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ABSTRACT

The use of student outcomes data in higher education is discussed. Consideration is given to a widely recognized taxonomy of student outcomes developed by Alexander Astin and his associates, and a classification of outcomes developed by Oscar Lenning and his associates at the National Center for Higher Education Management Systems (NCHEMS). Issues involved in the development of an effective institutional student-outcomes database are examined, and types of student data, typically kept in student master files and enrollment files, are identified. In addition, features of six currently available student-outcomes assessment instruments/services are specified, including the NCHEMS/College Board Student-Outcomes Information Service, the American College Testing Program Evaluation Survey Service, and the TEX-IS Follow-Up System. Attention is also directed to the identification of users and uses of outcomes information, and the production of management reports from student-outcomes databases. The application of outcomes information to decision-making is also discussed, with attention to preparing accreditation self-studies, program review, institutional planning, budget review, and student recruitment and retention. Finally, some themes concerning information utilization are considered. (SW)

An NCHEMS Executive Overview

Information on Student Outcomes: How to Get It and How to Use It

Peter Ewell

1983

National Center for Higher Education Management Systems
P.O. Drawer P Boulder, Colorado 80302
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Introduction

Until recently, the higher-education community saw little point but no small threat in the explicit assessment of student outcomes. The positive impact of college upon the student remained an almost righteously unexamined premise—the "great self-evident" of higher education. That such an attitude should persist for so long among academics and administrators is not surprising; they are, after all, reared in a tradition of the value of scholarship for its own sake. Moreover, a highly supportive public continuously reinforced this attitude during three decades of expansion. In turn, the public expected higher education to deliver on a dual promise—increased individual mobility and increased collective productivity.

Now, of course, things are different. As institutional resources tighten, college and university administrators at all levels are growing more concerned about identifying and improving the impact of their programs upon students. One result is an escalating (though often relatively unexamined) interest in information on what is termed *student outcomes*. Furthermore, the same set of forces has produced a demand for greater accountability on the part of those controlling the use of resources in higher education. More and

more, institutions are being asked explicitly—and somewhat skeptically—to *show* that they are making a difference.

Despite these growing pressures, few institutions have moved beyond the talking stage in the explicit assessment of student outcomes. This is all the more surprising because as Bowen (1977) points out, the results of such efforts have been generally heartening for those who have tried. The main reasons for this reluctance are not hard to identify and deserve closer examination.

- There is a fear that outcomes information, if collected and widely disseminated, will reflect badly on those collecting it. Partly this is due to simple lack of confidence that a positive impact will in fact be demonstrated. In greater measure, it is due to the fear that complex information will be misinterpreted by those outside of and unfamiliar with the academic enterprise.
- There is a conviction that many if not most of the important outcomes of higher education are qualitative and cannot therefore be objectively measured. Even the most reliable quantitative measurement of outcomes is at best only an indicator of the underlying attribute to be assessed. Given the likelihood of misinterpretation by powerful outsiders, many see such indicators less as informational assets than as political liabilities.
- There is considerable apprehension about the "false precision" inherent in quantified outcomes criteria. Regardless of their underlying accuracy or appropriateness, quantitative outcomes measures *look* precise. Thus such indicators tend to crowd out softer forms of assessment, particularly in discussions about conflicting claims on available resources. This tendency causes efficiency criteria to be strongly favored over effectiveness criteria in most evaluation processes, especially when costs—which *can* be counted—loom in importance.

Each of those reasons for shying away from the assessment of student outcomes is partially valid. And all reflect the current defensive posture of higher education. Nonetheless, the use of outcomes

information to support internal decisionmaking and to provide institutional accountability continues to grow.

The fact is that for most institutions, outcomes assessment is now almost unavoidable. Among public institutions, for example, outcomes information is frequently required as part of mandated procedures for program review and program approval. In at least one state, explicit outcomes information is used in determining how a part of the state's higher-education budget is distributed among the institutions (Bogue 1982). Among private institutions, the demand for accountability may be less insistent. But the value of student-outcomes information in building effective recruitment and retention programs in a period of intense competition for students is no less compelling a motive for collections and assessments. And in both kinds of institutions the role of outcomes information in internal budgeting processes, in program review and unit evaluation processes, and in day-to-day operations has grown immensely. An important undertaking in this book is thus to outline and illustrate some of the many ways in which institutions have used information on student outcomes.

But what exactly is a student outcome? While fairly well established in the current idiom of higher education, the term has been used by quite different people for quite different purposes. Research scholars in the field of higher education, for example, have used *student outcomes* to describe a wide range of phenomena, from short-term cognitive development to long-term changes in behavior. College and university administrators have used the term for the most part in promoting claims of individual institutional success—mainly with respect to retention and graduation rates, placement in advanced-degree programs, and placement in favorable employment situations. Student-personnel professionals have used the term diagnostically and descriptively to refer to the successes and failures of individual students, and to refer to the instruments needed to assess the problems and potentials of individual students. Most recently, state governing boards and legislatures have shown an increasing interest in outcomes as a judgmental concept—as an element in allocating scarce resources according to demonstrated institutional effectiveness.

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At least three different approaches to identifying and measuring student outcomes are present in the literature, only one of which is compatible with the perspective of the academic administrator.

Perhaps the largest and certainly the oldest body of literature on student outcomes treats student college experience as the object of a purely *academic investigation*. Numerous scholars, primarily in the social sciences, have attempted to document and explain the effects of postsecondary education much as they would approach any other field of investigation. They look upon these effects as a body of data in terms of which to test and develop the theories and methods of a particular discipline. Two streams of development have drawn most attention. Psychologists have been interested in the impact of college education upon the cognitive development of individual students. They have concentrated on actual learning gains as a result of course work and also on attitudinal changes occurring as a result of particular sets of social experiences. Sociologists and economists have likewise been interested in investigating the impact of college, but primarily in terms of its contribution to social mobility through skills development and through socialization into the languages and subcultures of particular professions.

The second major approach to student outcomes has been from what might be termed the *student-personnel perspective*. Student outcomes are investigated as part of the process of counseling and advising students to select programs most suited to their individual needs. Outcomes are assessed both to provide tools for classifying students appropriately into different kinds of treatment groups and to provide evidence of the degree to which particular programs are in fact meeting student needs. Such tools include aptitude tests for admissions purposes, achievement tests for placement or certification of program completion, and attitudinal diagnostic tests for individual program planning and counseling.

The third approach—the *management perspective*—is also the newest. Developed in the sixties and seventies, it views the assessment of outcomes as part of the process of rational resource allocation and program decisionmaking. Early work at NCHEMS on the conceptual organization of the outcomes of higher education made

basic contributions to this approach, which sees in the documentation of outcomes the crucial evaluation component of effective program planning and budgeting.

Despite the fact that all three approaches deal with the same phenomenon—the impact of college upon students—differences among them can be considerable. To begin with, they have quite different goals. Consequently, they also have quite different data requirements. The primary goal of the academic tradition is pure explanation. The object of inquiry is to successfully account for a given outcome, whether or not the factors deemed responsible for production of the outcomes are under the control of institutional decisionmakers. The major properties sought in data are empirical quality and value neutrality. A given research finding is deemed acceptable only if it survives conventional standardized tests of validity and significance within a particular academic discipline. Furthermore, the finding should involve no preconceived notions about the relative value of various outcomes. While the results of such investigations have been used by institutional policymakers, it must be emphasized that decisional utility was not the object of the enterprise.

In both the student-personnel and management approaches to assessment, on the other hand, decisional utility is a paramount consideration. The student-personnel professional is not particularly interested in the ultimate explanation of the causes of an individual student problem. If a particular assessment instrument or technique can help effectively place a student or diagnose a problem, little importance is given to whether it ultimately provides a valid measure of the theoretical concept it purports to indicate. In this regard, the student-personnel professional's data requirements are quite similar to those of the administrator. Nonetheless, the student-personnel professional's assessment usually focuses upon the individual student.

In contrast, the focus of assessment for the management operation is at the institutional or the program level. Because the main objective of the management approach is improvement of the process for making resource-allocation decisions among alternative programs,

appropriate data must have a number of properties in addition to empirical validity and reliability.

To be effectively utilized in a management setting, of course, outcomes data, like any data, must be relevant, directly applicable to the current management problem, and available when needed (Jones 1982). The data also must have face validity—that is, they must be *perceived* by decisionmakers to be of value in solving the problem. Consequently, the complex statistical assessment and analytical procedures commonly used by academic researchers and by student-personnel professionals often have little impact in a management setting, if only because the results of a given investigation, although valid, simply cannot be communicated effectively and persuasively to lay decisionmakers.

Most available data about the impact of college upon students continues to be collected by means developed in the academic or student-personnel approaches. Because of this, any attempt to measure and identify student outcomes at the institutional level initially faces a communication task. Part of the challenge is to effectively demystify the notion of an outcome, and to present it clearly from the perspective of institutional management. Once the concept has been properly delineated, most administrators will discover, as Moliere's M. Jourdain discovered about prose, that they have been "speaking it all along." Another requirement is to effectively *relate* different kinds of outcomes and to locate them clearly within a specific decisionmaking context. To be effectively utilized, student-outcomes information must be visibly placed alongside such diverse elements of management information as available-resource indicators, activity-level and productivity indicators, and external policy and program constraints. The resulting array will provide a comprehensive picture of programmatic or institutional performance. Chapter 2 describes various dimensions of the outcomes concept, how it has been used, by whom, and for what purposes.

Approaching the assessment of outcomes from a management perspective demands that the administrator carefully distinguish program *efficiency* from program *effectiveness*. Efficiency refers to a

comparison of resources expended to output produced; it is an assessment of thrift, waste, and prudence in the actual *production* of a good or service. Cost per student credit hour produced is thus a common measure of academic efficiency. Effectiveness, on the other hand, involves comparison of results achieved to goals intended; it is an assessment of the degree to which—regardless of cost—the outcomes of the production process measured up to the original intention. Both kinds of assessment are of value to the administrator, but it is important not to confuse the two. It is particularly important not to allow efficiency criteria to be used in judgments of institutional or program effectiveness.

Other conceptual issues arise from the fact that a management perspective requires that the academic enterprise be expressly conceived of as a production process that results in certain kinds of outcomes. This process operates on the raw material of its object—in the case of *student* outcomes, of course, students. They enter the process in a given initial state and presumably are altered. The notion of *value added* derived from this model is much discussed and debated in current research about student outcomes. Essentially, it involves acceptance of the production-process analogy (Astin 1977). Student abilities, attitudes, and skills on graduation are products of particular aspects of the college or university experience. In addition, they are products of differences in the entering characteristics of students (differing input conditions) and simultaneous "growth/maturation" experiences that students may undergo while enrolled but that are unrelated to the educational experience itself.

Two basic implications for measurement follow from this. First, the fact that an outcome is a *change* concept means that two or more measurements, made with the same or similar instruments and techniques, are generally required. This makes outcomes information intrinsically different from other kinds of management information, and often makes it somewhat more difficult to collect. Second, a measurement of simple change will not do. Some attempt must be made analytically to control for differing input conditions among students and for the different kinds of experiences they may undergo while enrolled.

