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ABSTRACT

Educational outputs are defined as the direct end products, events or conditions that result from facilitation and production processes within educational institutions. The conceptual framework for education outcomes developed by the National Center for Higher Education Management Systems (NCHEMS) is explained. The basic elements of any educational outcomes are discussed, followed by a presentation of other factors important for an in-depth understanding of particular educational outcomes. Six elements identified as critical to defining and differentiating among educational outcomes are: output/impact (degree of directness which characterizes the relation between educational process and educational impact); form (mode or fashion in which the outcome is observed); measureability (degree to which the outcome can be quantitatively described); change status (degree of modification of the status quo associated with the outcome); focus (basic entity that is affected by outcome); and neutrality (value-free character of educational outcomes). Outside factors associated with educational outcomes relate to the producer/facilitator, audience, intention, functional area, and time of outcome. (SPG)

A CONCEPTUAL FRAMEWORK FOR EDUCATIONAL OUTCOMES[a]

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Introduction

Let us examine a hypothetical scenario. James Green received a degree in business administration from Alpha College in the mid 1960s. He had spent five years at the college--three as a full-time student and two more as a part-time evening student. During that time, Jim was exposed to a variety of opportunities and experiences that not only increased his knowledge and skills, but also affected his values, relationships with peers, and other personal characteristics. He was sophomore class representative to the student senate, and later served as the president of the college's business students club. Jim was the first in his family to receive a college degree, and that achievement had an impact on his parents' social status. It also strengthened the determination of his younger sister and brother to attend college, which they eventually did.

Shortly after graduating from Alpha, Jim joined a firm headed by a classmate's father. He enjoyed good pay, status, security, and excellent opportunities for advancement. The company benefited from Jim's college-enhanced abilities, and his ideas led to significant operating economies. One year after graduation, Jim married Barbara Smith, whom he had met while attending Alpha College. Barbara also graduated from Alpha and after some graduate training, successfully pursued a career in nursing. At the same time, with encouragement from his company through released time, Jim was completing the masters degree program in management science that Alpha offered. They both appreciated the security that their professional status permitted. Later, as parents of two children, they came to the realization

that their college experiences were affecting the way that they related to their children--for example, they made greater attempts than would otherwise have been the case to instill openness to new ideas, a respect for others no matter who they might be, and a desire to seek out new situations and be adaptable.

Jim participated in civic and community affairs, partially because of an interest stimulated by a government course he had taken as an undergraduate at Alpha College. He served on the local school board, the city council, and the board of a local bank. He was also active in several professional associations, made numerous state and national presentations, and eventually became a national officer of one group. Jim continued to support Alpha College financially through its alumni fund and served as an alumni contact for prospective students interested in Alpha's business programs. In addition, because of the civic and professional contacts he made, he served as a consultant to the U.S. Commerce Department and several foreign governments, relating to the development of efficient management information systems.

It is obviously difficult to separate the effects of his Alpha College experiences from other factors impinging on the life of James Green. Furthermore, Alpha College not only affected him directly but also, through him, apparently impacted many others, including his parents, his brother and sister, his fellow students, his wife and children, his company, his city and various community and civic organizations, Alpha College itself, his professional associates, his state, his country, and even foreign countries. In addition to impacts through students like Jim, Alpha College also was directly affecting groups, communities, and individuals who were not students, through research conducted by the faculty, an extension advisory service, a day-care program set up for working mothers, weekend gymnasium privileges for community youth, a concert series for the community, goods and services purchases from

local businesses, and similar activities.

Educational-outcome scenarios of this kind could be developed for any college or university, and for elementary and secondary education as well. This example was generated using a conceptual framework for educational outcomes developed in recent years at the National Center for Higher Education Management Systems (NCHEMS). Work on this framework took into account the fact that although most people have an intuitive idea of what an educational outcome is, widely different concepts of outcome appear in the literature and elsewhere. Outcomes have been equated by some to such conceptually different terms as efficiency, productivity, effectiveness, benefits, output level, value added, impacts, and performance. There did not appear to be a generic conceptual framework that defined educational outcome in a generally accepted and operationally useful manner. Therefore, NCHEMS staff began in 1974 to synthesize the extensive literature pertaining to the issue (Lenning 1977b) and to develop a framework that would have general acceptance throughtout postsecondary education. This conceptual framework became the basis for the NCHEMS Outcomes Structure, a three-dimensional system for organizing outcomes information for purposes of classification, analysis, and decisionmaking (Lenning, Lee, Micek, and Service 1977; Lenning 1977a).

