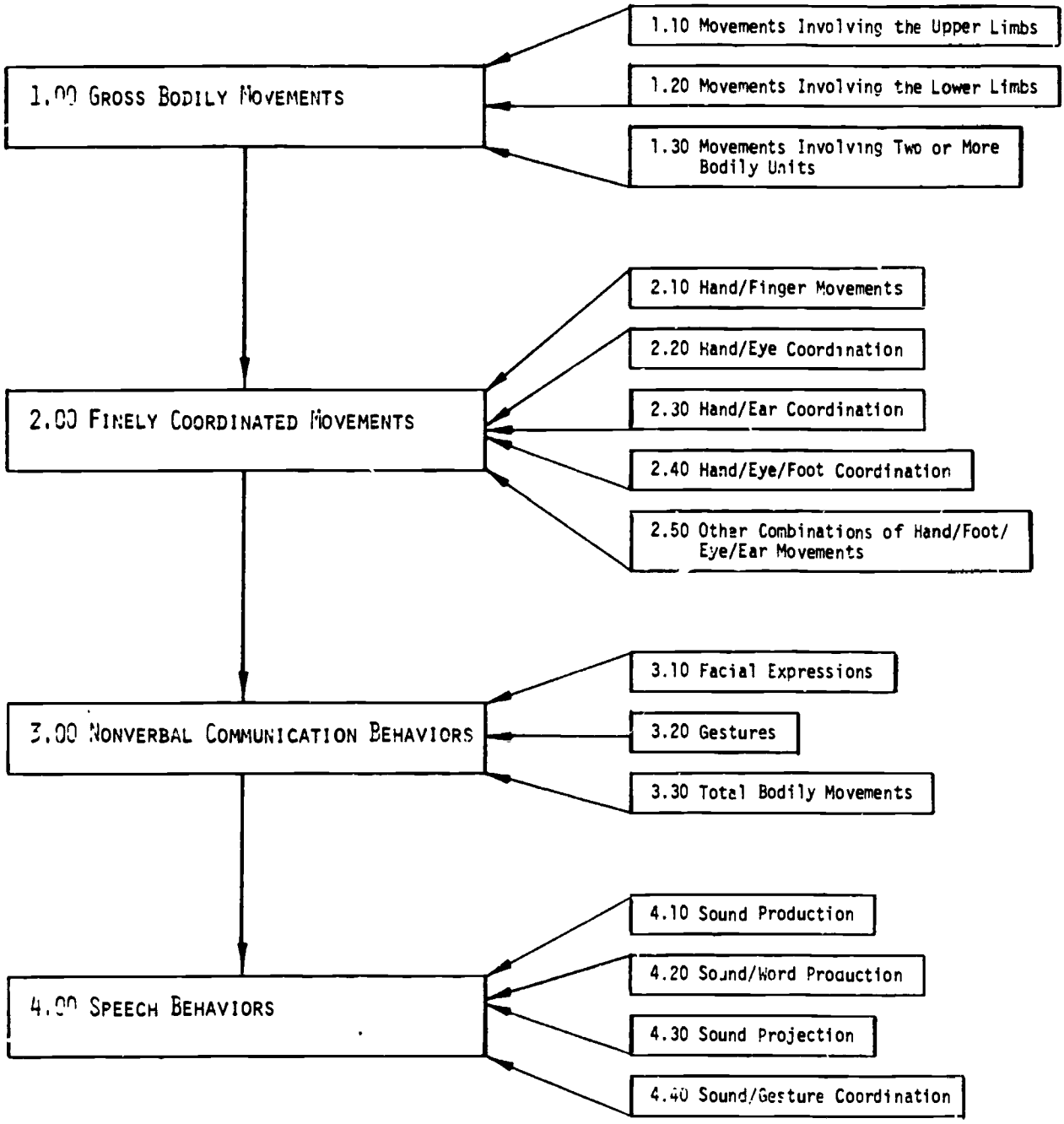
obtained among performances of individuals on certain kinds of tasks . . . (while) the term skill refers to the level of proficiency on a specific task or limited group of tasks" (p. 48). This means that a skill may require a variety of abilities to do the task required.

The Kibler, Barker, and Miles Classes of Psychomotor Objectives. Since they were not aware of any attempt to systematically classify psychomotor behaviors, Kibler, Barker, and Miles (1970) decided to initiate such an effort by formulating a set of subclassifications of such behaviors. They did not intend that these categories should represent a taxonomy, but felt that further refinement and analysis of these categories by other educators might eventually lead to a taxonomy for this domain. The categories were derived largely from research and theory in child development, and the skills are listed according to the sequence in which they develop in young children. They are ordered from the simple and gross to the complex and finely tuned or detailed. An outline of the classes is presented in Figure 33. Interestingly, in the same section of a revision of this book (Kibler, Cegala, Barker, and Miles, 1974) the authors replaced their former classes with the Simpson taxonomy, which was just discussed.

Singer's Model for the Psychomotor Domain. Singer (1972) prepared a creative model with which to lead off a conference into a discussion of the psychomotor domain. It does not go into great detail, but it gets across something that most of the models in this area have ignored. The model clearly indicates that how we think, feel, and perceive affects

Figure 33

THE KIBLER, BARKER, AND MILES CLASSES OF PSYCHOMOTOR OBJECTIVES*



*Abstracted from Kibler, Barker, and Miles (1970).

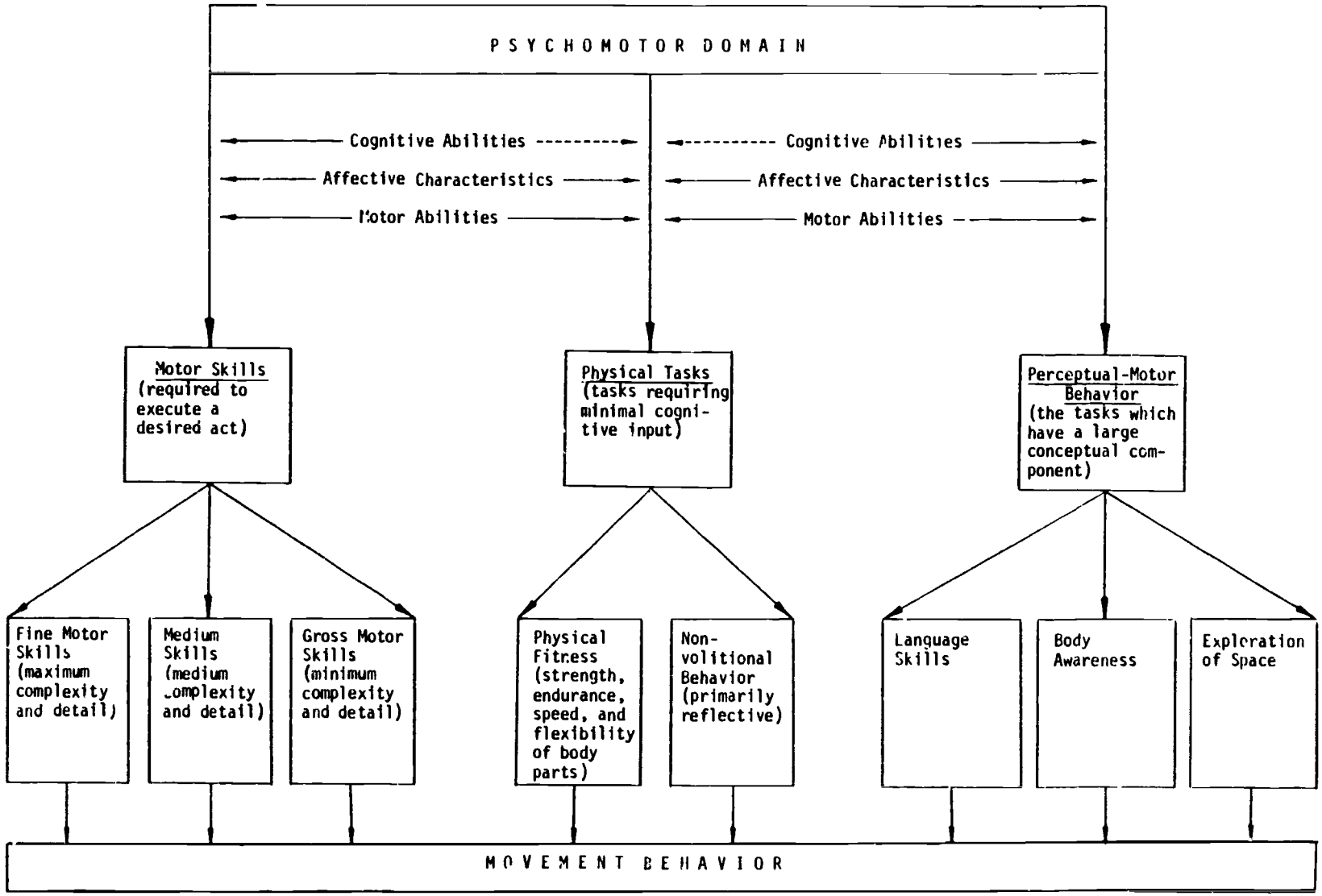
movement behavior and is intertwined with it. The Singer model is presented in Figure 34. According to Singer, it "depicts the possible scope of the psychomotor domain and the kinds of abilities leading to various acts which constitute motor behavior" (p. 12). Another important point is that "no continuum of activities is intended." The entire model is based on two objectives: (1) to master tasks and (2) to attain skills. The two objectives are closely related: you cannot master the task unless you have attained the proper skills, and you cannot demonstrate the attainment of the skills except through showing mastery of appropriate tasks. (The reason the cognitive vector directed toward the physical tasks vector is drawn with dashes is that physical tasks as defined here require little cognitive involvement and that only at the lower [simple] cognitive levels.)

Harrow's Taxonomy for Psychomotor Objectives. Another attempt to provide detailed structure for the psychomotor domain was reported by Harrow (1972), whose goal was to develop a functional taxonomy that would have practical use to classroom teachers, curriculum designers, and educational researchers. She also cautioned that learning behaviors do not fall neatly into the three domains and that anyone forming behavioral objectives must isolate the specific behavior before a "clean-cut" classification can be made.

Harrow's work is more empirically oriented than the other psychomotor domain attempts and it goes into more detail. For each level of her

Figure 34

SINGER'S MODEL FOR THE PSYCHOMOTOR DOMAIN*



*Abstracted from Singer (1972).

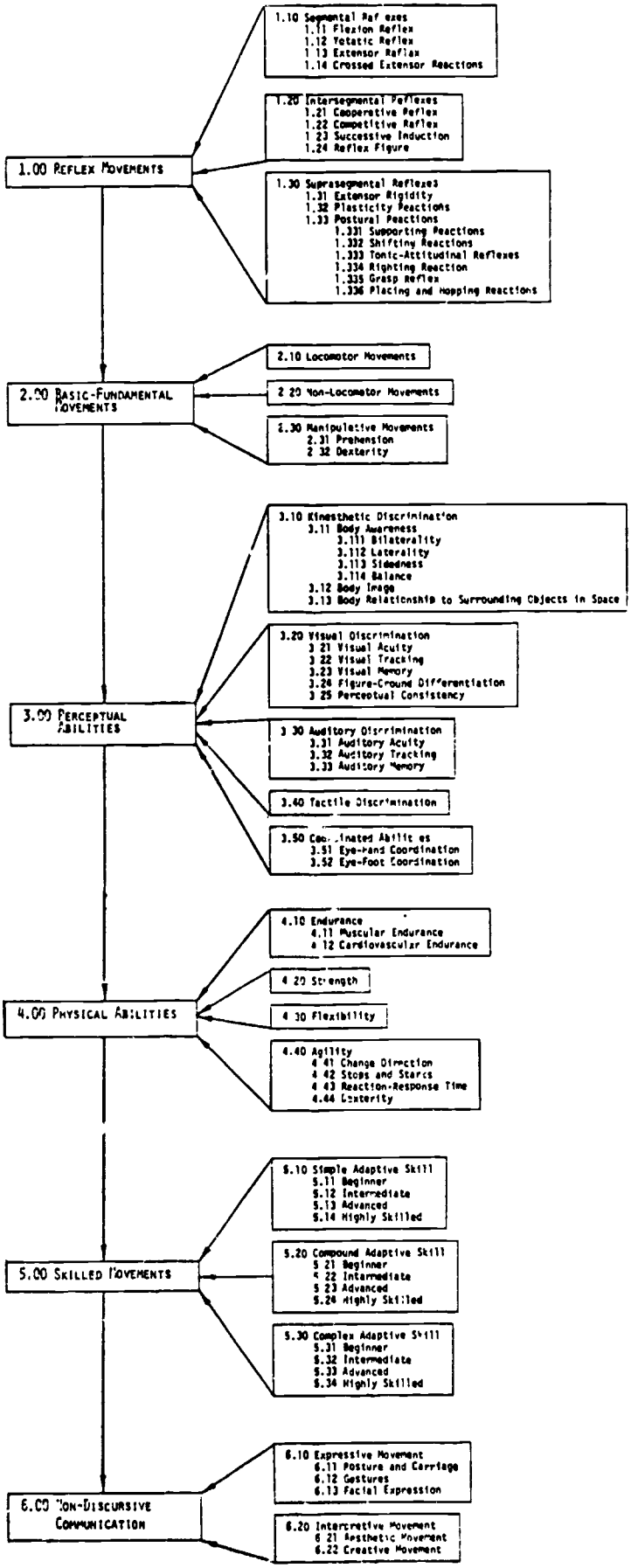
taxonomy she cites various research studies upon which her organization and terminology choices were based. In addition, her classification is based on accepted theories and principles. It is hierarchical, with six major levels "arranged along a continuum from the lowest level of observable movement behavior to highest level" (p. 33). Each major category has second- and third-order categories, and where possible these were also hierarchical in nature (although on different bases), for example, complexity, direction of movement, and amount of expertise. In several cases, a third-order category is divided into fourth-order categories. A skeleton of the Harrow taxonomy is presented in Figure 35.

Harrow closed her description of the taxonomy with the following summative quote:

> When behavioral objectives writers and curriculum developers are able to classify educational objectives into more of the three domains and further clarify learner behaviors into a specific category within a domain, the teaching strategies become more apparent, thus giving meaningful directions for desired learner outcomes. This taxonomic model is offered as a way of viewing, explaining, and categorizing the components of the psychomotor domain. It is in no way a rigidly fixed conceptual model, but a flexibile model capable of shrinking or expanding as experience, new ideas, and critical reviewers dictate its adaptation. This is an effort to categorize the movement experiences of the learner. It is a logical classification of movement experiences and is consistent with accepted theories and principles of motor learning. Though many statements and concepts from different models and movement theories are apparent within this model, it is not intended as a synthesis of all works, but rather as a hierarchy of learning in the psychomotor domain. [Pp. 98-99]

Figure 35

HARROW'S TAXONOMY FOR PSYCHOMOTOR OBJECTIVES*



*Abstracted from Harrow (1972).

Chapter V

Impacts on Individuals: Broader Classifications

The classifications in the preceding three sections have focused on a fairly narrow area of education impacts on individuals. It is probable that classifications from these different areas could be placed together to form a broader classification, but only the Bloom, Krathwohl, Simpson, Kibler, and Harrow taxonomies appear to have been designed with this in mind. Nevertheless, portions of others that were reviewed, or modifications thereof, may also have promise for being included in such a composite classification.

A large number of broader classifications focusing on educational goals or outcomes for individuals have been formulated over the years. In general they do not appear to be composites of the more specific classifications. These broader classifications are reviewed in this section.

General Education Goals from the Eight-Year Study. In 1930, the Progressive Education Association established a Commission on the Relation of School and College to study the secondary school and how to improve it. The Commission drew up a plan to select 30 secondary schools representative of size, type, and geographic region of the schools in the U.S. for what was to become the famous Eight-Year Study. The schools were to spend from 1933 until

1936 reconstructing their curricula. Starting in 1936 and continuing for a five-year period, most colleges and universities accepted graduates of these schools on the basis of individuality of each student and without regard to their entrance requirements. A central evaluation staff was set up to help each school determine its goals and to evaluate its work with respect to those goals. In order to be more specific, the schools were to state each goal in terms of desired behavior change. The resulting goals of the 30 schools were quite similar for two broad general educational areas. These two broad areas and agreed on goals for each (Tiles, McCutchen, and Zechiel, 1942, pp. 7-12) are presented in Figure 36.

Payne's Classification of Rath's Early Discussion on Educational Objectives. Payne's book (1968) on specifying and measuring objectives classified Rath's (1938) early discussion of educational objectives into seven categories. Those seven categories are presented in Figure 37.

Figure 37

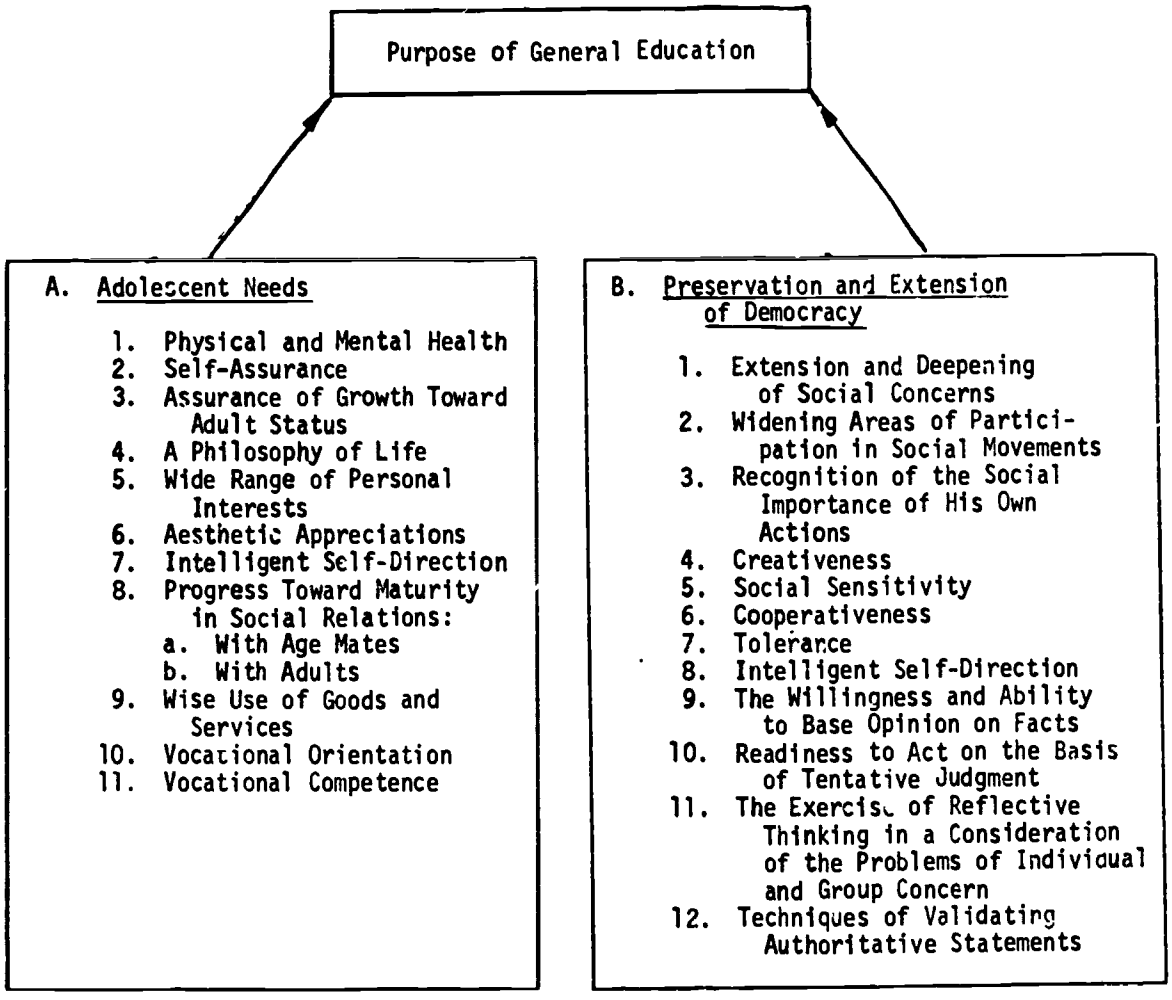
PAYNE'S CLASSIFICATION OF RATH'S EARLY (1938) DISCUSSION ON EDUCATIONAL OBJECTIVES*

1. Functional information
2. Various aspects of thinking
3. Attitudes
4. Interests, aims, purposes, appreciations
5. Study skills and work habits
6. Social adjustments and sensitivty
7. Creativeness
8. Functional social philosophy

*Excerpted from Payne (1968, p. 28).

Figure 36

GENERAL EDUCATION GOALS FROM THE EIGHT-YEAR STUDY*



*Abstracted from Tiles, McCutchen, and Zechiel (1942, pp. 7-12).

The Major Types of Educational Objectives Formulated by the Eight-Year Study Evaluation Staff. In order to determine the areas for which evaluation instruments were needed to assess whether the goals at each institution were being met, the evaluation staff of the famous Eight-Year Study (Smith and Tyler, 1942) grouped all of the goals for the 30 schools participating in the study according to type of goal. Grouping in this way yielded 10 types of desired educational outcomes. This list of outcome types is presented in Figure 38.

Figure 38

MAJOR OUTCOME TYPES AS FORMULATED BY THE EIGHT-YEAR STUDY EVALUATION STAFF*

1. The development of effective methods of thinking
2. The cultivation of useful work habits and study skills
3. The inculcation of social attitudes
4. The acquisition of a wide range of significant interests
5. The development of increased appreciation of music, art, literature, and other esthetic experiences
6. The development of social sensitivity
7. The development of better personal-social adjustment
8. The acquisition of important information
9. The development of physical health
10. The development of a consistent philosophy of life

*Excerpted from Smith and Tyler (1942, p. 18).

General Education Goals for Members of the Armed Forces. In 1943, representatives of the Army and the Navy presented the need for a plan of general education for members of the armed forces to the American Council on Education. In response to this, a Committee on a Design for General Education was formed. The Committee developed (1944) a list of 10 general goals, plus specific goals for each, which were stated in terms of "the way in which educated men might properly be expected to behave," that is, in terms of the outcomes desired. The goals formulated by the Committee are presented in Figure 39.

The Clapp Commission Classification of College Outcomes. An early study that focused on college goals for students was begun in 1943 under the auspices of the Northwest Association of Secondary and Higher Schools. A commission was set up to explore the goals of all four-year colleges and universities holding membership in the Association. One result of the study was a classification of goals which listed numerous college outcomes for nine areas of student development (Clapp, 1946). In addition, it was found that developing intellectual characteristics and ethical character were more important to officials of the colleges and universities surveyed than was the acquisition of knowledge in subject-matter fields. Furthermore, the specific objectives were considered to be less important than the more general objectives to which they applied. The Clapp classification is presented in Figure 40. Note that some of the terms no longer mean what they apparently did in the 1940s, for example, Clapp's "personality adjustment" appears to focus on what today would be called "human relations development."

Figure 39

GENERAL EDUCATION GOALS FORMULATED BY ACE FOR MEMBERS OF THE ARMED FORCES*

OBJECTIVES

GENERAL education should lead the individual as a citizen in a free society:

I. To improve and maintain his own health and take his share of responsibility for protecting the health of others

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of normal body functions in relation to sound health practice
2. Of the major health hazards, their prevention and control
3. Of the interrelation of mental and physical processes in health
4. Of reliable sources of information on health
5. Of scientific methods in evaluating health concepts
6. Of the effect of socio-economic conditions on health
7. Of community health problems, such as problems related to sanitation, industrial hygiene, and school hygiene
8. Of community organization and services for health maintenance and improvement

B. Skills and abilities

1. The ability to organize time to include planning for food, work, recreation, rest and sleep
2. The ability to improve and maintain good nutrition
3. The ability to attain and maintain good emotional adjustment
4. The ability to select and engage in recreative activities and healthful exercises suitable to individual needs
5. The ability to avoid unnecessary exposure to disease and infection
6. The ability to utilize medical and dental services intelligently
7. The ability to participate in measures for the protection and improvement of community health
8. The ability to evaluate popular health beliefs critically

C. Attitudes and appreciations

1. Desire to attain optimum health
2. Personal satisfaction in carrying out sound health practices
3. Acceptance of responsibility for his own health and for the protection of the health of others
4. Willingness to make personal sacrifices for the health of others
5. Willingness to comply with health regulations and to work for their improvement

II. To communicate through his own language in writing and in speaking at the level of expression adequate to the needs of educated people

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of the way in which language and communicative activities function as social experience and influence social behavior
2. Of acceptable patterns of performance in various types of communicative activity; for example, in well-organized discussion, parliamentary

procedure, introduction of a speaker, editorials, or reports
3. Of the characteristic structure of the English language together with similarities and differences of oral and written English
4. Of how "standards" of speech and writing are adapted to different situations
5. Of acceptable usage in articulation, pronunciation, capitalization, grammar, and spelling as means of effective presentation
6. Of how sentence structure should reflect the precise relationship of ideas
7. Of an adequate vocabulary for the expression and understanding of precise meanings in a wide range of activities
8. Of standards and techniques for the effective use of the voice
9. Of the uses and abuses of persuasive appeals
10. Of the principles of logical thinking as applied to reading, writing, listening, and speaking
11. Of how to locate and use reference and source materials

B. Skills and abilities

1. To observe and to gather, through reading, listening, and use of personal experience, material significant for well-defined purposes of communication
2. To select and organize ideas and experiences with reference to socially desirable purposes of communication
3. To clarify and define ideas and experiences through reflection
4. To present ideas and experiences clearly and effectively in speech and in writing with due regard for the audience
5. To read significant writings with critical comprehension
6. To listen to important oral statements with concentration and judgment

C. Attitudes and appreciations

1. A continuing interest in developing the ability to speak and write effectively
2. A conviction that good writing and good speech depend upon (*a*) having something to express or communicate, (*b*) clear thinking, (*c*) an understanding of the audience addressed, and (*d*) effective presentation
3. A continuing interest in reading books and periodicals that bear upon present-day personal and social problems and experiences
4. A sense of responsibility for listening to and participating in public discussion
5. A sense of the importance of language in human relations
6. A developing ease and confidence in speaking and writing

III. To attain a sound emotional and social adjustment through the enjoyment of a wide range of social relationships and the experience of working cooperatively with others

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of the dynamics of human motivation
2. Of the nature and operation of behavior patterns as means of satisfying motives
3. Of the frequent disparity between openly expressed opinions and inner beliefs
4. Of the nature and causes of mental conflict

5. Of the criteria of normal and neurotic adjustment
6. Of the influence of the social environment, including cultural variability, moral relativity, and social change, upon personality development
7. Of the hierarchies of authority in relation to civil and military leadership and their influence on personal adjustment

B. Skills and abilities

1. Skill in regulating the impact of his own personal desires on the feelings and ambitions of others, illustrated by face-saving devices, conciliation, techniques of participation, persuasion, etc.
2. The ability to identify his own status in relation to various social levels and groups in his community
3. The ability to plan for the establishment and maintenance of a well-balanced emotional life in family and other important social relationships
4. The ability to manage aggressive tendencies, and to redirect them in conformity with cultural norms or expectations
5. Skill in identifying motives and in discriminating between mechanisms of behavior with reference to individuals and groups
6. Skill in planning, directing, and participating in group activities
7. Skill in anticipating, predicting, and interpreting other people's behavior

C. Attitudes and appreciations

1. Respect for the integrity of others. Sensitiveness to the wants, needs, and frustrations of other persons, and interest in enabling other persons to attain satisfaction of basic common needs
2. Flexibility of attitude structure to permit transferring from one social group to another, or from one community to another
3. Enjoyment of participation in varied types of human relationships and in group undertakings
4. Sense of responsibility for participating in desirable community activities
5. Loyalty to the various groups in which one holds membership, without narrow and derogatory attitudes toward other desirable groups
7. Appreciation and valuation of cultural patterns exhibited by individuals from other groups—religious, social, political, economic, national, etc.

IV. To think through the problems and to gain the basic orientation that will better enable him to make a satisfactory family and marital adjustment

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of the ways in which the American family differs from families in other countries and in earlier times
2. Of the trends in American society affecting the structure and functions of the family and the role of women and children in our society
3. Of the personality make-up of the individual as it affects his relationships to friends and to members of the family

4. Of the ways in which experiences in family life determine the personality development of the child
5. Of the effects of the war on love, courtship, marriage, and family life
6. Of the factors making for success in marriage
7. Of the development of relationships of friendship and affection: dating, courtship, engagement, and marriage
8. Of major family crises and conflicts, and ways of meeting them
9. Of the biological aspects of reproduction and of prenatal and postnatal care
10. Of problems involved in earning and spending the family income
11. Of available resources for premarital, postmarital, and family counseling and education

B. Skills and abilities

1. Skill in meeting and cultivating members of the opposite sex in wholesome relationships
2. Skill in resolving conflicts, hostilities, rejections, and overattachments
3. Habits of discussion and cooperative planning in family situations
4. Ability to relate oneself and family to the broader relationships of social life, and to become identified with larger causes
5. Ability to discharge parental responsibilities in child rearing
6. Skill in planning ways of meeting the problem of in-laws and other relatives
7. Skill in household management, including the budgeting and the spending of the family income

C. Attitudes and appreciations

1. Realization that happiness in marriage and family life is a significant value, the achievement of which may be aided by preparation
2. Appreciation of companionship as an essential element in the success of a marriage
3. Recognition of democracy as a way of life to be realized in the family in relations of husband and wife and of parents and children
4. Appreciation of family members as persons with needs and interests of their own
5. Awareness of the importance of the prevention, early recognition, and treatment of marital discord and of behavior problems of children
6. Appreciation of the role of religion in personal and family living

V. To do his part as an active and intelligent citizen in dealing with the interrelated social, economic, and political problems of American life and in solving the problems of postwar international reconstruction

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of American thought, institutions, traditions, and ideals, their character, backgrounds, and contemporary tendencies

The emphasis should be not on chronology or narration of events, but rather on ideas and topics, such as: colonial religious backgrounds, the Declaration of Independence, the Constitution, federalism, popular government, equality, individualism, freedom, rights, civil liberties, immigration, westward expansion, influence of geography and physiographic regions, economic opportunity, nationalism, industrialism, agrarianism, ur-

banism, literary movements in the nineteenth century, the development of science, the labor movement, war and peace, international cooperation and the meaning of democracy.

Students should be expected to analyze, interpret, and discuss these ideas and topics on a mature level and with reference to the concrete circumstances of American life.

The approach should guard against a narrowly nationalistic emphasis. In the first place, it should appear that American thought and institutions are an offshoot of European civilization, that many American ideas are part of the common heritage of mankind, and that they cannot be understood without reference to cultural influences from the past and abroad. In the second place, since the United States has at all times in recent decades played a role in relation to other nations that should be more and more explicitly recognized, a proper understanding of American thought and institutions would require a comparison with those of other countries.

2. Of the nature, history, and alternative solutions of the interrelated social, economic, and political problems of his community, state, and nation

The starting point should be not any one of the social sciences but rather the important problems of social living as they occur in their interrelated social, economic, and political context. A few illustrations of the types of problems to be considered are:

a. How can we secure full employment?
b. To what extent should we have a planned economy?
c. What would constitute a sound financial policy for America today?
d. What is the role of labor in American society?
e. What is happening to basic American institutions such as the school, the home, the church, and the family?
f. How may minority groups be assured social justice?
g. Is the democratic process workable today?

Through an examination of such problems the student should gain a knowledge and understanding of basic economic, social, and political organization, processes, and principles.

The approach throughout the consideration of these problems should be based upon a constructive attitude with full appreciation of the achievements of American life and an understanding that continued progress can best be realized by avoiding the extremes of cynical debunking on the one hand, and on the other, of chauvinistic refusal to criticize the evils and inadequacies that have appeared and continue to appear in American life.