The administrator's conceptual view of outcomes summarized above has important practical implications. First among them is the fact that at a given institution, student-outcomes assessment often involves assembling and integrating *existing* information more than collecting *new* information. Extensive institutional experience has shown that routinely collected operational data, for example, can be surprisingly useful for outcomes assessment. A second, related implication is the importance of integrating data drawn from a variety of sources as fully as possible into a single student-outcomes data base. Such a data base, centrally located and documented, can be used flexibly by administrators to address a wide range of specific evaluative questions—from overall mission review to the assessment of individual instructor effectiveness. Chapter 3 describes some of the common types and sources of student-outcomes data available in most higher-education institutions. It also provides some guidelines on how these data can be usefully assembled in a data base to address specific institutional problems and processes.

A key purpose of such a data base is to allow information on student outcomes to be effectively deployed with respect to familiar administrative activities as well as compelling institutional issues. Nothing is more frustrating, nor at the same time more familiar, than a student-assessment or institutional-research office filled with neatly executed reports on student behavior—all presented in such a way that the results are only comprehensible to other [illegible] assessment or institutional-research professionals. The trick to effective assessment of student outcomes, as institutions that have done so will attest, often lies as much in effectively communicating results as it does in designing and executing studies. Chapter 4 presents a number of utilization themes typical of different kinds of student-outcomes assessment efforts. In addition, chapter 4 shows that in order to be well used, different kinds of outcomes data must be clearly related to definite and, above all, accustomed administrative concerns.

As in any student-assessment effort, achieving higher levels of student success in and beyond academic programs is the impelling priority. In the mid-seventies, NCHEMS began its efforts to define

and measure the outcomes of higher education, convinced that it was impossible to improve the management of colleges and universities in the absence of a clear definition and assessment of their products. This effort was grounded in a fundamental belief that positive impact—despite formidable measurement difficulty—would in fact be demonstrated, and that such demonstration would benefit higher education as a whole. As Ben Lawrence, President of NCHEMS, put it in 1977:

> Certainly it is necessary to measure impacts of higher education even if some embarrassments result. If higher education is in fact doing less than an adequate job with the resources it is granted, the first step toward impelling and motivating forward movement is to document the shortcomings. And there will be shortcomings. But if the ability is acquired to measure comprehensively the wide range of the outcomes of higher education, the shortcomings will be overwhelmed by the documentation of an array of benefits of every sort which now, in varying degrees, go unacknowledged. [P. 1]

Since 1977, substantial progress has been made in our ability to define and assess these benefits. But far more important, substantial consensus has also been achieved on the imperatives involved in doing so and the costs involved in not doing so. As Adamany (1979) points out, assertions of the "unmeasurability" of academic programs become increasingly less credible when they come from institutions that cast themselves as social critics or whose faculty are themselves heavily involved in developing evaluation methods for other kinds of organizations. The question is clearly no longer one of whether, but how.

CHAPTER 2

Conceptual Dimensions of Student Outcomes

There are many conceptions and definitions of the term *student outcomes* as it relates to higher education. We have noted that a student outcome is most often defined as any change or consequence occurring as a result of enrollment in a particular educational institution and involvement in its programs. Within this broad definition, a number of distinctions among different types of outcome[illegible] usefully be made. Many of these distinctions originated in academic research on student behavior, but some have their origins in the literature on effective institutional management.

Regardless of their origins, schemes for classifying student outcomes generally are of two kinds. The most common approach is to develop a *typology* of mutually exclusive categories of outcomes that can be used as a basis for identification and measurement of specific outcomes. This approach has the advantage of conceptual clarity, but two disadvantages. It runs the risk of artificially distinguishing things that perhaps ought to go together, and it tends to obscure the process elements of the educational experience. These objections are answered by the second approach, which is to model the interaction between the student and the institution as an

exchange process. The interaction model affords a dynamic view of what is, after all, an interchange between the student and the instructor or institution. As a heuristic device, therefore, it is admirable. But as a mechanism for identifying and measuring particular outcomes, it is somewhat less useful. Whichever way the classification question is approached, student outcomes have a number of secondary properties—an important one being duration. These secondary aspects of student outcomes must also be taken into account in the measurement process. In the following sections, the two general types of classification and the matter of secondary properties are considered in moderate detail.

Some Typologies of Student Outcomes

Perhaps the most widely recognized taxonomy of student outcomes is the fourfold conceptual scheme developed by Alexander Astin and his associates (Astin, Panos, and Creager 1967). This taxonomy, shown in table 1, classifies outcomes along two distinct dimensions. The first, *type of outcome*, distinguishes cognitive from noncognitive outcomes—that is, changes in actual knowledge or learning on the one hand and changes in student attitudes or values on the other. The second dimension, *type of data*, distinguishes outcomes that are observable in overt student behaviors from those that must be identified and measured by psychometric and allied techniques. The differentiation undertakes neither to deny nor ignore the obvious fact that affective and cognitive outcomes are complexly interdependent and that the outcomes described by psychological data are related in equally complicated ways to the outcomes represented by behavioral data.

Educational assessment has traditionally concentrated on the outcomes listed in the *Psychological/Cognitive* cell of the classification—knowledge, critical-thinking ability, basic skills, special aptitudes, and academic achievement. Indeed, the measurement of academic achievement by grades, rank and class, and similar factors produces the outcomes statistics best known and most often used in

TABLE 1

A Typology of Student Outcomes

DATA	OUTCOME	
	AFFECTIVE	COGNITIVE
Psychological	Self-concept	Knowledge
	Values	Critical-Thinking Ability
	Attitudes	Basic Skills
	Beliefs	Special Aptitudes
	Drive for Achievement	Academic Achievement
	Satisfaction with College	
Behavioral	Personal Habits	Career Development
	Avocations	Level of Educational Attainment
	Mental Health	Vocational Achievements:
	Citizenship	Level of Responsibility
	Interpersonal Relations	Income
		Awards or Special Recognition

SOURCE: Alexander W. Astin, R. J. Panos, and J. A. Creager, *National Norms for Entering College Freshmen—Fall 1966* (Washington, D.C.: American Council on Education, 1967), p. 16.

colleges and institutions. General aptitude, aptitude and achievement in particular knowledge and skill areas, and basic-skills competence are usually assessed by means of a variety of standardized tests. These tests are most often used to establish entrance and placement criteria and also to assess educational impact, or growth, upon completion of a particular program of study. Familiar examples include the College Board's verbal and math Scholastic Aptitude Test (SAT) and the Graduate Record Examination (GRE).

Psychological/Affective outcomes are somewhat more subtle and consequently often more difficult to assess, but they are no less important to institutional administrators. Proponents of liberal education, for example, feel strongly that academic programs should be evaluated not only on the basis of the skills students possess upon graduation but also on the kinds of attitudes they hold. Indeed,

some of the most interesting academic investigations of student outcomes are those that examined the long-term effects on attitudes and behaviors of liberal-arts graduates (Bowen 1977). Most of those studies report increases in such values as aestheticism, autonomy, and tolerance of cultural diversity. Of more immediate importance to administrators, perhaps, are such factors as student self-perceptions of immediate achievements and the so-called psychological lack of fit between the student and the institution. Both have been shown to be strongly correlated with student attrition (Tinto 1975; Terenzini 1979).

Behavioral/Cognitive outcomes are most often assessed in terms of career development and subsequent educational attainment. Again, the long-term evidence regarding the impact of a college education on occupational mobility is excellent (Pace 1979a). More immediately, two concerns have considerable relevance when assessing an institution's existing programs, seeking their improvement, or planning new programs. They are the degree to which students are prepared to enter and progress in various occupations and the degree to which they are prepared for posrgraduate study. Furthermore, information on such outcomes is increasingly important to recruitment and public relations.

Behavioral/Affective outcomes probably are assessed least often by institutions—and probably the ones related least directly to institutional decisionmaking. For the most part, these are long-term outcomes, mainly interesting to researchers. Bowen's (1977) comprehensive summary of those effects, for example, reviews the long-term impact of higher education on political participation (more frequent), on consumer behavior (more efficient and informed), and on family life (more child centered, with less sex typing in family roles). For institutions aiming at the full development of students as individuals and citizens, however, assessment of such outcomes remains the ultimate test of success.

Another well-known classification of outcomes, shown in table 2, was developed by Oscar Lenning and several associates (Lenning 1977a; Lenning 1977b; Lenning, Lee, Micek, and Service 1977) at the National Center for Higher Education Management Systems (NCHEMS). This scheme is consistent with the management

TABLE 2

Categories of the NCHEMS Outcomes Structure

CAT. CODE #	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

NOTE: The fourth-level categories, into which any of the categories listed here can be divided, are "maintenance" (a fourth digit of "1") and "change" (a fourth digit of "2").

SOURCE: Oscar T. Lenning, Young S. Lee, Sidney S. Micek, and Allan L. Service, *A Structure for the Outcomes of Postsecondary Education* (Boulder, Colo.: National Center for Higher Education Management Systems, 1977), p. 27.

TABLE 2

Categories of the NCHEMS Outcomes Structure, *continued*

CAT. CODE #	ENTITY BEING MAINTAINED OR CHANGED
2000	**Human Characteristics Outcomes,** *continued*
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
2760	Power and/or Authority

TABLE 2

Categories of the NCHEMS Outcomes Structure, *continued*

CAT. CODE #	ENTITY BEING MAINTAINED OR CHANGED
2000	**Human Characteristics Outcomes,** *continued*
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

TABLE 2

Categories of the NCHEMS Outcomes Structure, *continued*

CAT. CODE #	ENTITY BEING MAINTAINED OR CHANGED
3000	**Knowledge, Technology, and Art Form Outcomes,** *continued*
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 of 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

perspective espoused by NCHEMS in two important particulars. First the classification undertakes to distinguish and to place along different dimensions *all* of the major outputs and outcomes of colleges and universities as the first step toward assessment of managerial effectiveness. And second, student outcomes are not distinguished as such; they are delineated principally in a category called "human characteristic outcomes," but a few will be found under other headings.

The NCHEMS outcomes structure was intended to provide higher education with a uniform classification to facilitate the collection of comparative information on institutional and programmatic effectiveness.

While few institutions have collected outcomes information so exhaustively, or in such detail, the classification scheme has considerable utility in assessing institutional outcomes-information needs and available information resources.