The remainder of this paper explicates the conceptual framework for educational outcomes developed at NCHEMS. Although it was specifically developed with postsecondary education in mind, the framework may also be relevant to educational outcomes at other levels. The basic elements of any educational outcome are discussed first. This is followed by a presentation of other factors important for an in-depth understanding of particular educational outcomes.

The Concept of Educational Outcomes

The approach taken with respect to defining a general and operationally useful concept of educational outcomes was to identify the basic attributes and characteristics of any such outcomes. Six such elements were identified as critical to defining and differentiating among educational outcomes, and each has been given a descriptive name as shown below:

1. Output/Impact - the degree of directness which characterizes the relation between educational process and educational outcome.
2. Form - the mode or fashion in which the outcome is observed.
3. Measurability - the degree to which the outcome can be quantitatively described.
4. Change Status - the degree of modification of the status quo associated with the outcome.
5. Focus - the basic entity that is affected by the outcome.
6. Neutrality - the value-free character of educational outcomes.

These elements are elaborated upon below.

1. Output/Impact. A major problem is that educational outputs have generally not been clearly distinguished from educational impacts. Failure to make a clear conceptual distinction between outputs and impacts reduces our ability to identify, organize, and analyze the wide range of educational outcomes. Both concepts are very important and each is a type of outcome. However, as policy analysts have found in other types of institutions and organizations (for example, Easton 1965; Robinson and Majak 1967; Cook and Scioli 1972; and Dye 1975), it is essential that outputs and impacts be distinguished from one another.

Educational outputs are the direct end products, events, or conditions that result from facilitation and production processes within educational institutions. Examples of outputs at the college level are achievement levels, knowledge, degrees, program completers, publications, cultural or entertainment events sponsored or provided, and scientific or artistic advances. Educational impacts, on the other hand, are the indirect products, events, or conditions that result from educational outputs and earlier educational impacts. Examples of college impacts are greater individual incomes resulting from college degrees, higher standards of living resulting from the increased income, and a larger gross national product resulting from higher standards of living. The primary distinction between outputs and impacts is whether or not the outcome can be directly linked, at least in concept, to basic institutional and programmatic activities. Outputs may be referred to as first-order consequences, signifying a direct link to institutional or program activities. Similarly, impacts may be considered second-order consequences, because the links to institutional or programmatic activities are indirect, either through an output (or more than one output) or through the output(s) plus a chain (or chains) of earlier impacts that resulted from the output(s).

Conceptually, the distinction between outputs and impacts is quite straightforward. In practice, however, things become rather complex and difficult. First, it is often impossible to ascertain cause-and-effect relationships between educational resources, activities, and outcomes, even though many such relationships have been hypothesized and some have been demonstrated. Second, from one perspective an outcome may be viewed as an output of an activity, and from another perspective it could be viewed as an impact of the same activity--for example, the development of student leaders might be seen as an output of the institution and as an impact of different programs within the institution. Third, any presumed output can be divided into components

that must occur before the overall output can occur. This introduces complexity into the determination of whether a particular outcome is an output or an impact. Referring to the example above relating to the development of student leaders, the component skills and abilities that make up leadership ability--ability to organize, empathize, speak fluently, motivate people, etc.--are outputs, and they lead to the overall ability to lead. They must be integrated within a person, however, before the overall ability to lead is present.

A related problem is that some entities conceived of as outputs and impacts are seen as inputs by others. Thus, some would consider a curricular program to be an output, while others would consider it to be a producing/facilitating activity that leads to outputs like student skills and knowledge. The same is true of the development and build-up of library and other instructional resources, including those being developed by faculty. For the resource developers on a campus, this development could logically be considered an output. The instructor using those resources could, on the other hand, view them as strictly inputs to the instructional process, and not as outputs.

It should be recognized that an impact is not only less direct than an output, but often is less immediately realized. An output occurs during or at the end of the process bringing it about, while an impact can occur during or at any time after the process ends. Therefore, educational institutions generally have much less control (if any) over impacts than they have over associated outputs of the institution. Although significantly positive correlations between amount of college education and income earned have been noted in the research literature, income is probably affected more by prevailing economic conditions and other postgraduate factors than by the college attended. Few college officials would claim that their institution has direct, immediate control over such an outcome.