3. Of the geographical, cultural, economic, and political backgrounds of the present war, and the factors involved in attaining a lasting peace. This would involve knowledge

a. Of the geographic basis of modern politics; the distribution of population, resources, and other components of national power, including strategic factors on land and sea and in the air
b. Of the various national cultures and ideologies that have conditioned national action in the international sphere
c. Of the economic, political, and social forces working in and between nations leading to the present war
d. Of the problems of the postwar world, and of the potential solutions necessary for an ordered, prosperous, international society

B. Skills and abilities

1. The ability to read maps, charts, and statistics and to make warranted deductions from them
2. The habit of thinking critically, with the ability to define problems, collect data, establish facts, and make discriminating use of materials
3. The ability to identify the concrete manifestation of basic national and international issues and conflicts and to recognize his personal relationship to them
4. The ability to identify and appraise judgments and values that are involved in the choice of a course of action
5. The ability to formulate explicitly and systematically a pattern of values as a basis of individual and social action

C. Attitudes and appreciations

1. A diligent cultivation of objectivity, realism, and tolerance
2. A devotion to those ideas and ideals which are the foundation of democracy and of desirable international relationships and the acceptance of personal responsibility for putting these into practice
3. An awareness of the action and interaction of social change and social continuity—the one to prepare for adaptation to the inevitable process of invention, the other to preserve a sense of continuity with a past distinguished for its achievements in promoting the welfare of the common man
4. An awareness of the interdependence of states and racial groups and of the obligations of the United States in the creation and preservation of a satisfactory postwar world

VI. To act in the light of an understanding of the natural phenomena in his environment in its implications for human society and human welfare, to use scientific methods in the solution of his problems,[1] and to employ useful nonverbal methods of thought and communication

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of the facts, principles, and theories that explain natural phenomena and the operation of mechanical appliances and technological processes
2. Of the role and function of science and mathematics in our society
3. Of the questions that can be answered by science and the kinds of answers that science can provide, and conversely, the limit to the information about the world attainable through science
4. Of the techniques and methods used by scientists in seeking to answer questions about the world, and of the proper functions of scientific theory and experiment
5. Of the basic scientific vocabulary necessary for the attainment of essential objectives

[1] In the solution of his problems, the layman may frequently need to use mathematical operations. The generally educated person is expected to have certain arithmetical and algebraic knowledge and skills but these are usually to be attained before the student reaches the level of general education considered in this outline. If the student has not attained the requisite mathematical skills required of the layman he will need to review courses offered at the level of the elementary school or the high school. Computational skill beyond the level of high school algebra may be developed as part of a student's program of specialization but is not included as an essential element in his general education.

B. Skills and abilities

1. The ability to conserve and develop natural resources and to use them efficiently
2. The ability to use effectively mechanical appliances and technological developments that are common and valuable in modern life
3. The ability to observe phenomena accurately
4. The ability to draw valid inferences from data
5. The ability to test hypotheses
6. The ability to apply principles to new situations
7. The ability to recognize and formulate problems
8. The ability to read graphs, diagrams, and blueprints

C. Attitudes and appreciations

1. The habit of approaching problems objectively
2. Willingness to face facts and conclusions that can be logically drawn from them
3. Readiness to revise judgments and to change behavior in the light of evidence

VII. To find self-expression in literature and to share through literature man's experience and his motivating ideas

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of the content of a reasonable number of outstanding works of the past and present through reading (as distinct from digests and histories of literature)
2. Of continuity and change in man's experience, character, motivating ideas, and ideals as reflected in literature
3. Of the human qualities which are central to the democratic tradition and ideal, and basic to cultural unity
4. Of sources of information and guidance in choice of reading
5. On an elementary level, of the manner in which the techniques employed by writers aid them in accomplishing their particular purposes

B. Skills and abilities

1. The ability to read significant literature with comprehension
2. The ability to exercise taste in the choice of reading material
3. The ability to recognize form and pattern in literary works as a means of understanding their meaning

C. Attitudes and appreciations

1. Enjoyment of literature, intellectually and aesthetically, as a means of personal enrichment and social understanding
2. Alertness toward human values and judgments on life as they are recorded in literature, and an attiude of intelligent appraisal of these elements
3. Encouragement of contemporary literary efforts through a lively interest in such activities

VIII. To find a means of self-expression in music and in the various visual arts and crafts, and to understand and appreciate art and music as reflections both of individual experience and of social patterns and movements

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of outstanding examples of contemporary and historical art and music

2. Of change and continuity in man's experience, character, and motivating ideas and ideals, as reflected in music and in works of art
3. Of the relationship of music and art to everyday life and to the social and cultural characteristics of the time in which they were produced
4. Of the problems faced in creative work in the arts, and of the techniques and media used in solving these problems
5. Of standards of good taste as developed by individual musicians and artists and reflected in the various regional and historical styles

B. Skills and abilities

1. The ability to participate actively in at least one of the arts or crafts or in some form of musical expression
2. The ability to recognize artistic quality in contemporary works of music and art
3. The ability to recognize aesthetic values and relationships in significant works of the historical past
4. This ability to apply self-developed standards to the choice and use of the ordinary objects of the everyday environment
5. The ability to see personal aesthetic values in their relationship to other experiences in the present-day environment

C. Attitudes and appreciation

1. Enjoyment of music and of works of art and craftsmanship as a means of personal enrichment
2. Enjoyment of self-expression in music and in arts and crafts as another means of personal enrichment
3. Encouragement of contemporary artistic efforts through maintaining a lively interest in such activities
4. Preference for artistically appropriate choice, arrangement, and use of ordinary objects of the environment

IX. To practice clear and integrated thinking about the meaning and value of life

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of the essential nature of man and of his characteristic cultural achievements
2. Of ethical issues growing out of the present crisis of civilization
3. Of the importance of standards of judgment in meeting problems of individual living
4. Of the meaning of justice, right, and duty
5. Of the nature and principles of a free and democratic society
6. Of the role of intelligence as an essential tool of social progress
7. Of what religion is and does
8. Of the cardinal insights of the world's living religions
9. Of what man has discovered to be the essential elements of a good life
10. Of how man can deal with problems of human suffering
11. Of an integrated world view

B. Skills and abilities

1. Accurate and creative thinking about ethical issues in the life of the individual and the community

2. Skill in recognizing and weighing values involved in alternative courses of action
3. Habits of self-discipline
4. The habit of applying ethical principles in family, vocational, and other social relationships
5. The practice of good citizenship
6. Habits of honesty, truthfulness, fair-play, and tolerance

C. Attitudes and appreciations

1. Enjoyment of beauty
2. Loyalty to the social goals of a free society and a world community
3. Faith in the power of reason and in the methods of experiment and discussion
4. Enjoyment of worship and an appreciation of its place in man's life

X. To choose a vocation that will make optimum use of his talents and enable him to make an appropriate contribution to the needs of society

In order to accomplish this purpose, the student should acquire the following:

A. Knowledge and understanding

1. Of the characteristics, range, and earnings of occupations with particular reference to types and amounts of interests, abilities, and aptitudes required
2. Of occupational trends (national and local) as affected by age and population changes, recent economic dislocations, technological improvements, and changes in consumer demands
3. Of employment restrictions, discriminations, opportunities and protection imposed by trade unions, professional associations, state examining boards, and by labor legislation
4. Of dependable methods of investigation of economic, sociological, and psychological data related to occupational orientation
5. Of the influence on, and relationship to, vocational choices of such factors as parent's occupation, emotional fixations, popular misinformation concerning earnings and opportunities, and locally available employment
6. Of the fundamental nature, modifiability, range, and types of individual differences in abilities, aptitudes, interests, motivations, and personality traits; and of dependable methods of identifying and diagnosing these differences
7. Of available legitimate or acceptable resources for occupational training (national and local) as an integral part of occupational orientation
8. Of available acceptable community resources for educational and occupational counseling
9. Of dependable agencies and methods for assistance in securing appropriate employment following training
10. Of civilian occupations related to military experience and training
11. Of procedures involved in securing employment or further civilian training following demobilization

B. Skills and abilities

1. The ability to perceive the economic and personal conditions necessitating vocational readjustment at any point in his training or experience
2. Skill in using dependable methods of collecting information about his aptitudes, interests,

and motives, and applying such information to his own adjustment problems

3. Skill in using dependable methods of collecting occupational information and applying it to his orientation problems as changing personal goals or economic conditions require
4. The habit of reviewing, in consultation with advisers, his vocational adjustment as he perceives the need for such consultation in reorientation
5. The ability to discover adequate and appropriate training opportunities in terms of his aptitudes, interests, and motives
6. Skill in the methods of discovering and entering upon adequate and satisfying employment opportunities, utilizing letters of application, personal interviews, and other techniques

C. Attitudes and appreciations

1. Acceptance of primary responsibility for making an occupational choice
2. Acceptance of the desirability of exploration and tentative choices preceding "final" choice
3. Awareness of the likelihood of occupational readjustments in adult life, as contrasted with the unsound expectancy of stability and permanence
4. Acceptance of objectivity and systematic planning as basic methods in arriving at satisfying choices
5. Recognition of the inability of training to compensate fully for deficiencies in aptitudes or abilities
6. Realistic acceptance of, and emotional adjustment to, the limitations inherent in his own aptitudes, abilities, interests, and physical conditions
7. Confidence in his ability to succeed in his chosen field because of the use of dependable processes of choosing and training
8. Satisfaction with choice of an occupational field at a level appropriate to his interests, aptitudes, and motives
9. Appreciation of the chosen vocation as a mode of life
10. Awareness of the satisfactions that arise from good workmanship and integrity on the job
11. Awareness of the personal readjustment occurring in the transfer from the training situation to the initial job situation
12. Realization of the importance of nonvocational activities in a balanced adult vocational life
13. Acceptance of the societal responsibility, organizational loyalties, and the reciprocal obligations of employers and employees inherent in adult job adjustment
14. Awareness of the need, where necessary, for occupational readjustment after demobilization

Figure 40

THE CLAPP COMMISSION CLASSIFICATION OF COLLEGE OUTCOMES*

I. Intellectual Attainments
1. Is able to express himself effectively:
   a. in written English (42, 22, 0) +
   b. in public speaking (37, 5, 2)
   c. in oral conversation (29, 9, 8)
2. Is acquainted with basic facts, principles, theories, and techniques in certain areas of the culture of the race:
   a. biological sciences (38, 5, 4)
   b. social sciences:
      (1) history (43, 15, 0)
      (2) economics (39, 3, 4)
      (3) sociology (39, 6, 4)
   c. physical sciences (41, 7, 0)
   d. mathematics (38, 5, 3)
   e. English literature (38, 12, 5)
   f. American literature (39, 6, 4)
   g literature from other nations (29, 4, 8)
   h. philosophy (34, 17, 8)
   i. classical languages (26, 4, 8)
   j. modern languages (38, 5, 3)
3. Has a specialized knowledge of some one of the above culture areas, apart from vocational requirements (major study) (34, 20, 6)
4. Has ability to utilize library facilities efficiently (37, 11, 4)
5. Demonstrates ability in rigorous scholarship (35, 12, 3)
6. Gives evidence of intellectual integrity (40, 31, 1)
7. Understands the significance of knowledge organized as exact science (40, 17, 3)
8. Has developed the intellectual qualities necessary for leadership:
   a. initiative (35, 16, 3)
   b. self-confidence (36, 18, 2)
   c resourcefulness (37, 20, 1)
   d progressiveness (34, 14, 4)
9. Has learned to think clearly and to detect logical fallacies (40, 30, 3)
10. Has developed the scientific way of thinking (preciseness, objectivity, impartiality) (42, 26, 1)
11. Has developed imaginativeness and resourcefulness as means to creative thinking (41, 14, 0)
12. Has developed a variety of intellectual interests (39, 18, 5)
13. Is open-minded in his consideration of controversial questions (40, 25, 3)
14. Has developed intellectual curiosity which leads him to go beyond mere requirements (40, 25, 4)

II. Health
15. Is physically healthy (35, 9, 4)
16. Knows how to play numerous games, including some useful in post-college life (31, 0, 4)
17. Is intelligent with regard to kinds and amounts of food and drink and the laws governing their use (30, 7, 6)
18. Is able to avail himself of the services of experts for the maintenance of health (29, 6, 8)
19. Practices and promotes the observance of proper habits and regulations with respect to sanitation (28, 12, 6)
20. Has learned to conserve energy and avoid overtaxing the physical organism (28, 4, 8)
21. Is able to administer first aid (23, 1, 12)
22. Is physically toughened and able to undergo physical hardships (13, 0, 6)

III. Personality Adjustment
23. Knows how to evaluate himself and others properly (37, 15, 5)
24. Is able to adapt himself to new circumstances (36, 14, 4)
25. Has the ability to make decisions and to abide by the consequences (36, 18, 3)
27. Has the disposition and ability to conform to convention when it is fitting to do so (34, 12, 4)
28. Has poise in dealing with individuals and groups (34, 13, 7)
29. Knows how to perform social courtesies (33, 11, 5)
30. Engages in recreational activities or hobbies of a type different from his vocation (27, 2, 10)
31. Has numerous friends and is an accepted member of one or more social groups (26, 5, 10)

+The numbers in parentheses represent, respectively, the number of schools accepting the objective, the number of schools who view it as a major objective, and the number of schools that did not accept the objective at the time of the study but intended to sometime in the future.

*Reprinted from Clapp (1946).

32. Is tactful in his dealings with people (26, 9, 7)
33. Is cheerful and pleasant (18, 3, 9)

IV. General Ethical Character

34. Has developed a socially acceptable and personally satisfactory philosophy of life or system of values (38, 34, 5)
35. Accepts and lives according to certain ethical and moral concepts:
    a. Honesty in the performance of school work (36, 30, 3)
    b. Honesty in financial dealings (37, 30, 1)
    c. Responsibility in the care of personal property of others (38, 25, 1)
    d. Responsibility in the care of public property (36, 22, 3)
    e. Chastity (34, 23, 2)
    f. Kindness, considerateness (34, 17, 2)
    g. Self-control (36, 20, 5)
    h. Respect for personality (36, 26, 2)
    i. Cooperativeness (36, 19, 5)
    j. Dependability (36, 25, 4)
36. Is free from narrow partisan bias and tolerant of the rights of others to their opinions and actions (36, 24, 5)
37. Recognizes a social obligation to produce and to work for the general welfare (36, 25, 3)

V. Christian Character

38. Attempts to apply Christian principles to the solution of social and economic problems (27, 24, 2)
39. Attempts to solve personal problems in the light of Christian principles (24, 21, 2)
40. Commits himself to a personal decision of loyalty to Christ or to Christian principles (22, 18, 2)
41. Is religiously motivated to live according to the concepts of the good life as learned from various sources (22, 19, 1)
42. Accepts responsibility for the promulgation and spread of the Christian gospel (20, 12, 3)
43. On religious grounds, practices regular church attendance (20, 13, 2)
44. On religious grounds, practices observance of a weekly sabbath (17, 11, 3)
45. On religious grounds, practices simplicity in dress and living (12, 3, 3)
46. On religious grounds, practices abstinence from the use of intoxicating liquor (12, 8, 1)
47. Accepts the doctrinal positions officially held by the school or its supporting religious group (11, 9, 1)
48. On religious grounds, practices daily or regular Bible reading (11, 6, 2)
49. Has a religious experience of conversion (8, 7, 2)
50. On religious grounds, practices abstinence from the use of tobacco (6, 5, 2)
51. Undergoes baptism or some other ritualistic observance (5, 2, 1)
52. On religious grounds, practices abstinence from social dancing (5, 4, 0)
53. On religious grounds, practices abstinence from attendance at theaters, movies, etc (5, 4, 0)
54. On religious grounds, practices conscientious objection to bearing arms (3, 0, 0)

VI. Aesthetic Interests

55. Is acquainted with and appreciates the beautiful in poetry and in prose literature (36, 8, 4)
56. Has a sense of what is pleasing and in good taste in dress, manners, and speech (33, 8, 6)
57. Has learned to appreciate and enjoy good music (32, 3, 8)
58. Has the knowledge and attitudes which enable him to enjoy the world of nature (28, 2, 9)
59. Is acquainted with masterpieces of painting and sculpture (27, 2, 9)
60. Is able to take part in the creation of vocal or instrumental music, alone or in a group (21, 1, 10)
61. Is able to participate in dramatic productions (21, 0, 11)
62. Is able to engage creatively in drawing, painting, sculpture, or writing (20, 0, 15)

VII. Citizenship Responsibilities

63. Has a philosophically grounded view of citizenship—appreciates the organized state as a social institution (41, 23, 1)
64. Has an appreciation of the world-wide effects of this nation's policies (38, 11, 5)
65. Makes proper use of the sources of political information (newspapers, magazines, radio, etc.) (37, 11, 6)
66. Is willing to abide by the decisions of duly constituted authorities (37, 20, 4)
67. Respects and seeks to protect the rights of political, racial, and cultural minorities (37, 20, 5)

68. Maintains the principle of free speech (36, 20, 4)
69. Has philosophically based opinions as to the place of force, including war, in the settlement of controversies (35, 13, 6)
70. Respects the natural resources of the country and promotes their conservation and wise use (35, 13, 5)
71. Has knowledge and philosophically based opinions on unionism and collective bargaining (35, 12, 6)
72. Exercises his right of franchise; registers and votes at each election (34, 13, 8)
73. Is capable of exercising his rights as a citizen to work toward new and different laws and decisions (34, 14, 6)
74. Views democracy as equality of opportunity to try rather than as equality of ability to achieve (33, 15, 7)
75. Accepts civic responsibility in matters of community welfare: jury duty, voluntary service in war and peace, Red Cross, etc. (31, 15, 7)

VIII. Vocational and Professional Preparation

76. Has the requisite knowledge and understanding to enable him to choose a vocation in accordance with his abilities and aptitudes (39, 29, 0)
77. Seeks a socially useful as well as a remunerative occupation (36, 26, 5)
78. Is prepared to do general graduate work in liberal arts subjects (36, 11, 3)
79. Has received, as part of his B.A. or B.S. course, vocational or professional training adequate to permit immediate entrance into his vocation or profession (35, 20, 2)
80. Has received pre-professional training sufficient to permit him to enter graduate professional work in:
    a. Education (34, 17, 2)
    b. Medicine (23, 7, 4)
    c. Nursing (22, 9, 4)
    g. Religion or theology (22, 11,3)
    e. Engineering (18, 6, 5)
    f. Law (18, 5, 4)
    b. Pharmacy (17, 3, 6)
    h. Forestry (12, 3, 5)

IX Preparation for Home Membership

81. Has received adequate instruction to facilitate mental and personality adjustments in marriage (27, 8, 7)
82. Views marriage as a permanent relationship and plans accordingly (27, 17, 5)
83. Knows how to maintain an attractive and well-organized home (26, 5, 7)
84. Is able to plan intelligently for children and to provide a wholesome environment for their physical, mental and social development (25, 8, 6)
85. Knows how to find help, through literature and counselors, in solving family problems as they arise (25, 5, 11)
86. Has the knowledge and attitudes to enable him to choose a mate wisely (23, 8, 11)
87. Knows how to budget his funds and gauge his purchasing power (21, 3, 12)
88. Knows how to buy wisely and secure quality in his purchases (21, 2, 12)
89. Has received adequate instruction to facilitate physical adjustments in marriage (20, 5, 11)
90. Is able to do home accounting: checkbook, budget, and income tax accounts (18, 2, 15)
91. Is able to adjust to the single life, if necessary or advisable (17, 4, 11)

Vernon's Educational Attainment Maps. Vernon (1950), a noted British researcher in the area of educational abilities, summarized results of factoral studies throughout Britain and elsewhere with a series of diagrams that displayed the relationships to one another of various abilities that educators are attempting to develop and maximize in students. In a chapter titled "Analyses of Educational Attainments," he presented two such diagrams or factorial maps that are reproduced in Figure 41. Another of his maps, for the sensory area, is also presented. These maps show a different approach to an educational outcomes structure than any reviewed thus far. The g factor around which all of the factors seem to revolve is general intelligence. Other major factors are v (verbal), n (numerical), m (mechanical), p (perceptual, speed), k (spatial), v:ed (verbal-numerical-educational), k:m (practical-mechanical-spatial-physical), and $\bar{x}$ (industriousness).

1950 Purposes of Public Education in California. In 1950, the Superintendent of Public Instruction appointed a committee to develop a framework for public education in California (California Framework Committee, 1971). The Committee built their framework around a statement of purposes of public education in California, which was its adaptation of the purposes prepared in 1938 by the Educational Policies Commission of the National Education Association. This modified list of purposes is shown in Figure 42. It was stated that the order in which the purposes were presented was not meant to indicate relative importance of those purposes.

Figure 41

VERNON'S EDUCATIONAL ATTAINMENT MAPS*

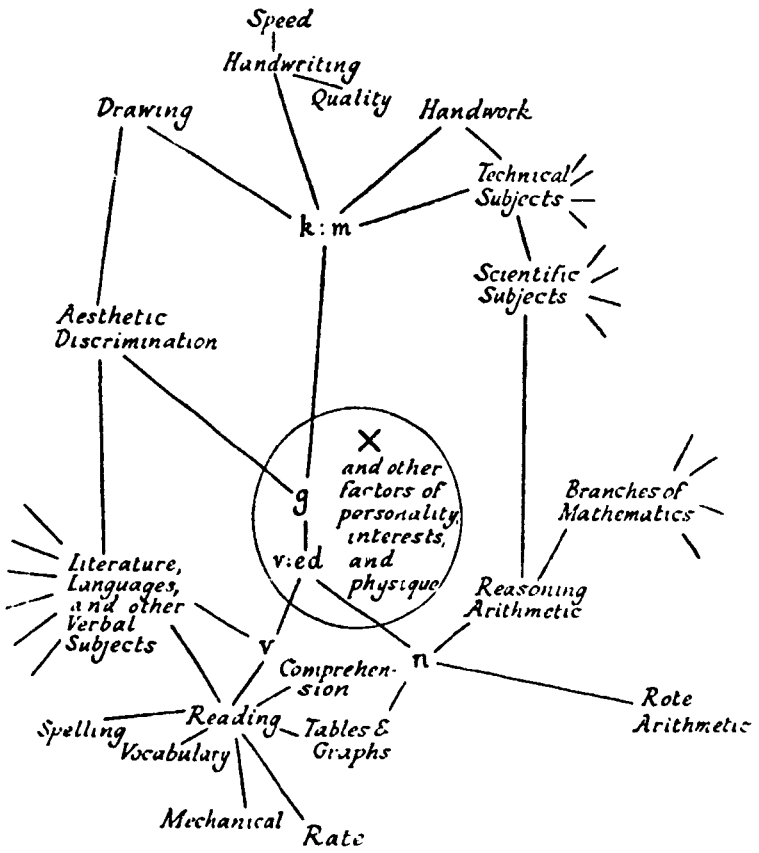


Fig. 3. Diagram of the Structure of Educational Abilities

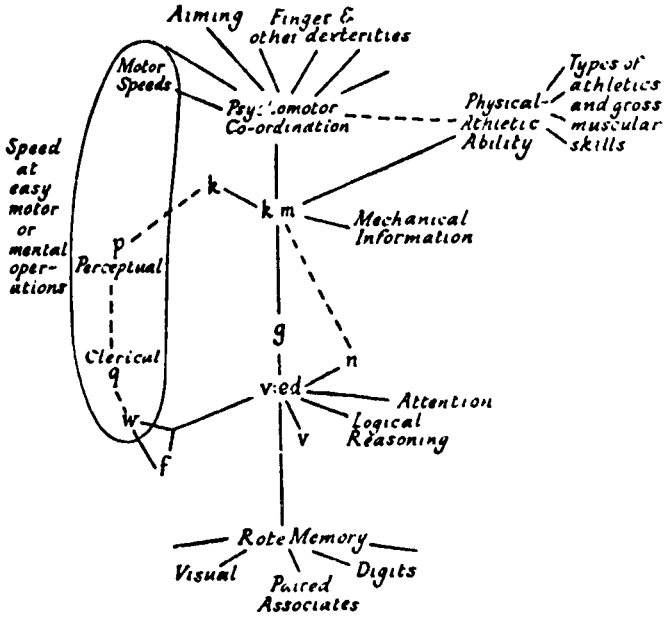


Fig. 4. Diagram of Intellectual and Practical Factors in Psychological Tests

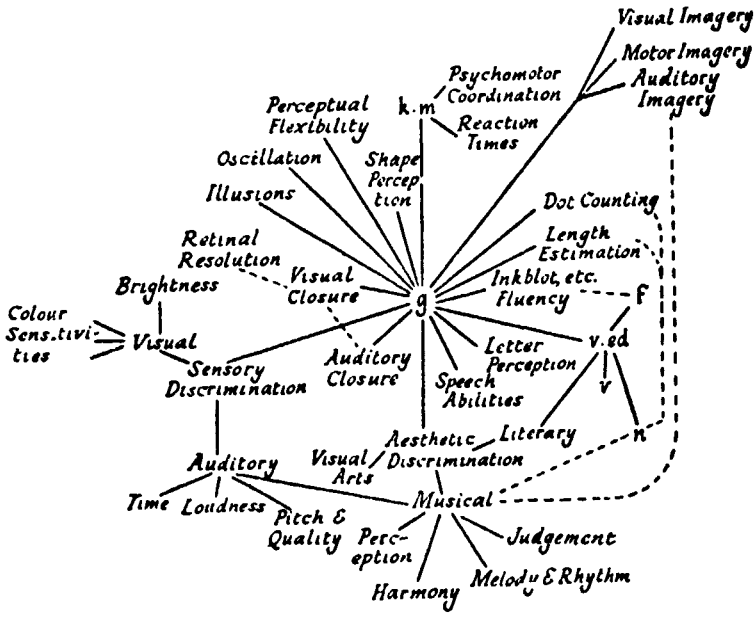


Fig. 5. Diagram of Sensory, Perceptual, Imagery and Aesthetic Discrimination Factors

*From Vernon (1950, pp. 47, 85, and 94).

Figure 42

1950 PURPOSES OF EDUCATION IN CALIFORNIA*

I. THE OBJECTIVES OF CIVIC RESPONSIBILITY
Effective citizenship requires that the individual and the group

1. Act upon an understanding of and loyalty to our democratic ideals
2. Understand and appreciate the positive advantages of American institutions
3. Be sensitive to the disparities of human circumstances
4. Act with others to correct unsatisfactory conditions
5. Understand local, state, national, and international social structures and social processes
6. Achieve skill with processes of group action, in student self governing groups develop criteria for making wise choices of action
7. Know the achievements of the people who have made the United States a great nation
8. Develop defenses against destructive propaganda
9. Accept honest differences of opinion
10. Realize the importance of wise use of human and natural resources
11. Measure scientific advances by contributions to the general welfare
12. Be active, co-operating members of the world community
13. Work to achieve and maintain peace in the world
14. Respect the law
15. Meet their civic obligations

II. THE OBJECTIVES OF FULL REALIZATION OF INDIVIDUAL CAPACITIES
The full realization of individual capacities requires that the individual, in accordance with his ability and experience,

1. Desire to learn, to grow
2. Speak English clearly
3. Read English efficiently
4. Write English effectively
5. Use the skills of counting and calculating
6. Listen and observe accurately
7. Understand the essential facts concerning health and disease
8. Protect his health and that of others
9. Work to improve the health of the community
10. Work to achieve poise and co-ordination in bodily movement
11. Participate in a range of leisure time activities--physical, intellectual, and creative
12. Develop a sense of humor
13. Seek and enjoy beauty
14. Understand and value the contributions of art, literature, music, and the dance
15. Give responsible direction to his own life
16. Develop a set of sound moral and spiritual values
17. Utilize values as determiners of choices
18. Arrive at appropriate decisions in specific situations as a result of critical thinking
19. Formulate his purposes

III. THE OBJECTIVES OF HUMAN RELATIONSHIPS
The achievement of increasingly effective human relationships requires that the individual and the group

1. Place human relations first
2. Enjoy a rich, sincere, and varied social life
3. Work and play with others effectively
4. Observe the amenities of social behavior
5. Recognize the family as a basic social institution
6. Conserve family ideals
7. Exercise skill in homemaking
8. Maintain democratic relationships in the family and in all other group situations
9. Work to improve intergroup relationships

IV. THE OBJECTIVES OF ECONOMIC EFFICIENCY
The attainment of economic efficiency requires that the individual

1. Understand the interdependency of economic structures and procedures
2. Understand the satisfactions of good workmanship
3. Recognize the obligation to perform an honest day's work
4. Understand the requirements and opportunities for various jobs
5. Select his occupation and prepare for it
6. Maintain and improve his efficiency
7. Realize the social value of his work
8. Plan the economics of his own life
9. Develop standards for guiding his expenditures
10. Become an informed and skillful buyer
11. Take ethical measures to safeguard his interests

*Abstracted from California Framework Committee (1971).

The Framework Developed by the Mid-Century Committee on Outcomes in Elementary Education. About the middle of the century, the Educational Testing Service, the National Education Association, the Russell Sage Foundation, and the U.S. Office of Education invited outstanding educators from across the country to form a Mid-Century Committee on Outcomes in Elementary Education (Kearney, 1953). They were given the charge of describing "for educators, test-makers and interested citizens the measurable goals of instruction in . . . American elementary schools . . . a comprehensive and authoritative survey of elementary schooling, with primary emphasis on behavioral goals" (p. 7). They knew that there were many statements about some of the goals of education, but that there were few inclusive statements. Many statements, made in the form of general objectives, were so broad in character as to be suceptible to various interpretations. They wanted to know the degree to which the goals of elementary education could be stated definitely and concretely.

The members of one group within the Committee, called consultants, were divided into two subgroups: one group was to develop objectives in the areas of intellectual competence and subject-matter learning; the second group was asked to develop goals in the areas of personal development and social maturation. In order to secure varied and unprejudiced statements, each consultant was asked to work alone without conference with other members. Goals were to be formulated for three different periods: kindergarten through grade three, grades four through six, and grades seven through nine. To be included the goal had to meet the following

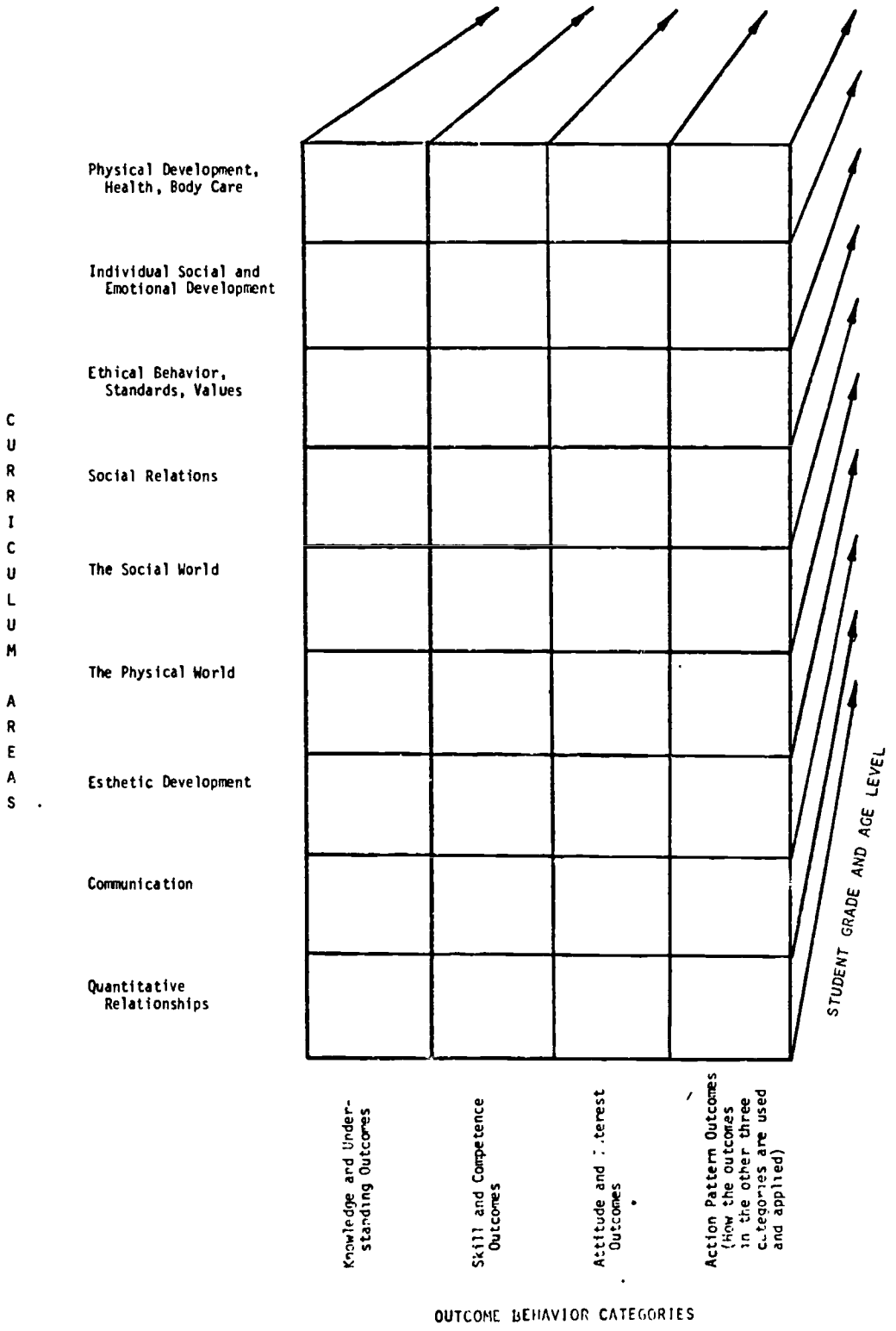
criterion: "Is it of sufficient importance to the individual pupil, or to society, to have an acknowledged place in the regular program of the school?" (p. 31).