Some Interaction Models of Student Outcomes

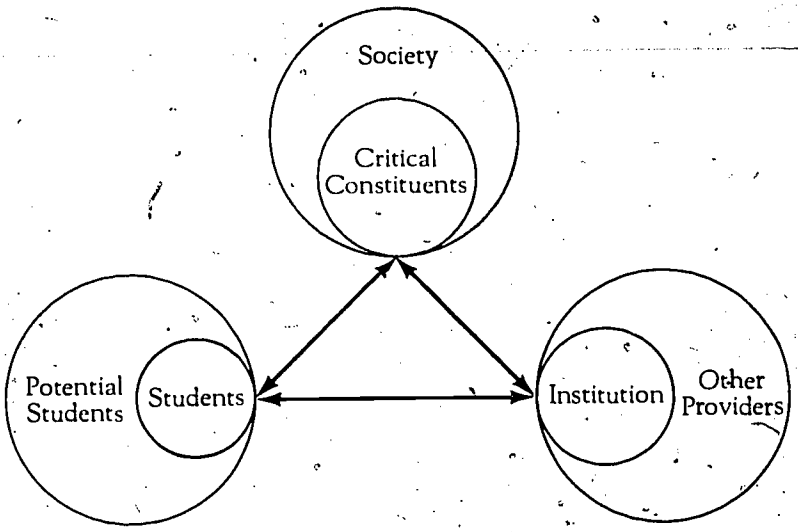
Another well-established way of categorizing student outcomes is to view them in terms of the *interactions* among students, institutions, and particular segments of society. Such an approach has the advantage of placing student-outcomes information firmly within the context of other kinds of management information. This approach is well illustrated by the heuristic framework shown in figure 1, which Dennis Jones (1982) has proposed for use in structuring a management data base.

Jones's conceptual scheme is mainly useful to test the completeness and suitability for different planning purposes of an institution's various data resources.

This framework accommodates outcomes data in two ways. First, an outcome may consist of a *change of state* within one or more of the three basic and three enveloping entities depicted in figure 1. Learning gains, attitude changes, and *achievement growth* are all examples of changes in state in the entity "students" that may occur as a result

FIGURE 1

Planning Data System: The Central Entities



SOURCE: Dennis P. Jones, *Data and Information for Executive Decisions in Higher Education* (Boulder, Colo.: National Center for Higher Education Management Systems, 1982), p. 38.

of an educational program. The second form that an outcome may take is that of a *change in relationship* between two entities. If a student drops out of school because of a negative experience, a change in relationship takes place between the student and the institution. If a student finds a job as the result of completing a certification program, a change in relationship is registered between the student and a particular critical constituent—the employer.

The key advantage of Jones's interaction model is that it classifies different kinds of management information in comparable forms. Information about students is only one portion of the information needed to inform management decisions about programs—for instance, whether to mount a new degree program. Information also is needed on external support for the program, which involves the relationship between the institution and employers; on competitors

that offer the same or a similar program, which involves data on the characteristics of other providers; and on the current ability of the institution to offer the program, which requires data on the resources of the institution. The framework reminds the administrator that information on student outcomes appropriately informs decisions only when it is in the company of other kinds of information. And the framework helps the administrator identify the various kinds of information that are relevant to the decision at hand.

Among the various categories of student-outcomes information, that concerning the relationship between the student and the institution is probably most important. It can be modeled as an interchange: institutions utilize resources to deliver educational programs targeted to various groups of students. For their part, students choose programs that enable them to fulfill important personal objectives. Jones's interaction model highlights the fact that both the institution and the student are conscious, goal-oriented actors, each of whose behavior influences the other. We are quite used to modeling institutions in this way; such terms as *mission*, *programmatic goals*, and *resource constraint* are freely used in institutional planning and decisionmaking. We are less accustomed to thinking about students in these terms.

Yet it is critically important to remember that students as well as institutions have programs, if what we mean by *program* is a fairly well defined set of goals, a set of behavioral objectives, and a set of strategies to gain these objectives within the limits imposed by the resources available to the student. If a student's program, thus defined, is not often as well articulated as that of an institution, at least sometimes it is. (In fact, educators from time to time question the wisdom of early career decisions, made in the high-school years, frequently by the brightest students, and compulsively pursued without a second thought right through college and graduate programs.) However well students may know their own intentions, institutional administrators generally know only a part of the student's overall program—the part that directly involves the institution. The student qualifies for, elects, and pursues a particular program, and the institution infers that program completion is the

student's main goal. The concept of attrition provides an excellent illustration of this myopia. From the point of view of the institution, attrition is an unsuccessful programmatic outcome. In fact, often it may be a successful outcome from the point of view of the student: the relationship with the institution was terminated because the student's educational goals had been fulfilled, and program completion was not one of them.

So another positive consequence of the interaction-model approach is that it keeps the administrator aware of important distinctions between programmatic *outputs* and their associated *outcomes*. The institution produces a multitude of outputs through its many programs and services directed to students. These outputs range from individual classroom experiences to student-life experiences and informal interactions with faculty. The combined effect of the particular mix of outputs associated with a particular student produces a body of educational outcomes for that individual. Assessing the comprehensive cause of a particular student outcome—a change in enrollment status, employment status, or attitude—is thus more than just empirically difficult. The discrete outcomes represented in data are not so separable in the student's mind. They are embedded in a holistic felt experience; even a student with marked gifts for introspective insight and causal analysis would have great difficulty cutting through the tangled interrelations of the various outcomes and isolating them. Researchers are recognizing this increasingly, as evidenced by a growing number of investigations of campus "environments." (See, for example, Moos 1979). Ultimately, of course, one can only hypothesize with respect to such experiential phenomena. But the accepted wisdom among those who specialize in student-outcomes information holds that the attribution of cause can only be to the whole body of experience the student undergoes—the accumulated outputs of many programs, acting in combination.

Furthermore, the outcomes of the same combination of institutional programs may be quite different from one student to another. The administrator is strongly tempted to conceive of outcomes as changes in average student performance or attitudes. But this can be a highly misleading notion. As Bowen has pointed out, few studies

of student outcomes have demonstrated any marked changes in average student characteristics or behaviors as a result of college experiences. This does not mean, however, that individuals in the population of students represented by the average have not undergone substantial changes, both positive and negative (Bowen 1978). This should not deter institutions from compiling and interpreting statistics on average student changes. But administrators should not lose sight of the fact that the individual student constitutes the core of the concept of student outcomes. Common denominators are no more than shadows.

Some Additional Dimensions of Student Outcomes

Typologies and interaction models both provide starting points for sorting out the many sorts of phenomena that can be grouped under the heading "student outcomes." But a number of additional outcome dimensions cut across all such classifications. These extra dimensions are useful in distinguishing among particular outcomes of the same general type.

- Outcomes may be either *short-term* or *long-term* depending on their persistence over time and on the length of time after graduation or program completion it takes for the outcome to appear. Long-term persistent outcomes often are claimed as a major benefit of higher education. Most administrators, though, are preoccupied with the assessment of short-term outcomes. This focus of attention is appropriate for two reasons: it is difficult to collect data on long-term outcomes, and they rarely can be shown to be linked back to explicit outputs over which institutional decisionmakers and managers have some measure of control. (The links may be there, but we do not have the analytical means to make them indisputably visible.) Assessment and communication of long-term outcomes, however, probably has the greatest potential for influencing public perception of the value of higher education as a whole.

- Outcomes may be *subject-aware* or *subject-unaware*, depending on the degree of the student's consciousness of the outcome. For example, a student's own perception of growth in a particular academic area may have little relation to actual levels of achievement, although these factors have been shown to be generally correlated (Pace 1979b). More important, students may be quite unaware of changes in their values; retrospectively, they find it hard to believe (or to admit) that they ever felt differently. Again, administrators will be primarily concerned with subject-aware outcomes, because they are relatively easy to measure and because they are most directly related to student choices of institution and program, level of effort, and persistence.
- Outcomes may be either *direct* or *indirect*, depending on how closely they are causally connected to an educational program. A student's acquisition of new facts and skills as a result of attending a particular course is a direct educational outcome. A graduate's persistent interest in civic affairs, stimulated in part by participation in student government while in college, is an indirect outcome. Both direct and indirect outcomes should concern administrators. Because indirect outcomes usually are more difficult to identify and measure, administrators should be particularly sensitive to the variety of indirect influences their institutions may have upon students.
- Particular outcomes may be either *intended* or *unintended* consequences of various programs. An example of an unintended consequence of a two-year baccalaureate transfer program at a community or junior college might be a successful transfer to a four-year institution well before the two-year program could be completed. While administrators properly concentrate on the assessment of intended outcomes, a sensitivity to unintended outcomes can yield quite unexpected information. In the case above, for example, the institution was experiencing a negative outcome because it was, in a sense, *too successful*.

Many similar distinctions can be drawn among different types of student outcomes. Some, like the earning of a degree, are easy to

measure. Some, like the ability to think critically, are more difficult to measure. Some outcomes involve changes in knowledge, skills, attitudes, or activities; others preserve knowledge, skills, and so on. This book contains a bibliography of recent significant literature on the conception and assessment of student outcomes. While each of the approaches and classification schemes described in this literature has its virtues, the administrator should approach the delineation of outcomes flexibly and creatively. Classification schemes of every kind are better employed by administrators as guides to thinking about needed information and available data than as rigid prescriptive devices for determining a data-collection plan.

It should be remembered, too, that the value of information about any given outcome depends on the goals and objectives of the institution or program, whether or not it is fashionable in academe. Most administrators, for example, share in the wide predisposition in higher education to value a traditional set of outcomes of the undergraduate college experience—those associated with liberal and general education. Administrators of regional universities and community colleges alike may see an equal need to stress outcomes such as job placement and the development of occupational skills. If different from the traditional academic outcomes, these more mundane outcomes are not thereby necessarily degrading to the traditional academic values espoused by colleges and universities. The new diversity among institutions as well as among students need not threaten the sanctity of the traditional academic enterprise so long as we recognize that educational gains can legitimately occur—and be effectively measured—along a number of different dimensions.

CHAPTER 3

Building a Student-Outcomes Data Base

Effective use of student-outcomes data hinges on adequate integration and meaningful interpretation of data drawn from a wide variety of sources. Furthermore, usefully informing administrative decisions will often require the integration of student-outcomes data with other kinds of management data—for example, productivity data and resource data. So it is crucial for those trying to use outcomes data (or any other kind of data, for that matter) to fully understand a material distinction between *data* and *information*.

Data (for example, the responses to a questionnaire or the entries in a course-registration file) are the direct results of observation or measurement. They are the raw facts from which information can be constructed. *Information*, on the other hand, consists of data that have been selected, combined, and put into a form that conveys to a given recipient some useful knowledge upon which to base action. The quality of data is determined by the validity, accuracy, and reliability of the measurement process used in data collection. The quality of information is determined as much by its relevance, timeliness, and acceptability to potential users as it is by its derivation from high-quality data (Jones 1982).