In summary, outcomes are either outputs or impacts, and a particular outcome may be considered either when viewed from different perspectives. Some outcomes are definitely impacts, however, no matter who within the institution is viewing them; and it is important for planning purposes to consider them as such. Furthermore, thinking in terms of both outputs and impacts can help one to generate more comprehensive lists of particular kinds of educational outcomes, once the perspective from which one is viewing outcomes is clarified. To reach consensus on which outcomes should be considered outputs and which are impacts, it is essential that the unit of analysis be made clear (the outcome-production level on which attention is to be fixed, e.g., course, program, institution, system of institutions).

2. Form. The work of Schalock and his associates (1972) makes it clear that both outputs and impacts can take any one of three forms: product is a concrete entity that endures with time, such as a program completer, a degree, a job, a book, or an invention. An event is an observable, tangible transaction or set of behaviors that does not endure with time, such as a public seminar, a concert, or a graduation exercise. A condition is an intangible circumstance or set of circumstances, such as morale, satisfaction, an attitude or belief, an appreciation, social equity, or achievement. As with the output-impact distinction, thinking about kinds of outcomes in terms of products, events, and conditions can be useful for generating lists of specific outcomes, for developing measures or indicators of those outcomes, and for analyzing outcomes information.

3. Measurability. The ease with which particular outcomes of an educational institution or program can be quantified or measured is related to the tangibility or concreteness of its form. However, measurability is not synonymous with tangibility or concreteness. For example, abstract and intangible constructs that are often considered to be outcomes of a college education--analytical ability, reading comprehension, vocational readinesss, and various aptitudes--can be measured in quantifiable terms.

Determining whether specific outcomes and types of outcomes are easy or difficult to measure, and assessing the validity and reliability of their measures, can contribute to a better understanding of those outcomes and to any analyses that are done of them. Gross (1973), for example, has broken outcome goals for five target populations (society, individuals, employer, government, and institutions) into those that are easy to measure and those that are difficult to measure. One problem here is that what is easy to measure in the view of one person, based on the availability of a particular measure, may be considered difficult to measure by another person who considers that measure to be invalid. In addition, as technological advances in the measurement field occur, some outcomes currently considered difficult to measure may become easier to measure.

4. Change Status. Another important characteristic of educational outcomes is whether they are concerned with maintenance or change. Maintenance involves stabilization, reproduction, preservation, or other status quo outcomes. Examples include the continuation of traditions into the next generation, preservation of cultural values, restoration of community artifacts and paintings through guidance from university art students, skill maintenance provided by in-service

education, or maintenance of the educational level of a family. Conversely, change involves modification, revision, replacement or other alteration of the status quo. Examples include achievement of a college degree, greater economic and social mobility, increased knowledge and skill level, new art forms developed by college graduates, technological innovations, or medical discoveries. Derivation of these categories is based on the work of Derr (1973) and Parsons (1951). All educational outcomes can be thought about in these terms. Educational goals are designed either to preserve, replenish, reproduce, and stabilize the status quo or to modify, enrich, restructure, revise, or replace what is current.

5. Focus. Still another important characteristic of an educational outcome concerns the specific "what" on which the maintenance or change is focusing. For example, knowing that the outcome involves a change in knowledge and understanding, values, skills, habits, standards, economic conditions, or the gross national product is more useful than simply knowing that the outcome involves a change in status. Figure 1 presents the large array of focus categories and subcategories included as part of the "type-of-outcome" dimension of the NCHEMS Outcomes Structure. These categories are based on work by a large number of researchers and theorists, as outlined in Lenning, Lee, Micek, and Service (1977, p. 27).