A consultant within each group then pulled together the ideas for that group into a summary and a list of goal statements. Each summary and list was sent to a separate group of five critics for review. When the committee of consultants and the committee of critics were done with their work, a survey committee worked the goals into a three-dimensional classification system that is illustrated in Figure 43. The arrows on the time dimension axis suggest that the framework can apply up into the higher grades (they specifically included ninth grade), and perhaps even into the college level.

The Committee acknowledged that there would always be a certain amount of overlap and duplication across subdivisions of their classification system (1) because it is impossible to divide and categorize some learning activities into their various parts; and (2) because of differences in the philosophy, predilection, and semantics of different scholars. This did not bother them, however, as long as all of the primary goals of education were included in the classification and as long as it made obvious the great diversity and number of opportunities for education to have an impact.

Figure 43

AN ILLUSTRATION OF THE FRAMEWORK DEVELOPED BY THE MID-CENTURY COMMITTEE ON OUTCOMES IN ELEMENTARY EDUCATION*



*Abstracted from Kearney (1953).

Havighurst's Developmental Task Framework. Havighurst (1952) defined a developmental task as "a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks" (p. 12). As indicated by the definition, the tasks are time-oriented and cumulative to the extent that the mastery of tasks located earlier in the continuum leads to better (and possibly earlier) mastery of later tasks. There are three sources that determine the developmental tasks and expected schedule of mastery for a given individual. Some tasks arise primarily because of physical maturation. Others result primarily from societal and cultural pressures. Still others arise primarily because of the "personal values and aspirations of the individual, which are part of his personality, self" (p. 4).

Havighurst, based on psychological studies and observations, postulated developmental tasks for a person's entire life, so they apply to college students also. Furthermore, since they are learned tasks, education can affect their development. As Havighurst said:

> There are two reasons why the concept of developmental tasks is useful to educators. First, it helps in discovering and stating the purposes of education in the schools. Education may be conceived as the effort of the society, through the school, to help the individual achieve certain of his developmental tasks. The second use of the concept is in the timing of educational efforts. When the body is ripe, and society requires, and the self is ready to achieve a certain task, the teachable moment has come. [P. 5]

Some of the tasks are recurring tasks. A good example is "to get along with one's age mates." To get along with peers at one age may require different skills than getting along with them at a different age. However, success at this task in an earlier phase makes the task easier at a later phase. Other recurring, lifelong tasks include learning a sex role and learning to be a responsive citizen. Havighurst's developmental categories from adolescence through old age are presented in Figure 44.

A Framework for Objectives in General Education Suggested by the Work of Dressel and Mayhew. In 1950 a study sponsored by the American Council on Education (and funded by the Carnegie Commission and the participating colleges and universities) was inaugurated to study the evaluation of collegiate general education. Three and one-half years were spent studying objectives, developing evaluation procedures, planning a research design, following groups of freshmen through their college career, and analyzing data. The results of the study are summarized in a report by the study directors, Dressel and Mayhew (1954).

General educational faculty surveyed at 20 colleges during the formative stages of the study revealed that only five or six of the 11 objectives for general education formulated by President Truman's Commission on Higher Education (1947, pp. 50-58) received anywhere near unanimous endorsement. In late 1949, administrative and evaluation officers of 18 of those colleges met to plan the cooperative study, and they decided to focus on the six most popular objectives in the earlier survey (the first four, which were

Figure 44

HAVIGHURST'S DEVELOPMENTAL TASKS RELEVANT TO POSTSECONDARY EDUCATION*

A. DEVELOPMENTAL TASKS OF ADOLESCENCE

1. Achieving new and more mature relations with age mates of both sexes
2. Achieving a masculine or feminine social role
3. Accepting one's physique and using the body effectively
4. Achieving emotional independence of parents and other adults
5. Achieving assurance of economic independence
6. Selecting and preparing for an occupation
7. Preparing for marriage and family life
8. Developing intellectual skills and concepts necessary for civic competence
9. Desiring and achieving socially responsible behavior
10. Acquiring a set of values and an ethical system as a guide to behavior

B. DEVELOPMENTAL TASKS OF EARLY ADULTHOOD

1. Selecting a mate
2. Learning to live with a marriage partner
3. Starting a family
4. Rearing children
5. Managing a home
6. Getting started in an occupation
7. Taking on civic responsibility
8. Finding a congenial social group

C. DEVELOPMENTAL TASKS OF MIDDLE AGE

1. Achieving adult civic and social responsibility
2. Establishing and maintaining an economic standard of living
3. Assisting teen-age children to become responsible and happy adults
4. Developing adult leisure-time activities
5. Relating to one's spouse as a person
6. To accept and adjust to the psychological changes of middle age
7. Adjusting to aging parents

D. DEVELOPMENTAL TASKS OF LATER MATURITY

1. Adjusting to decreasing physical strength and health
2. Adjusting to retirement and reduced income
3. Adjusting to death of spouse
4. Establishing an explicit affiliation with one's age group
5. Meeting social and civic obligations
6. Establishing satisfactory physical living arrangements

*Abstracted from Havighurst (1952, pp. 33-98).

directly related to subject matter, received unanimous support, while the other two were not quite as popular). An intercollege committee was formed for each area, and each was given the charge to study its area in any way it saw fit (all of them included analysis of on-campus data as part of their study). The six objectives and their associated committees are shown below (Dressel and Mayhew, 1954, p. 12):

1. "To participate actively as an informed and responsible citizen in solving the social, economic, and political problems of one's community, state, and nation" (Committee on Social Science Objectives)

2. "To understand the common phenomena in one's physical environment, to apply habits of scientific throught to both personal and civic problems, and to appreciate the implications of scientific discoveries for human welfare" (Committee on Science Objectives)

3. "To understand the ideas of others and to express one's own effectively" (Committee on Communications Objectives)

4. "To understand and enjoy literature, art, music, and other cultural activities as expressions of personal and social experience, and to participate to some extent in some form of creative activity" (Committee on Humanities Objectives)

5. "To attain a satisfactory emotional and social adjustement" (Committee on Attitudes, Values, and Personal Adjustment)

6. "To acquire and use the skills and habits involved in critical and constructive thinking" (Committee on Critical Thinking)

A short time after the meeting, the Cooperative Study of Evaluation in General Education was authorized, and 16 of the colleges plus three others became active participants in the study. Dressel and Mayhew noted in their report that the last two objectives, which did not arise out of concern about the general education areas, seemed after analysis to pervade all content areas. This suggests a pictoral framework for these six

objectives like the one presented in Figure 45. Note that the bottom and the one end of the bar have been left open to signify that other categories of objectives could be added in either direction.

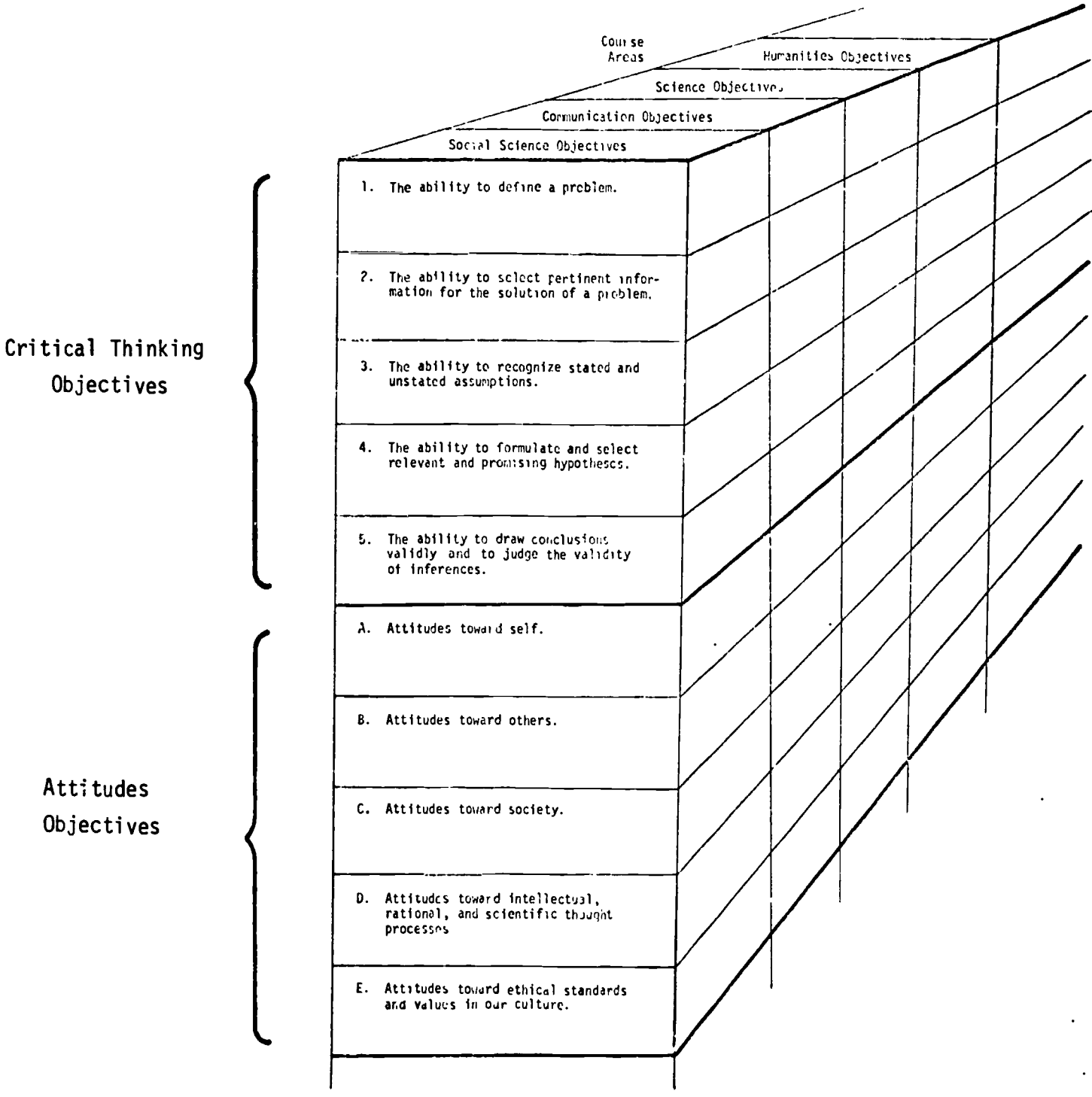
All six of the objectives were broken down into more specific objectives by their respective committees, even though the more specific objectives are shown only for the two pervasive objectives--critical thinking and attitudes. Furthermore, although they are not shown in the diagram, nine of the 10 more specific pervasive objectives shown (all except Objective E) had a large number of even more specific objectives listed under each.

The 1956 White House Conference Goals for What the Schools Should Accomplish. The 1956 White House Conference on Education, which involved over 1,800 conferees who had been nominated by their states and national organizations and which was a follow-up to conferences on education held within the states, was assigned to discuss six major topics, one of which concerned what the schools should accomplish. This conference had a unique format and process. Prior to the conference, each participant was sent materials giving facts, figures, and points of view related to each topic and asked to do preliminary study and homework. At the conference itself, participants were assigned to 166 discussion tables of 11 persons each, assuring through use of electronic punch card equipment that each discussion group was as representative of the total group as possible on the factors of residence, occupation, sex, and attendance or nonattendance at their state conference. For each topic, there was a general session that summarized for all participants the facts,

Figure 45

A FRAMEWORK FOR OBJECTIVES IN GENERAL EDUCATION

SUGGESTED BY THE WORK OF DRESSEL AND MAYHEW*



*Abstracted from Dressel and Mayhew (1954).

Figure 46

THE 1956 WHITE HOUSE CONFERENCE GOALS FOR

WHAT THE SCHOOLS SHOULD ACCOMPLISH*

The Schools Should Develop:

1. The fundamental skills of communication . . . ; the arithmetical and mathematical skills, including problem solving
2. Appreciation for our democratic heritage
3. Civic rights and responsibilities and knowledge of American institutions
4. Respect and appreciation for human values and for the beliefs of others
5. Ability to think and evaluate constructively and creatively
6. Effective work habits and self-discipline
7. Social competency as a contributing member of the family and community
8. Ethical behavior based on a sense of moral and spiritual values
9. Intellectual curiosity and eagerness for life-long learning
10. Esthetic appreciation and self-expression in the arts
11. Physical and mental health
12. Wise use of time, including constructive leisure pursuits
13. Understanding of the physical world and man's relation to it as represented through basic knowledge of the sciences
14. An awareness of our relationships with the world community

*The list is excerpted from the Committee for the White House Conference on Education Report to the President (1956).

figures, and relevant issues, followed by small discussion groups. Each table prepared its own report, and then there were 16 meetings of 10 table chairpersons each, where each group of 10 reports on the topic was synthesized into one. Next the chairpersons for the 16 synthesis meetings met in two groups of eight to synthesize the final 16 reports into two reports. Finally, the chairpersons for the two groups met and synthesized the two reports into one final report to the president of summary conclusions on the topic. There was consensus on 14 goals for what the schools should accomplish, and this list of goals presented in the report to the president put together by the Committee for the White House Conference (1956) is reproduced in Figure 46.

Findley's Ultimate Goals of Education. Findley (1956) was bothered by the fact that high ability students could enter high school or college and make it through to graduation without growing at all in competence, while students with less ability were making real gains in competence but dropping out because of discouragement or low grades. Similarly, it disturbed him that so many people considered the primary objective of education to be merely "the learning of those bits of information that each of several competent specialists chooses to require of his students for a passing mark" (p. 10). In his mind, such goals for education were unimportant compared to goals such as preparing students for a constructive, healthy, and satisfying life. As he stated:

> The view advanced here is that there are definable ultimate goals of education toward which our more immediate activities need to contribute. . . . Generally speaking, we may say that the ultimate goals of education are as broad as society's goals for its people. They look to the

development of a community of individuals, each enjoying an increasingly satisfying, constructive way of life. . . . The crucial characteristic of all these ultimate goals is that they concern things people need to be able to do, behavior they can perform, rather than just knowing or feeling or believing. They are patterns of action that we hope individuals may attain. [Pp. 10-11]

He further stressed that these goals involve more than just activities to prepare for life--that these activities in school or college are an integral part of life itself, while in school. Findley's seven categories of ultimate goals for education are listed in Figure 47.

Figure 47

FINDLEY'S ULTIMATE GOALS OF EDUCATION*

- Generalized Intellectual Competence in the Basic Subject Matter Areas
- Specialized Competence for One's Vocation or Profession
- Skill and Satisfaction in Working with Others toward Common Objectives
- Skill and Satisfaction in Home and Family Living
- Constructive Leisure Activities, an Appetite for Recreation, and Aesthetic Satisfaction
- A Healthy and Strong Body
- A Unified View of the Self in the Universe

*Abstracted from .indley (1956).

The Survey of Behavioral Outcomes of General Education in High School. As a follow-up to the Mid-Century Committee on Outcomes in Elementary Education, the National Association of Secondary School Principals, the Russell Sage Foundation, and the Educational Testing Service commissioned a similar study which was to focus on high school general education (French and Associates, 1957). As in the earlier study, three separate committees were formed: (1) committee of consultants, (2) committee of advisors, and (3) committee of reviewers. Use was also made of a mail survey to assess outcome importance as perceived by educators across the country. The two-dimensional classification of outcomes that resulted from this effort is illustrated in Figure 48. For each of the 99 most specific outcome categories delineated by the project team (for example, Outcome Category No. 1.111) a large number of illustrative behaviors are also presented in the summary report of the study (a total of 1,062 different specific behaviors are listed, each of which could be considered a separate and significant outcome). Furthermore, for each of the next broader categories of outcomes (for example, Outcome Category No. 1.11) a large number of "developmental equivalents" are presented.

To illustrate the classification system further, below are listed four "directions of student growth" categories, one at each of the four levels of detail that are used for the "Directions of Student Growth" dimension (French and Associates, 1957, p. 218):

1. GROWING TOWARD SELF-REALIZATION
   - 1.1 Developing Behaviors Indicative of Intellectual Self-Realization
     - 1.11 Improving Study Habits, Study Skills, and Other Work Habits
       - 1.111 Is skillful in securing information and in organizing, evaluating, and reporting results of study and research

Figure 48

ILLUSTRATION OF THE STUDENT OUTCOMES STRUCTURE DEVELOPED BY FRENCH AND ASSOCIATES FOR CLASSIFYING HIGH SCHOOL GENERAL EDUCATION BEHAVIORAL OUTCOMES*

BEHAVIORAL COMPETENCE AREAS	DIRECTIONS OF STUDENT GROWTH		
	1. Toward Self-Realization	2. Toward Desirable Interpersonal Relations in Small Organizations	3. Toward Effective Membership or Leadership in Large Organizations
1. Attainment of Maximum Intellectual Growth and Development	1.1 1.11 1.111 1.112 1.113 1.114 1.12 1.121 1.122 1.123 1.124 1.13 1.131 1.132 1.133	2.1 2.11 2.111 2.112 2.113 2.12 2.121 2.122 2.123 2.13 2.131 2.132 2.133 2.134	3.1 3.11 3.111 3.112 3.12 3.121 3.122 3.123 3.13 3.131
2. Cultural Orientation and Integration	1.2 1.21 1.211 1.212 1.22 1.221 1.222 1.23 1.231 1.232 1.24 1.241 1.242 1.25 1.251 1.252	2.2 2.21 2.211 2.212 2.22 2.221 2.222 2.23 2.231 2.232 2.233 2.234	3.2 3.21 3.211 3.22 3.221 3.222 3.23 3.231
3. Physical and Mental Health Maintenance and Improvement	1.3 1.31 1.311 1.312 1.32 1.321 1.322 1.33 1.331 1.332 1.34 1.341 1.342 1.343 1.344	2.3 2.31 2.311 2.312 2.32 2.321 2.322 2.33 2.331 2.332	3.3 3.31 3.311 3.312 3.32 3.321 3.322 3.323 3.324
4. Economic Competence	1.4 1.41 1.411 1.412 1.413 1.42 1.421 1.422 1.43 1.431 1.432 1.433 1.44 1.441 1.442	2.4 2.41 2.411 2.412 2.42 2.421 2.422 2.43 2.431 2.432	3.4 3.41 3.411 3.412 3.413 3.414 3.42 3.421 3.43 3.431 3.432 3.44 3.441 3.442 3.443 3.45 3.451 3.452

*Abstracted from French and Associates (1957).

Gerberich's Ten Types of Learning Outcomes. In a book on achievement test construction, Gerberich (1956) listed 10 types of learning outcomes acquired by students as a result of their within-school and out-of-school learning. His 10 types of outcomes are presented in Figure 49.

Figure 49

GERBERICH'S TEN TYPES OF LEARNING OUTCOMES*

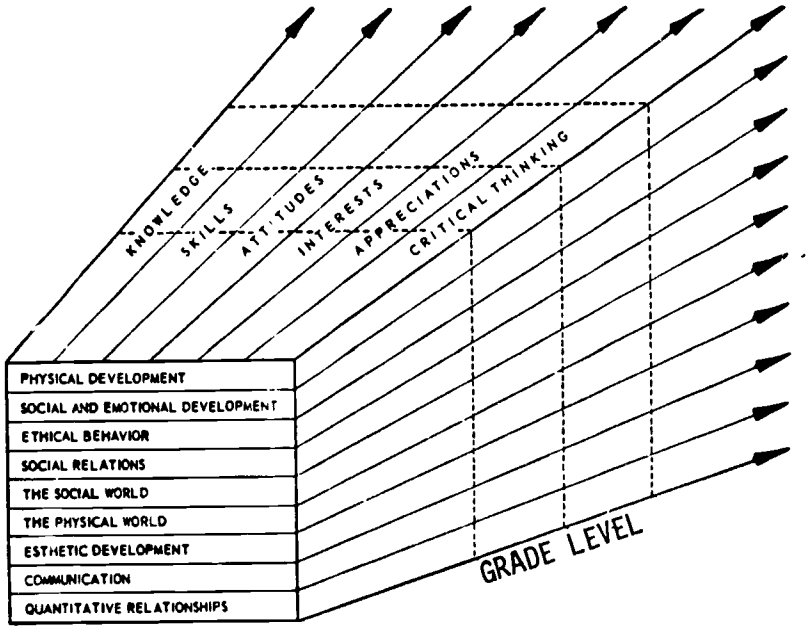
1. Skills (reading, work-study, language, computational, shop and laboratory, typing, athletic, etc.).
2. Knowledges (facts, principles, laws, processes and procedures, sources of information, etc.).
3. Concepts (meanings, discrimination, use of abstract words in thinking, speaking and writing).
4. Understandings (similar to, but at a higher level than, concepts).
5. Applications (logic and problem-solving; it uses all four of the above).
6. Activities (willingly, and usually it is voluntary, performing some informed and self-directed action).
7. Appreciations (includes appreciation of patterns in mathematical or quantitative formulas, of logical organization of ideas, and of projected plans for action, in addition to artistic appreciations).
8. Attitudes (a state of readiness, mental and emotional, for reacting in a habitual manner to certain situations, persons, or things).
9. Interests (highly personal expressions of feelings, preferences, likes, and dislikes).
10. Adjustments (adopting modes of behavior suitable to one's environment or to changes occurring in one's environment; adaptation to two worlds--nature and human beings).

*Abstracted from Gerberich (1956, pp. 16-21).

Schwartz and Tiedeman's Continuum of Behaviors. Schwartz and Tiedeman (1957) developed an outcomes structure that shows a continuum expanding with time. Their framework is shown in Figure 50.

Figure 50

SCHWARTZ AND TIEDEMAN'S CONTINUUM OF BEHAVIORS*



*Abstracted from Schwartz and Tiedeman (1957, p. 42).

They made the point that educational objectives are often generalities with little meaning. Confusion exists in the eyes of teachers and others for four main reasons:

1. The individual's failure to understand clearly the relationship between what takes place in the classroom and the general purposes of education

2. The individual's failure to understand the continuous nature of education

3. The individual's failure to understand that each learning experience may influence a multiplicity of behaviors

4. The individual's failure to understand the values to be gained by carefully identifying teaching objectives (p. 37).

Schwartz and Tiedeman also gave a good summary of the sources of goals and objectives:

> Present-day objectives of education stem from five major sources: (1) studies of our present society; (2) studies of the learner; (3) studies by subject specialists; (4) studies and discourses by philosophers; and (5) studies by psychologists. This is assimilated and put into objectives by: (1) commissions; (2) state departments of education; (3) university professors; and (4) professional organizations. These then go into curriculum guides, college classes, textbooks, articles, speeches, conferences. Then they are reworked by the individual schools and the teachers in those schools. [Pp. 32-33]

Downey's Tasks of Public Education. Downey (1960) reviewed all the personal statements by authors he could find in the literature about the tasks of the public schools. He also reviewed a number of studies that had attempted to measure general citizen acceptance of different school programs and their opinions concerning what the schools should be teaching. Like items were grouped together, and similar items were replaced by a single item. This synthesis resulted in 16 items grouped under four categories: intellectual development, social development, personal development, and productive development. Then, through logic and simplification, Downey attempted to refine

the synthesized list into "mutually exclusive unit functions" that make up the total task of education. Downey's framework is illustrated in Figure 51.

Taba's Types of Behavioral Objectives. In a chapter of Curriculum Development, a book on types of behavioral objectives, Taba (1962) made the following important observations:

> An organized statement of objectives should be more than a mere grouping of individual objectives. It should also convey the fundamental rationale on which the very conception of objectives is based. This rationale should indicate what is important in education and where the subsidiary values lie. . . . The two-dimensional model of stating and classifying objectives by a description of behavior and of the content to which this behavior applies illustrates both the advantage of greater clarity and the difficulty of living up to it. It conveys the idea that the fundamental point in education is to change behavior. It also creates some difficulty in producing a clear-cut classification. Either one or the other could be used as a basis for classification. If the types of behavior are used for a basis, the kinds of content to which the behavior is addressed is bound to be less clearly represented and less systematically sampled. If the content of behavior is used for a basis, the types of behavior involved tend to be obscured, as do the areas of life to which these behaviors are related. Recently, however, classification by types of behavior has been favored because it seems more functional as a basis for curriculum development and for evaluation than classification by content. [P. 211]

Then Taba proceeded to discuss types of behavioral objectives. Her list is presented in Figure 52.

Figure 51

DOWNEY'S TASKS OF PUBLIC EDUCATION*

A. Promote Intellectual Development (Intellectual Dimensions)

   1. Acquisition and possession of knowledge, information, and concepts

   2. Skill in acquiring, transmitting, and communicating knowledge

   3. Discrimination, imagination, and habits that lead to creating knowledge

   4. A desire for knowledge, love of learning, and wanting more knowledge

B. Promote Social Development (Social Dimensions)

   1. Concepts, skills, and attitudes concerning relationships among individuals

   2. Concepts, skills, and attitudes concerning an individual's relationships to the state, such as civic rights and duties

   3. Concepts, skills, and attitudes concerning an individual's relationships to one's country, for example, loyalty

   4. Concepts, skills, and attitudes concerning an individual's relationships to peoples of the world

C. Promote Personal Development (Personal Dimensions)

   1. Physical or bodily health and development

   2. Emotional health and stability

   3. Ethical development and moral integrity

   4. Aesthetic development and resulting cultural and leisure pursuits

D. Promote Productive Development (Productive Dimensions)

   1. Provide information and guidance for selecting a career or vocation

   2. Training and other preparation for a job, plus placement in a job

   3. Skills and attitudes in home and family living, including homemaking and handyman skills

   4. Training in personal consumer problems such as buying, selling, and investing

*Abstracted from Downey (1960, pp. 24-26).

Figure 52

TABA'S TYPES OF BEHAVIORAL OBJECTIVES*

1. Knowledge
   - Facts
   - Ideas
   - Concepts
2. Reflective Thinking
   - Interpretation of Data
   - Application of Facts and Principles
   - Logical Reasoning
3. Values and Attitudes
4. Sensitivities and Feelings
5. Skills

*Abstracted from Taba (1962).

The C ark-Trow Typology Framework of College Outcome Goals Developed by ACT. Using cluster correlation analysis, researchers at the American College Testing Program (ACT) arrived at three student goals for college that typify students in each of Clark and Trow's (1965) college student subculture categories. Research by Clark and Trow had indicated that the four most distinguishable student subcultures could be differentiated by looking at two orientation dimensions: amount of involvement with ideas and amount of identification with the college. A more recent study (Kees, 1974) confirms that the validity of the four Clark-Trow typologies still

holds for college students, and each group is clearly aiming for different college outcomes. A diagram of the American College Testing Program schema (1970, pp. 53-54) is presented in Figure 53.

The Pace and Baird Outcomes-Personality-Environment Framework. For nine colleges of three different types (three small liberal arts colleges, two large liberal arts colleges, and four very large and complex universities), Pace and Baird (1966) related 11 different student-perceived college outcome attainments to student-perceived campus curricular environments (as measured by the College Characteristics Index) and to student personality characteristics (as measured by the Allport-Vernon-Lindzey Study of Values, the Heston Personal Adjustment Inventory, sections of the California Psychological Inventory, and the Stern Activities Index. It was found that both the environmental and the personality measures were related to the perceived outcomes, with the environmental measures having the strongest relationship. From the results, it was also hypothesized that the impact of a subculture on student outcomes depends more on the college in which it is located than on its similarity to other subcultures of its kind. The Pace and Baird framework (pattern of relationships) is presented in Figure 54.

Michael and Metfessel's Major Educational Goal Categories. Michael and Metfessel (1967) formulated and reported special procedures for developing valid measurable objectives to be used in the valuation of college programs. For their system, it was necessary to start out with broad goals in one or more of four areas. They implied that these areas could include all possible objectives for student learning. Their goal framework is diagrammed in Figure 55.

Figure 53

THE CLARK-TROW TYPOLOGY FRAMEWORK OF

COLLEGE OUTCOME GOALS DEVELOPED BY ACT*

Identify with the College	Involved with Ideas: Much	Involved with Ideas: Little
Much	**Academic or Intellectual Goals** 1. To improve my ability to think and reason. 2. To broaden my intellectual interests and my understanding of the world. 3. To increase my appreciation of art, music, literature, and other cultural expressions.	**Collegiate Goals** 1. To increase my effectiveness in interpersonal relations. 2. To learn how to be an effective leader. 3. To become more capable and interesting socially.
Little	**Nonconformist, Nonconventional, or Idealism Goals** 1. To learn how to deal with political or social injustice. 2. To develop more personal dependence and self-reliance. 3. To find a cause or causes I can really believe in.	**Vocational Goals** 1. To discover my vocational interests. 2. To attain special skills that will be useful on the job. 3. To meet the academic requirements necessary to enter a profession.

*Abstracted from American College Testing Program (1970, pp. 53-54).