TABLE 3

Student Master-File Data Elements Useful in Conjunction with Survey Data

Academic Background/Aptitude	Personal Background	Enrollment Data	Academic Record
Predicted GPA	Sex	Student Type/Status	Credits Attempted (by term)
High School Attended	Age	Original Entry Date	Credits Earned (by term)
High-School Class Rank	Race/Ethnic Group	Original Entry Status	Term/Cumulative GPA
High-School GPA	Residence	Day/Evening Enrollment	CEEL Credits Granted
High-School Graduation Year	Citizenship	Residence Hall/Status	Probation/Suspension Status
Advanced-Placement Credits	Veteran Status	Major/Minor	
Transfer College	Marital Status	Advisor	
Transfer GPA	Financial-Aid Status		
Test Results (SAT, ACT, etc.)			
Placement-Exam Results			

STUDENT-OUTCOMES DATA BASE

Because users define information in different ways, the actual uses of information and consequently the forms in which it is needed are variable--and frequently the variability is not predictable. The concept of a data base seeks to ameliorate this difficulty by clearly distinguishing a set of ongoing data *resources* for the many and varied uses to which derived information may be put. If developed properly, data bases can be stable over time, while the array of uses and users of information may change.

A major concern in constructing a student-outcomes data base is the choice of what kinds of data to include and what kinds of general mechanisms and formats to employ in converting data into different kinds of information. An initial data base may contain only a set of reports from different student follow-up surveys or studies, kept together and documented for ready reference to respond to particular questions from administrators as they arise. Many institutions have greatly strengthened their ability to address outcomes issues simply by preparing an inventory of available data, together with materials showing how the data were collected, by whom, when, and for what purpose. A data base could consist of the responses to different student-outcomes questionnaires, archived in machine-readable form. Or it might consist of questionnaire responses combined in a single computer file with other individual student data drawn from enrollment and master-file data. Table 3 summarizes some important types of student data, typically kept in student master files and enrollment files, that can be used in conjunction with the results of student surveys.

1. Institutional Sources of Student-Outcomes Data:

As table 3 suggests, one of the most important steps in building an effective institutional student-outcomes data base is to recognize what kinds of data are *already* available about students in different parts of the institution. Many administrative units and academic departments in colleges and universities collect data on student outcomes. Generally, however, these data will be scattered throughout the institution, having been collected by different administrative units at different times, by different methodologies, and for different

TABLE 4

Types and Sources of Outcomes Data

Student Characteristics	Relationships
FROM OPERATING SYSTEMS:	FROM OPERATING SYSTEMS:
Sex	Level
Age	Program Category/Status
Race	Full Time/Part Time
Residence	Day/Evening
GPA	Load (Sch/Contact Hours)
(Family-Income Class)	GPA/Probationary Status
(Religious Preference)	Degree Status
(Test Scores)	(Placement)
	(Alumni Activities)
	(Certification)
FROM "SPECIAL SOURCES":	FROM "SPECIAL SOURCES":
Employment Status	Employer/Industry/Job
Marital/Family Status	Satisfaction with Training
(Income)	Subsequent Education
Educational Goals	Satisfaction with Preparation
Educational Aptitudes	Perception of Services
Perceptions of Gain	Certification (External)
	General Education
	Subsequent Achievement (Professional/Civic)

purposes. Table 4 lists kinds of student-data elements often collected by colleges and universities. The table breaks down these data elements according to whether or not they are derived from regular institutional sources or special surveys, and according to whether they primarily have to do with student characteristics or with the relationship between a student and the institution or another constituent.

Few colleges and universities will have collected consistent and accurate data on all of these elements. But few institutions will have *no* available information on most of them. The most complete data will probably be that which is regularly collected on student characteristics. The majority of these data will be found in a student-record file, generally maintained by the registrar. Occasionally, such data as family income class or test scores will be available on each student or on selected students but will have been collected and will reside in different locations, such as the financial-aid office or counseling center. Most of these data do not deal with outcomes directly. Rather, they are useful for delineating particular categories of students among which outcomes comparisons may be drawn.

Most colleges and universities will also have a good deal of routinely collected data on relationships. The bulk is standard enrollment data. Placement, certification, and alumni data may be available but usually on certain students only and then often only through particular offices. Nevertheless, when combined with the student-characteristic data available through student registration systems, this array of data elements alone provides a powerful resource. Enrollment and student-characteristic data, for example, constitute a foundation for constructing a student-tracking data base that can generate extremely useful sets of fundamental outcomes studies. Attrition and retention rates, for instance, may be calculated and compared for different categories of students. Changes in course-taking patterns and course-completion rates can be similarly analyzed. Such studies usually are relatively unsophisticated and generally are confined to assessment of a fairly limited set of outcomes. But often they are the most immediately useful student-outcomes studies an institution can engage in. Even if

TABLE 5

Existing Outcomes Data Commonly Collected on Campus

Source/Location	Type of Data
Academic Depts.	Follow-Up Studies Program Accreditation Reports
Student-Services Offices	Service Evaluations Exit Interviews "High-Risk Student" Studies
Alumni Office	Alumni Activity Surveys (Alumni Lists of Current Addresses)
President's Office	Accreditation Self-Study Reports Ad Hoc Studies
Placement Office	Placement Surveys Employer Surveys
(System Offices)	Occupational Follow-Up Studies Employer Surveys Transfer Tracking Studies

these are the *only* data elements available to an institution, the information they yield can be impressive and of immediate policy value. (See, for example, Ohio State University 1981).

Fortunately, other kinds of sporadically collected data on student outcomes are also commonly available at most institutions—although scattered widely throughout the campus. Table 5 lists data typically collected, together with the offices generally responsible for their collection. Such a list is a good place to start in inventorying an institution's current student-outcomes data resources.

Again it should be emphasized that the data collected by these different efforts will vary widely in quality, will have been assembled at different times, and will cover different categories of students. If

collected by student survey, which is the most common method, these kinds of data share a number of important limitations of which administrators should be aware.

One set of limitations has to do with the problems of "response bias" associated with most special studies and surveys. Because of cost, many surveys are administered to only a small sample of the population to be assessed. In itself, sampling causes few problems. But response rates of 100 percent are rarely attained, and there is seldom any assurance that those who did not choose to respond are substantively the same as those who did. Alumni surveys—especially if conducted independently by alumni offices for their own purposes—are particularly prone to bias because of selective response. Many institutions have published reports based on response rates as low as 10 to 15 percent; response rates of 30 to 40 percent are probably typical of such efforts. While bias of this kind may not render survey results completely unusable, it does require the administrator to take into account the characteristics of those responding before accepting their responses as typical.

Another set of limitations has to do with the inherent instability of student self-report data on attitudes. Attitudinal responses may change markedly over the course of a student's enrollment as a result of different experiences encountered or progress attained. A number of studies repeatedly assessing student attitudes have found, for example, that students increasingly value general education as the length of the enrollment increases (Feldman and Newcomb 1969; Terenzini 1983). It is generally impractical for most institutions to survey the same students repeatedly. Some caution must be taken, therefore, in interpreting data on attitudes that may already have changed as a result of a new institutional policy or program, or simply because the student has progressed.

A third set of limitations has to do with response distortion—deliberate or unconscious—on the part of student or alumni respondents. For example, it is fairly common for a large proportion of students surveyed when withdrawing from college to report that their primary reason for doing so is financial pressure. Face-to-face interviews with these same students will generally reveal, however, a much more complex motivational picture—one in which financial

pressure plays little or no part (Lenning, Beal, and Sauer 1980). Careful questionnaire design or study-administration procedures can help avoid this problem. But again, it is important for administrators drawing implications from data of this kind to be aware of the possibilities of distortion.

Because of these limitations, no single study or source should stand alone in an institutional outcomes-assessment effort. Together, however, such a body of sources will often yield a consistent body of findings. Indeed, a major objective in building an outcomes data base is to provide as many *independent* sources of data as possible. An assortment of findings, if they are consistent, provides considerable confidence that underlying patterns of outcomes are present and that the information may safely be used as a basis for administrative decisions.

2. Identifying the Users and Uses of Outcomes Information:

The desirability of institutionwide involvement in the design of a student-outcomes data base cannot be overstated. A number of different institutional personnel and constituencies may have an interest in the kinds of information contained in such data bases; many also have particular pieces of information to contribute or may control the sources of particular kinds of data. Involving these parties at interest in the early stages of planning the data base maximizes the possibility that the available data will be effectively used. It also enhances the likelihood that all offices and individuals will cooperate in any future data-collection effort.

One vehicle for involving institutional staff and other interested groups is an advisory committee comprising students, faculty, and administrators. A committee of this type can make recommendations concerning the administration and use of existing student-outcomes information. It can also suggest additional surveys that ought to be undertaken to enrich the data base. Representatives of student services, alumni development, admissions, career placement, vocational administration, data processing, and public information may all share the interest of academic administrators in the findings of student-outcomes surveys and in the implications of previously collected data.

The involvement of a number of institutional personnel will also help to guard against overlapping activities in different offices and departments. In many institutions, large ones in particular, redundant surveys are often conducted, at a waste of time and money. Early involvement of these offices in survey planning will not only help forestall such duplication in the future; it may also uncover the findings of past surveys of which other offices may be unaware.

An additional benefit of an advisory committee composed of interested parties is that the members may begin to use in their own units the kinds of information they obtain through committee participation. As they attempt to directly apply available information, and the insights derived from this information, to the problems and tasks in their own units, committee members will be testing the utility of different ways of presenting and integrating data drawn from an institutional student-outcomes data base. At the same time, they constitute an initial body of trained data users, able to pass on their skills to other administrators. Indeed, a priority function of the committee should be to make administrators aware of the relevance of outcomes information to the day-to-day operations of the units and departments they manage.

One task involved in ensuring that the information is relevant is to identify key users of information and the levels of information used throughout the institution. By the time an institutional advisory committee is established, this task may already have been partly accomplished. The kinds of questions and issues raised by the advisory committee should provide an outline of critical issues that an institutional student-outcomes data base should address. In any case, it is likely to be most useful to summarize these assessments in terms of an explicit set of research *questions* for each user or use that the information provided by the survey may be able to answer. To illustrate, the dean of student services might ask: "What are the characteristics of those who are satisfied and dissatisfied with particular services?" And an academic dean might want to know: "What are the differences among departments regarding the academic and personal goals of their students?" or "Which departments have been most effective in placing their students in jobs related to their training or in programs of further study?"

TABLE 6

A Source/Use Matrix for Information Inventory

		INFORMATION SOURCE	
		Academic Depts.	Student-Service Offices
		Dept. 1 Dept. 2 . . . Dept. x	Office 1 Office 2 . . . Office x
INSTITUTIONAL PROBLEM AREA	First-Term Retention		
	Effective Placement		
	Program Review		
INSTITUTIONAL PROCESS	Accreditation		
	Budget Planning		

Similarly, research questions associated with an identified institutional *problem*, such as attrition and retention, might include: "What are the characteristics of students who drop out as opposed to those who persist?" or "What *particular* negative assessments of the institution and its services are given by those who leave?" or "Are the academic and personal aspirations of those who leave different from those who stay?"

One useful device at this point in an outcomes-data planning process, especially in structuring committee discussion, is to construct a so-called source/use matrix of available information. Such a matrix is illustrated in table 6. It provides a convenient way to summarize existing institutional outcomes data resources and to identify the relevance of this data to recognized institutional problem areas. A source/use matrix will also help locate gaps in available outcomes data.