6. Neutrality. Generically, outcome is a value-neutral concept, and thus educational outcomes should be thought of as being inherently neutral in character. Often, outcomes are equated with benefits and outcomes perceived to be negative in nature are ignored. But these value connotations are attached by the perceiver; they are not inherently part of or a characteristic of the outcomes. For planning purposes,

Figure 1

FOCUS CATEGORIES AND SUBCATEGORIES IN THE TYPE-OF-OUTCOME DIMENSION OF THE NCHEMS OUTCOMES STRUCTURE[a]

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 CHARACTERISTIC 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 Initiative
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 Personality and Personal Coping Outcomes
2600	Physical and Physiological Characteristics
2610	Physical Fitness and Traits
2620	Physiological Health
2630	Other Physical or Physiological Outcomes
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
2000	*HUMAN CHARACTERISTIC OUTCOMES* (continued)
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
2900	Other Human Characteristic 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

[a]Reprinted from Lenning, Lee, Micek, and Service (1977, p. 27).

in particular, the full range of outcomes and associated values should be considered.

It should also be noted that individuals may differ in their perception of the value of a particular outcome. Even for an outcome generally viewed as positive in our society, there may be people who see it as negative. The stated outcome goals in our society for schools and colleges are generally perceived by most people to be of positive value. However, Bowen (1974, pp. 14-15), has identified a num[illegible] general outcomes of college that many people consider to have negative value, for example, more liberal political, religious and social attitudes and values.

These six basic elements together delineate our concept of educational outcomes in an operationally useful form. Theoretically, outcome can be characterized as an output or an impact; takes a certain form; is measurable to some greater or lesser extent; is concerned with change or maintenance; has a particular focus or subject; and is inherently neutral in value. Any of the rich array of outcomes associated with our ficticious James Green, for example, could be categorized in terms of these six major characteristics. Attempting such a categorization, however, makes it clar that a number of factors not inherently part of educational outcomes nevertheless have important relationships with and effects upon those outcomes. These factors are reviewed in the next section.

Factors Related to Educational Outcomes

Identifying the most important outside factors associated with educational outcomes can be seen as a process of answering a series of straightforward questions:

What activities, processes, or programs were implemented to bring about the outcome of concern?

Who receives or is affected by the outcome?

Why was the outcome generation process initiated?

Where did the outcome occur?

When did the outcome occur?

The factors corresponding to these questions are identified in this framework as:

1. Producer/facilitator
2. Audience
3. Intention
4. Functional area
5. Time

1. Producer/Facilitator. Even unintended college outcomes are typically stimulated by some causative or facilitative entities or factors within the institution. Knowledge about the entities influencing or causing an outcome is critical in any attempt to identify, classify, or analyze outcomes, since different types and levels of programs and organizational units are designed to produce particular kinds of outputs and impacts. For example, many of the outcomes intended for an introductory biology course may be different from those intended for an advanced biology course, for a degree-oriented program in the biological sciences, for a biology department, or for the institution as a whole.

Furthermore, what is viewed as an outcome from one viewpoint may be seen as an input from another perspective. For example, "graduates produced in college" constitute an outcome in the eyes of college officials, while business firms may regard these graduates as inputs. Thus it is necessary to link outcomes to the unit or entity that produces them in order to maintain a consistent perspective. Within higher

education, the programmatic activities of the college and its components have traditionally been divided into instruction, research, and public service. A commonly used expansion of this breakdown is the NCHEMS Program Classification Structure (Collier 1978), which includes a range of support programs and is considered applicable to all types of postsecondary-education institutions.

Neither the educational process within an educational institution nor the associated outcomes is totally separable into a set of component parts. As a result, it is difficult to determine which units within the institution contribute to the formation of a particular outcome. In addition, multiple programs or other organizational units within the institutiton often contribute to the same outcome, and their relative contributions cannot be easily ascertained. Institutional and program environments (other students, atmosphere, reputation, and so forth) also affect the outcomes produced. Similarly, a wide variety of methods, techniques, and tools can interact to constitute the process within the program or other unit. Each possible combination might be expected to result in a different educational outcome. Finally, the characteristics of the students and other inputs makes a difference in the outcomes attained. In short, a variety of complexities is associated with isolating the role of a specific educational producer/facilitator. Nevertheless, the more that is known about such entities, the greater the potential for understanding the resultant educational outcomes.

2. Audience. A second factor that affects educational outcomes is the identity of the persons, groups, organizations, or other entities that receive or are affected by the educational outcomes of concern. An educational institution has the potential to influence a large

number of persons, groups, and communities--plus other entities, such as the environment. On the surface, this dimension may seem straightforward, but actually it represents a major difficulty in identifying and understanding educational outcomes. This difficulty results from the great complexity characterizing the individuals, groups, and communities directly served or affected by the outcomes of education. For example, Gross (1966) identified 26 major groups interested in the outcomes of any social system, such as education. Figure 2 presents audience categories and subcategories that constitute the audience dimension of the NCHEMS Outcomes Structure.