Figure 54

THE PACE AND BAIRD OUTCOMES-PERSONALITY-ENVIRONMENT FRAMEWORK*

ENVIRONMENTAL PRESS	SUPPORTIVE PERSONALITY MEASURES**	COLLEGE-OUTCOME OBJECTIVES RELEVANT TO THESE PRESS AND PERSONALITY CHARACTERISTICS***
Intellectual humanistic, asthetic (IHA)	Analytical thinking (Heston) Theoretical values (A-V-L) Aesthetic values (A-V-L) Reflectiveness (AI) Achievement via independence (Gough) Intellectual efficiency (Gough)	1. Acquiring a broad cultural and literary education 2. Understanding different philosophies and ways of life 3. Developing an enjoyment and appreciation of art, music, and literature
Group welfare (W)	Sociability (Heston) Personal relations (Heston) Social values (A-V-L) Religious values (A-V-L) Welfare (AI) Responsibility (Gough) Sociability (Gough)	4. Social development, getting along with others 5. Effective citizenship
Scientific, independent (SI)	Analytical thinking (Heston) Theoretical values (A-V-L) Determination (AI) Dominance (AI) Achievement via independence (Gough) Intellectual efficiency (Gough)	6. Specialization for further professional, scientific, or scholarly work 7. Critical thinking 8. Understanding science and technology
Practical, status-oriented (PS)	Economic values (A-V-L) Political values (A-V-L) Deference (AI) Exhibitionism (AI) Sociability (Gough)	9. Vocational training

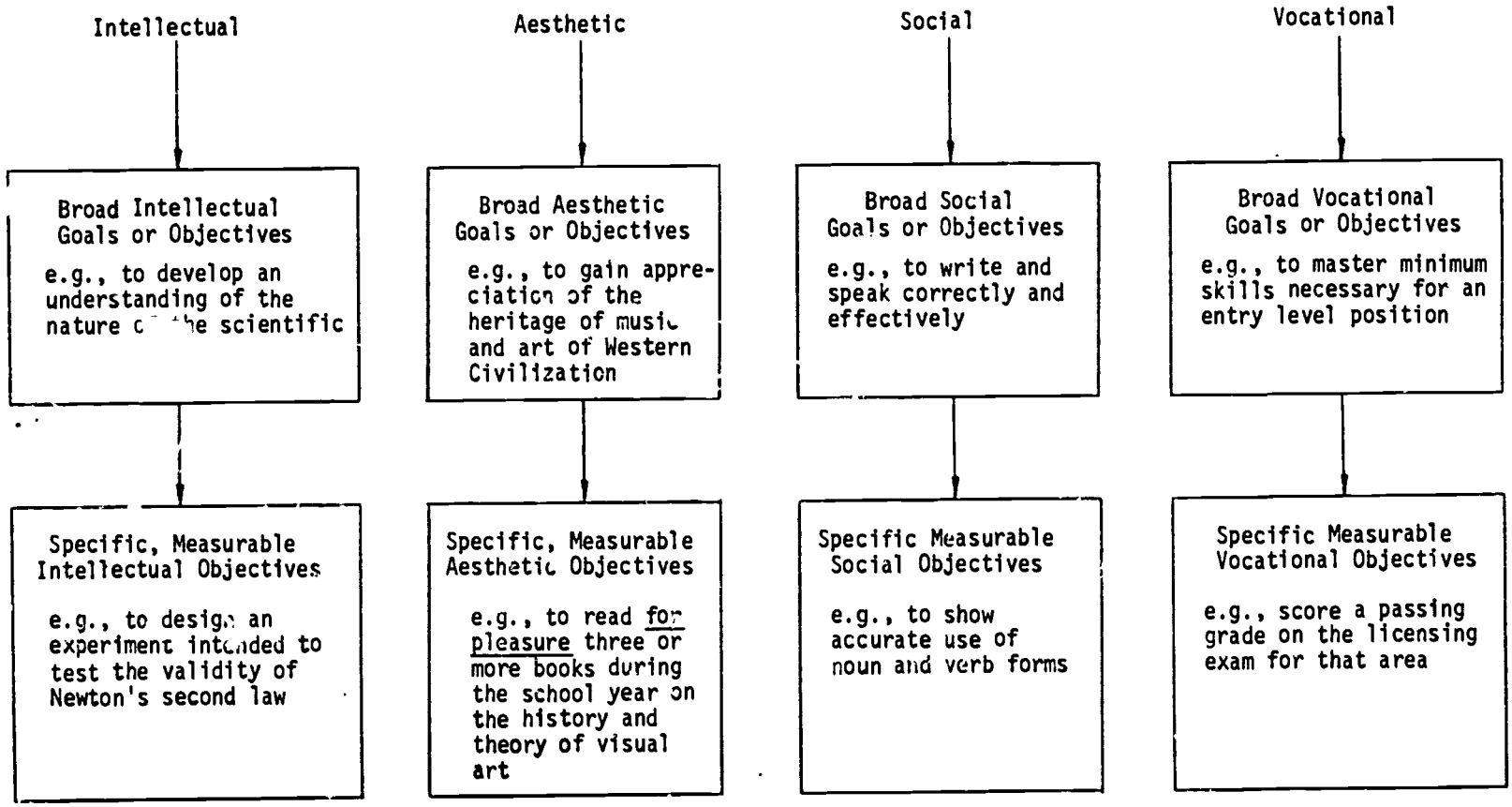
*From Pace and Baird (1966, p. 223). Reprinted by permission from Theodore M. Newcomb and Everette K. Wilson, College Peer Groups (Aldine Publishing Company, Chicago); copyright © National Opinion Research Council, 1966.

**Heston refers to the Heston Personal Adjustment Inventory.
A-V-L refers to the Allport-Vernon-Lindzey Study of Values.
Gough refers to the California Psychological Inventory.
AI refers to the Stern Activities Index.

***From a numbered list presented to students.

Figure 55

MICHAEL AND METFESSEL'S MAJOR EDUCATIONAL GOAL CATEGORIES*



*Abstracted from Michael and Metfessel (1967).

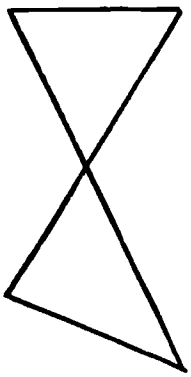
Tyler's 1968 Listing of Purposes of Education. The person active in education today who has probably focused in depth the longest on the purposes of education is Ralph Tyler, considered by many to be the father of the benavioral objective movement. Figure 56 presents a recent listing he provided of six basic purposes of education, along with two new tasks that apply to all six purposes.

Figure 56

TYLER'S 1968 LISTING OF PURPOSES OF EDUCATION*

Reaching the disadvantaged

To provide these educational opportunities and ensure effective learning for people from varied backgrounds of thinking, experience, and outlook



1. Individual Self-Realization
2. Literate Citizens
3. Social Mobility
4. Preparation for the World of Work
5. Wise Choices of Nonmaterial Services
6. Learning to Learn

*Abstracted from Tyler (1968).

Chickering's Developmental Vectors for the Young Adult. Chickering (1969) reviewed the literature on higher education and the results of the Project on Student Development, a comprehensive study he directed for 13 small

colleges, and decided that all student outcomes of college could be classified within seven major areas. Since each type of outcome was distinct and had direction and magnitude, he called them vectors. Each vector, in turn, had more specific components.

As outlined below in his own words, Chickering's work was research-based and his goal was to develop a conceptual framework for student outcomes that would have practical usefulness:

> Basically then, my aims have been to synthesize the research and theory that, to me, seem most significant for higher education and to generate a conceptual framework faithful to those findings--a framework sufficiently general to be relevant to a wide range of decisions and sufficiently simple to be held in mind for application as alternatives for action are considered. [P. x]

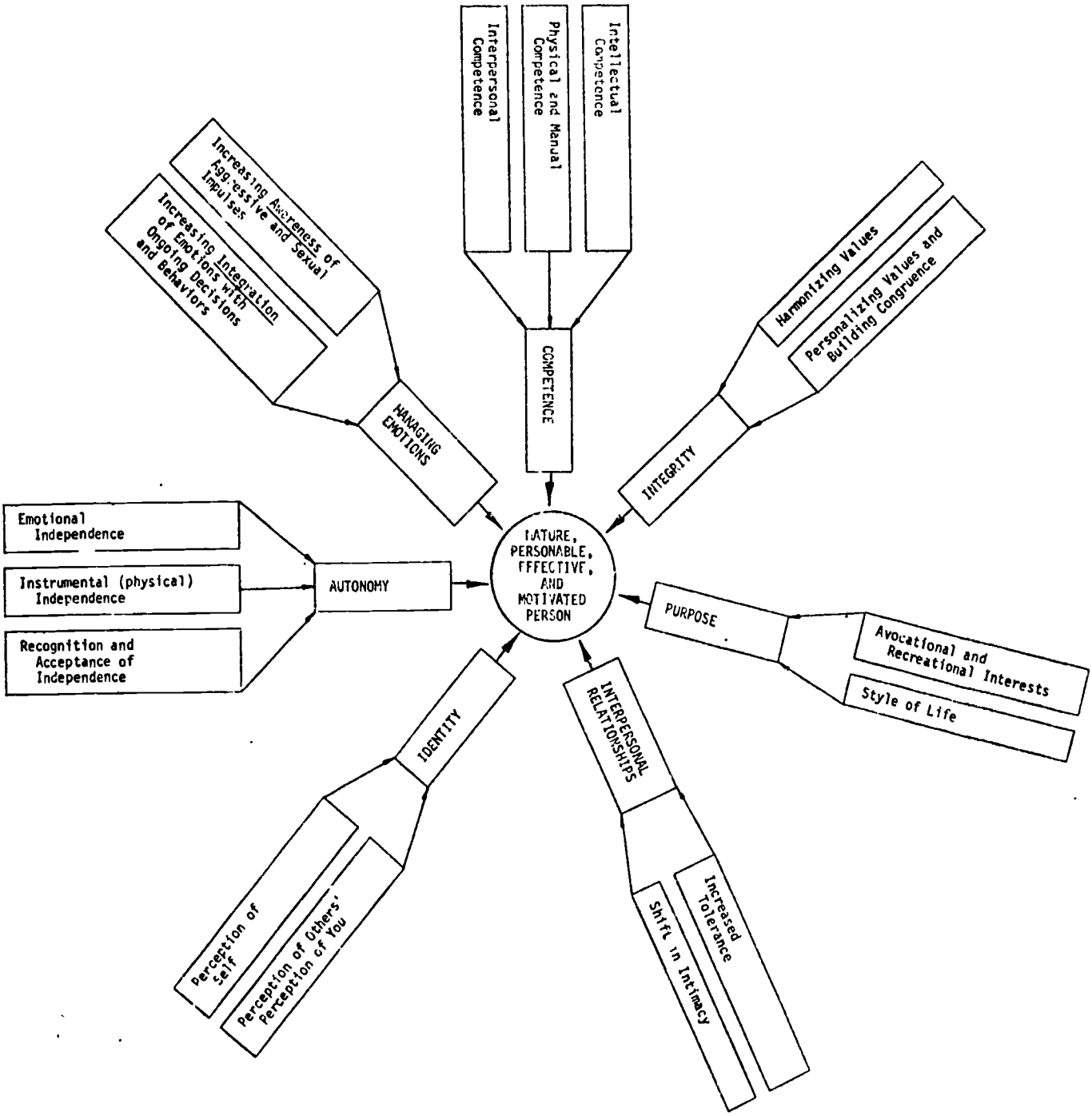
As possible arrangement of his framework is shown in Figure 57.

Astin's Taxonomy of Student Output Measures in Terms of Type of Outcome, Type of Data, and Time. Astin (1970) developed a taxonomy of student output that had three dimensions: type of outcome, type of data, and time of outcome. The "type of outcome" dimension is broken into two components as is the "type of data" dimension, and the "time of the outcome" can be any time of concern (or it could be just short-term outcomes or long-term outcomes). An outline of Astin's model is presented in Figure 58.

In a later discussion of his taxonomy Astin (1974) proposed still another dimension, but it was not shown in the diagram he presented:

Figure 57

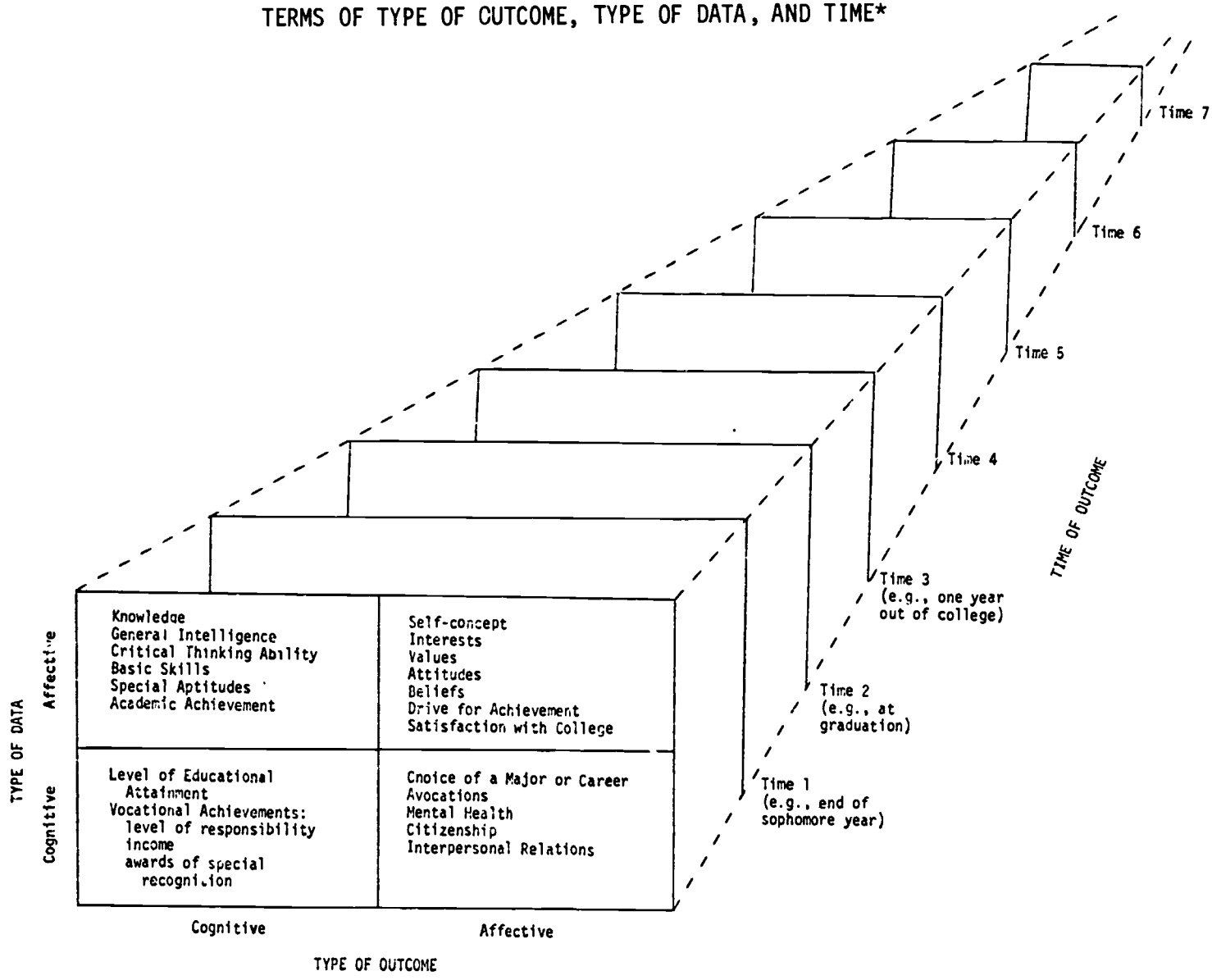
CHICKERING'S DEVELOPMENTAL VECTORS FOR THE YOUNG ADULT*



*Abstracted from Chickering (1969).

Figure 58

ASTIN'S TAXONOMY OF STUDENT OUTPUT MEASURES IN TERMS OF TYPE OF OUTCOME, TYPE OF DATA, AND TIME*



*Abstracted from Astin (1970, p. 78).

> In developing a preliminary taxonomy, I have attempted to follow the traditional functions of collegiate institutions: teaching, research, and public service. Thus, the first dimension in the taxonomy would comprise three categories: community service outcomes, faculty outcomes, and student outcomes. . . . These three categories are to some extent interdependent. Certain important faculty and community service outcomes, for example, can be derived by aggregating student outcome measures. . . . Given the fact that faculty and community outcomes are substantially dependent on student outcomes, initial refinements of the taxonomy will focus on student outcomes. (Refinements of the faculty and community service components of the taxonomy, which are beyond the scope of this essay, should be simpler to develop once the student component has been developed in some detail.) [P. 29]

The Perry Framework for Student Development. William G. Perry, (1970) of the Harvard College Bureau of Study Council, developed a "schema" that describes both intellectual and ethical development during the college years. As indicated by Heffernan (1975a, 1975b), it has important potential implications for educational planning and evaluation:

> Given our shift to diverse kinds of students, learning environments, and expectations of education, useful conceptual frames for planning, research, and evaluation are increasingly required. Such a framework should be: (a) broadly enough conceived to transcend the particulars of programs and institutions, yet richly enough detailed to provide differentiation and comparative analyses; (b) grounded in learning psychology, yet consonant with philosophical and normative standards; and (c) perhaps most important, intuitively valid to many constituencies. . . . The Perry theory describes students' developmental processes in a unique way: viz, through forms of thought and styles of establishing values and personal identity. It describes how students progress in levels of thinking complexity, how that leads to a merging of knowledge and values, and how a sense of identity is established. [Pp. 1-2 of Heffernan, 1975a, and p. 493 of Heffernan, 1975b]

Heffernan goes on to say (1975b, p. 494) that "Because of its logic and thoroughgoing detail, it represents a compelling framework for an 'ideal' educational process, a normative basis for judging educational outcomes."

It is a "clinically based and empirically validated theory," and has been used by a number of people for practical applications such as student evaluation, faculty development, instructional development, and program design and evaluation. Furthermore, it "draws upon and draws together much of our knowledge on both intellectual and personal development." Heffernan's diagram of the Perry framework is presented in Figure 59.

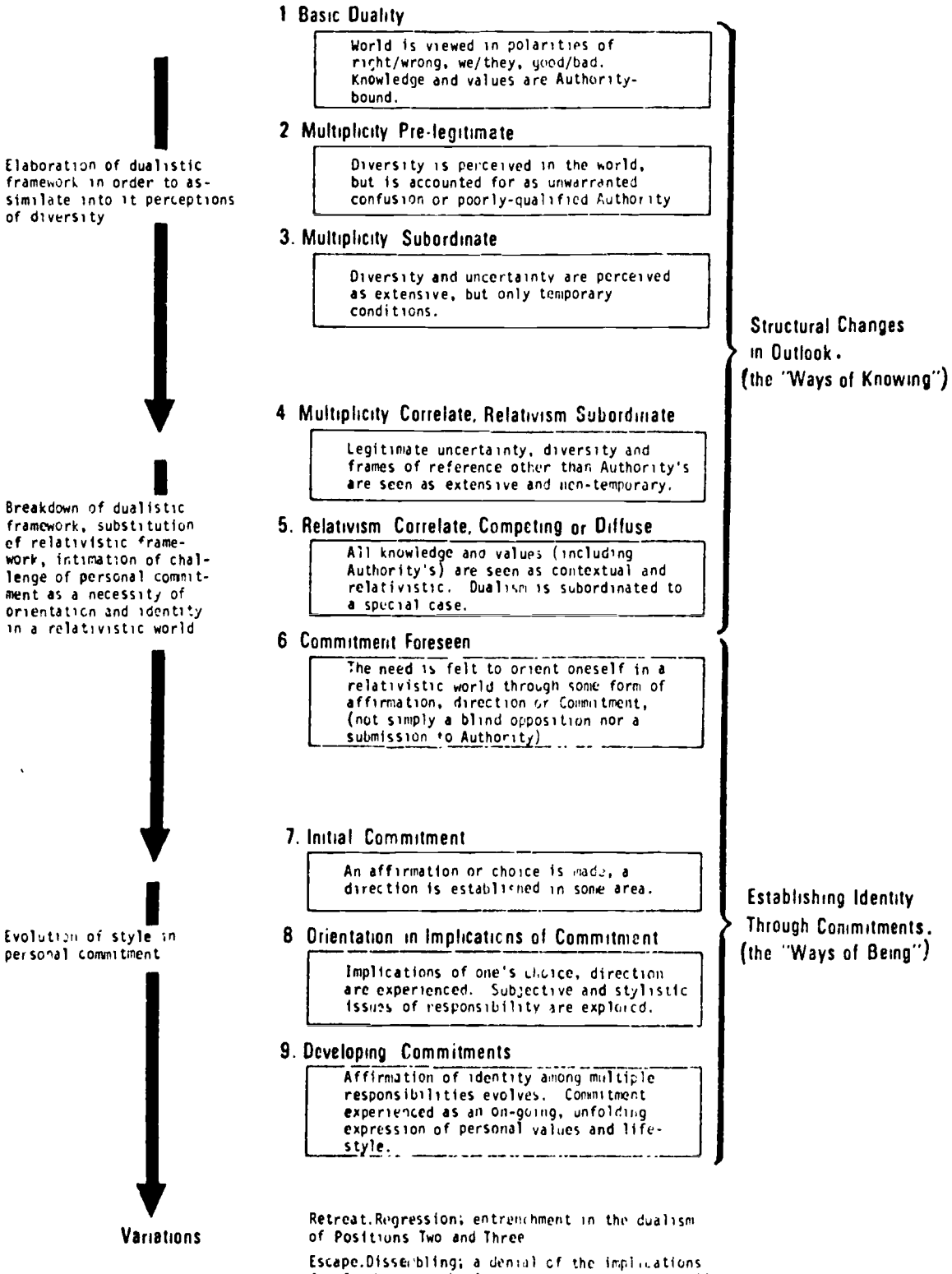
Plowman's Classification System for Educational Objectives. In his book on behavioral objectives, Plowman (1971) formulated still another system for classifying behavioral objectives in education. His is a two-dimensional system, with one dimension consisting of skill areas and the other consisting of curricular or program areas. His classification is diagrammed in Figure 60.

As indicated in Figure 60, Plowman focused specifically on five skill areas, and his book was designed to help educators prepare behavioral objectives of each of five areas. He acknowledged, however, that other sets of categories were also important and could probably be incorporated into his schema (one category that he mentioned is rather global and the term used is new to our review of the literature):

> We have presented here an overview of five categories of behavioral objectives--academic, cognitive, creative, craftmanship, and leadership. It should, of course, be recognized that other sets of categories or structures of objectives may be equally as valid. Notable among these are the "Affective Domain" of the Taxonomy of Educational Objectives; a psychomotor domain; and, yet to be formulated, a "unified-field" structure of objectives for optimum development of human beings. [P. 13]

Figure 59

THE PERRY FRAMEWORK FOR STUDENT DEVELOPMENT*



*Reprinted from Heffernan (1975a, 1975b) with permission of the author.

Figure 60

PLOWMAN'S CLASSIFICATION SYSTEM FOR EDUCATIONAL OBJECTIVES*

	Academic Skills	Higher Cognitive Skills	Creative Skills	Craftsmanship or Kinesthetic Skills	Leadership Skills	Other Skill Areas
English and Literature Programs						
Mathematic Programs						
Science Programs						
Reading Programs						
Art and Music Programs						
Health Programs						
Other Program Areas						

*Abstracted from Plowman (1971).

For his "higher cognitive skills" area, Plowman broke the category up, utilizing the main components of Bloom's taxonomy: knowledge level (remembering), comprehension level (translation, interpretation, and extrapolation), application level, analysis level, synthesis level, and evaluation level. This was the only one of the five skill categories that he broke down in this manner, however.

The Research for Better Schools Classification of Educational Objectives. Klingberg (1970) reported on a 1969 classification of educational objectives developed by an agency called Research for Better Schools, as a part of "the basic program plan for its Humanizing Learning Programs." Their "cognitive domain" category is a compression and modification of the Bloom taxonomy (1956), while their "self-actualization domain" is a compression and modification of the Krathwohl and associates taxonomy for the affective domain. They acknowledged the importance of the psychomotor domain but did not treat it in their classification. To the three domains posited by the Bloom group, a fourth domain was added, the "interpersonal domain." A presentation of the Research for Better Schools classification as excerpted from Klingberg is shown in Figure 61.

The German "LOT-Projekt" Model for Classifying Educational Objectives. Klingberg (1970) also reported on a two-dimensional project developed prior to 1970 by the "LOT-Projekt" in Konstanz, Germany for use in "elementary education." A matrix presentation of this classification is shown in Figure 62. Note that their classes of behavior were influenced greatly by the work of Bloom, Krathwohl, and their associates.

Figure 61

THE RESEARCH FOR BETTER SCHOOLS SYSTEM FOR CLASSIFYING EDUCATIONAL OBJECTIVES*

Cognitive Domain	Interpersonal Domain	Self Actualization (Affective) Domain	Psychomotor Domain
- low order cognitive data recall	- role recognition	- the enhancement of the ability to be aware of cultural variations and thei impact on personal response patterns	
- higher order cognitive data processing evaluation	- role flexibility		
	- developing awareness of and being able to constructively utilize individual differences	- awareness of self and others	
	- recognition of, and skills in creating many group climates	- self-assurance and responsibility in approaching and controlling the environment	
	- developing skills in influence strategies		
	- development of communication skills through the use of technical languages for describing human interaction		

*Excerpted from Klingberg (1970, p. 22).

Figure 62

THE GERMAN "LOT-PROJEKT" MODEL FOR

CLASSIFYING EDUCATIONAL OBJECTIVES*

CLASSES OF CONTENT			CLASSES OF BEHAVIOR														
			Cognitive Domain					Affective Domain					Psychomotor Domain				
			Veroal Associations	Multiple Discrimination	Concept Learning	Principle Learning	Problem Solution	Receiving	Responding	Valuing	Organization of a Value System	Characterization by a Value Complex	Visual, Auditory Tactile Discrimination	Gross Motor Behavior	Space-Position Discrimination	Fine Motor Behavior
	Symbolic Systems	Prelogical Systems															
		Linguistic Systems															
		Logical Systems															
		Other Symbol Systems															
	Understanding of the World Around	Natural-Science Facts															
		Anthropological and Social-Science Facts															
		Art															
	Changes in the World Around	Technology															
		Politics															
		Education/Behavior Controlling															
	Guarantee of Existence	Bodily Training															
		Health/Hygiene															
		Transport Sources (traffic, electricity, etc.)															

*Abstracted from Klingberg (1970, p. 27).

Healy and Associates Taxonomy for Performance Objectives. Healy and his associates (1971) utilized Gagné's work (1971) in developing what they called a "taxonomy" that was to be used for classifying catalogues of objectives being produced by educational research and developmental projects sponsored by the Florida Department of Education. The guiding principle of their taxonomy is that performance objectives be classified according to the learning process required for accomplishing the specified task. To classify an objective one must look at the end product of the objective.

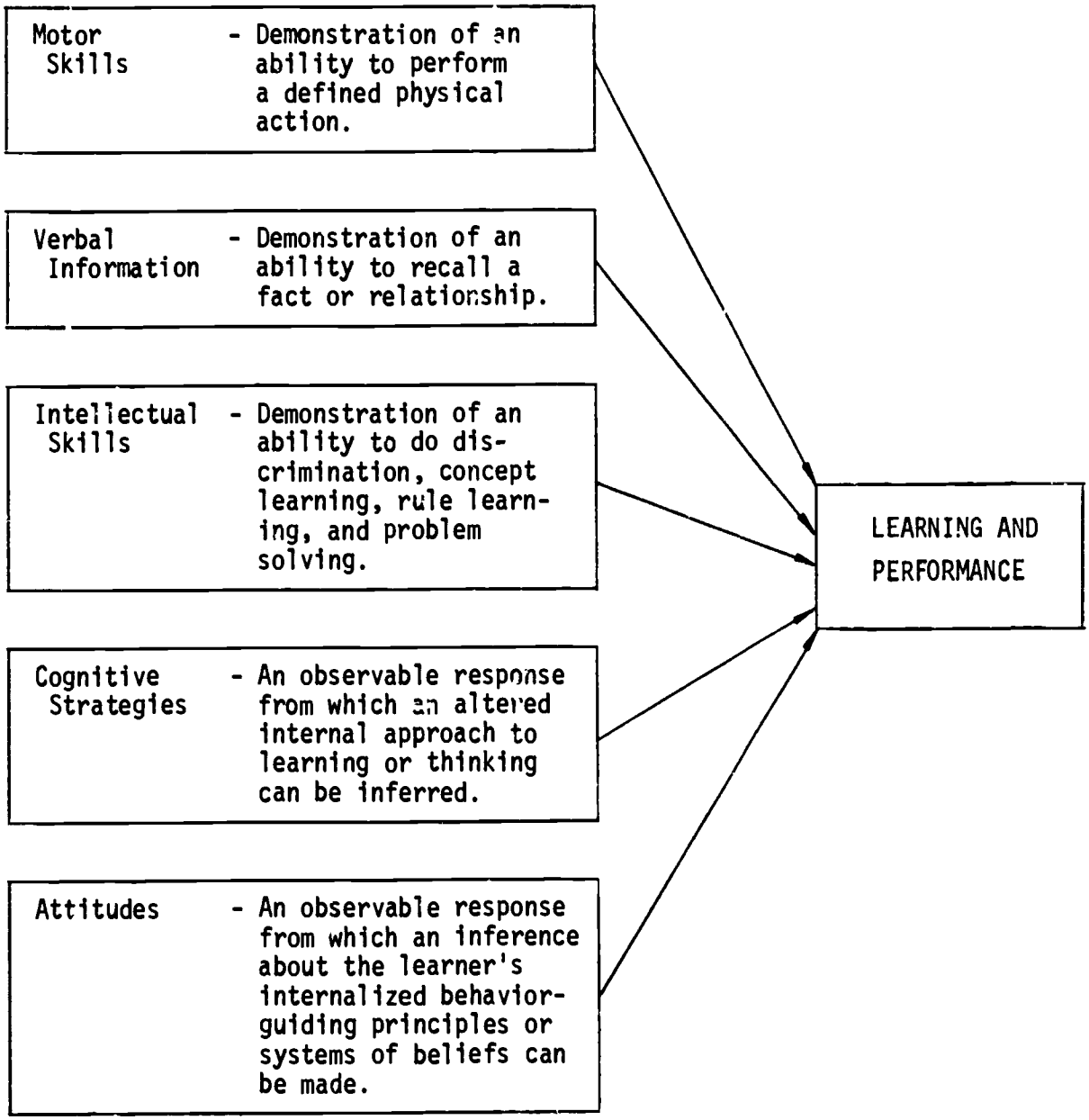
The "taxonomy" of Healy and associates is shown in Figure 63. The authors specified three factors that should be considered by persons constructing or classifying objectives using the taxonomy.

> (1) A change in classification substitutes, in effect, a different objective for the original . . . (2) The category to which an objective is assigned will, or should, influence the selection of the processes used in providing instruction . . . (3) The experimental background of the student must be considered in assigning objectives to categories. For example, the solution of a multi-digit multiplication problem may require "problem solving" skill from a third grade student, but serve only as evidence of "rule learning" at later states of student development. This is not to suggest that the objective be reclassified to accommodate student level but rather than the selection of objectives be keyed to student prior attainments. [Pp. 6-7]

Gronlund's Classification of Learning Outcomes. Gronlund (1971) proposed a classification system for learning outcomes in his book on measurement and evaluation in teaching. He delineated nine broad areas for which educational objectives can be classified and listed some objectives under each. The more specific objectives were meant to be suggestive rather than

Figure 63

HEALY AND ASSOCIATES TAXONOMY FOR PERFORMANCE OBJECTIVES*



*Abstracted from Healy and Associates (1971).

comprehensive; many more could be listed for each broad area. Gronlund made the following additional points about his schema, which is shown in Figure 64.

> Although the specific learning outcomes resulting from a course of study may run into the hundreds, most of them can be classified under a relatively small number of headings. Any such classification is of necessity arbitrary, but it serves a number of useful purposes. It indicates types of learning outcomes that should be considered; it provides a framework for classifying those outcomes, and it directs attention toward changes in pupil behavior in a variety of areas. [P. 35]

For each specific objective in his classification, a number of even more specific third-level objectives can be formulated, such as for a course. At this level, Gronlund says action verbs should be used. He provided some examples for objective 2.1 in his schema (p. 38):

Understands scientific principles

1. Describes the principle in his own words
2. Identifies examples of the principle
3. States tenable hypotheses based on the principle
4. Lists the differences between two given principles
5. Explains the relationship between two given principles

One important point that Gronlund stressed is that a variety of specific learning outcomes are included in complex achievement. Typical examples he cited (pp. 196-202):

Ability to apply a principle

Ability to interpret relationships

Ability to recognize and state inferences

Figure 64

GRONLUND'S CLASSIFICATION OF LEARNING OUTCOMES*

1. Knowledge
   - 1.1 Terminology
   - 1.2 Specific facts
   - 1.3 Concepts and principles
   - 1.4 Methods and procedures
2. Understanding
   - 2.1 Concepts and principles
   - 2.2 Methods and procedures
   - 2.3 Written material, graphs, maps, and numerical data
   - 2.4 Problem situations
3. Application
   - 3.1 Factual information
   - 3.2 Concepts and principles
   - 3.3 Methods and procedures
   - 3.4 Problem-solving skills
4. Thinking Skills
   - 4.1 Critical thinking
   - 4.2 Scientific thinking
5. General Skills
   - 5.1 Laboratory skills
   - 5.2 Performance skills
   - 5.3 Communication skills
   - 5.4 Computational skills
   - 5.5 Social skills
6. Attitudes
   - 6.1 Social attitudes
   - 6.2 Scientific attitudes
7. Interests
   - 7.1 Personal interests
   - 7.2 Educational and vocational interests
8. Appreciations
   - 8.1 Literature, art, and music
   - 8.2 Social and scientific achievement
9. Adjustments
   - 9.1 Social adjustments
   - 9.2 Emotional adjustments

*Excerpted from Gronlund (1971, pp. 35-36).