In completing such a matrix, and indeed in any data-integration activity, the role of the institutional-research or similiar office may be critical. To begin with, the central location of such an office makes it an appropriate agency for aggregating and cataloging existing information on student outcomes. More important, the constituency for this office is generally the institution as a whole. This makes it an appropriate place not only for *aggregating* information from various sources, but also for *integrating* such information in terms of common institutional issues or problems.

Even when particular kinds and sources of outcomes data are known to be available, however, they are frequently not in the proper format to be of immediate use to decisionmakers. The primary method most offices use to disseminate student-outcomes data is a standard-format report on a particular data-gathering effort. For example, each time a particular office completes an alumni follow-up study or a tracking study, the results are reported independently. Such reports can be said to be methodology driven rather than problem driven. Thus one of the first tasks for an effective utilization effort is to reorganize the information contained in several published reports so that it clearly relates to to problems faced by institutional decisionmakers.

Subtle and sensitive interpretation is sometimes required to effectively integrate fragments of information—often by themselves of little significance—into the single coherent picture of a phenomenon that an administrator needs. One such exercise, assembling the results of numerous attitudinal studies of currently enrolled students and integrating these with tracking-study results on the attrition patterns of different kinds of students, has been particularly effective. However, much of the process of reorganizing existing material merely involves simplifying data presentations to highlight major trends, to emphasize comparisons, and to eliminate extraneous material. The continuous involvement of an institutionwide committee that can bring multiple perspectives to bear throughout this process is greatly valuable.

As with any other creative planning-oriented exercise, no one best way will be found to bring existing institutional information on student outcomes to bear on identified campus problems. Nevertheless, it is good to involve as many key users and generators of outcomes information on campus as possible, throughout the process. Beyond the identification of particular bodies of information relevant to common problems, such an exercise will often be of value in simply gathering diverse groups of administrators and faculty for uncommon opportunities to talk about student experience.

3. Designing Additional Efforts to Gather Outcomes Data:

If such a device as the source-use matrix can be useful in breathing new life into old data, it may well be critical in designing procedures for gathering *new* institutional student-outcomes data. A primary difficulty with most institutionally based efforts to collect student-outcomes data is that they are planned and executed in an atmosphere dominated by technical and methodological considerations. Because such efforts generally involve construction of a valid survey strategy, technical considerations are indeed important. After an initial planning meeting to set the goals of the survey effort, the technical details usually are left to technically oriented staff, such as institutional researchers or student-personnel professionals, to work

out. As a result, survey-based data-collection efforts carried out by research professionals have a strong tendency toward being technically exemplary but operationally useless.

The tendency of the administrator, of course, is diametrically opposed. Unchecked, the administrator will demand perfect instruments, which will give direct answers to immediate questions. Committees composed largely of faculty members without substantial survey-research experience exhibit perhaps the strongest drives in this direction.

Striking a balance between technical feasibility and policy utility is best accomplished by establishing consistent and *regular* channels of communication. One reason why institutions should carefully assess their *existing* student-outcomes data resources, as described in the previous section, is that the process promotes concrete discussion of the technical adequacy and policy utility of existing instruments and techniques. Because of its concreteness, such discussion can be infinitely more satisfying and of much greater usefulness than a discussion of a hypothetical future data-gathering effort.

Indeed, one technique that has proved to be valuable in institutional settings is to ask committee members and managers what they *expect* existing data to show—and why—before they actually see the results. This forces concentration on the utility of the instruments and techniques in use, in addition to exposing initial assumptions about student growth and attitudes. When the data actually are made available, comparing actual results with expected results can be beneficial and revealing.

If additional student-outcomes data is deemed necessary, many institutions will decide to develop a data-gathering strategy from the ground up, involving construction of an institution-specific survey questionnaire and a method for its administration. This is appropriate in many cases. Nevertheless, administrators should be aware of the wide and growing range of well-constructed and proven systems and questionnaires for gathering student-outcomes data. These instruments are generally far superior technically to instruments developed locally. They also will provide data compatible with data from other institutions using the same instruments. Of

TABLE 7

Some Features of Currently Available Student-Outcomes Assessment Instruments/Services

The NCHEMS/College Board Student-Outcomes Information Service (SOIS)

- —Designed to assess student attitudes, perceptions of growth, and subsequent educational and employment experience at different points of a student's college career. Includes evaluations of specific college services.
- —Contains six questionnaires in two-year and four-year versions:
  - External-student questionnaire
  - Continuing-student questionnaire
  - Former-student questionnaire
  - Program-completer questionnaire
  - Recent-alumni questionnaire
  - Long-term alumni questionnaire
- —A computer data-analysis service is available.
- —Comparative data from others using the service are available by type of institution.
- —Additional local questions may be added to standardized questionnaires.

The ACT Evaluation Survey Service (ESS)

- —Designed to assess student attitudes, perceptions of growth, and subsequent educational and occupational experiences at different points of a student's college career.
- —Includes three survey questionnaires:
  - The student opinion survey
  - The withdrawal/nonreturning student survey
  - The alumni survey
- —A computer data-analysis service is available.
- —Comparative data from others using the service are available by type of institution.
- —Additional local questions may be added to standardized questionnaires.

TABLE 7 (continued)

The TEX-IS Follow-Up System

—Designed explicitly for community and two-year colleges.

—Designed primarily to assess occupational, employment, and continuing-education outcomes.

—Includes seven postcard sized questionnaire instruments:
- Student's educational intent
- Withdrawal follow-up
- Nonreturning-student follow-up
- Graduate follow-up
- Employer follow-up
- Adult and continuing-education follow-up
- State follow-up reporting

—Designed explicitly to maximize mailed survey response.

The Cooperative Institutional Research Program (CIRP) Student Information Form

—Designed for use in "value-added" research.

—Contains a wide variety of student goals and general attitudinal items.

—Comparative data across years is available.

—National norms are published by type of institution.

The ACT College Outcomes Measures Project (COMP)

—Designed to measure and evaluate general knowledge and skills presumed to be outcomes of undergraduate education.

—Contains three instruments for assessing six areas of general knowledge:
- Objective test
- Activity inventory
- Composite examination

—Involves student oral and written presentations as well as standardized response formats.

The Pace College Student Experiences Questionnaire (CSEQ)

—Designed to measure "quality of student effort" in college.

—Contains fourteen scales/measures on the use of college facilities and opportunities for learning and development.

—Contains eight scales/measures on student assessment of the college environment.

course, such instruments may not cover particular data elements deemed important by the institution. Most, however, include an "additional questions" section in which institution-specific items may be locally developed and added to a standardized survey questionnaire.

Several of these readily available student-outcomes assessment systems are briefly described in table 7. All are worth a careful look by administrators as well as technical personnel, if institutionwide outcomes-data collection is being seriously considered. (The chart in the appendix ties each of these instruments to particular student-outcomes dimensions and may be used as a preliminary guide to the kinds of outcomes emphasized by each instrument.)

The bibliography provides an ample selection from which to choose a technical guide for assessing student outcomes or designing student-outcomes data-gathering efforts. The whole process obviously cannot be discussed here in detail. The main point to remember is that the administrator is responsible for seeing that existing data are appropriately inventoried and organized and that future data-gathering efforts are appropriately scaled to institutional requirements and directed at institutional problems.

4. Generating Management Reports from Student-Outcomes Data Bases:

Regardless of its scope or sophistication, the purpose of a student-outcomes data base is to serve as an ongoing, continuously updated information resource to answer administrative questions about program effectiveness as they arise. Perhaps the greatest advantage of an ongoing student-outcomes data base is that it readily allows comparisons to be drawn among a wide variety of different programs, institutions, or student groups. Much of the art of converting questionnaire data into usable institutional information lies in building effective *comparative* reports and data-presentation formats. Table 8, for example, succinctly summarizes, for a broad university constituency, many of the main points of four successive administrations of a standard entering-student questionnaire.

TABLE 8

Entering-Student Questionnaire Summary 1978-1981

	1978	1979	1980	1981
% Female	51%	54%	53%	58%
% Black	9	8	11	13
% Age 21+	12	12	14	15
% Not seeking BS	9	8	11	13
% Seeking business degree	18	20	23	21
% Who say following reasons influenced enrollment decisions:				
Guidance counselor advice was very important	6	8	7	7
TSU recruitment was very important	5	3	5	4
Relatives were very important	5	4	6	6
Teachers' advice was very important	4	3	3	4
TSU academic reputation was not important	9	10	10	9
% TSU first choice	74	76	72	70
% Who plan to work	53	56	62	61
% Not needing occupational information	2	6	9	8
% Not needing guidance contacts	3	7	5	5
% Career planning finds good job fit	81	83	80	92
% Wanting placement office job searches	47	49	54	53
% Not using private car	37	34	42	44
% Not from single-parent family	95	89	83	81

The list of items included in this example is far from definitive and should be modified to suit the assessed needs and interests of administrators at a particular institution. If student master-file data are available to supplement results derived from questionnaire surveys, a number of additional items can be usefully added. These include such summary characteristics of entering students as SAT/ACT scores, average high-school GPA, and percentage receiving financial aid.

A second useful kind of comparison is of student-outcomes survey results among different institutions. Some widely used outcomes questionnaires—among them the Student Information Form of the Cooperative Institutional Research Project (CIRP) and the instruments of the NCHEMS/College Board Student-Outcomes Information Service (SOIS)—provide summary results of student responses from the various types of institutions that have participated in the survey. These kinds of comparative analyses are limited, of course, by the number of institutions that have previously participated in the survey in question. Breakouts are generally limited to two-year/four-year and public/private/proprietary classifications.

There is always some concern that comparative institutional data will be improperly used, particularly in a normative sense. But valid reasons exist to justify and support the exchange of comparable student-outcomes data. Comparable data may illuminate problem areas within an institution while also showing that certain problems are common across institutions and are perhaps not correctable by individual schools. An institution using a graduate follow-up questionnaire, for example, may find that graduates in certain program areas have difficulty obtaining jobs. Comparable data from graduating students at other institutions can show whether the problem is universal or is limited to a single institution.

In sum, the concept of assembling data on students from different sources into a single ongoing data base and of using data drawn from that data base flexibly and comparatively to meet the challenge of particular administrative decisions *as they arise* cannot be overstressed. Data assembled and used in this way will have a considerably greater institutional impact than will a single comprehensive

report issued after each data-gathering effort. Institutional administrators seeking to maximize use of student-outcomes information should be fully aware of this. They also should encourage those responsible for collecting and documenting the results of student-outcomes studies to aggregate data in this manner.