3. Intention. Specific outcomes may or may not be intended by the producing and facilitating units within the institution that give rise to them. In particular, many of the negatively viewed educational outcomes (for example, increased student drug use) are not expected by those planning the educational activity that causes or facilitates them. These unintended outcomes, or side effects, may occur either instead of or along with intended outcomes. Sometimes, previous experience or research may suggest that negative side effects will occur. One must then consider whether the benefits of the intended outcomes outweigh the expected negative side effects by enough to warrant proceeding with the activity or program. However, it should not be inferred from this, or from the fact that intended outcomes are almost always viewed as being desirable, that unintended outcomes are always undesirable, or negative. Some of the most important and valued outcomes of specific programs and activities can be unintended side effects, for example, a program designed specifically for information dissemination that stimulates the formation of an organized student action group.

Figure 2

CATEGORIES AND SUBCATEGORIES OF THE

AUDIENCE DIMENSION OF THE NCHEMS OUTCOMES STRUCTURE[a]

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 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 education 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 heavily.

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)

[a]Reprinted from Lenning, Lee, Micek, and Service (1977), page 24.

The interaction between the producer/facilitator of educational outcomes and the audience receiving or being affected by outcomes is also an important variable. Instituions supply educational goods and services because these are desired or demanded by various members of the community and larger society (or at least the institutions perceive a demand for the goods and services). In exchange, the institution and its programs receive financial and other necessary resources, including such nonpecuniary returns as status and praise. To be most effective in producing the diplomas, knowledge, skills, and other outcomes demanded by their clientele and funders, institutions need to know the costs of production and the impacts these goods and services will have on individuals and society. Such knowledge should help institutions obtain greater returns on the investments being made in them.

4. Functional Area. The life of any individual, group, institution, or community can be viewed as involving several functional areas, and the outcomes of educational programs and institutions impinge on these areas. An understanding of particular educational outcomes can thus be facilitated by delineating each major functional area affected by educational institutions and programs. Here is one possible breakdown of outcomes by functional area: (1) economic (earnings, promotions, job opportunities, labor productivity, income distribution, growth of the national income), (2) educational/technological (degrees, reading habits, writing habits, educational level of society, advancement of scientific and technological knowledge, dissemination of new knowledge), (3) political (political attitudes, skill in evaluating political candidates, participation in civic activities, public policy development, election outcomes, international

relations; and (4) social/cultural/personal (religious attitudes appreciation of art, human relation skills, personality growth, crime rates, changes in traditional social values).

5. Time. As Havighurst (1952) has suggested in his discussion of "developmental tasks," certain outcomes should be expected at particular points in one's educational career. Outcomes are difficult to bring about before the recipient is ready for them. Thus the time that an outcome occurs can be revealing. Duration or persistence of the outcome is also a time-related factor that can have importance for analytic purposes. Some outcomes are of short term--a college football game, for example. Other outcomes are lasting, such as development of a vaccine for influenza in a university department of medicine. It should be kept in mind, however, that the dividing line between short term and long term depends on situation and viewpoint. One person could consider an outcome that persists until one year after graduating from college as a short-term outcome, while another person might consider this same outcome to be long term. The basic point is that both time of occurrence and duration are important for collecting data about educational outcomes, in analyzing and interpreting such data, and to guide planning for outcomes.

Conclusion

The key question about the framework presented is the extent to which it appears to fulfill its intended role as a generally accepted and operationally useful basis for understanding and describing educational outcomes. Is the framework conceptually complete and nonredundant? If not, what are the significant omissions or overlaps? Can the framework be the basis for consensus about the nature of educational outcomes and factors associated with their understanding? Can the framework effectively support operational tasks such as

delineating outcome possibilities, planning for outcomes, developing outcome measures, analyzing and interpresting outcomes information, and communicating about the broad range of education outcomes? Preliminary evidence and experience (Lenning 1977a) indicate that we can give a positive response to these questions. However, much more questioning, testing, and development remains to be done. The entire arena is rich in scope and fraught with complexity. We hope that this paper takes a step toward untangling that complexity without compromising the attendant richness.

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