Ability to recognize the relevance of information

Ability to develop and recognize tenable hypotheses

Ability to formulate and recognize valid conclusions

Ability to recognize assumptions underlying conclusions

Ability to recognize the limitations of data

Ability to recognize and state significant problems

Ability to design experimental procedures

Ability to recognize warranted and unwarranted generalizations

Ability to apply principles

Ability to interpret experimental findings

Also noteworthy was Gronlund's listing (p. 222) of the types of complex learning outcomes that can be measured by essay questions and objective interpretive questions:

Ability to recognize cause-effect relationship

Ability to recognize the application of principles

Ability to recognize the relevance of arguments

Ability to recognize tenable hypotheses

Ability to recognize valid conclusions

Ability to recognize unstated assumptions

Ability to recognize the limitations of data

Ability to recognize the adequacy of procedures

(And similar outcomes based on the pupil's ability to recognize the answer)

Ability to explain cause-effect relationships

Ability to describe applications of principles

Ability to present relevant arguments

Ability to formulate tenable hypotheses

Ability to formulate valid conclusions

Ability to state necessary assumptions

Ability to describe the limitations of data

Ability to explain methods and procedures

(And similar outcomes based on the pupil's ability to supply the answer)

Ability to produce, organize, and express ideas

Ability to integrate learnings in different areas

Ability to create original forms (e.g., designing an experiment)

Ability to evaluate the worth of ideas

College Student and Alumni Activity and Accomplishment Scales. In the middle 1960s, researchers at the American College Testing Program (ACT) developed 10 scales that measured 10 types of nonacademic accomplishments during college (Holland and Richards, 1965; Richards, Holland, and Lutz, 1966a, 1966b). Each scale was composed of 10 specific accomplishments that college might be expected to facilitate, and they were found to be reasonably reliable and relatively independent of grades and academic abilities. The scales later became a part of the ACT Institutional Self-Study Survey instrument (American College Testing Program, 1970) and modifications of 7 of the scales became an integral part of an ACT alumni survey instrument (Munday and Davis, 1974).

Similar scales of activities for junior and senior undergraduate students and for alumni were developed by Pace for a large-scale study conducted by the Center for the Study of Evaluation at the University of California, Los Angeles (UCLA) (Pace, 1972, 1974). Each scale consisted of from 9 to 14 items, and the upper-class student instrument contained 10 scales while the alumni instrument contained 11 scales.

The names of the scales used by ACT and Pace are presented in Figure 65. As will be seen in the next section, however, Pace later combined his scales into a smaller number of categories through use of factor analysis.

Alumni Survey College Goal Scales. In addition to the activity scale items reported in the previous section, Pace asked his groups of college students and college alumni the progress, influence, or benefits that applied to them for 17 college goal statements (1972, 1974). Institutional mean scores on the activity scales and other scales were then factor analyzed. The factors plus the items loading on each are reported in Figure 66.

Also reported in Figure 66 are college goals that were logically broken down into three indices that were used in an alumni study conducted by Spaeth and Greely (1970). Graduating seniors at 135 colleges and universities were surveyed at the time of graduation. Seven years later, in 1968, a 30 percent sample of these same people was surveyed again and, among other things, asked how important each of 11 college goals

Figure 65

NONACADEMIC ACCOMPLISHMENT AND ACTIVITY SCALE CATEGORIES

ACT's* Nonacademic Accomplishment Scales	Pace's** Activity Scales
1. Leadership	1. Community Affairs
2. Social Participation	2. National and State Politics
3. Art	3. Intercultural Affairs
4. Social Service	4. International Affairs
5. Scientific	5. Art Activities
6. Humanistic-Cultural	6. Music Activities
7. Religious Service	7. Literature Activities
8. Music	8. Drama Activities
9. Writing	9. Science Activities
10. Speech and Drama	10. Religion Activities
	11. Education Activities

*Abstracted from American College Testing Program (1970).
**Abstracted from Pace (1972, 1974).

Figure 66

ALUMNI SURVEY COLLEGE-GOAL SCALES

FACTORS EMERGING FROM PACE'S ALUMNI DATA*

I. Personal-Interpersonal-Humanistic Benefits**

1. Broadened literary acquaintance and appreciation
2. Awareness of different philosophies, cultures, and ways of life.
3. Aesthetic sensitivity -- appreciation and enjoyment of art, music, drama
4. Appreciation of religion -- moral and ethical standards
5. Social development -- experience and skill in relating to other people
6. Personal development -- understanding one's abilities and limitations, interests, and standards of behavior
7. Writing and speaking -- clear, correct, effective communication.
8. Citizenship -- understanding and interest in the style and quality of civic and political life
9. Appreciation of individuality and independence of thought and action
10. Developing friendships and loyalties of lasting value
11. Tolerance and understanding of other people and their values

II. Social Awareness and Attitudes

1. Social awareness scale
2. Social desirability scale
3. Government viewpoints
4. Civil rights viewpoints

III. Intellectual-Cosmopolitan

1. Critical thinking -- logic, inference, nature and limitations of knowledge
2. Vocabulary, terminology, and facts in various fields of knowledge

IV. Vocational Attainment

1. Vocational training -- skills and techniques directly applicable to a job
2. Background and specialization for further education in some professional, scientific or scholarly field

V. Chauvinism-Piety

1. Appreciation of religion -- moral and ethical standards

VI. Critical Thinking-Knowledge-Independence

1. Critical thinking
2. Appreciation of individuality and independence of thought and action

VII. Civic and Political Activity

1. Community affairs activities
2. National and state politics activities
3. Education activities

VIII. Personal-Social Development, Human Relations, and Community Involvement

1. All of the benefit items which defined Factor I
2. Community affairs activities
3. Education activities
4. Music activities

IX. Humanistic-Esthetic Benefits and Activities

1. Broadened literary acquaintance and appreciation
2. Awareness of different philosophies, cultures and ways of life
3. Aesthetic sensitivity
4. Art activities
5. Literature activities
6. Drama activities
7. Intercultural affairs activities

*Abstracted from Pace (1972, 1974).

**This factor had a strong negative loading on the benefit item related to understanding science and technology.

Figure 66 (continued)

SPAETH AND GREELEY'S INDICES OF COLLEGE GOALS FOR ALUMNI*

PERSONALITY-DEVELOPMENT INDEX

A goal of my college should have been:

- Produce a well rounded student, that is, one whose physical, social, moral, intellectual, and aesthetic potentialities have all been cultivated.
- Made a good consumer of the student -- a person who is elevated culturally, has good taste, and can make good consumer choices.

CAREER TRAINING INDEX

- College should have trained me for my present job.
- The goal of my college should have been to prepare students specifically for useful careers.
- Purpose of college most important to me personally today is not a basic general education and appreciation of ideas.
- College should offer an education that mostly provides general skills and knowledge instead of attempting to provide training for specific jobs. (Neutral, disagree somewhat, disagree strongly)

INTELLECTUAL

A goal of my college should have been:

- Produce a student who, whatever else has been done to him, has had his intellect cultivated to the maximum.
- Assist students to develop objectivity about themselves and their beliefs and hence to examine those beliefs critically.
- Make sure the student is permanently affected (in mind and spirit) by the great ideas of the great minds of history.
- Serve as a center for the dissemination of new ideas that will change the society, whether those ideas are in science, literature, the arts, or politics.

*Excerpted from Spaeth and Greeley (1970, p. 14).

should have been, and whether or not the direct outcome associated with the goal should have occurred. The results indicated that, in general, the alumni favored more liberal goals, although the vocational goals were also important.

Impact and Attainment Areas Covered in Pace's Higher Education Measurement and Evaluation Kit. In 1972, Pace and his associates at the Center for the Study of Evaluation published a measurement and evaluation kit, a loose leaf notebook that included scales designed to measure student impact and attainment. A second edition of the kit has now been published (1975). In the introduction a number of outcome areas are mentioned: "the acquisition of knowledge in a variety of fields, the development of intellectual skills, abilities, and interests in a broad range of enterprises, the formation of informed attitudes and values regarding issues and problems of social impact, . . . personal development, 'the good life,' a civilized society, and the development of skill and competence in some profession or field of employment." The kit does not include scales in all of the areas of student development mentioned, only those areas not covered by instruments available from testing, employment, and other agencies.

Most of the measures covered here have been field tested, either with a national sample of about 7,500 upperclassmen at 80 colleges or with a sample at UCLA. The student development areas covered by the kit and the scales in each are listed in Figure 67.

Figure 67

IMPACT AND ATTAINMENT AREAS COVERED IN PACE'S

HIGHER EDUCATION MEASUREMENT AND EVALUATION KIT*

A. Activities and Interests in the General Culture

1. Community Affairs
2. National and State Politics
3. International and Intercultural Affairs
4. Art
5. Music
6. Literature
7. Drama
8. Religion
9. Science

B. Attitudes About Major Social Issues

1. National status and world security
2. Freedom of expression
3. Role of women
4. Minority problems
5. Societal viewpoints
6. Ecology

C. Progress Toward the Attainment of Broad Objectives and Benefits

1. Vocational benefits
2. Humanistic benefits
3. Critical thinking benefits
4. Human relations benefits

D. Personal Traits and Disposition

1. Academic orientation
3. Cosmopolitanism
3. Intellectual orientation
4. Critical thinking orientation
5. Scientific orientation

E. Values and Priorities

1. General values and ideologies
2. Societal priorities
3. Educational priorities

*Abstracted from Pace and others (1975).

Ebel's Command of Substantive Knowledge Framework. Ebel (1972) developed a classification of educational outcomes in terms of knowledge, skills, and character. However, according to Ebel a central outcome applying to all three areas is "command of substantive knowledge."

> If we look at what actually goes on in our school and college classrooms and laboratories, libraries and lecture halls, it seems reasonable to conclude that the major goal of education is to develop in the scholars a command of substantive knowledge. Achievement of this kind of cognitive mastery is clearly not the only concern of teachers and scholars engaged in the process of education. But the command of substantive knowledge is, and ought to be, the central concern of education. [P. 65]

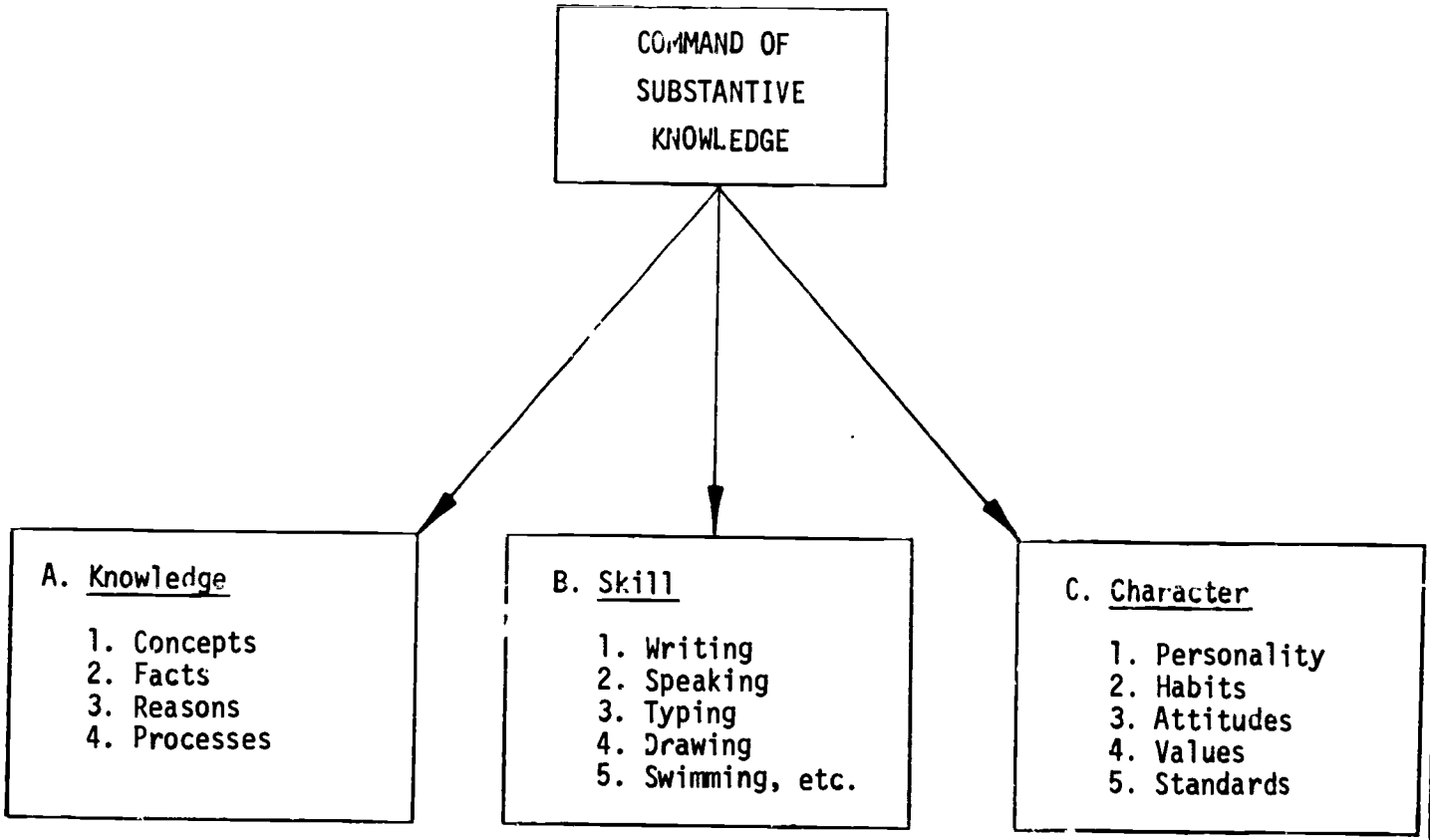
A diagrammatic outline that would seem to represent what Ebel said is presented in Figure 68.

Schalock's Models for Student Educational Outcomes. Schalock (1972) reviewed the literature and concluded that "every specialized group of professionals that have anything to do with children have developed a taxonomy or a series of taxonomies of learner outcomes, and by and large there is little overlap between them" (p. 41). He discussed six orientations to learning outcomes as seen by different disciplines, and these are summarized in Figure 69. One primary overriding difference among the orientations is that they deal with different levels of outcomes.

Schalock attempted to bring together concepts from the various orientations into an integrated taxonomy of learner outcomes composed of two levels Each level consists of a model for learner outcomes that is appropriate for that level, and the two models are presented graphically in Figures 70-73.

Figure 68

EBEL'S COMMAND OF SUBSTANTIVE KNOWLEDGE FRAMEWORK*



*Abstracted from Ebel (1972).

Figure 69

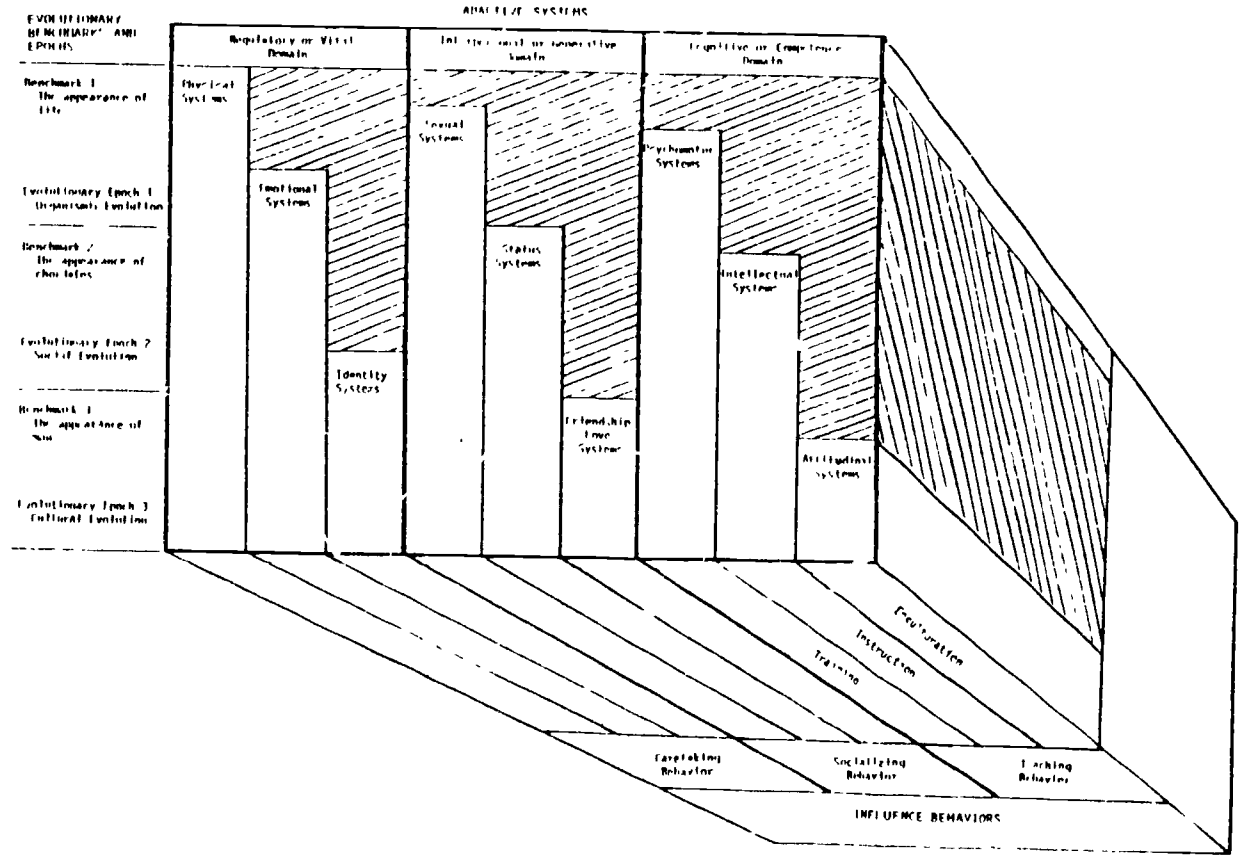
SIX VIEWS OF LEARNING OUTCOMES AS SEEN BY DIFFERENT DISCIPLINES*

DISCIPLINE	VIEW OF LEARNING OUTCOMES
1. Developmental Psychologists	Concerned with all human development, and have used as their guide to instruction and practice concepts such as physical development, social development, emotional development, intellectual development, motor development, space development, speech development, moral development, personality development, etc.
2. Learning Theorists	Outcomes are "narrowly defined and largely contentless classes of behavior" (e.g., discriminations, associations, concepts, principles) that apply to all learning.
3. Personality Theorists	Their outcome focus is much less general than that of developmental psychologists, but much more general than that of learning theorists. Mental hygienists in this group have concerned themselves with concepts such as "freedom from extreme frustrations, fears, anxieties, phobias, etc., a balance of constructive feelings about oneself, and interpersonal orientations which permit constructive friendship, love, and work relationships." Phenomenological psychologists in this group have focused on "positive view of self, identification with others, openness to experience and acceptance, and rich and available perceptual field, self actualization, . . . an increasing trust in one's organism, and a fully functioning self."
4. Psychoanalytic or "Ego" Psychologists	Concerned with the use of symbols and with the concept of ego functions or ego processes on dimensions such as "differentiation vs. confusion," "fidelity vs. distortion," "pacing vs. over-or underloading," "expansion vs. constriction," and "integration vs. fragmentation."
5. Educators	Although they have used nearly all of the concepts developed in other disciplines, their focus has been on subject matter taxonomies and curricular objectives, e.g., cognitive objectives, affective objectives, and psychomotor objectives. Their formal taxonomies "have been used in relatively disparate, disjointed ways.
6. Training Psychologists	Their focus has been on the performance of highly complex, "real-life" tasks in the military and in industry.

*Abstracted from Schalock (1972, pp. 85-96).

Figure 70

LEVEL ONE OF SCHALOCK'S INTEGRATED TAXONOMY OF LEARNER OUTCOMES*

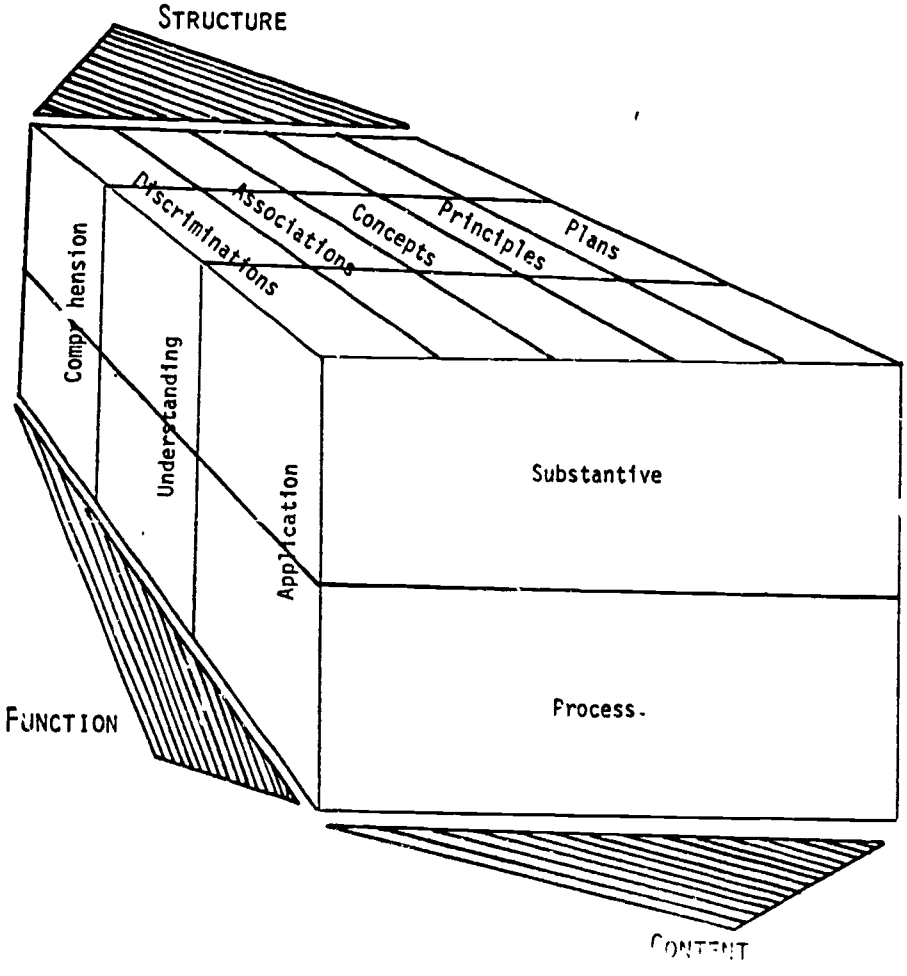


*Adapted from Schalock (1972, p. 43). In J. V. Edling (Ed.), The Cognitive Domain: A Resource Book for Media Specialists. Reprinted with the permission of the author.

Figure 71

LEVEL TWO OF THE COGNITIVE/COMPETENCE DOMAIN

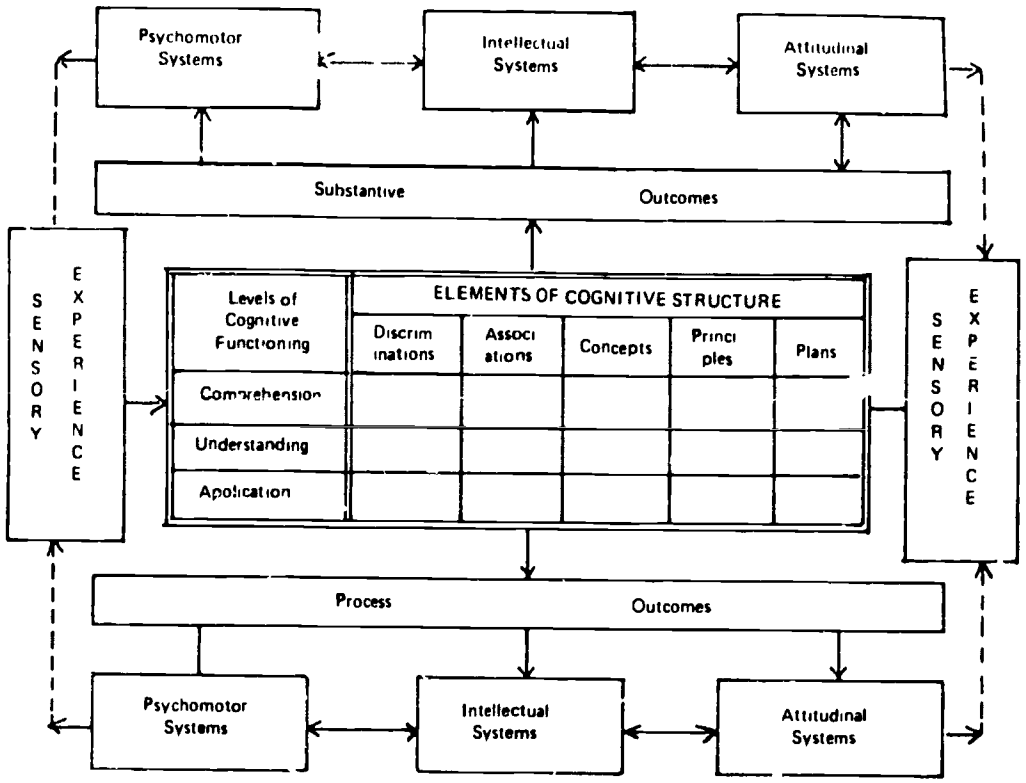
FOR SCHALOCK'S INTEGRATED TAXONOMY OF LEARNER OUTCOMES*



*Abstracted from Schalock (1972).

Figure 72

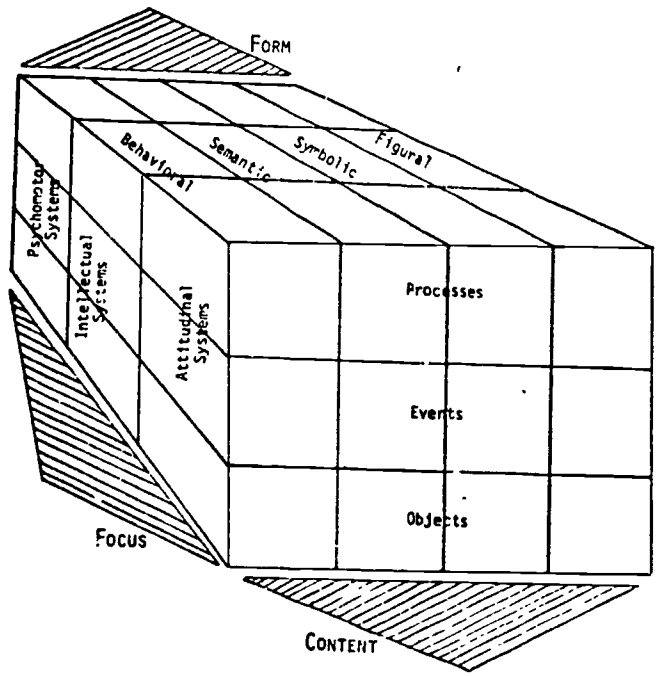
THE SCHEMATIC RELATIONSHIP BETWEEN THE COGNITIVE/COMPETENCE ADAPTIVE SYSTEMS AND STRUCTURAL, FUNCTIONAL, AND CONTENT OUTCOMES*



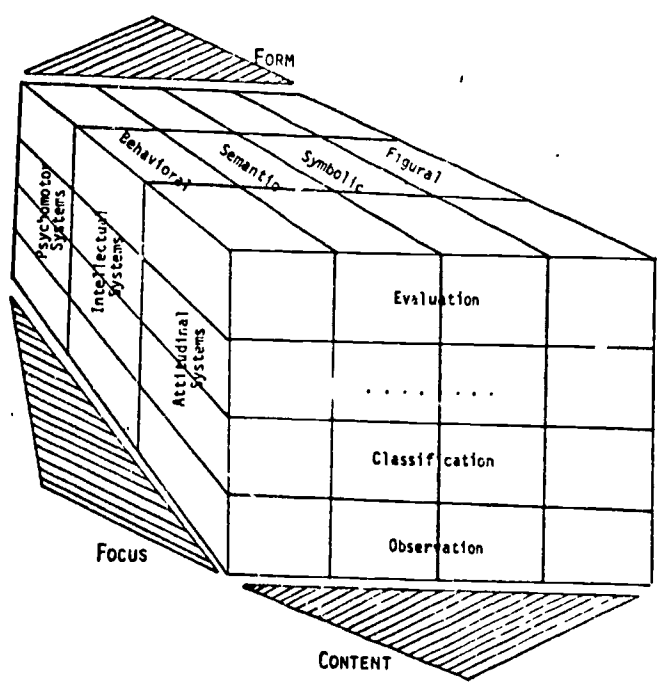
*Reprinted from Schalock (1972, p. 43). In J.V. Edling (Ed.) The Cognitive Domain: A Resource Book for Media Specialists. Reprinted with the permission of the author.

Figure 73

MODELS PRESENTED BY SCHALOCK FOR SUBSTANTIVE AND PROCESS OUTCOMES IN THE COGNITIVE DOMAIN*



MODEL FOR SUBSTANTIVE OUTCOMES



MODEL FOR PROCESS OUTCOMES

*Reprinted from Schalock (1972, pp. 53, 55). In J.V. Edling The Cognitive Domain: A Resource Book for Media Specialists. Reprinted with the permission of the author.

As outlined by Schalock and illustrated in Figure 70, the first level 'deals with the major categories of human development and/or functioning, and has as its function the sorting of outcomes into those which are 'learned,' those which are 'shaped,' and those which represent a 'residue' of the total spectrum of experience" (p. 410). This level consists of three different adaption areas which were derived from an "emerging theory of human development" that Schalock had formulated. His theory proposes that, because of primary needs, three broad classes of adaptive systems have arisen during the evolution of man: (1) internal regulatory mechanisms that will ensure growth and survival of the individual, (2) interpersonal-relational systems for the perpetuation and social ering of the species, and (3) a system of competencies for the individual to adapt to external environment demands.

Within each adaption area, three adaptive systems have developed and been refined according to Schalock, making a total of nine. It is within these nine adaptive systems that education can make a contribution, since each person develops and maintains all nine systems through the interaction of "experience and genetic programming." However, the primary function of education, bringing about learning, applies to the adaptive systems in the third area--called the cognitive/competence domain--and especially at the higher educational levels. This is because learning in the other two areas consists of habit and Pavlovian association learning.

Three broad classes of "influence behavior" (behavior directed by one person to another [or others] that aims at modifying or maintaining the other's behavior) correspond to the three broad areas of human development outlined. Schalock defines them as:

Caretaking: Those behaviors which lead to the development and maintenance of the regulatory mechanisms involved in the physical, emotional and self-definitional needs of another;

Socializing: Those behaviors which lead to the development and maintenance of the interpersonal orientations involved in the sexual, status and friendship-love relationships of another;

Teaching: Those behaviors which lead to the development and maintenance of the competencies and/or commitments involved in the psychomotor, intellective and attitudinal orientations of another. [Pp. 44-45]

The theory also proposes that each of the nine adaptive systems has an associated class of influence behaviors. Schalock has identified these subclasses of "influence behaviors" only for the three adaptive systems in the cognitive/competency (teaching) domain. They are training (teaching in the psychomotive area), instruction (teaching in the intellectual area), and enculturation (teaching in the attitudinal area).

The second level of Schalock's taxonomy is a three-dimensional model that goes into detail about what outcomes are occurring in an adaptive system as a result of education, or what should happen if educational goals in that area are being met. The three dimensions are structure, function, and content, and they correspond to the outcomes proposed by the learning

psychologists, the outcomes proposed by the educational psychologists, and the outcomes proposed by the curriculum or discipline specialists, respectively. Schalock focused exclusively on the cognitive/competence domain when discussing this level, as will this summary, but supposedly there are also similar models (only with different subclasses) for the other two domains.