This admonishment leads to some closing observations on the appropriate relationship and division of labor between the administrator and those responsible for collecting, aggregating, and analyzing data on student outcomes. In his concluding discussion on the role of the information professional in mediating between "data" and "information," Jones (1982, pp. 48-50) points out the dangers in allowing analysts, on the one hand, to determine policy questions and administrators trying, on the other hand, to be their own analysts. In soliciting information, administrators should be fully aware of the analyst's tendency, in the absence of specific guidance, to treat all data elements as though they were of equivalent policy significance—a tendency that might be described as "the democratic theory of data." At the same time, administrators must listen closely and critically to what analysts have to say about the limitations and complexities of available data. Neither party can afford to assume that the other knows the problems and perspectives of his own role. Ultimately, it is the responsibility of the administrator to see that effective communication takes place. This is primarily because it is largely the administrator's misfortune if it does *not* take place.

These general observations are particularly germane when the data being considered are student-outcomes data. Because of disciplinary training and classroom experiences, administrators generally will know intuitively a great deal about student outcomes—more, probably, than about costs, buildings, and the other kinds of things they routinely must make decisions about. This means that they will often demand a great deal of student-outcomes information and be disappointed when clear answers are not forthcoming. This disappointment may be reinforced by the analyst who sees in student-outcomes data many methodological flaws and consequently qualifies results to an unusual degree. Most student-outcomes data simply are not neat. Many analysts do not

like to deal with such data, and most assume that administrators should not want to either. Consequently, administrators must take particular care to let analysts know that even imperfect information will be of considerable value, and to enlist the analyst's support in trying to uncover as many indicators as possible of what is, after all, from a measurement standpoint, an unusually elusive set of phenomena.

CHAPTER 4

Applying Student-Outcomes Information to Institutional Decisionmaking

Ensuring that data on student outcomes, once collected, are regularly used to effect positive changes is a twofold concern. First, careful attention must be given to the kinds of established institutional processes into which information on student outcomes can be easily introduced. Second, a new consciousness must be fostered among administrators that student success is a priority management goal. This chapter outlines briefly some typical uses of outcomes information the author has observed at various colleges and universities. It also presents some important themes that seem to characterize successful institutional effort to use student-outcomes information.

Not every information-utilization effort will cause widespread change, of course, nor should it. Student questionnaire responses on a particular issue, for example, may be only the first information available on a potential problem; decisionmakers will want to assemble information from other sources to see if any change is warranted. Indeed, a number of institutions use the results of student-outcomes surveys in precisely this manner—to help pinpoint potential student problems that can then be made the subject

of more intensive investigations. These investigations may go entirely beyond student-outcomes information. In this way, student-outcomes assessments, regularly conducted, can help set an effective institutional research agenda.

The point has been made several times in earlier discussions that student-outcomes information is often of much greater use in setting a *context* for administrative decisionmaking than in informing particular decisions. Increased use of student-outcomes information often leads to changes in the way certain kinds of decisions are approached—in the kinds of alternatives considered, for example—rather than changes in the substance of decisions.

The Role of Student-Outcomes Information in Some Common Institutional Activities

One way of increasing the likelihood that student-outcomes information will be used by administrators is to put the information in a form suited to some of their regular activities. For most decisionmakers, student-outcomes information falls into the category of "nice to know" rather than "need to know." Outcomes information is much more likely to be recognized as relevant if it is not seen as distinct from the kinds of "productivity" information upon which most decisionmakers claim to base decisions. In fact, it should be both acknowledged and stressed by top administrators that information about student outcomes represents an important component of any assessment of institutional or departmental/unit productivity.

Student-outcomes information of all kinds has proved of value in a wide range of ongoing institutional activities and decision processes, such as the following:

In the Preparation of Accreditation Self-Studies

Regional accreditation bodies are increasingly interested in assessing the degree to which institutional activities meet student needs. In addition, graduate surveys to evaluate student success in job

placement and in preparation for further study have long been encouraged as a part of institutional self-studies. Studies of current students to assess satisfactions and dissatisfactions with particular aspects of the college experience are also being encouraged. Indeed, some accrediting bodies have begun to tie evidence of outcomes performance to accreditation standards (Southern Association of Colleges and Schools 1982). The kinds of information provided by student-outcomes surveys and assembled in an accessible, well-documented data base are of much help in meeting these requirements, particularly if the information has been collected on a regular basis. One large northeastern public university recently made a description of the structure and findings of its ongoing information-gathering processes the centerpiece of its accreditation report. Prominence was given to the collection and analysis of student-outcomes information.

In Program Review/Unit Evaluation Activities

Among public institutions particularly, academic program review has been growing in importance as governing boards seek ways to allocate scarce resources to the most effective programs. A similar trend has been apparent among private institutions. In the past, academic program reviews in the past were concerned primarily with an assessment of faculty quality and the range and depth of the curriculum. Now the tendency is to include an outcomes component. Usually this is in the form of a survey of program graduates to assess preparation for employment and for graduate education in the field of the program. Student-outcomes surveys have substantial advantages in providing information to aid this process. By using different sets of departmentally designed local questions on standard survey instruments, the institution can obtain data to enable interdepartmental comparisons to be made, while allowing each department to investigate the issues that concern it most. Similarly, reviews of nonacademic or service-unit activities are increasingly requiring a user survey. Questions on levels of use and satisfaction with services that appear on most student-outcomes surveys address these needs directly among different populations of students. Again,

it should be emphasized that such evaluations are more valid and valuable if collected regularly, rather than on an ad hoc basis by individual units.

In Institutional Planning and Budget Review Activities

The uses of student-outcomes information in institutional planning are numerous. Outcomes data may be added to more traditional kinds of unit-productivity data to support unit allocation decisions, or to point to the need for special programs or services. At the same time, outcomes data coupled with needs-assessment data in a particular program area can do much to ensure that planned new programs are aimed at the proper market or regional constituency. Finally, outcomes data can be used in their widest scope—to give college and university leadership insight into the degree to which established and agreed-upon elements of institutional mission are being attained. One small private liberal-arts college is using various kinds of outcomes information to review its mission in the light of student characteristics and achievements. A regional public institution is using graduate-survey results together with regional economic projections to prepare a schedule for planning and implementing new occupational programs. And as a final example, a large urban community college is currently developing a computer-based, comprehensive, outcomes-oriented planning system to provide a context for annual budget reviews.

In Developing Student-Retention Strategies

Student-outcomes surveys will often reveal patterns of difficulties and dissatisfaction among different kinds of current students—patterns that may lead to a decision to leave the institution. Comparisons of the responses of graduates and former students may also reveal considerable differences in academic and personal goals, as well as different perceptions of and satisfaction with the institution. Both kinds of information are highly useful in planning and implementing institutional retention strategies. A number of institutions are using student-outcomes survey results in conjunction

with other student data on dropouts to try to isolate a set of early warning signals of a student's impending decision to leave the institution. High-risk students can thus be identified at an early stage and be given special attention. Similarly, many institutions are using student-outcomes surveys to determine the levels of use of particular student-service areas by dropouts and by persisters. If dropouts are not aware of, are not using, or are not satisfied with a particular service, efforts are made to improve its visibility and the dimensions of service provided.

Using student-outcomes data to develop student-retention programs should be an institutionwide activity. Frequently the feeling is present on campus that retention is a student-services problem. In fact, most student-outcomes research has shown program quality and faculty contact to be among the major factors involved in retention (see Terenzini 1979). Research also has shown that the most effective retention strategies are institutionwide and have been developed with the full participation of all institutional constituencies—faculty, staff, students, and administration (Beal and Noel 1980). Once more, the importance of a committee with broad representation from all constituencies to review the retention implications of student-outcomes information cannot be overstressed. One public regional university has formally established such a committee in its governance structure, with the responsibility to make retention recommendations to the president on a regular basis. Reviewing and discussing the implications of a wide variety of student-outcomes information is one of this committee's primary tasks.

In Developing Recruitment Materials and Strategies

Outcomes information can document student successes and achievements. Knowing the characteristics of the persisting, successful student can help determine what kinds of students should be given priority in recruitment. Furthermore, effective presentation of the success of recent graduates in finding employment or in furthering their professional development can increase interest in the institution among high-quality students. On the other hand, identifying

the special problems of particular student populations—minority students, older students or part-time students, for example—may enable the institution to develop targeted recruitment materials. Such materials may be designed to help prospective students from these groups more effectively prepare themselves for college work. Or they may assure prospective students that appropriate support services to meet their needs are available. A large southeastern public university, for example, has recently developed a minority-recruitment strategy based upon reviewing the success of its minority graduates and upon stressing the kinds of high-school preparation required to perform effectively at the university.

These are but a few examples of the numerous kinds of institutional problems or processes to which student-outcomes information can be effectively applied.

Some Themes of Information Utilization

A number of research or demonstration efforts have recently been undertaken on the use of student-outcomes information in institutional decisionmaking. Among these is a three-year NCHEMS demonstration project, funded by the W. K. Kellogg Foundation, with sites at seven public universities and community colleges nationwide. The evidence developing from this and other projects on uses of student-outcomes information indicates that such information is likely to be used by administrators only when a number of factors are operating to positively orient the entire campus to the use of information. It appears that information use will be most successful when the following themes are present:

- *When the information needs of institutional decisionmakers are carefully assessed by those collecting the data, and the relevance of student-outcomes information to their particular area of responsibility is stressed continually by those providing it.* This is a crucial point. Most bodies of assessment information sit on shelves, unused largely for two reasons: they are not communicated to managers in the language of management, and they do not draw direct relationships between obtained results and

current management problems. In overcoming this difficulty, there is no substitute for explicit, face-to-face communications. A number of tactics have proved helpful in actual college and university settings. These include surveys of awareness on information availability and utility, workshops on available information and its implications, inclusion of nontechnical administrators on survey- and study-design committees, and evaluations of the relevance of current data-distribution methods.

- *When the information collected is disseminated in a series of tailored memos to particular administrators or is included in the response to a particular decisionmaker's request for information.* This point follows from the previous theme. It emphasizes the need to establish a consistently structured institutional student-outcomes data base to which new data may be added regularly. The inclination of institutional researchers to report each data-gathering effort as an independent entity should be summarily discouraged, since such research reports are rarely used by practicing administrators. Rather, researchers should be encouraged to regularly report on the *kinds* of data available, and the kinds of uses administrators might find for newly available data. Finally, the promptness with which a given administrator's request for information on a particular problem is met is probably the greatest determinant of whether another such request will be forthcoming.
- *When the information collected is presented comparatively so that contrasts between different types of students and trends over time are highlighted—often through graphic presentation.* Perhaps nothing is more easily accomplished and less often practiced than the effective comparative presentation of data. The trend revealed by a nicely laid out comparative graph or table conveys much more useful information to an administrator than a more detailed presentation of facts collected at one point in time (Hackman 1983). The same can be said, of course, about comparisons among institutions or among departments or units within the same institution, provided appropriate caveats about differences in institutional mission and structure are

heeded. It should be kept in mind, too, that outcomes data are usually gathered by means of a questionnaire survey. Because of the many potentially biasing factors present in such data, relative upward or downward trends in a particular data element are likely to be much more valid than the value of a given measurement per se.