The structure and function components of the cognitive/competence domain apply across all three cognitive/competence adaptive systems (psychomotor, intellectual, and attitudinal) according to Schalock, while the content component varies "not only by general class of outcome but by subclasses of outcomes within the psychomotor, intellectual and attitudinal realms." Structure of the cognitive/competence domain is the way it (cognitive) is put together, "the pattern of distinct elements organized into increasingly complex units' (p. 47). Function, on the other hand, refers to "the natural action or function of cognition in the overall functioning of the organism" (p. 50). Cognitive content is defined by Schalock as follows:

> The content of cognition represents the "stuff" into which cognitive structures are formed and with which cognitive functions deal. It is generally agreed that it consists of both substantive outcomes e.g., the laws of physics, the sounds of Beethoven, the vision of birds in flight, the feel of tennis racquet and ball, the smell of meadows, and process outcomes, e.g., observation, analysis, synthesis, hypotheses generation, evaluation. In the present scheme an integration of substantive process outcomes provides the content of psychomotor, intellectual and attitudinal adaptive systems. Conceptually, however, content outcomes occur only after sensory experience has been translated into cognitive structure and has thereby become available to cognitive functioning. [P. 52]

One possible way of diagramming the model for the second level of the cognitive/competency domain is shown in Figure 71. Another way of diagramming it was presented by Schalock and is shown as Figure 72. In this diagram he was trying to show the relationship between the adaptive systems and the structural, functional, and content outcomes.

Schalock also presented special models to illustrate the substantive and process outcomes of the Level 2 content dimension (see Figure 73). For the form of the content, the four categories of Guilford's model of cognitive objectives were utilized for both the model of substantive outcomes and the model of process outcomes. The difference between Schalock's substantive and process outcomes according to these models is that the first type of outcome is categorized into processes, events, and objects, while the second type of outcome is categorized into evaluation, classification, observation, and so forth.

Tri-County Goal Development Project Student Learning Classification System. A goal development project involving 55 school districts in a three-county area in and around Portland, Oregon developed 20,000 learning outcome statements for 12 major curricular areas in grades K-12 (Doherty and Hathaway, 1974). Then they developed two types of classification systems for organizing and retrieving the goals from their computer system: (1) content (subject matter) taxonomies and (2) coding systems based on the type of outcome. Their coding system is shown in Figure 74. Each category and subcategory shown was in turn broken down into a number of more detailed subcategories.

Figure 74

TRI-COUNTY GOAL DEVELOPMENT PROJECT STUDENT LEARNING CLASSIFICATION SYSTEM*

Knowledge	Processes	Values
- Principles and Laws	- Acquiring Information	- Environment 1. Qualities of environment 2. Coping with environment 3. Using environmental resources 4. Representing the environment
- Simple Generalizations	- Insuring Validity and Accuracy	
- Conventions, Properties, Classifications, Contexts, Operations, Relationships, Standards or Criterion, etc.	- Organizing Information	- Society and Culture 1. Social ideals 2. Social processes 3. Social rights 4. Social institutions 5. Social regulators 6. Cultural heritage
	- Interpreting Information	
	- Using Information to Provide New Information	- Personal Functioning 1. Qualities that contribute to personal effectiveness 2. Qualities that enhance personal relationships 3. Conditions of self-esteem and self-actualization 4. Self-actualizing responses to environment
	- Acting on the Basis of Information	
	- Communicating Information	

*Abstracted from Doherty and Hathaway (1974).

Chapter VI
Impacts on Society

Several of the attempts to structure outcomes and outcome-related concepts focused exclusively on the outcomes of education for society. In the past, and perhaps also currently, there has been a general feeling among most people that society derived many benefits from postsecondary education and that as a result government at all levels should support postsecondary education financially and in other ways. On the other hand, in comparison to the individual outcomes area, the number of attempts to classify social outcomes has been few. Similarly, as was discovered by Lenning et al. (1975), little research has focused on this type of outcome in comparison to the outcomes for individuals.

The Hand, Hoppock, and Zlatchin listing and the Bowen listing both focus on the broad array of societal outcomes. The other two classifications in this chapter focus on specific areas within the realm--on research and development outcomes and social purposes of public schools.

Hand, Hoppock, and Zlatchin's Society-Oriented List of Educational Objectives. Krathwohl and Payne (1971) referred to a list of objectives formulated in the 1940s by Hand, Hoppock, and Zlatchin (1948) as a good example of a view of education that is primarily society-oriented. Their list of educational objectives is presented in Figure 75.

Figure 75

HAND, HOPPOCK, AND ZLATCHIN'S SOCIETY-ORIENTED LIST OF EDUCATIONAL OBJECTIVES*

1. To keep the population healthy
2. To provide physical protection and guarantees against war
3. To conserve natural resources and use them wisely
4. To provide opportunity for people to make a living
5. To rear and educate the young
6. To provide wholesome and adequate recreation
7. To enable the population to realize aesthetic and spiritual values
8. To provide a sufficient body of commonly held beliefs and aspirations to guarantee social integration
9. To organize and govern in harmony with beliefs and aspirations

*Excerpted from Krathwohl and Payne (1971, p. 25).

Bowen's Categories of Social Benefits of Higher Education. If higher education is to receive proper funding, its benefits to society need to be extolled. Therefore, Bowen (1971), in a paper on financing higher education, wrote: "at a time when the social benefits from higher education are being doubted or denied, it seems necessary to spell out

these benefits" (p. 168). He then proceeded to discuss five classes of social benefits of higher education that he perceived, and these are outlined in Figure 76.

Schalock and Associates' Classification of Outputs of Educational Research and Development Efforts. The training branch of the U.S. Office of Education National Center for Educational Research and Development announced in the spring of 1970 that it wished to bring about change in the training of personnel to be engaged in educational research, development, diffusion, and evaluation (RDD&E) activities. The Teaching Research Division of the Oregon State System of Higher Education was assigned to conduct a series of studies of 20 exemplary RDD&E projects within various educational contexts for developing a conceptual and empirical base for these change efforts (Schalock and Others, 1972). As part of their broad-scale study, the project staff developed a structural framework for outputs of educational RDD&E activities. Schalock and his associates at Teaching Research (1972) took a primarily empirical approach to developing their taxonomy, as indicated by the following quote:

> The task of giving order to the outputs identified was a major one. The decision was made early in the Oregon studies not to impose preconceived category sets upon the data collection process, but rather to let category sets emerge from the data collected in the field. Procedurally this required that outputs be listed sequentially as they were identified within and across projects, and that commonalities be found between them. Three classification systems were developed for purposes of identifying commonalities between outputs. These were labeled, respectively, as the primary system, the cluster system, and the dimensional system. [Pp. 100-101]

Figure 76

BOWEN'S CATEGORIES OF SOCIAL BENEFITS OF HIGHER EDUCATION*

A. Social Benefits from Instruction

1. Improving allocation of labor by helping match students' aptitudes and interests to careers.
2. Improving citizenship through a better informed, more conscientious, more active citizenry.
3. Reducing crimes through an educated citizenry that has a lower crime rate.
4. Providing leaders for the many volunteer service organizations in this country.
5. Providing millions of persons for the low-paying service professions.
6. Improving home care and child training.
7. Providing millions of people who can bring humane values and a broad social outlook to government, business, etc.
8. Add to the graciousness and reducing the tensions of social interaction through enhancing manners and refinement of conduct and beauty.
9. Providing leadership in charting new courses for society.
10. Speeding the acceptance and diffusion of new technology, ideas, and ways of doing things.
11. Contributing new ideas to improve efficiency in business and government.
12. Providing a great reservior of technical skill and versatile leadership which serves as a base for our country's military power.

B. Social Benefits as a Center for Research, Scholarship and Criticism

1. Discover and develop knowledge which is regarded as a good in itself.
2. Build the foundation of our technology.
3. Preserve the cultural heritage and interpret it to the present.
4. Discover values and meanings.
5. Distill wisdom out of past human experiences.
6. Present ideas of use in shaping the future.

C. Social Benefits as a Versatile Pool of Talents

1. Pool of talent available to society for a wide variety of emerging problems.
2. Pool of talent available to help meet social and national emergencies.

D. Social Benefits as Patron and Promoter of the Arts

1. Employ artists.
2. Stage performing arts.
3. Educate oncoming generations to appreciate the arts.

E. Social Benefits from the Community College

1. Is a cultural center for its community and a patron of the arts.
2. Is a center of discussion.
3. Is a place for individual consultation and guidance.
4. Is a humane influence on the community.
5. Is a pool of talent to help with community problems.

*Abstracted from Bowen (1971, pp. 168-170).

The "primary" categories of outputs are the most concrete, are at the lowest level of abstraction, have "intrinsic" meaning, and are "close to the source" in that they "emerged from the language of persons in the field." A total of 962 specific outputs were identified in the available data, and these were categorized into 326 "primary" categories.

After the specific outputs had been categorized into the 326 primary output categories, similar procedures were used to group these categories into 51 manageable "clusters." The guiding principles followed in developing these cluster categories were that they should maintain "the intrinsic meaning of output labels" and should have "discreteness, clarity, and operational definition." (In spite of the fact that these were the guiding principles for their development, however, the authors reported that the cluster categories had "received no intensive 'after the fact' analysis as to discreteness, overlap, equivalence in level of generality, etc.") Another point made here, as with the primary set of categories, is that they are both treated as "open sets"; additional categories as needed can be added to accommodate additional outputs that are identified in the future.

As the primary and cluster sets of categories were developed, for purposes of coding outputs, they were analyzed for evidence of the "dimensions" on which they varied. The first dimension to become apparent was one called "structure" that had three subcategories into one of which every outcome could be classified: product, event, and condition. A "product" was defined

as "tangible or concrete in form, and transportable at a given point in time, for example, a single concept film, a budget, or a book." A total of 245 primary output categories or 20 cluster output categories could be used to describe products. An "event" was defined as "an observable transaction or set of behaviors, for example, a seminar, a staff meeting, a field test." A total of 43 primary output categories or 19 cluster output categories could be used to describe events. A "condition" was defined as "a desired circumstance expected to endure over the life of a project, or as a result of it, for example, parental involvement in planning school curricula, good staff morale." A total of 38 primary output categories or 12 cluster output categories could be used to describe conditions.

Three other dimensions were also discovered (function, character, and level), and each has its own subcategories just as does "structure." There is one important factor differentiating each of the other dimensions from the structure dimension, however, as indicated by the following quote:

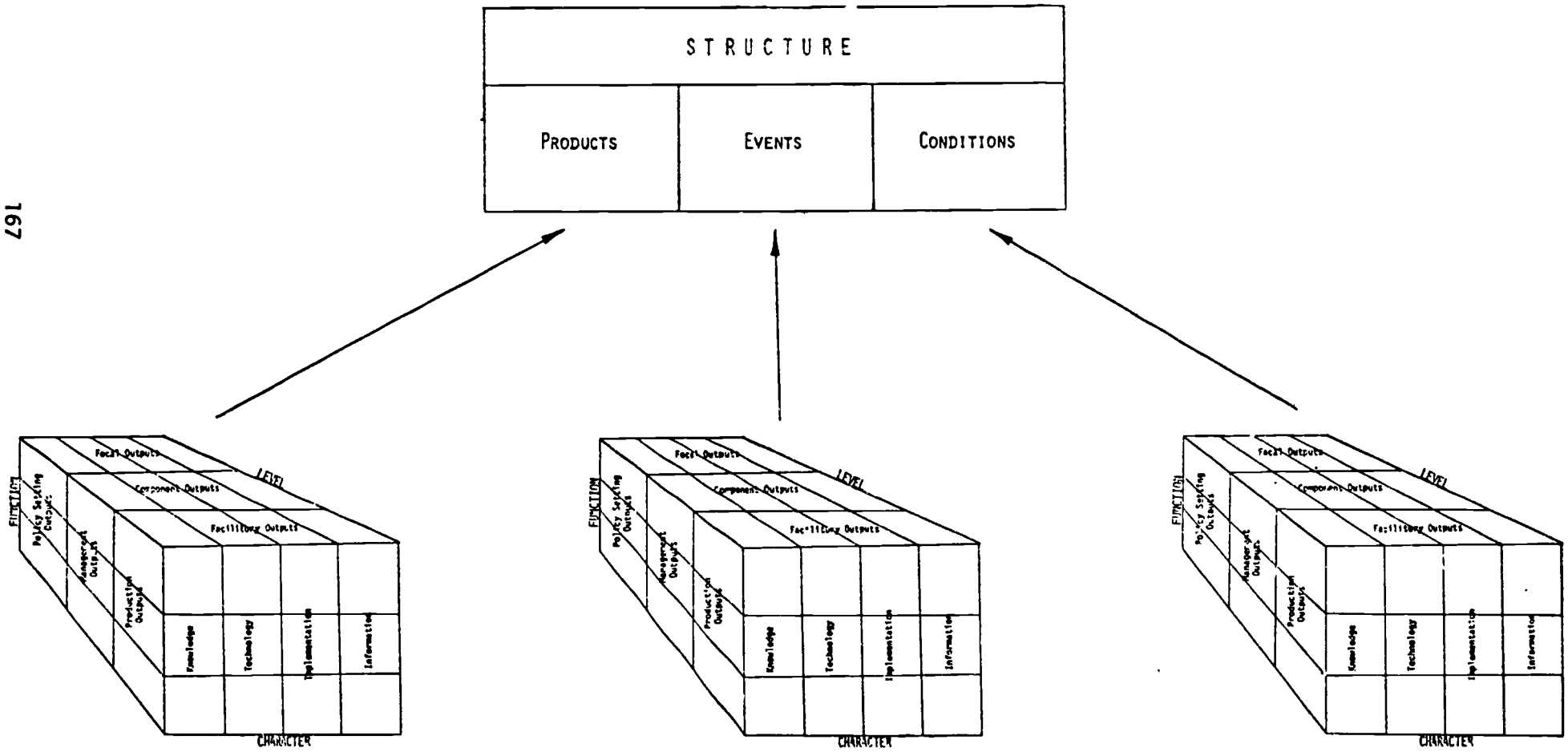
> While the structure of outputs are stable from the point of view of classification, that is, a product or event or condition is always a product or event or condition, irrespective of its project context, the output dimensions of function, character, and level vary according to the project context within which they reside. [P. 151]

A possible diagrammatic arrangement for illustrating the output dimensions found by Schalock and associates is shown in Figure 77. The authors also

Figure 77

THE DIMENSIONS IN SCHALOCK AND ASSOCIATES' CLASSIFICATION

OF OUTCOMES OF EDUCATIONAL RESEARCH AND DEVELOPMENT EFFORTS*

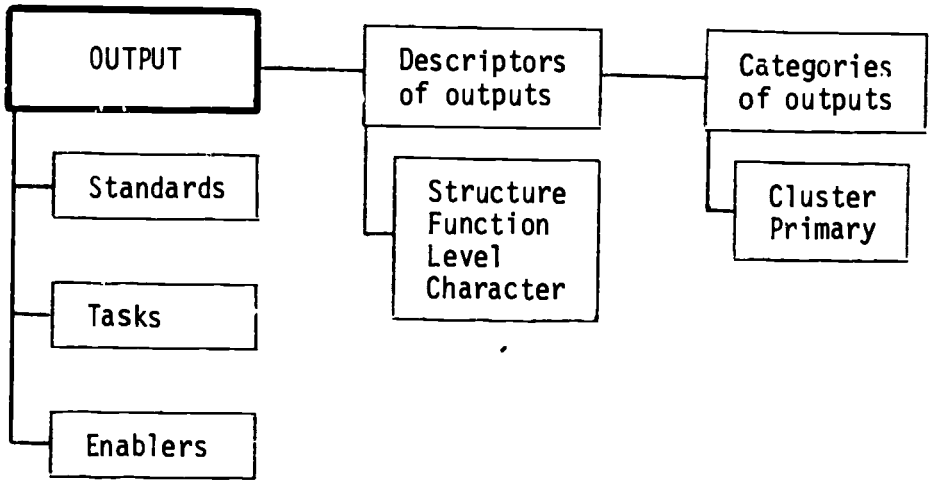


*Adapted from Schalock and Others (1972) with permission of H.D. Schalock.

focused on the work requirements of projects. In addition to the outputs specified and/or desired, the work effort depends on: (1) the standards set for the outputs; (2) the tasks required, the operations necessary to have the outputs meet the standards; and (3) the enablers required, "the knowledges, skills, and sensitivities required to carry out those operations" (p. 51). The conceptual framework that tied these factors to outputs was diagrammed by the authors and is reproduced in Figure 78.

Figure 78

ANOTHER VIEW OF SCHALOCK AND ASSOCIATES' MODEL OF OUTPUTS OF EDUCATIONAL RESEARCH AND DEVELOPMENT EFFORTS*



*Reprinted from Schalock and Others (1972, p. 208) with permission of H.D. Schalock.

Derr's Taxonomy of Social Purposes of Public Schools. Derr (1973) felt that too much attention in educational classification systems had been

devoted to the schoc various influences on the behavior of individuals, which meant that the social consequences of those influences were being completely neglected. Therefore, he set out to provide school officials and classroom teachers with a means for arriving at a precise definition of the social responsibilities of the school so that conditions in the school might be geared to accomplish "clearly specified social ends." He decided that what was needed was "a body of concepts which would enable us to identify clearly the various types of social purposes which could be assigned to schools . . . to provide a classification of the various types of social purposes which schools can adopt and to show the important similarities and differences among them" (p. viii). He also believed that an effort at classifying such purposes would show which areas of concern in education lack adequate concepts. Such a taxonomy would presumably also aid in allowing educators and the lay public to investigate what should be the social roles of the school and to evaluate whether or not the school is succeeding in those roles that are desirable.

Derr developed his taxonomy in three stages. First he identified statements of sccial purposes throughout the educational literature. Since no adequate concept of "social purpose of the school" could be found in the literature, he constructed such a concept that would clearly distinguish social purposes from other purposes: "a social purpose is an effect which a school system intends to produce on some entity" (p. 54). In addition, he decided that for purposes of the taxonomy, three major types of behavior forms would apply (values [conceptions of desirability], norms

[rules or standards of behavior], and beliefs [judgments about the nature of events in our experience; what is the case, how things happen, why things happen]) and that social conditions are what the schools are trying to change "because they represent a more fruitful and meaningful way to conceive how the school can influence its social environment" (p. 63). Derr continued:

> When a school has social purposes, its objective is to influence the behavior patterns of society by influencing the behavior of individuals. Its interest in the behavior of any given individual is, in this case, solely in terms of its being a contributing part to the perpetuation or modification of particular behavior patterns in society. . . .The adoption of social purposes by a school system implies that the school system has made a judgment as to the desirability or undesirability of particular social conditions. This is not the case with individual-in-society purposes (or, for that matter, with individualistic purposes). Here the school system simply accepts conditions as they are; it adjusts the individual to them, without making any explicit judgment one way or the other as to their desirability. . . ."socialization," a purpose which sociologists long have ascribed to schools and which is commonly regarded as a social purpose, is not a social purpose as the term is defined here. It is an individual-in-society type of purpose--or, more accurately, it is another term for the individual-in-society category of purposes. As a purpose, socialization is the attempt to prepare the individual for membership in society; as such, there is not explicit concern with exerting influence on the structure of that society. The structure of society is likely to be influenced by the manner in which the school chooses to socialize, but this outcome is a consequence rather than a purpose of schooling. [Pp. 60-62]

During the second stage in the development of the taxonomy, a tentative form of the taxonomy was constructed through analyzing statements of social purpose that are in the educational literature. This effort included identifying characteristics in common of various social purposes to differentiate classes of social purposes. Almost from the beginning, it was clear that there were two main classes of educational social purposes, those aiming

toward "maintenance" of society and those aiming toward "improvement" of society. A more difficult problem was to identify subclasses of social purposes within those two purposes.

Three guidelines or criteria were utilized in the development of classes of social purposes (p. 75):

1. The taxonomy should emphasize the similarity of the school's interests, when it pursues social purposes, with those of numerous other agencies and institutions in society.

2. The taxonomy should suggest some basis for drawing a division of labor among the various agencies and institutions which are concerned with influencing the behavior of individuals in the community or the larger society.

3. If there are some social purposes which are concerned with current users of behavior forms and some with prospective users of behavior forms, this distinction should be emphasized.

The third stage in the development of the Derr taxonomy involved refining and modifying the tentative form developed in Stage 2, through attempting to classify statements of social purpose drawn from a random sample of statements of philosophy or aims of school districts across the country. A total of 48 unique statements of social purpose were found, and those were reworded so that the key verb in the statement would be at the beginning of the sentence (since that very generally indicates the intended effect, it was felt that this would aid classification). Then three raters, working independently, attempted to classify each statement within the taxonomy. One problem with this procedure was that "social purposes of schools are commonly expressed in such vague and ambiguous language that there is no clear delineation of the responsibilities of schools for the production of social outcomes" (p. 84).

Stage 3 also involved making various tests. In the first test, the "theoretical test," the taxonomy was examined against the three guidelines referred to earlier. For the second test, the "reliability test," Derr constructed 50 statements of social purpose in accordance with the definitions of the categories in his taxonomy. Three independent judges were then given 30 minutes to classify the 50 statements, using the taxonomy. In only 4 percent of the cases did any of the judges differ as to which major class the statement belonged.

A "logical test" was also conducted. This involved evaluating the taxonomy against the following rules of logical division:

a. There must be only one defining characteristic at each step in the division

b. The categories must be mutually exclusive

c. The division must be exhaustive, such that

    1. there is a place in the division for all members of the universe of discourse

    2. the sum of the subclasses equals the whole class which has been divided

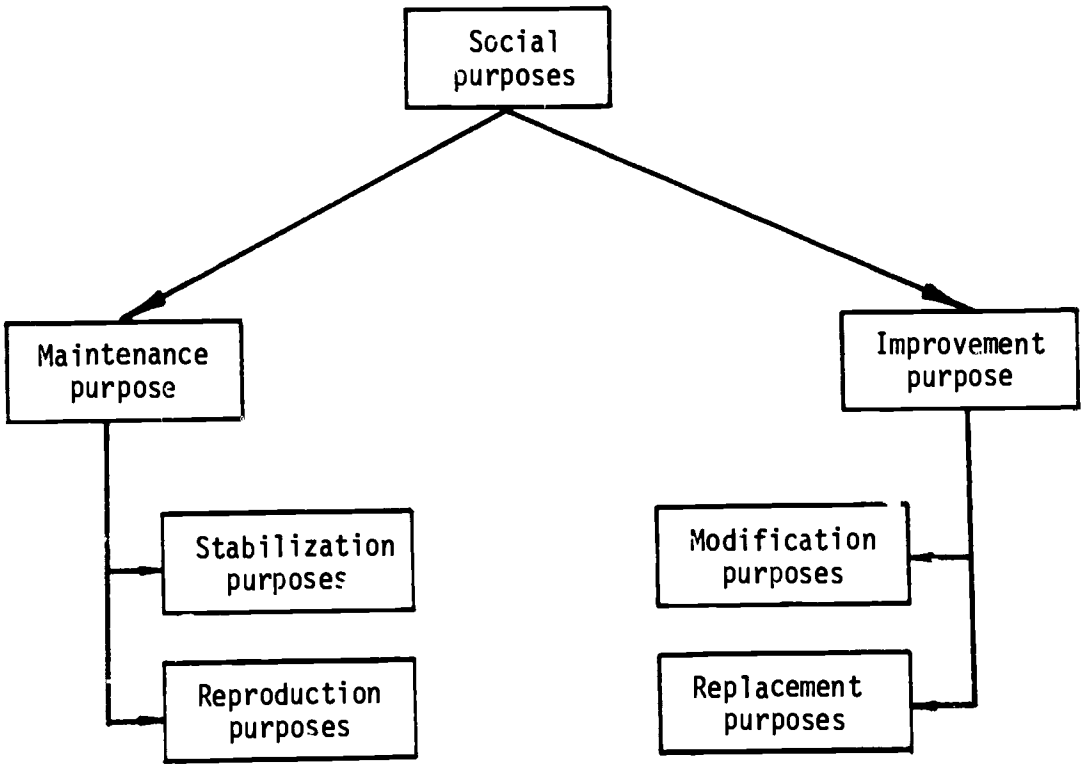
d. The successive steps in the division should be in accordance with one principle of division [P. 107]

Derr also demonstrated two uses of the taxonomy. In the first case he demonstrated its use in developing positions on the purposes of an American public school that would be within the capacity of the school to perform, that would delineate the social purposes and their consequences in specific terms, and that would avoid committing the school to incompatible social purposes. In the second case, Derr used the taxonomy to classify the orientations of 15 major educational writers.

Derr's taxonomy of social purposes of public schools is shown in Figure 79. It is hierarchical according to Vickery and Foskett's (1959) "principle of increasing concreteness," which Derr referred to as the "principle of specificity."

Figure 79

DERR S TAXONOMY OF SOCIAL PURPOSES OF PUBLIC SCHOOLS



*Abstracted from Derr (1973).

Chapter VII
Impacts on Society and Individuals

The many classifications discussed thus far have limited their focus to only outcomes for individuals or to only outcomes for society. There are a number of classifications, however, which have a broader focus. Those classifications focusing on both individual outcomes and societal outcomes are reviewed in this chapter.

Goals for Higher Education of President Truman's Commission on Higher Education. In 1946, with World War II veterans starting to flood the nation's campuses, President Harry S. Truman formed a commission to recommend what colleges and universities should be emphasizing, how they should organize, and what the federal government could do to help them cope with the new situation facing them. A year and a half later, the commission delivered a six volume report, one volume of which dealt with the goals higher education should attempt to meet. The committee selected three broad goals that should have priority, and then in later chapters talked about more specific goals that they evidently applied to the three areas. In addition, an entire chapter was devoted to equality of opportunity. A possible framework for how the commission seems to have viewed things is presented in Figure 80.

Figure 80

GOALS FOR HIGHER EDUCATION OF PRESIDENT

TRUMAN'S COMMISSION ON HIGHER EDUCATION*

I. Education for a Fuller Realization of Democracy in Every Phase of Living

- A. Promote Understanding Among Men
- B. Promote Development of the Individual
  1. Teach students social responsibility
  2. Teach students the meaning of democracy
  3. Teach students about the process of democracy
  4. Convey to students democracy's unfinished business
  5. Instill allegiance to democracy
  6. Help students develop a personal code of behavior based on ethical principles consistent with democratic ideals
  7. Help students apply habits of scientific thought to their lives
  8. Help students appreciate the implications of scientific discoveries for human welfare
  9. Help students understand the ideals of others and to express their own effectively
  10. Help students attain emotional and social adjustment
  11. Teach students proper health and to help in solving community health problems
  12. Teach students to appreciate art and cultural activities and to participate in some form of creative endeavor
  13. Help students acquire knowledge and attitudes necessary for a satisfying family life
  14. Help students find a socially useful and personally satisfying vocation that will permit them to use to the full their particular interests and abilities
  15. Help students master skills and habits needed for critical and constructive thinking
  16. Provide needed vocational training and integrate it with general education so each will enrich and give meaning to the other

II. Education for International Understanding and Cooperation

- A. Diffusion of Ideas in the World that are Emerging
- B. Instill the Ideal of Peace and Cooperation Among Men and Nations
- C. Secure Recognition and Acceptance of the Interdependence and Oneness of the World in the Thinking of People
- D. Instill Knowledge of, and Respect for, Other Peoples and Cultures
- E. Provide Opportunities for the Study of All Aspects of International Affairs
- F. Teach Students About One's Personal Responsibility for Fostering International Understanding and Peace
- G. Help Promote Free and Uncensored Communication of the World so They May Come to Understand One Another and the Interdependence

III. Education for the Application of Creative Imagination and Trained Intelligence to the Solution of Social Problems and to the Administration of Public Affairs

- A. Apply Trained Intelligence and Creative Imagination to Scientific Methods of Investigation, Invention and Adaptation as Fully to the Problems of Human Association as to the Extension of Knowledge in the Physical World
- B. Find Ways to Reorder Our Lives and Institutions so as to Make Science and Technology Contribute to Man's Well Being Rather than to His Destruction

Provide Equal Opportunity for Higher Education to Every Citizen, Youth, and Adult that Enables and Encourages Each to Carry His or Her Education, Formal and Informal, as Far as Native Capacities Permit

- A. Break Down Economic Barriers to Higher Education
- B. Eliminate Regional Variations of Quality and Accessibility
- C. Recognize Different Kinds of Educable Intelligence, and Open the Curriculum
- D. Eliminate Racial and Religious Barriers
- E. Open Up Education for Adults

*Abstracted from President's Commission on Higher Education (1947).

Mayer's Aims of Education. Mayer (1956) was annoyed that educators during the 1950s seemed to be concerned mainly with numbers in education, rather than quality:

> Often the emphasis in education has been purely quantitative, instead of qualitative. The stress has frequently been upon buildings rather than teachers, upon equipment rather than motivation, upon training rather than genuine growth, upon vocationalism rather than the liberal arts, upon specific knowledge rather than general education. [P. 630]

Therefore, he begins a thoughtful review of the meaning of education held by great men down through history: Plato, Herbert Spencer, Horace Mann, Thomas Huxley, and John Dewey. After contrasting indoctrination (closed mind, preconceived viewpoints, emotional biases, partial knowledge, subjective, dogmatism) to education (open-minded, accepts no absolutes, rational, complete knowledge, objective, tolerance) Mayer proceeds to discuss different agencies of education applied in different countries and the primary aims of education duri ; different periods of history (from the Hebrew civilization down to the present day). Then he discusses the 15 main aims of education that he perceived for his day, and they are listed in Figure 81.

The Educational Policies Commission Purposes of Higher Education. In 1957, the Educational Policies Commission of the National Education Association presented a report that dealt with the purposes of higher education. Concerning the purposes they formulated which are presented in Figure 82, they stated the following:

> Understanding of these purposes is a part of the intellectual equipment necessary for probing more deeply into the questions of higher education. . . . To discern these purposes clearly is a first step in solving the problems of higher education. The purposes arise from the conditions of American history, the hopes of the nation, and the urgent need for able men and women prepared to maintain the expanding culture and economy. The purposes have been variously stated by leaders in public life, by the analysts of higher education, and by poets who sing of the American dream. [P. 6]

Figure 81

MAYER'S AIMS OF EDUCATION*

1. Helpful Thinking
2. Appreciation of Culture
3. Development of Creativity
4. Understanding and Application of Science
5. Contact with Great Ideas
6. Moral and Spiritual Values
7. Fundamental Skills, Including Communication and Esthetic Sensitivity
8. Vocational Efficiency
9. Adjustment of Family Life
10. Preparation for Citizenship
11. Physical and Mental Health
12. Change in Personality Toward Being More Dynamic, Fascinating, and Radiating a Zest and Yearning for Truth
13. Permanent Interests that Reflect a Yearning for Education
14. Achievement of Peace and Trust Among Nations
15. A Perceptual Renaissance of Man; An Appreciation of Creativity

*Abstracted from Mayer (1956, pp. 635-638).

Figure 82

THE EDUCATIONAL POLICIES COMMISSION PURPOSES OF EDUCATION*

A. PROMOTE REALIZATION OF INDIVIDUAL OPPORTUNITY

1. Draw out the latent talent of youth.
2. Give opportunity for able youth to mature intellectually, aesthetically, socially, vocationally, and morally.
3. Help students develop their capabilities.
4. Assist equality of opportunity.

B. PRESERVE AND ENRICH THE CULTURAL HERITAGE

1. Relate learning to living; use cultural heritage to aid in wrestling with the vicissitudes and practicalities of life.
2. Education for citizenship.
3. Develop the "well-rounded man."

C. PUSH BACK THE FRONTIERS OF KNOWLEDGE

1. Conduct "pure research."
2. Conduct "practical research."
3. Add to existing knowledge through creative activity.

D. HELP TRANSLATE LEARNING INTO EQUIPMENT FOR LIVING AND FOR SOCIAL ADVANCE

E. HELP PROVIDE SOLUTIONS FOR SOCIETY'S PROBLEMS THROUGH DIRECT SERVICE TO THE PUBLIC

1. Give counsel to and do research for the community, along with its agencies and with private enterprise entities.
2. Provide extension education programs for the community.
3. Maintain art centers, libraries, schools, and forums.
4. Do research on behalf of national defense, agricultural policies, industrial growth, and so forth.

*Abstracted from Educational Policies Commission (1957, pp. 6-10).

Gross and Grambsch's Listing of Goals for Universities. In 1964, Gross and Grambsch (1968) surveyed 4,494 administrators and 2,730 faculty at 68 universities about university goals and power structures. Their questionnaire contained 47 institutional goals that they felt would apply to universities. In 1971, they repeated their study by surveying 4,500 persons at those same 68 universities, and then they explored the changes in perceived and preferred goals that had taken place (Gross and Grambsch, 1974).

Gross and Grambsch's list included output goals and support goals and each type was grouped into subclasses. Their listing is presented in Figure 83.

Testing Program Advisory Committee Outlines of Outcomes That Need to Be Measured. Ebel (1965) discussed the fact that, in addition to cognitive traits, test constructors are sometimes asked to measure noncognitive human traits such as motivation, persistence, flexibility, creativity, and so forth, because educators wish to influence the development of such traits also. Figure 84 presents listings cited by Ebel which had been suggested by two different advisory committees to testing programs.

Brubacher's General Educational Aims Derived from History. Brubacher (1966) discussed general aims of education that became apparent from a study of history. He divided these aims into 11 areas that are presented in Figure 85.

Figure 83

GROSS AND GRAMBSCH'S LISTING OF GOALS FOR UNIVERSITIES*

OUTPUT GOALS

Student-expressive
- Cultivate students' intellect
- Produce well-rounded student
- Develop students' objectivity
- Develop students' character

Student-instrumental
- Prepare students for useful careers
- Prepare students for status/leadership
- Train students for scholarship/research
- Cultivate students' taste
- Prepare student for citizenship

Research
- Carry on pure research
- Carry on applied research

Direct service
- Provide special adult training
- Assist citizens through extension programs
- Provide community cultural leadership
- Disseminate new ideas
- Preserve cultural heritage

SUPPORT GOALS

Adaptation
- Ensure confidence of contributors
- Ensure favor of validating bodies
- Educate to utmost high school graduates
- Accept good students only
- Satisfy area needs
- Hold staff in face of inducements

Management
- Involve faculty in university government
- Involve students in university government
- Run university democratically
- Keep harmony
- Emphasize undergraduate instruction
- Encourage graduate work
- Ensure efficient goal attainment

Motivation
- Protect academic freedom
- Give faculty maximum opportunity to pursue careers
- Protect students' right of inquiry

Position
- Maintain top quality in all programs
- Maintain top quality in important programs
- Keep up to date
- Increase or maintain prestige
- Preserve institutional character
- Maintain balanced quality in all programs

*Excerpted from Gross and Grambsch (1974, pp. 70-71).

Figure 84

TESTING PROGRAM ADVISORY COMMITTEE OUTLINE

OF OUTCOMES THAT NEED TO BE MEASURED*

Advisory Committee Number 1

1. Flexibility in thinking
2. Balanced judgment
3. Critical perception
4. Educability (the capacity for continuous intellectual growth)
5. Selectivity (the ability to make relevant selection from a mass of learned materials)
6. Synthesizing ability
7. Cultural awareness

Advisory Committee Number 2

1. Ability to make intuitive leap from inclusive evidence to a reasonable hypothesis.
2. Ability to break set -- to back away from a stone wall and look for another way around it.
3. Ability to maintain poise and effectiveness in a changing situation -- to adapt to sudden changes in the rules of the game.

*Excerpted from Ebel (1965, pp. 48-49).

Figure 85

BRUBACHER'S GENERAL EDUCATIONAL AIMS DERIVED FROM HISTORY*

1. Conservation
2. Citizenship
3. Christian Salvation
4. The Gentleman
5. Knowledge
6. Mental Discipline
7. Aristocratic and Democratic Aims
8. Harmonious Self-Development
9. Complete Living
10. Scientific Aims
11. Progressive Educational Aims

*Abstracted from Brubacher (1966, pp. 1-22).

The AASA Imperatives in Education. In 1964, the president of the American Association of School Administrators appointed a special commission to study the areas of school responsibility where change was imperative if the schools were to meet the needs of the time. After two years of study the commission published a report that discussed nine imperatives in education. Though the focus of the study had been on elementary and secondary education, most

people at that time would have considered those nine broad imperatives to be equally appropriate for postsecondary education.

The nine goals are listed in Figure 86 in the order they were listed in the book (there was some indication that, for some of the imperatives, this was the order of importance perceived by the commission, although they did not say that this was the case). Before looking at the list, it would be good to consider the clarifications set forth in the preface to the report (p. i):

> The imperatives identified in this publication are not intended to be educational goals, nor do they encompass the entire education program. Rather, they are points at which the educational program must be revised and reshaped to meet the needs of the times.

Figure 86

THE AASA IMPERATIVES IN EDUCATION*

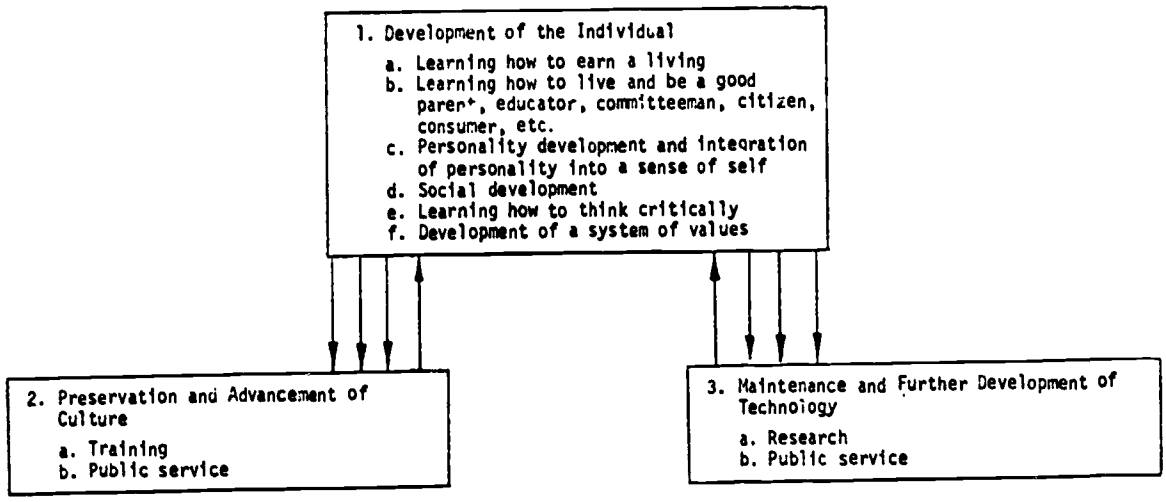
- To make urban life rewarding and satisfying
- To prepare people for the world of work
- To discover and nurture creative talent
- To strengthen the moral fabric of society
- To deal constructively with psychological tensions
- To keep democracy working
- To make intelligent use of natural resources
- To help people make the best use of leisure time
- To work with other peoples of the world for human betterment

*Abstracted from American Association of School Administrators (1966).

Sanford's Framework of Aims for College Education. Sanford (1968) postulated that there were three major aims of college education under which almost any other goal of importance can be categorized. These are the development of the individual, the preservation and advancement of culture, and the maintenance and further development of technology. He noted that these three goals are interrelated and depend on one another, but concluded that "the goal of individual development (enabling the individual to become all he is capable of becoming) is supreme . . . is an ultimate value." Sanford also listed several other important goals that could be categorized under the two major goals. A diagram illustrating his proposed structure is shown in Figure 87.

Figure 87

SANFORD'S FRAMEWORK OF AIMS FOR COLLEGE EDUCATION*



*Abstracted from Sanford (1968).

The Swedish LIGRU Scheme for Classifying Educational Objectives. In 1969, the Department of Research in the Gothenberg School of Education began a project (Klingberg, 1970) for the Swedish National Board of Education that examined the objectives, methods, and evaluation of literature instruction in the Swedish Comprehensive School (ages 7-16). This LIGRU project, as it was called, included review of a number of previous classification schema and the resultant development of their own taxonomy of objectives plus evaluation instruments. The schemes they reviewed were of three primary types. (1) those focusing on description of behavior, (2) those focusing on description of content, and (3) two-dimensional models focusing on both behavior and content.

The LIGRU taxonomy (see Figure 88) consisted of two dimensions--"goal area" (which "defines the content or subject area") and "aspect" (which "defines the level of behavior [for example, higher cognitive, emotional, or creative] in any goal area" [p. 1]). Although their taxonomy focused on literature instruction, the authors felt it would also be of interest in other contexts. Their schema contained an additional row and column of cells for objectives that could not be classified into any of the aspect categories and/or any of the goal area categories, but those are not shown in Figure 88.

Jellema's Goals for the Church-Related Liberal Arts College. Jellema (1971) focused on the special unique goals of church-related colleges--in particular "Christian" colleges. His focus was on their role in

Figure 88

THE SWEDISH LIGRU SCHEME FOR CLASSIFYING EDUCATIONAL OBJECTIVES*

ASPECTS	GOAL AREAS: AESTHETIC GOALS	ETHICAL-SOCIAL GOALS	LANGUAGE-ORIENTED GOALS	LOGIC-ORIENTED GOALS	MANUAL GOALS	MATHEMATICS-ORIENTED GOALS	GOALS OF MENTAL HYGIENE	NATURE- & TECHNOLOGY-ORIENTED GOALS	GOALS OF PHYSICAL TRAINING & HEALTH	SOCIETY-ORIENTED GOALS	WORK-ORIENTED GOALS
REPRODUCTION (mentions, enumerates, defines, describes, gives an account of, retells, reproduces)											
HIGHER COGNITION (notices, registers, discriminates, compares, distinguishes between, judges, relates to, values critically, considers, discusses)											
EMOTION (is pleased with, derives pleasure from, experiences joy in, experiences beauty in, experiences security in, experiences responsibility for, has confidence in, disapproves of, is indignant at, detests)											
CONATION (is interested in, chooses, looks for, strives towards, avoids, rejects, refuses)											
CREATIVITY (forms, gives shape to, draws up, works out, designs, finds, proposes, puts forward, experiments with, improvises, reorganizes)											
FUNCTION (takes part in, is active in, is a working member of, makes use of, accepts, respects, observes directions, stands up for, tolerates, resists, improves in)											

*Abstracted from Klingberg (1970).

providing special emphasis and service to three target groups: to the rest of higher education, to their students, and to the church. A listing of the goals discussed by Jellema is presented in Figure 89.

Goodman's Classifications of Educational Outputs. In a doctoral dissertation on the identification and classification of educational outputs, Goodman (1971) proposed that the dimensions approach to classifying such outputs as preferable:

> The principal value of the dimensions approach is its power to encompass the total educational output or benefit territory ranging from the most minute learning task in the physical skills segment of the cognitive domain, to the broadest statement of social mission. [P. 183]

Goodman presented a list of dimensions of educational outputs discussed in his dissertation (all of them were presented as being continuums) and that list is reproduced in Figure 90. In addition, he presented a service model of the outputs of educational institutions, which is reproduced as Figure 91, plus a model for and a classification of the economic returns to education, which are reproduced as Figures 92 and 93.

Brown's "Growth" Classification. Brown (1970) contended that a college or university is essentially a "growth environment." As he stated (p. 27):

> Here, resources are brought together for the convenience of the student who wishes to grow. Here, learning is more efficient because of the proximity, the extent, and the diversity of resources. Here, also, the scholar, as he strives to extend the boundaries of knowledge, is supported by the environment.

Figure 89

JELLEMA'S GOALS FOR CHURCH-RELATED LIBERAL ARTS COLLEGES*

A. Service to the Rest of Higher Education

   1. Offering religious (or Christian) insights into the nature of the objects of study

   2. More complete view of the concept of human wholeness and unity

   3. More complete view of the unity of human knowledge

B. Service to its Students

   1. Providing them with insights of the faith

   2. Cooperating with them in the search for an integrative whole for them as persons

C. Service to the Church

   1. Explores religious and moral questions in a scholarly manner

   2. Demonstrates to the world the church's concern for higher education

   3. Carries on research and writing concerning the mutual implications that learning and faith have for each other

   4. Provides education to help the church's young adults become dedicated and concerned individuals having insights of the faith

*Abstracted from Jellema (1971, pp. 86-99).

Figure 90

LIST OF DIMENSIONS OF EDUCATIONAL OUTPUT

PRESENTED BY GOODMAN*

DIMENSIONS CONTINUUM		EXPLANATION
Instructional	Noninstructional or Ancillary	(Service Outputs of Schools)
Observable Behavioral Change ...	Learning Not Observable in Behavioral Terms	(In Cognitive, Affective, and Psychomotor Domains)
Economic.....	Noneconomic	(Returns Both to Individuals and Society)
Measurable.....	Nonmeasurable	(Learning, Social, and Economic Outputs of Education)
Immediate.....	Long-Range	(Both Economic and Noneconomic Returns to Society and Individuals)
Quantitative.....	Qualitative	(Universal Dimensions of Output Constructs)
Consumption.....	Investment	(Opposing Views of the Economic and Social Nature of the Educational Product)
Goods.....	Services	(Products of Schools Fit into Both Categories)
Personal Fulfillment....	Capital Formation	(Economic and Non-economic aspects of the Educational Product)
Individual.....	Social	(Returns of Both Kinds Accrue to Educated People)
Internal Returns to Individuals	External Returns to Individuals	(Yield Patterns of Interest in Economics)
Internal Returns to Public Bodies	External Returns to Public Bodies	(Returns to Investment in Public Education)
Knowledge Preservation, Transmittal	Development of New Knowledge	(Primary Service Dimensions of Learning Institutions)
Entertainment..... ..	Serious Scholarship	(Needs No Explanation)

*From Goodman (1971, p. 184). Copyright © 1971 by H.H. Goodman. All rights reserved. Reprinted with the permission of the author.

Figure 91

GOODMAN'S SERVICE MODEL OF THE OUTPUTS OF EDUCATIONAL INSTITUTIONS*

Level	Primary Services and Their Principal Outputs	Ancillary or Noninstructional Services and Their Principal Outputs
Elementary	Instructional Programs and Activities: (the principal output of which is behavioral change reflected, and, to some extent, measurable in terms of improved knowledge, skills, attitudes, and competence in the following areas) (1) Pupil Achievement in the Subject Matter Fields (a) Literacy and the Language (b) Numeracy (c) General Knowledge (2) Skills in the Independent Pursuit of Knowledge (3) Background and Readiness for Future Learning (4) Socialization and the ability to Adjust to Change	Administrative Services: (subject to evaluation in terms of) (1) Leadership and Supervision of Students, Faculty, and the Instructional Program (2) Community Relations (3) School Organization and Scheduling (4) Records Keeping (5) Coordination of Supplies, Materials, Equipment, and Activities Pupil Services: (subject to evaluation and/or measurement in terms of) (1) Guidance and Counseling (2) Library Services, Study Materials, and Equipment used to aid learning (3) Medical, Dental, and Psychological Services (including testing) (4) Attendance Supervision, Visiting Teachers, and Social Worker Services Logistics and Physical Plant: (these services are highly measurable in easily understood output units) (1) Food Service (2) Pupil Transportation (3) Building Maintenance and Repair (4) Grounds Upkeep (5) Utilities

continued

*From Goodman (1971, pp. 303-306).

Figure 91 (continued)

Secondary

Instructional Programs and Activities:
- (1) Student Achievement in the Subjest Matter Fields
  - (a) Literacy and Communicating Skills
  - (b) Numeracy
  - (c) General Knowledge
  - (d) Grasp of the Structure of Knowledge--a View of the Relationship of Separate Subjects to the Whole of Knowledge
- (2) Skills in the Independent Pursuit of Knowledge
- (3) Background and Readiness for Future Academic and/or Vocational Learning
- (4) Socialization and the Ability to Adjust to Change

Administrative Services:
- (1) Leadership and Supervision of Students, Faculty, and the Instructional Program
- (2) Community Relations
- (3) School Organization and Scheduling
- (4) Records Keeping
- (5) Coordination of Supplied, Materials, Equipment, and Activities

Student Services:
- (1) Guidance and Counseling
  - (a) Personal and Group Problems
  - (b) Academic Counseling
  - (c) Vocational and Career Exploration
  - (d) College Selection and Admission
- (2) Library Services, Study Materials, and Equipment Used to Aid Learning
- (3) Medical, Dental, and Psychological Services (including testing)
- (4) Attendance Supervision, Visiting Teachers, and Social Worker Services

Recreational and Entertainment Services, Student Activities, and Their Supervision:
- (1) Athletics
- (2) Drama and Musical Events
- (3) Student Publications

continued

Figure 91 (continued)

Adult

(3) Coordination of Research and Development activities between the University and the Community Beyond

Instructional Programs and Activities:
(in the areas of)
(1) Remedial and Developmental Studies
(a) Literacy Training, i.e., Adult Basic Education
(b) General Educational Development Programs, i.e., Secondary Level Work Leading to High School Equivalency Examination
(c) Vocational Training and Job Skill Upgrading
(d) On-the-job Vocational Training
(e) Cooperative Vocational Programs Involving Both Business Firms and Educational Institutions
(2) Self Improvement and Personal Interest Studies
(a) Liberal Adult Education
(b) Personal Skills and Handicrafts

Logistics and Physical Plant:
(1) Buildings and Grounds
(2) Utilities
(3) Transportation Facilities

Administration Services:
(1) Recruiting and Placement
(2) Records Keeping
(3) Public Relations

Student Services:
(1) Guidance and Counseling
(2) Library and Learning Materials
(3) Evaluation and Referral

Physical Plant: (use of building at a time when facilities are under used)

Figure 91 (continued)

Higher

Instructional Programs and Activities:
(contributing to the development of knowledge, skills, competency, and attitudes among)
(1) Liberal Arts Graduates, and Specialists in the Humanities and Social Sciences. Also Liberal Education for Technical and Scientific Specialists
(2) Vocational and Technical Personnel
(3) Professional and Scientific Specialists

Research and Development Activities:
(1) Development of new Knowledge, both pure and applied, through research in all disciplines
(2) Develop ways to apply knowledge in the solution of current and future problems.

Service to the Non-University Community:
(1) Extension Programs of Instruction and Leadership
(2) Training and Upgrading of on-the-job Professionals

Logistics and Physical Plant:
(1) Food Service
(2) Student Transportation
(3) Building Maintenance and Repair
(4) Grounds Upkeep
(5) Utilities

Administration Services:
(1) Admissions
(2) Record Keeping
(3) Organization, Coordination, and Scheduling
(4) Scholarships and Student Aid
(5) Placement and Follow-Up
(6) Leadership of Faculty
(7) Public Relations

Student Services:
(1) Academic Counseling
(2) Library Services
(3) Medical, Dental, and Psychological Services (including testing)
(4) Living accommodations and Residence-related Services
(a) Food Service
(b) Laundry

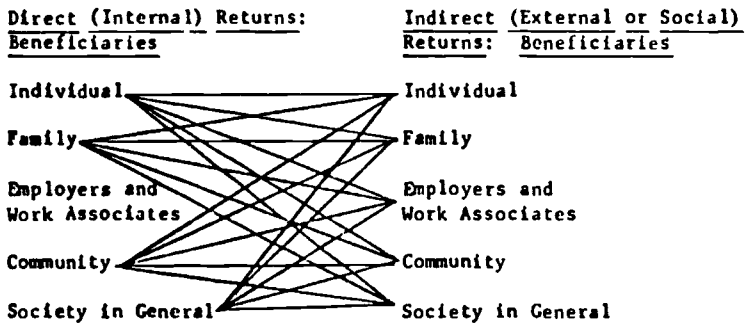
Recreational and Entertainment Services, and Student Activities:
(1) Athletics
(2) Dramatics
(3) Musical Activities
(4) Student Publications

continued

Figure 92

GOODMAN'S MODEL FOR SHOWING BENEFICIARY PATTERNS

OF THE DIRECT AND INDIRECT ECONOMIC RETURNS TO EDUCATION*



*From Goodman (1971, p. 311). Copyright © 1971 by H. H. Goodman. All rights reserved. Reprinted with the permission of the author.

Figure 93

GOODMAN'S CLASSIFICATION OF THE BENEFICIARIES AND BENEFITS OF THE ECONOMIC RETURNS TO EDUCATION*

Direct (Internal) Returns: Beneficiaries and Benefits of Education	Indirect (External or Social) Returns: Beneficiaries and Benefits of Education
Individual--	Individual--
(1) Direct Financial Returns in the Form of Greater Annual and Life Earnings Stretching Over a Longer Working Lifetime	(1) Incremental Productivity Due to Improved Personal Competence and Efficiency, and Better Attitudes Toward Work
(2) Greater Economic Security Due to Increased Vocational Alternatives and Options	(2) Complementarities Between Formal Education and Non-Formal Learning Activities of Economic Importance, i.e., On-the-Job Training, Study and Reading for Self-Improvement, and Social and Civic Participation
(3) Ability to Hedge Against Low Earnings and Unemployment	(3) Greater Interest, Participation, and Influence in Civic, Social, and Governmental Affairs
(4) The Option to Pursue Further Education or Enter Labor Force	(4) Upward Social and Economic Mobility; Improved Chances of "Marrying Up"
(5) "Non-Market Benefits"--Learned Abilities and Competencies Which Enable the Avoidance of Certain Direct Costs, i.e., Personal Typewriting or Completing One's Own Tax Forms	(5) Psychic Satisfactions, and the Economics of Cultivated Tastes
Family--	Family--
(1) Greater Income and Higher Standard of Living	(1) Social Products
(2) Available Resources with Which to Support Family Members in Social and Educational Accomplishments	(a) Upward Social and Economic Mobility
	(b) Access to Better Neighborhood, and Opportunities to Influence Civic and Community Affairs

continued

*From Goodman (1971, pp. 312-316).

Figure 93 (continued)

(3) Greater Economic Security; Increased Ability to Adjust to Change and Hedge Against Low Income and Unemployment
  (a) Geographic and Job Mobility
  (b) Life Style and Social Adjustment to Economic Change

Employers and Work Associates--
(1) Educational Institutions Recruit, Screen, and Train Workers Who Are Later Employed at Minimum Initial Costs to Firm
(2) Direct Monetary Returns to Investment in Firm-Sponsored Educational and On-the-Job Training Programs
  (a) Increased Worker Efficiency and Productivity
  (b) Better Attitude Toward Work and Employer Has Motivating Influence
(3) Increased Holding Power of Firm, i.e., Reduced Losses Due to Worker Turnover
(4) Reduced Firm Losses Due to Absenteeism, Tardiness, and Worker Discord

  (c) Ability to Participate More Effectively and Contribute Toward the Effectiveness of Others
  (d) Wider Choice of Associates and Marriage Partners
(2) Custodial and Child Care Services Provided by Educational Institutions
(3) Avoidance of Need for Remedial and Corrective Services in School and Community

Employers and Work Associates--
(1) Attitudes and Competence of Productive Workers Spill Over to Other Employees and Influence Their Behavior
(2) Better Educated Employees Represent the Firm Well Through Their
  (a) Family and Community Life Styles
  (b) Influence and Participation in Civic and Community Affairs
(3) Improved Relations Between Workers and Employer, and Between Workers Themselves

continued

Figure 93 (continued)

(5) Enhanced Work Group Cooperation, esprit de Corps, and Productivity

Community--

(1) Broader Tax Base to Support Community Service Programs
(2) Increased Aggregate Community Income Through
    (a) Higher Earnings
    (b) Higher Productivity
(3) Higher Disposable Income of Mothers Free for Employment Due to School-Provided Child Care and Custody
(4) "Avoidance Costs"--Direct Economic Benefits to Community When Education Enables Reduction of Need for Welfare, Police, and Family Services, Freeing Public Funds for Other Uses
(5) Spill-In of Economic Benefits from Outside Communities
    (a) Migration
    (b) Fiscal Interdependence

Community--

(1) Higher Taxes Paid by Educated People Benefit Entire Community Through
    (a) Lower Taxes for Others
    (b) Increased Public Services
(2) Social Products or Benefits from an Educated Citizenry
    (a) Lend Stability and Encourage Greater Civic and Social Participation
    (b) Exert Both Positive Social and Productive Influence by Working Closely with Others Who Are Less Well Educated
(3) Increased Human Resources and a Broad Mix of Skills in the Community
    (a) Vocational
    (b) Technical
    (c) Scientific
    (d) Professional
(4) Decreased Incident of Personal and Social Disorder among Better Educated Members of the Community, Accompanied by Less Need for Public Services of a Welfare or Corrective Nature, Permit Substantial Reallocation of Public Resources to Other Ends
(5) Schools Search Out and Cultivate

continued

Figure 93 (continued)

Society in General--
(1) Factors Supporting Economic Stability and Growth
(a) Productivity and Efficiency of Workers and Industries
(b) Increased Economic Resources, e., Higher Level Manpower Pools Due to Human Capital and Manpower Development
(c) Improvement in Social Product
(d) Complex and Changing Skill Mix in the National Work Force
i) Vocational
ii) Technical
iii) Scientific
iv) Professional
(e) Economic Mobility of Labor Force
i) Geographic Mobility
ii) Employment Mobility
(f) Keeping Large Numbers of Young People Out of Labor Force
(h) Preventing Large Segment of the Population from Slipping Below the Poverty Line

(5) Schools Search Out and Cultivate Potential Abilities and Talents
(6) Education Makes the Community Better Able to Interact with and Participate in Regional Economic Programs and Developments

Society in General--
(1) Education Can Accelerate the Absorption and Adoption of Social and Economic Change, and Orient the Population Toward Economic Growth
(2) Learning Institutions Foster Diversity in the Population by Discovering and Cultivating Potential Talents and Abilities
(3) Education Develops a Population Oriented Toward the Dominant Social Values and, at the Same Time, Builds Attitudes of Tolerance
(4) An Enhanced Standing Among the Nations of the World
(a) Leadership
(b) Cultural
(c) Trade and Economic

continued

Figure 93 (continued)

(1) Higher Taxes Paid by Better Educated Earners, i.e., Much Broader Tax Base and Structure
(1) "Avoidance Costs"--Public Money Freed for Reallocation
(2) Research and Knowledge Production in the Pure and Applied Sciences Along with Advancing Technology
(3) Factors Contributing to the Security and Defense of the Nation
(4) Spill-In of Highly Educated Foreigners Attracted to the U. S. to Study, Research, and Work

Brown divided growth into three major types. For each type he then listed a number of more specific growth objectives. His classification is shown in Figure 94.

Plowman's Model for Desired Educational Effects. Figure 95 is a diagram developed by Plowman (1971) to provide a framework for showing the interactions among a student's educational experiences (both within and outside of the school setting), the educational environment and institutional process, the student's natural developmental process (development having no relationship to environmental, experience, and process variables), and characteris ics of the students and their result on self and society. According to Plowman's model, the basic end outcomes are a happy, satisfied, fulfilled, healthy individual, and an effective resource for society.

The ETS Institutional Goals Inventory. The Educational Testing Service made use of the Delphi consensus rendering technique to force as much consensus as possible concerning college goals among students, faculty, administrators, alumni, parents, and leaders of community groups associated with diverse collegiate institutions. A questionnaire called the Institutional Goals Inventory resulted from this effort (Uhl, 1971; Peterson, 1971). Over 100 institutional goals are listed in this inventory and responders react to each goal in two ways: (1) their perception of how important the goal is at that institution, and (2) how important they think the goal should be at that institution. For analytical purposes, the goals are grouped into the 13 output and 9 process goal areas shown in Figure 96.

Figure 94

BROWN'S "GROWTH" CLASSIFICATION*

A. Whole Man Growth

1. Learn to feel (e.g., compassion, love, concern)
2. Learn to retain facts
3. Learn to think (i.e., logic, methods of analysis)
4. Learn to decide (i.e., philosophy of life, value system, methods of analysis)
5. Learn to act (e.g., do, create, communicate)
6. Learn to learn

B. Specialized Man Growth

1. Choose a career
2. Gain admission to next stage in career development (e.g., medical school)
3. Develop skills needed to fulfill career
4. Earn a living for self and family
5. Fulfill society's manpower needs (including discovery of talent)

C. Growth in the "Pool of Knowledge"

1. Identify new phenomena
2. Synthesize and summarize in new ways
3. Communicate new knowledge to others

D. Growth in Society-at-Large

1. Create design for new society (e.g., design model cities program)
2. Carry out design (i.e., provide manpower actually to do the job)
3. Evaluate society's current attack on problems

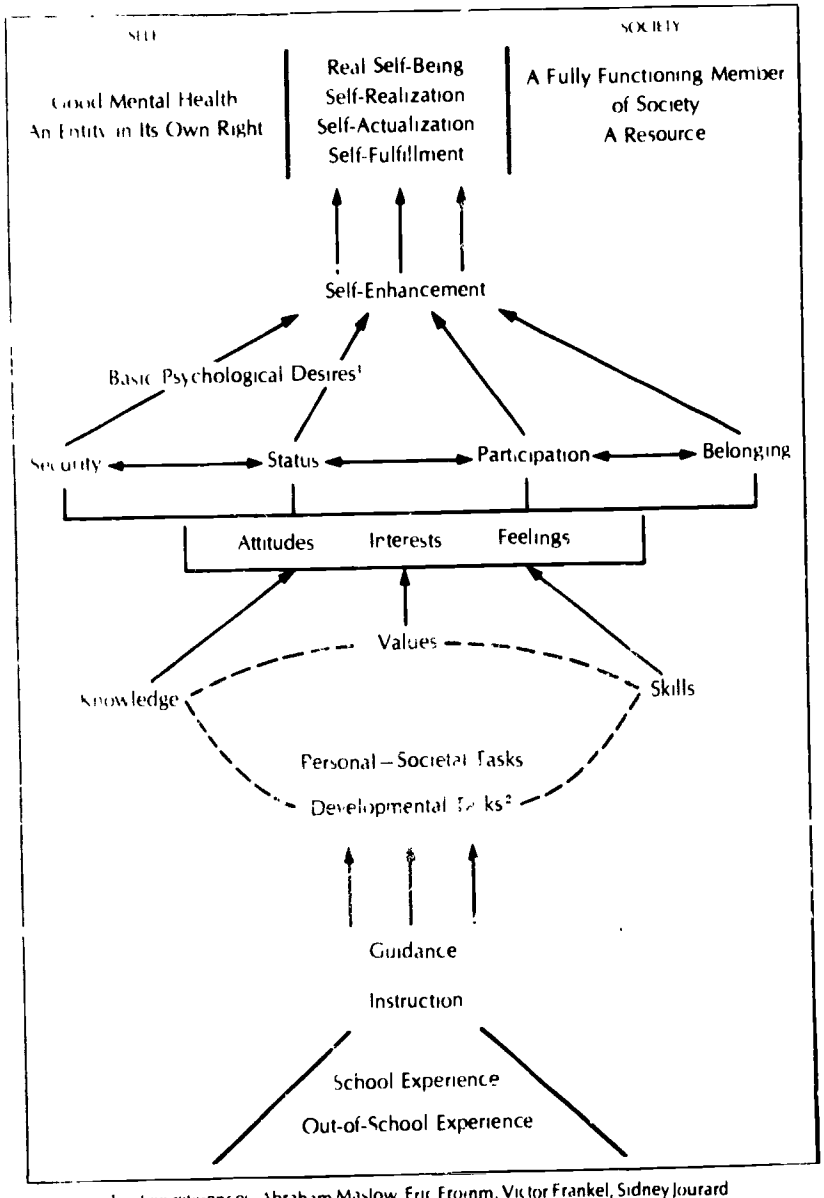
E. The Joy of Growing and of Being in an Educational Environment

1. Provide dignity, self-esteem, and material goods to the faculty and others on the payroll
2. Provide enjoyment and happiness to students and faculty involved in the educational process
3. Provide benefits, both psychic and real, to citizens of the community

*Abstracted from Brown (19), pp. 27-28).

Figure 95

PLOWMAN'S MODEL FOR DESIRED EDUCATIONAL EFFECTS*



1 See references Abraham Maslow, Eric Fromm, Victor Frankel, Sidney Jourard

2 Developmental tasks for the adolescent, for example, would be to become emotionally independent of his parents, to acquire a set of values, to form a philosophy of life, to acquire skills of citizenship, and to take steps to become emotionally independent See references Edward Krug, Robert Havighurst

*From Behavioral Objectives by Paul D. Plowman, p. 26. Copyright © 1971 by Science Research Associates, Inc. All rights reserved. Reprinted by permission of the publisher.