- *When the information collected is effectively integrated with other kinds of student data—often more familiar to the decisionmaker—to yield a comprehensive picture of a particular problem.* Once again, most administrators tend to class student-outcomes information as contextual or background information—not immediately useful in the solution of a particular current problem. Only when outcomes data is placed alongside more traditional indicators of productivity and effectiveness will administrators recognize its utility in assessing unit operations. And note that *alongside* means on the same piece of paper or in the same table shell. A single column of data reporting the percentage of graduates applying to and accepted by graduate schools should be placed directly opposite columns of data showing departmental costs and loads. This will be far more effective in promoting outcomes-information use institutionwide than all of the rhetoric in the world.
- *When a clearly identifiable institutional problem is present, for example, a high attrition rate—and where there is high-level administrative commitment to solve the problem.* Increasing information use among administrators often involves changes in fundamental attitudes, and attitude change rarely occurs unless a highly salient problem is present. Most successful institutional efforts to more effectively utilize information on student outcomes have relied heavily on the widespread recognition that a problem exists and that the problem is of sufficient magnitude that new approaches to thinking about management are worth trying. In some cases, these approaches reveal that the size or nature of the problem itself has been misestimated. In any case, new persisting habits of information use may be established.

- *When an appropriate forum for meaningfully discussing the institutional implications of student-outcomes information is present—for example, a retention or student-success committee with broad representation and high-level administrative endorsement.* The value of such committees has been underscored throughout this book, for a number of reasons. Most important, perhaps, is the fact that a single forum for discussing issues of student success and failure is almost never present in higher-education institutions. Moreover, the very structure of most institutions tends to preclude such discussion on a regular basis. Administrators thus seldom have the opportunity to view the institution as the student sees it—as a total environment composed of many interlocking parts. Putting available student-outcomes data before a committee whose members are drawn from throughout the institution is probably the best way to make sure that all sides of the student experience are covered and taken into account when analyzing the data (Astin 1976). Such committees are often composed of decisionmakers in their own right—individuals able to make immediate changes in their own units if the data seem to imply that changes are warranted. Such changes can take place regardless of the content or outcome of committee discussion. Finally, of course, committee structures are part of the common flora and fauna of university life. In spite of the standard reaction, "not another committee," such bodies do symbolize administrative concern and institutionalize efforts that otherwise would be extremely difficult to focus in a complex, decentralized environment.
- *Finally, when an attitude can be developed throughout the institution that the improvement of student outcomes is important, can be accomplished, and will be rewarded.* None of the above themes is as critical to success as a clear and visible commitment by top administrators to making faculty and unit heads more accountable for student success. Student-outcomes information is not generally accorded a salient position in the minds of most administrators because giving it attention is not a factor

in the institutional reward structure. As a result, executive-level decisionmakers have to recognize that changes will not occur unless appropriate incentives for change are provided and consistently delivered when innovations do occur.

The Need for Communication

Development of the conditions described above at a given institution—particularly the last theme—is bound to be a slow process. In the ultimate analysis, using student-outcomes information requires a change of attitude on the part of most administrators. They must come to realize that this kind of information can help solve *their* problem. It is up to those responsible for collecting data and communicating information to help foster this change. What work best are prompt, short, problem-specific responses to particular concerns, along with encouragement of information users to communicate what they need and to critically evaluate what they have been given. But equally it is up to administrators themselves to ask for information in this manner and to give appropriate feedback to institutional data-collection personnel.

A significant obstacle to the development of effective, informed student-success programs is the structure of colleges and universities themselves. Student persistence and achievement are not generally attributable to any one feature or program of the institution. Instead, they are the product of a complex set of factors, working together and cutting across all aspects of college and university life. Individual faculty members and administrators, however, do not usually deal with more than a single aspect of a given student's involvement in the institution—as a student in a particular class, as a candidate for financial aid, as an admissions exception seeking additional help in developing study skills, and so on. Furthermore, precisely because student success is rarely attributable to a single office or function, assessments of individual unit or program success are most easily (and probably appropriately) directed at the contents of the services delivered rather than at the effects these services

produce. Because of its holistic nature, student success is everybody's business but not anybody's specific responsibility.

Dealing with this situation at any institution requires at least two kinds of initiatives—neither directly related to the amount and quality of information on student outcomes available. First, it requires a plain and visible commitment by top administration that the issue of improving student outcomes is a priority and that unit initiatives consistent with this priority will be rewarded. So long as the standard of managerial accountability remains efficiency rather than effectiveness, the likelihood of student-outcomes information being utilized, regardless of its quality, remains low.

A second requirement is coordination and communication among the various efforts undertaken as a result of such a commitment. This requirement is perhaps most significant when mobilizing data resources. Each unit head must not only understand the *goals* of contemplated student-success programs but should also understand the potentially reinforcing or conflicting interrelations among the new policies affecting different units. Finally, the different units involved in achieving student-success goals must frequently share information—not only on what they are doing and plan to do, but also on what they have learned individually about the factors determining successful outcomes for different kinds of students.

If individual units and administrators are held definitely accountable for student outcomes, and if incentives are created for lateral information-sharing among units, the picture for effective utilization of student outcomes is rosy indeed. The dark side of this picture is that student-outcomes information has the potential to become extremely political as its use in decisionmaking increases. This has long been true of output and productivity data. Efforts to include outcomes assessments in institutional program-review processes, for example, have been seen by some unit heads (and by the majority of faculty) as part of a veiled agenda on the part of central administration to establish greater control over budgets (Barak 1982). And it has to be said that in the majority of cases, these fears have not proved to be totally groundless.

Such fears have recently become even greater, and perhaps with greater cause, when comparing outcomes across institutions is proposed. In the public sector, at least one state is now allocating a small portion of its higher-education dollars on the basis of demonstrated institutional performance (Bogue 1982). Such efforts are indeed admirable to the extent that they signify commitment to student success, which they both reveal and institutionalize. They are less admirable if they begin to blur legitimate differences in what different kinds of institutions are trying to accomplish—differences based upon mission, academic tradition, or types of students enrolled. These issues will be more fully discussed in the final chapter.

CHAPTER 5

A Concluding Comment

The preceding chapter pointed up the fact that establishing the appropriate role of information in administrative decision-making calls at least as much for sound intuition as it does for precise method. Nowhere is this more true than in the realm of assessing and interpreting student outcomes. In chapter 2, we saw that this is partly due to the nature of outcomes themselves—particularly that they are complex, multifaceted, and multicausal. And in chapter 3, we saw that intuitive judgment is a key factor because of the many technical limitations associated with most sources of data on student outcomes—particularly because they are often imprecise and fragmentary. At the outset, the point was made that these two kinds of inherent limitations on student-outcomes data have led many in higher education to conclude that *any* attempt to assess educational outcomes is at best questionable and at worst dangerous. Those who maintain this position, however, ignore the fact that in the absence of such measures, other criteria, far more questionable and dangerous, most certainly will be applied.

There is nothing new, nothing revolutionary, about assessing and placing value on the products of a particular educational experience. Indeed, one need go no further than a class grade list to make the

point that outcomes judgments are both ubiquitous and legitimate in higher education. Both faculty and administrators *routinely* make judgments about program effectiveness—and make changes as a result of those judgments. What is new and somewhat threatening about the kinds of outcomes assessments we have looked at in this book is that they are more explicit than more conventional modes. That is, they provide more evidence, in more detail, about more aspects of the educational experience, and they do so in a fashion that allows direct, measurement-based comparisons to be made among programs and among institutions. Because the nature of these differences is often not well understood, some further discussion of these larger issues seems warranted.

Many who take exception to explicit assessment of student outcomes confuse *explicit* with *nonsubjective*. The case for the supposition that most educational outcomes cannot be measured rests heavily on the assumption that measurement always involves an attempt to reduce the content of a rich and varied experience to a qualified *objective* standard, seemingly lacking in such qualities. As chapters 2 and 3 have indicated, however, the matter is considerably more complex. In fact, the bulk of current outcomes-assessment instruments and techniques remain *subjective* in the sense that they are based on informed reactions to the educational process of those closest to it—students and former students. Interpretation and use of such data, as we noted in chapter 3, is subject to its own set of limitations. If collected during or soon after the experience, self-ratings will often reflect situational factors affecting the experience. Therefore, they may not fully indicate levels of growth—particularly in educational experiences involving considerable challenge and difficulty. If self-ratings are collected long after the experience, growth may similarly be exaggerated or misattributed, because of the human tendency to romance during recollection. In either instance, outcomes data based on self-ratings are rightly treated with some caution.

But the persistent widespread use of self-ratings also testifies to their utility. Such data have an immediacy and an applicability not typical of more objective measures. It is hard to imagine an administrator failing to investigate further, upon receipt of a number of

responses from former students—clustered in a particular program—to the effect that they had gained little or nothing from their course of study. It is equally hard to imagine administrators keeping to themselves the knowledge that substantial majorities of graduates value their undergraduate experience highly and attribute to it a generous portion of their subsequent occupational achievement. Both types of findings have important implications for action both inside and outside the institution, yet neither is derived from what would be called an objective, or externally verified, assessment technique. More important, neither would be discovered at all if explicit outcomes assessment had been rejected in principle from the outset.

Consider, too, that most techniques and instruments for assessing student outcomes that do not involve self-ratings are equally based on informed subjective judgments. A major advantage of the American College Testing Program's College Outcome Measures Project (COMP), for example, is that important components of the assessment rely heavily on individual faculty judgments of student performance. And one of the most valued kinds of outcomes data, if least often collected, consists of employer ratings of student preparation for the field in which they were trained. Even much-maligned standardized achievement tests, when properly considered, consist of no more than the previously recorded judgments of a panel of scholars in a particular discipline. C. Robert Pace recently observed (1983) from a somewhat different perspective,

> The opinions and judgments of faculty members and of students are based upon a great deal of observation and experience. One of the great advertising slogans of all time was for the elegant Packard automobile in the 1920's: 'Ask the man who owns one.' [P. 16]

While not objective in the sense of involving a physical measurement, such assessments have the consequential property of being most *inter*subjective. This is, different observers operating under different conditions at different times will generally agree on the properties of a given outcome and will be in substantial agreement as to its value. This presents a considerable advantage over subjective

judgments made by one individual, such as grades on the one hand and student self-ratings on the other. A substantial internal advantage of intersubjective assessments in the management of a particular program or institution is that they can be fairly reliably compared with one another. They also are likely to be a good deal more credible to those outside the higher-education community than are traditional subjective assessments. It could be fairly argued that higher education's greatest challenge with respect to outcomes assessment lies not in the actual *measurement* of outcomes. It lies rather in achieving consensus on *which* outcomes ought to be assessed and what kinds of outcomes should be taken as indications of institutional success. Only in this way can *effectiveness* emerge as the paramount criterion for success in higher education.