Figure 96

THE ETS GOALS INVENTORY AREAS*

A. OUTPUT GOAL AREAS

1. Academic Development
2. Intellectual Orientation
3. Individual/Personal Development
4. Humanism/Altruism
5. Cultural/Esthetic Awareness
6. Traditional Religiousness
7. Vocational Preparation
8. Advanced Training
9. Research
10. Meeting Local Needs
11. Public Service
12. Social Egalitarianism
13. Social Criticism/Activism

B. PROCESS GOAL AREAS

14. Freedom
15. Democratic Governance
16. Community
17. Intellectual/Esthetic Environment
18. Collegiate Environment
19. Innovation
20. Evaluation and Planning
21. Accountability/Efficiency
22. External Relations

*Abstracted from Peterson (1971).

The Carnegie Commission's Purposes of Higher Education. The Carnegie Commission on Higher Education, in its long deliberations, covered almost every aspect of higher education. It used one entire volume (1973) to discuss the five major purposes it perceived for higher education in the United States during the last quarter of the twentieth century, and how well higher education has been performing in each area. They defined purposes as the end objects that higher education pursues. For each purpose they listed a number of functions (acts) directly related to carrying out those purposes. The purposes and directly associated functions delineated by the Carnegie Commission are presented in Figure 97. The Commission also mentioned the importance of functions that are indirectly related to carrying out the purposes:

> These direct functions are supplemented by support functions such as business services, library services, public relations services, and "custodial" services like feeding and housing. Ancillary functions, such as operation of a governmental laboratory, are also sometimes carried out. [P. 65]

The NCHEMS Inventory of Higher Education Outcome Variables and Measures. With the help of input from a design committee of educators and input from other sources, Micek and Wallhaus (1973) developed a system for classifying the outcomes of higher education. Also influential in the development of their classification was Schalock's Epoch theory of emerging human development that was discussed earlier in this document (see pages 149-159).

Micek and Wallhaus developed their classification in order to establish a framework for understanding and using outcomes information in higher

Figure 97

THE CARNEGIE COMMISSION'S PURPOSES OF HIGHER EDUCATION*

A. PROVIDE INDIVIDUAL STUDENTS WITH EDUCATION AND DEVELOPMENTAL GROWTH

1. Providing Broad Learning Experiences (General Education)
2. Providing Specialized Academic and Occupational Preparation
3. Assisting Academic Socialization
4. Providing Interesting and Stimulating Campus Environments
5. Providing Advisory and Counseling Support
6. Providing Time to Assess Options and Make Choices Before Having to Make Commitments

B. ADVANCE HUMAN CAPABILITY IN SOCIETY AT LARGE

1. Bringing About Research Advances and Developments
2. Providing Service to Off-Campus People and Organizations
3. Finding, Assessing, and Placing Talent
4. Training Skills
5. Providing Cultural Information and Opportunities

C. ASSIST THE REST OF SOCIETY TO PROVIDE EDUCATIONAL JUSTICE AND OPPORTUNITIES

1. Developing Adequate Numbers of Open-Access and Other Places Offering Postsecondary Education
2. Developing Special Programs, Including Those That Are Remedial and Cultural
3. Providing Essential Financial Support to Students

D. PROVIDE SUPPORT FOR PURE SCHOLARSHIP, ARTISTIC CREATIVITY, AND THE ENHANCEMENT OF CULTURAL HERITAGE

1. Providing Facilities
2. Providing Personnel
3. Providing a Favorable Climate

E. PROVIDE AND STIMULATE EVALUATION OF SOCIETY THAT AIMS FOR SELF-RENEWAL

1. Providing Freedom for Such Evaluation
2. Providing Opportunities for Such Evaluation
3. Providing Reasonable Rules of Conduct for Such Evaluation

*Abstracted from Carnegie Commission (1973, pp. 13-67).

education planning and decision making. Their inventory was to serve as a "communication base," as a tool for an institution to use in translating goals into measurable terms, as a tool to help an institution develop a list of priority outcomes, and so forth; and procedures for such use were dicussed.

Two main guiding principles were used in constructing the inventory. First was that the inventory "must be of service to as many kinds and levels of planners and decision makers in higher education as possible." The second one was that it "must provide a relatively complete characterization (of the outputs) of an institution's programs." In addition, the categories in the inventory were to have as little overlap as possible, and the category names were to connote neutrality as to whether or not it was a positive or negative outcome.

The framework of the Micek and Wallhaus outcomes inventory is shown in Figure 98. Within each subcategory of the actual inventory are presented definitions for, and potential concrete measures of, that outcome.

Gross' Approach to Classifying Objectives. Gross (1973) utilized two dimensions in classifying university educational program goals: target group and ease with which they can be operationalized or measured. The target group delineation was his major focus, for reasons which are given below:

Figure 98

THE NCHEMS INVENTORY OF HIGHER EDUCATION

OUTCOME VARIABLES AND MEASURES*

1.0 Student Growth and Development

- 1.1.0 Knowledge and Skills Development
  - 1.1.1.00 Knowledge Development
    - 1.1.1.01 General Knowledge
    - 1.1.1.02 Specialized Knowledge
  - 1.1.2.00 Skills Development
    - 1.1.2.01 Application of Knowledge and Skills
    - 1.1.2.02 Critical Thinking and Reasoning Skills
    - 1.1.2.03 Creativity Skills
    - 1.1.2.04 Communication Skills
    - 1.1.2.05 Motor Skills
  - 1.1.3.00 Knowledge and Skills Attitudes, Values, and Beliefs
    - 1.1.3.01 Intellectual Disposition
- 1.2.0 Social Development
  - 1.2.1.00 Social Skills
    - 1.2.1.01 Interpersonal Participation
    - 1.2.1.02 Leadership
    - 1.2.1.03 Citizenship
  - 1.2.2.00 Social Attitudes, Values, and Beliefs
    - 1.2.2.01 Political
    - 1.2.2.02 Racial/Ethnic
    - 1.2.2.03 Personal Ethics
    - 1.2.2.04 Social Conscience
    - 1.2.2.05 Socioeconomic Aspirations
    - 1.2.2.06 Cultural Interest
- 1.3.0 Personal Development
  - 1.3.1.00 Student Health
    - 1.3.1.01 Physical Health
    - 1.3.1.02 Mental Health
  - 1.3.2.00 Student Personal Attitudes, Values, and Beliefs
    - 1.3.2.01 Religious and Spiritual
    - 1.3.2.02 Change/Stability
    - 1.3.2.03 Self-Concept

*Reprinted from Micek and Wallhaus (1973, pp. 39-41).

Figure 98 (continued)

1.4.0 Career Development

1.4.1.00 Career Preparation

1.4.1.01 Academic Preparation
1.4.1.02 Vocational Preparation

1.4.2.00 Career Attitudes, Values, and Beliefs

1.4.2.01 Achievement Orientation
1.4.2.02 Educational Aspirations
1.4.2.03 Educational Satisfaction
1.4.2.04 Vocational Aspirations

2.0 Development of New Knowledge and Art Forms

2.0.0.01 Discovery of New Knowledge

2.0.0.02 Interpretation and Application of New Knowledge

2.0.0.03 Reorganization of New Knowledge

3. Community Development and Service

3.1.0 Community Development

3.1.0.01 Community Educational Development

3.1.0.02 Faculty/Staff Educational Development

3.2.0 Community Service

3.2.0.01 Extension Services

3.2.0.02 Personal Services

3.2.0.03 Extramural Cultural and Recreational Services

3.2.0.04 Financial Impact on the Community

3.3.0 Longer Term Community Impacts

3.3.0.01 Social Impact

3.3.0.02 Economic Impact

> It would seem that we must delineate separate goals for society, the individual, the employer, and the government. Until we undertake this disaggregation exercise, it will not be possible to discuss, in any meaningful sense, the appropriate criteria or mixes of criteria that should apply in a given situation. [P. 187]

Gross' classification of goals is presented in Figure 99.

Raines' Taxonomy of Community Service Functions for Community Colleges. Raines (1973) developed a Taxonomy of Community Service Functions for Community Colleges and adopted it for use in gathering data to evaluate community service programs of community colleges in and around Seattle, Washington. His "taxonomy" was built around three major types of activity in such community service programs: those designed to help individuals within the community improve their own lives (self-development functions), those designed to help community agencies establish "cooperative alliances" that could be directed toward community-wide needs (community development functions), and those designed to procure or coordinate the human and material resources required to implement an effective program (program development functions). For each of these functional areas, Raines listed a number of specific functions. A schematic diagram developed by Raines for his taxonomy (which he emphasized was a tentative one) is presented in Figure 100.

Derr's Combined Classification of School Purposes. Derr's Taxonomy of Social Purposes of Public Schools (1973) was reviewed in a preceding chapter (see pages 168-173). In the same work, he also spent some time

Figure 99

GROSS' APPROACH TO CLASSIFYING OBJECTIVES*

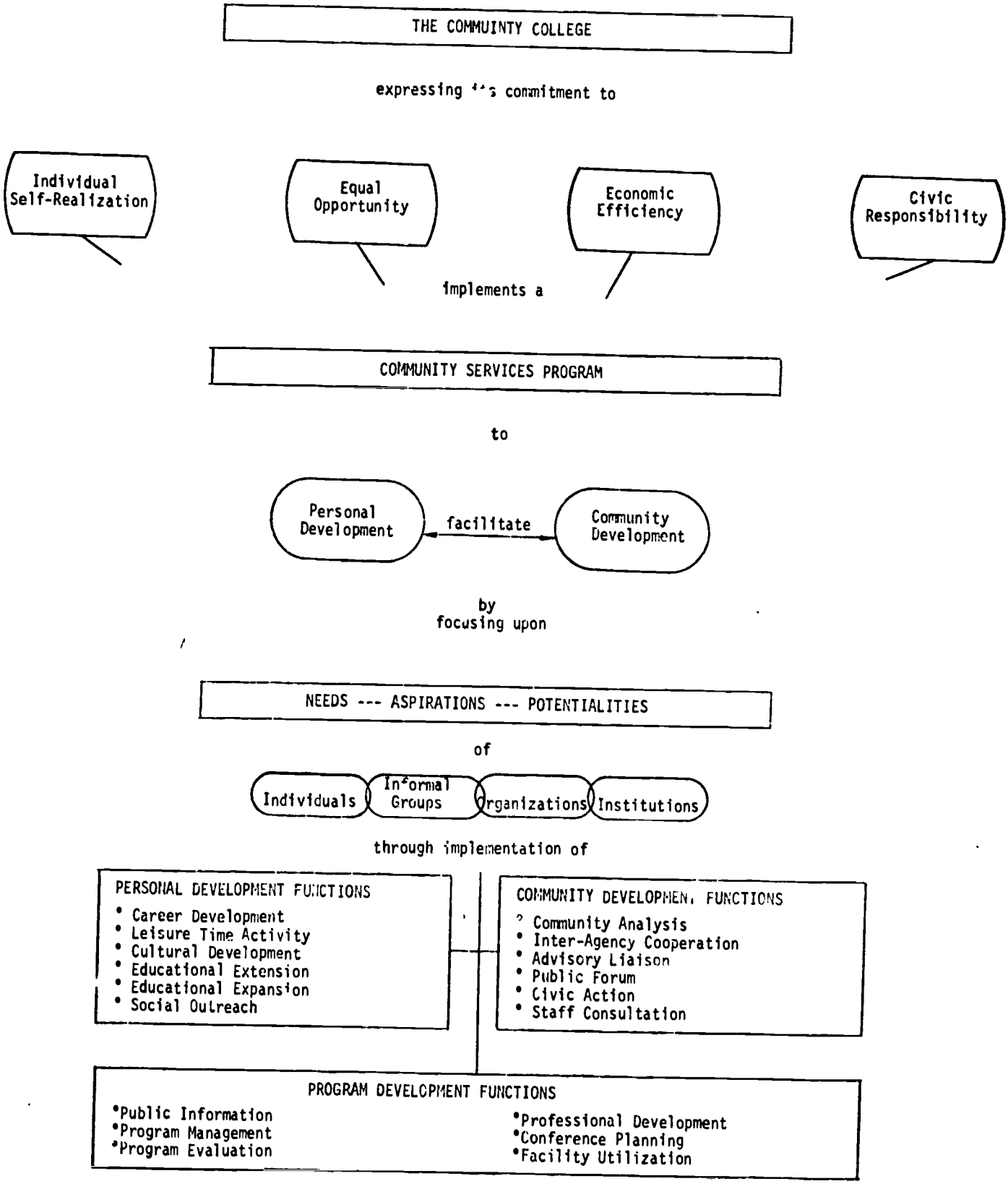
Benefits to	Goals easily operationalized	Goals hard to measure
1. Society	1. Improved equity (income, employment) 2. Increased GNP 3. Reduced unemployment 4. Increased social satisfaction (a) social institutions (b) job satisfaction (c) overall satisfaction	1. Reduced asocial behavior 2. Reduced dependency on government 3. Improved family life 4. Improved race relations 5. Improved health 6. Improved housing
2. Individuals	1. Increased incomes Reduced unemployment 3. Increased satisfaction with (a) work (b) general conditions (c) social status	1. Reduced dependency 2. Improved health 3. Improved family life 4. Improved housing
3. Employers	1. Jobs of specific employers filled 2. Jobs in particular areas filled	1. Increased productivity of work force in particular parts of labor force
4. Government	1. Increased tax revenues through increased tax base 2. Increased numbers of qualified persons for public service	1. Reduced cost of government questions (health, welfare, law enforcement, etc.)
5. Institutions	1. Meet the need for quality undergraduate and graduate level output 2. Improve equity (income and educational opportunity) 3. Improve the level of human capital for industry, agriculture, business, government, etc. 4. Meet community adult education and continuing education needs	1. Improve levels and sensitivities in community 2. Improve chance of individuals reaching higher levels of self-fulfillment and competence 3. To advance knowledge through (a) organization of learning (b) research and publication

*From "A Critical Review of Some Basic Considerations in Postsecondary Education Evaluation" by P.F. Gross in Policy Sciences Vol. 4, No. 2 (1973), p. 186. Copyright © 1973 by the Elsev[illegible] Scientific Publishing Company, Amsterdam. Reprinted with the permission of the publisher.

Figure 100

A DIAGRAMMATIC PRESENTATION OF RAINES' TAXONOMY

OF COMMUNITY SERVICE FUNCTIONS FOR COMMUNITY COLLEGES*



*Reprinted from Raines (1973).

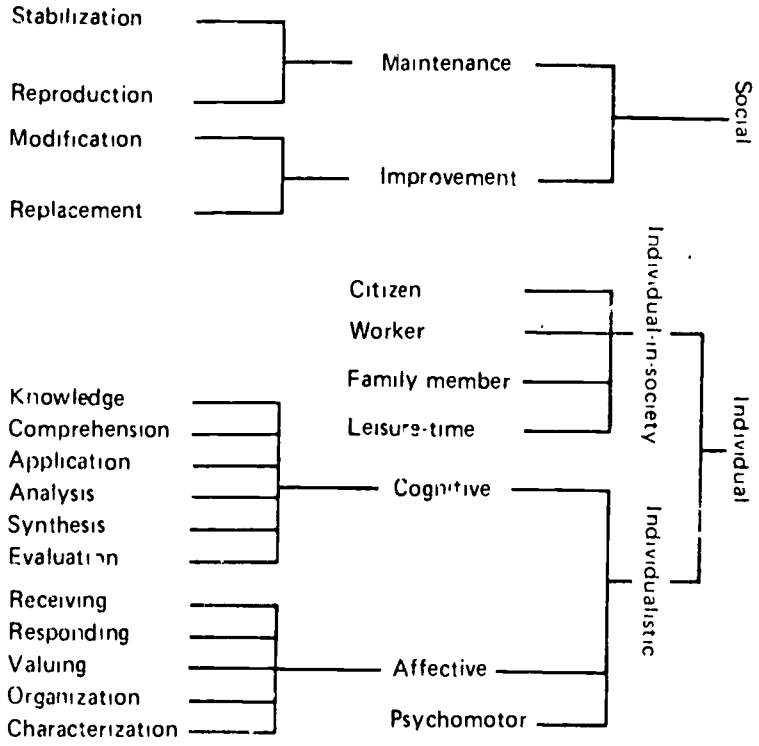
looking at purposes of the school for individuals and divided them into two major categories, individual-in-society ("the effect intended on the individual is in terms of his prospective membership in a particular society" [p. 54]) and individualistic ("the intended effect has no implication for the individual's role in society" [p. 54], which he perceived to be important enough that they should be considered on the same level as the class "social purposes" in most contexts. The "individual-in-society" class was further broken down into specific social roles of people, and four major ones are listed in his taxonomy. (He made the point that his subclasses at this level for this class were meant to be illustrative rather than exhaustive.) For the "individualistic" class, Derr incorporated the subclasses developed by Bloom (1956) and Krathwohl, Bloom, and Masia (1964) in their taxonomies for the cognitive and affective domains.

Derr's combined taxonomy, which he called his "tentative classification of school purposes," is presented in Figure 101. Figure 102 presents his classification, using this taxonomy, of the orientations in their writings of various major educational philosophers during the twenthieth century.

Lenning and Associates' College Benefits Classification. Lenning and his associates (1974, 1975) spent five years making a comprehensive search of the literature for studies and theoretical works exploring the relationship of nonintellective factors to outcomes that someone might be expected to view as a college benefit. (Since different persons or groups have

Figure 101

DERR'S COMBINED CLASSIFICATION OF SCHOOL PURPOSES*



*Reprinted from Derr (1973, p 125).

Figure 102

CLASSIFICATIONS MADE BY DERR USING HIS COMBINED TAXONOMY OF THE PHILOSOPHICAL POSITIONS OF MAJOR EDUCATIONAL WRITERS*

- STABILIZATION
  - Havighurst and Neugarten
- REPRODUCTION
  - Kandel
  - Maritain
  - Havighurst and Neugarten
  - Smith, Stanley, and Shores
- MODIFICATION
  - Kilpatrick
- REPLACEMENT
  - Dewey
  - Counts
  - Kilpatrick
  - Havighurst and Neugarten
  - Smith, Stanley, and Shores

- INDIVIDUAL-IN-SOCIETY
  - Maritain
- CITIZEN
  - Fantini and Weinstein
- WORKER
  - Fantini and Weinstein
- FAMILY MEMBER
  - Fantini and Weinstein

- INDIVIDUALISTIC
  - Maritain
  - Fantini and Weinstein
- COGNITIVE
  - Hutchins
  - Whitehead
  - Friedenberg
- AFFECTIVE
  - Morris
  - Friedenberg

*Abstracted from Derr (1973, p. 169).

different perspectives and viewpoints, such outcomes may be seen as being neutral or as having negative consequences by others.) Between five and six thousand relevant published literary sources were found, and these were grouped into categories according to the type of college benefit indicated by the content of the article or book. What resulted was a classification of college benefits with broad categories and subcategories.

Although social benefits are included, few literary references were found (except for income and standard of living) that discussed nonintellective correlates of postgraduate benefits and benefits to society. Thus, only three such categories are included (they are combined categories) and their benefits are not very obvious in the classification. The Lenning and associates classification is shown in Figure 103.

Lenning's "Benefits Pyramid." Based on previous study conducted by Lenning and his associates at the American College Testing Program, Lenning (1974) noted that there seemed to be three primary categories of college benefits: student benefits, private postgraduate benefits, and societal benefits. (A combination time and beneficiary dimension is acknowledged by this list.) Furthermore, it was noted that this list is in the same order as the amount of research conducted in each area (and from the specific to the general), but that the order would be reversed if the categories were ordered according to their importance as seen by our society.

Figure 103

THE LENNING AND ASSOCIATES COLLEGE BENEFITS CLASSIFICATION*

I. Academic Benefits

- A. Grades
- B. Persistence
- C. Academic Learning

II. Benefits Viewed as Intellectual Development

- A. Development of an Intellectual Outlook and Attitudes
- B. Development of Cognitive Creativity, Originality, Abstract Thinking, and Analytic Skills

III. Benefits Viewed as Personality Development and Adjustment

- A. Development of Maturity, Responsibility, Autonomy, Flexibility, and Other Personality Change
- B. Development of Optimal Psychological and Physical Health
- C. Development of Self-Confidence, Self-Acceptance, and an Appropriate Self-Concept
- D. Adjustment to and Satisfaction with the Collegiate Environment

IV. Benefits Viewed as Motivational and Aspirational Development

- A. Development of Self-Appraisal Habits, Realism, and Appropriate Aspirations
- B. Development of Motivation to Succeed

V. Benefits Viewed as Vocational Development

VI. Benefits Viewed as Social Development

- A. Development of Social Awareness, Popularity, Social Skills, and Interpersonal Relationships
- B. Development of Leadership Skills
- C. Development of a Respect for Others and Their Views
- D. Participation and/or Recognition in Extracurricular Activities

VII. Benefits Viewed as Aesthetic-Cultural Development

- A. Development of Aesthetic and Cultural Interests, Appreciations, and Feelings
- B. Development of Aesthetic Creativity and Artistic Skills

VIII. Benefits Viewed as Moral, Philosophical, and Religious Development

- A. Development of Altruism, Humanism, Citizenship, and Moral Character
- B. Development of Attitudes, Values, Beliefs, and a Particular Philosophy of Life

IX. Other Types of Social Benefits

- A. Development in Basic Educational Skills
- B. Development of Student Power
- C. Miscellaneous Benefits

X. Post-College and Social Benefits

- A. Post-College Benefits to Individuals
- B. Benefits to Society
- C. Miscellaneous Benefits

*Abstracted from Lenning et al. (1974, 1975).

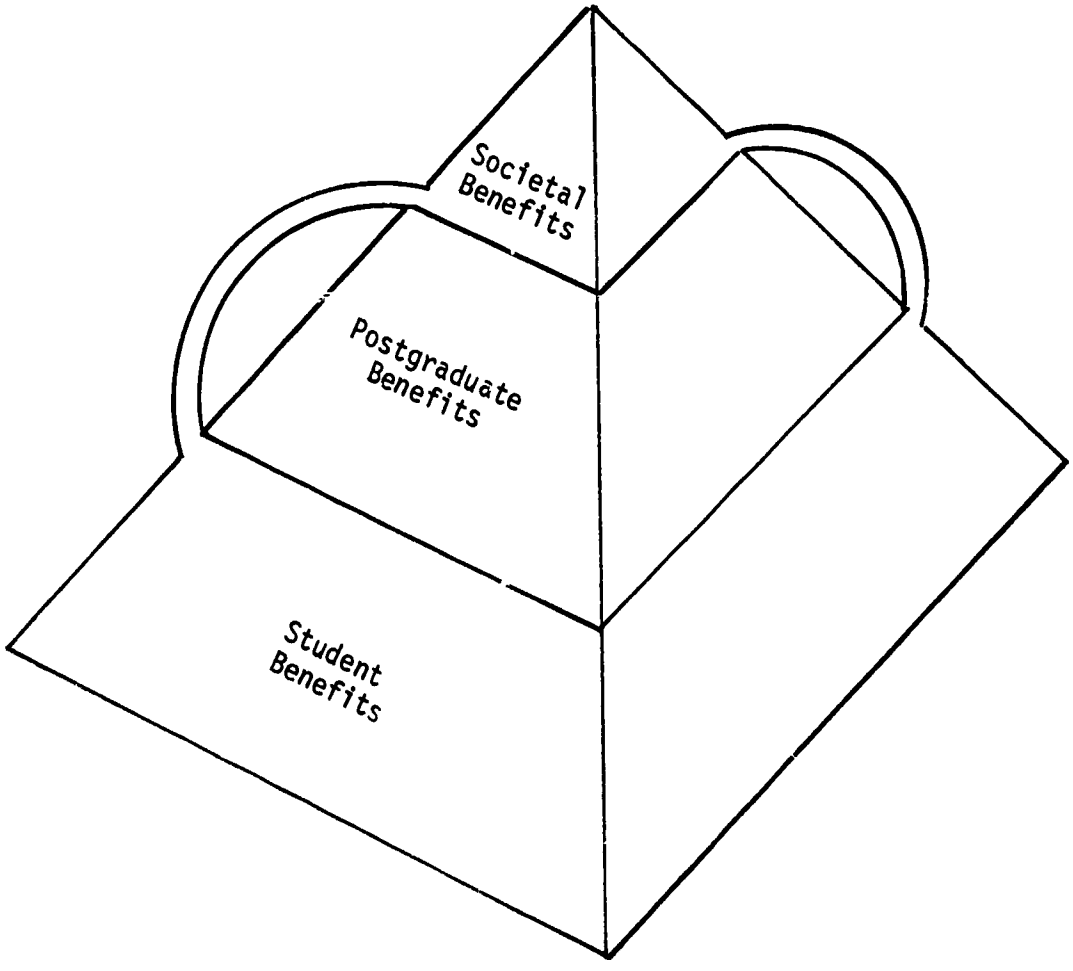
Many societal benefits depend to a large extent on the aggregate of the postgraduate benefits, which in turn are dependent on the benefit to these same persons when they were students. Therefore, particular upper-level benefits could not occur if related lower-level (toward the student benefits end of the continuum) benefits failed to materialize. Lenning presented the relationships among these three types of benefits graphically by a pyramid composed of three levels, with the societal benefits level at the peak and the student benefits forming the base. His "Benefits Pyramid" is presented in Figure 104.

The societal benefits level is at the apex, but it is undergirded and held up by the postgraduate benefits level. And the student benefits level forms the foundation for the whole pyramid. Even such societal benefits as social research, inventions, and the development of new knowledge depend on the lower levels because the scientists and the researchers were probably trained in the university. Why else would there have been such a crash program in revising the undergraduate program during the years immediately following Sputnik?

Some of the potential benefits are located at more than one level. For example, if intellectual curiosity is increased at the student level, it plus other college student benefits might result in intellectual curiosity increasing even more at the postgraduate level. Of course, if this is prevalent among college alumni, it could further result in a variety of benefits for society as a whole. Most of the student benefits

Figure 104

LENNING'S "BENEFITS PYRAMID"*



*Abstracted from Lenning (1974).

are limited to that level, but there are numerous possible effects such benefits could have on postgraduate success, which in turn could benefit society.

Most student-level effects on the societal level happen indirectly by way of the postgraduate level, but sometimes the effects are direct. Therefore, a couple of connectors extending out of the base of the pyramid to its apex were added to the picture. Direct changes brought about by college students on society were more frequent during the 1960s than had been true earlier. An example consists of the social protests that many people think resulted in a more concerned and better society. Those social protests occurred in large part because college students became concerned enough to take action and lead the way.

Validation of the effects of student-level benefits on postgraduate and societal benefits awaits research; very few studies have attempted to explore such relationships. Most hypothesized relationships have thus far resulted primarily from subjective self-report, theory, informal observation, and from logic.

Bowen's Target Group Classification of Outcomes. In an article on "The Products of Higher Education," Bowen (1974) divided higher education outcomes into three groups according to "the three direct services" of higher education. He acknowledged that instruction was the central function of higher education, while the other two functions are "essential

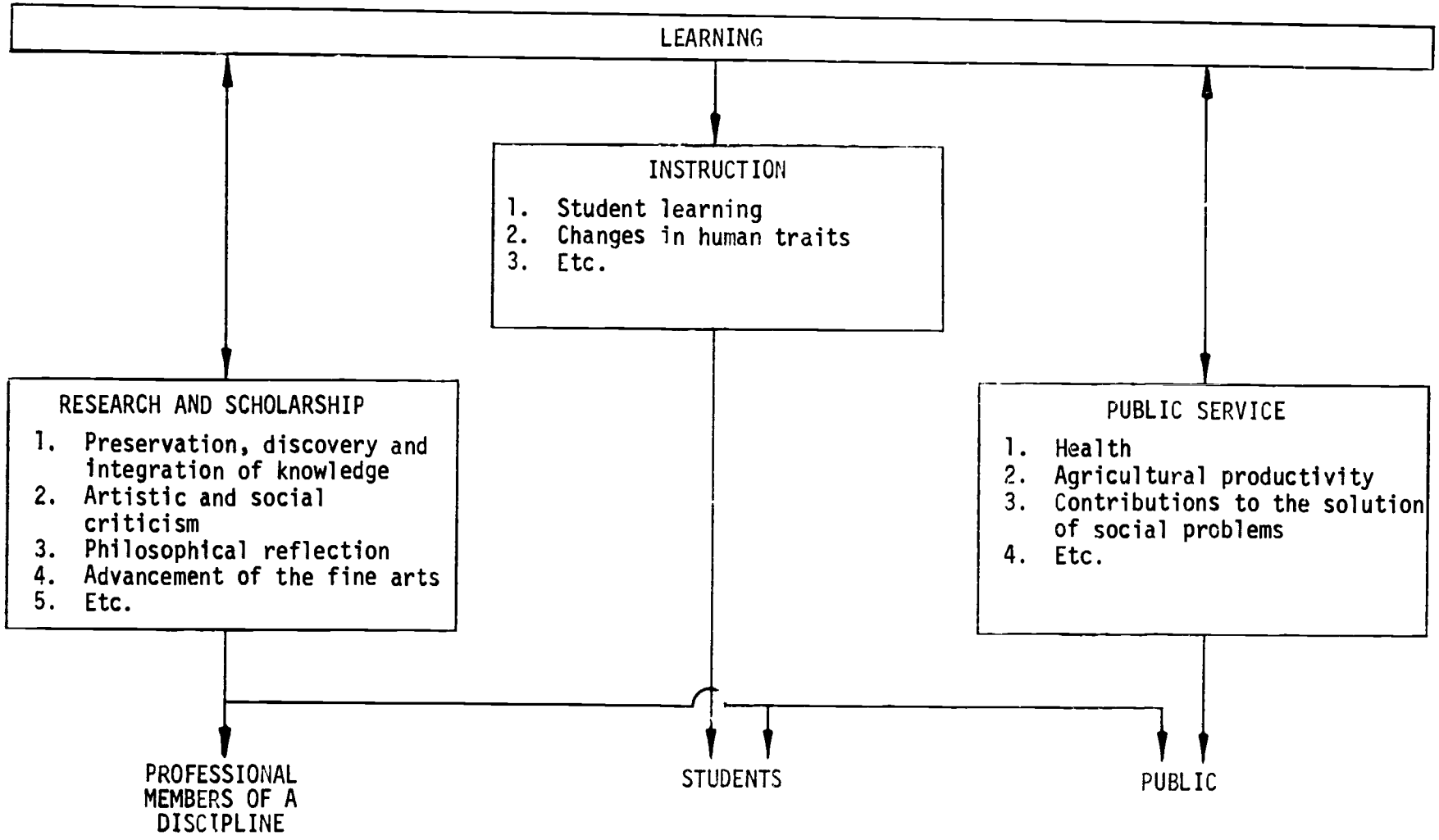
to the success of the main business, education" (p. 3). They are definitely related, and "learning" is the activity which underlies all three, according to Bowen. The distinguishing factor, he adds (p. 8), is the group to whom the learning is being disseminated:

> The three services of higher education--instruction, research and scholarship, and public service--are all based on a single unified activitiy: learning, defined as knowing the known and discovering the new. The basic function of a professor, of a faculty, or of an institution is to learn. A college or university is a center of learning. The three services of higher education simply represent dissemination of learning to different groups. In the case of instruction, the target group is students; in the case of research and scholarship, it is the professional members of a discipline as well as students and the public; in the case of public service, it is various elements of the public or their representatives. But the underlying function which provides the knowledge to be disseminated is learning. This is the fundamental and unifying task, the stock-in-trade, of higher education. . . . The two aspects of learning, knowing the known and discovering the new, are extremes on a continuum. At one end, learning consists simply of acquiring extant knowledge; at the other, it consists solely of discovering new knowledge. But in practice learning almost always consists of various mixtures of the two. Existing knowledge is not learned by rote but is constantly being reordered and reinterpreted, and new knowledge is not produced in a vacuum but is closely linked to existing knowledge.

This classification of Bowen's is illustrated in Figure 105.

Figure 105

BOWEN'S TARGET-GROUP CLASSIFICATION OF OUTCOMES*



*Abstracted from Bowen (1974).

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