This consensual element in most student-outcomes assessments is often obscured by the fact that assessment results generally are expressed in quantitative terms. Indeed, many of those most vocally opposed to explicit student-outcomes assessment are reacting more to the numeric packaging of assessment results than to their actual content or implications. Again, it is ironic that individual course grades are less often subjected to the same criticisms. In themselves, numeric scores and letter grades are neither dehumanizing nor precise. Both represent the encoded judgments of one or more external human observers, and each is useful insofar as it allows meaningful distinctions to be drawn among different populations regarding what they have achieved or experienced. Most important of all, each is only an *indicator* of the occurrence of a particular outcome: it is not, and does not pretend to be, the outcome itself.

This *indicative* quality of most student-outcomes research is probably the aspect least well understood by its critics. As we have seen, most procedures for gathering information on student outcomes are indirect and will provide only partial information on a given outcome. Information gathered in this manner is ordinarily much more useful for the questions that it raises than for the answers it provides. One of the most widespread, successful, and appropriate uses of student-outcomes information is simply to focus administrative attention on a potential problem. If placement rates are found to be low in electrical engineering at a particular regional

university, that statistic tells an academic administrator almost nothing about whether the cause is low program quality, inadequate counseling, or simply a lack of available jobs in the region. The placement data are very likely, however, to prompt the administrator to raise further questions about that particular program. The nature of outcomes research is always such that we are looking at the shadows of things rather than the things themselves, and very early on we were taught not to judge things by the size of their shadows. On encountering a particularly large shadow, however, most of us have sense enough to look up quickly.

An additional property of all indicators is that they are most useful when there are more than one of them. Together, different kinds of measures of the same outcome dimension undoubtedly provide a fuller picture of the dynamics of a particular educational experience. What is more important, they give the observer confidence that something real is being measured. In fact, a major danger inherent in the way institutions and systems of higher education have recently approached outcomes measurement is the reliance placed on *single* indicators of student performance. As efficiency criteria have been given increasing weight in institutional assessment, the institutions have discovered a variety of cleverly devious ways to measure the conceptually straightforward notion of instructional costs. The resultant problems associated with statewide cost studies alone should be sufficient warning to those attempting to implement assessment schemes for instructional effectiveness based on a single criterion or indicator. Such efforts have been relatively few to date. But they are bound to multiply as discussions of and concern about instructional effectiveness increase.

Consideration of the dangers inherent in judgmental, single-indicator approaches leads naturally to a discussion of the comparative use of outcomes data. On the face of it, there is little point in collecting outcomes data at all if they are not used comparatively. A priority objective of most explicit outcomes-assessment efforts is to generate *comparable* information. The intent is to use the information to identify the relative strengths and weaknesses of particular instructional programs, or the relative difficulties or successes experienced by different populations of students. Furthermore,

because of the nature of most student-outcomes data, information on the *relative* standing of particular programs or bodies of students with regard to a given outcome measure is usually considerably more valid and reliable than the absolute scores themselves. Take as an example an attitudinal item on a student follow-up questionnaire seeking ratings of perceived gain in a student's major field. Responses may reveal considerable differences between the graduates of two programs. Changing a single word in the text of the questionnaire item may have significant impact on the assessment scores of both programs' graduates but is nonetheless likely to preserve the difference between them. In a few rare cases—graduate salary data, placement rates, and performance in graduate study, for instance—absolute measures of outcomes may have substantive meaning. But in the vast majority of cases, it is *only* through comparative analysis of relative performance that outcomes data acquire value to institutional administrators.

Nevertheless, the potential for abuse of outcomes data employed in comparisons is considerable—particularly when comparisons are made across institutions. The risk escalates when those making the comparisons are remote from and unfamiliar with the higher-education community. An initial caution here is elementary: not all institutions of higher learning are trying to accomplish the same thing. Community colleges have long labored under the charge that they are ineffective because only a small proportion of each entering class attains a degree. Yet degree attainment usually is a highly inappropriate indicator of effectiveness given the mission and programmatic structure of most community colleges. Similarly, salary on the first job after separation is an inappropriate indicator of the effectiveness of a four-year liberal-arts curriculum, although community colleges might welcome assessment in terms of such an indicator.

Institutions differ not only in what they are trying to accomplish but in the kinds and qualities of students they serve. Much of the heat in the current debate about assessment of "value added" is generated by this issue. Is it more appropriate to evaluate institutions comparatively in terms of what their students can *do* on

exit—regardless of the content of their educational experience? Or should they be compared in terms of what their students can do *differently* or *better*—regardless of their level of absolute performance (Astin 1982; Manning 1982)? Quite apart from the merits of either approach, it is clear that the differences between the institutional rankings produced by each mode of comparison would be profound.

Because of inherent differences in institutional mission and in the kinds of students enrolled, direct comparisons among institutions involving most of the available outcomes measures should be approached with considerable caution. If an appropriate peer group is chosen, comparative studies may well be of value in pointing out institutional strengths and weaknesses. But such analyses will always be more helpful if they are approached in an exploratory rather than judgmental manner. That is, they should be valued more for the *questions* they raise than for the frequently invidious contrasts they suggest (Lawrence 1982).

More difficulty arises from the fact that few meaningful outcomes measures are available across institutions. Even such simple indicators as graduation and placement rates are far from being uniformly collected. And in view of the variety of attitudinal assessment instruments in general use, interinstitutional comparisons present a formidable methodological challenge, quite aside from their conceptual difficulties. Most of the major commercial outcomes assessment services publish national norms of results across institutions, and these results can be quite useful if treated with appropriate caution. They are limited, however, to institutions that have chosen to participate in the service in question—very far from a random cross section of institutions.

Despite all of the difficulties, a number of institutions have found comparative analyses of outcomes to be valuable. This is especially so of institutions that in a given state have been the first to report them. One small midwestern regional state university, for example, has consistently attracted favorable attention from its governing board and legislature by collecting and publishing statistics on the comparative performance of its exiting students on nationally administered field-achievement and professional-certification tests.

This institution also has in place a value-added assessment procedure that tests gains achieved in the first two years of enrollment. Other institutions maintain programs of this sort, in whole or in part. But a distinctive attribute of this institution's approach is that explicit criteria derived from the assessment program are made the concrete basis for funding requests to the board and legislature. The initiative for using data in this manner has remained with the institution. Therefore, the kinds and variety of data used in the assessment are those best suited for evaluation of the institution's mission, and also are collected in sufficient variety and discussed in enough detail internally to be seen as real aids to institutional development. Institutions may not long enjoy the luxury of developing on their own such an open, participatory process.

It is time to sum up. At the most general level, student-outcomes information represents both a powerful managerial resource for institutional self-improvement and a powerful collective resource for restoring higher education to its former priority in the public mind. By means of a thoughtful and participatory program of student-outcomes assessment, an institution can assess a wide range of programmatic impacts on its students and thus compare its actual achievements with its stated educational aspirations. Administrators have both the right and the responsibility to create accountability structures for themselves, for faculty, and for students as well, to ensure that educational outcomes most nearly approach the institution's goals. At the same time, by means of collective, honest, and unself-conscious communication of the results of outcome assessments to the public and to those with funding authority, the general credibility of the "self-evident" benefits of higher education can be more firmly reestablished. As Stauffer (1981) quite rightly points out, the kind of public confidence resulting from honest communication about program quality is the most precious asset the higher-education community possesses. Administrators therefore should in turn expect to be held accountable by faculty, students, and former students to ensure that such communication indeed takes place.

Both in the administration of individual colleges and universities and in the advancement of higher education as a whole, goal setting

and making maximal use of available resources to attain identified goals—whatever their content or variety—remain the premier management responsibilities. Durable vigilance is required to see to it that all available management information—including information on student outcomes—is conceptualized, collected, and used to support instead of hinder effective and creative management practice.

APPENDIX

Comparisons of Data-Gathering Instruments on Various Outcomes Dimensions

The following chart assesses six commercially available and commonly used instruments for collecting data about student outcomes. The instruments are presented in terms of their relative coverage of 29 distinct types of student outcomes, arranged on four basic dimensions—the classification scheme used in the NCHEMS *Outcomes Measures and Procedures Handbook*. The chart also indicates whether the outcome in question is measured *directly* by the instrument (one or more items devoted exclusively to its assessment) or measured indirectly (an assessment is possible through inferential use of data from one or more items). The reader should be careful to note that breadth of coverage is not the only virtue, and that each instrument should be carefully evaluated on its own merits before a decision to adopt it is made. If used judiciously, however, the chart should give the interested administrator a place to start in evaluating the merits of the range of instruments available.

Peter Ewell

Summary of Student-Outcomes Dimensions for Comparative Use

A. Student Knowledge and Skills Development Outcomes

- A-1 Student development concerning *breadth* of knowledge
- A-2 Student development concerning *depth* of knowledge
- A-3 Student success in passing certification and licensing examinations
- A-4 Areas and agents of student change during college

B. Student Educational Career Development Outcomes

- B-1 Highest degree or certificate planned
- B-2 Students enrolled in an organized educational activity for no credits
- B-3 Program completers during a certain time period
- B-4 Program completers who entered as transfer students
- B-5 Degrees and certificates earned by an entering class of students
- B-6 Time to program completion for a *graduating* class
- B-7 Time to program completion for an *entering* class
- B-8 Educational program dropouts
- B-9 Students seeking additional degrees and certificates
- B-10 Students working toward and receiving another degree or certificate
- B-11 Student ability to transfer credits
- B-12 Level of achievement of former students in another institution

C. Student Educational Satisfaction Outcomes

- C-1 Student satisfaction with overall educational experience
- C-2 Student satisfaction with vocational preparation
- C-3 Student satisfaction with knowledge and skills in the humanities
- C-4 Student satisfaction with critical thinking ability
- C-5 Student satisfaction with human relations skills

D. Student Occupational Career Development Outcomes

- D-1 Student success in obtaining *first* job
- D-2 Student success in obtaining *preferred first* job
- D-3 Occupational career choice
- D-4 Job satisfaction
- D-5 First job earnings
- D-6 Annual total income of former students
- D-7 Employment in major field of study
- D-8 Change and stability of career goals

A Comparison of Six Outcome Instruments on Various Dimensions

	NCHEMS/ College Board SOIS	ACT Evaluation/Survey Service	UCLA CIRP	TEX-SIS	Pace CSE	ACT COMP
A-1						X
A-2				O		O
A-3	X			X		
A-4	X	X	O	X	X	
B-1	X	X	X	X		
B-2					O	
B-3			O		O	
B-4		O	O			
B-5			O			
B-6			O			
B-7			O			
B-8						
B-9	X	X	X		O	
B-10	X	X	X			
B-11				X		
B-12				O		
C-1	X	X	O	X	O	
C-2	X	X	O		O	
C-3	X	O	O		O	
C-4	X	O	O		O	
C-5	X	O	O		O	
D-1	X	X				
D-2	X	O		O		
D-3	X		X	X		
D-4				O		
D-5	X	X		X		
D-6	X			X		
D-7	X	X		X		
D-8	X		O	X		

X = Directly Measured
O = Indirectly Measured

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