

Speeches.

TRUSTEES MEETING

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While it is "in" these days for critics of higher education to lament the failure of colleges and universities to keep pace with changing times, any such blanket condemnation fails to take note of some quite remarkable changes that have taken place over the short span of the last decade. Institutional concerns with educational research offers a prime example of nationwide changes. The membership of the national Association for Institutional Research has increased tenfold--from a cozy and elite 40 or 50 research specialists to more than 500 people representing a wild diversity of background and varying degrees of research competency. An ever-growing group of institutional researchers, some members of the professional research organizations, but more from outside the ranks, form the consumers of ETS programs in higher education. And ETS programs and emphases have changed, too. ETS' traditional expertise has been the application of the methods of measurement to help colleges select students. More recently, we have been concerned with efforts to help students select colleges. But regardless of who uses the information in decision making, the goal has been to secure a more adequate fit between the needs of the student and the educational opportunities of the institution.

Once the match between student and college is good enough to prevent the student from dropping out or the college from dropping him, educational

researchers begin to talk about the impact of the college on the student and the changes that are effected in him. Recently, however, we have also been looking at the other side of the coin; what is the impact of the students on the institution and how does it change? The questions for ETS research have expanded greatly. While the bulk of our business is still directed toward fitting the student to the institution through programs of admissions, guidance, and placement, the fitting of institutions to students is also a legitimate concern. If we somehow manage to survive today's explosive impact of students on colleges, it appears to be a healthy sign for educational research to move toward more dynamic models in which students as well as institutions make selection decisions, and where institutions as well as students possess the capacity for change.

The proposal I should like to present this afternoon is concerned with institutional evaluation and change. If measurement and research have something to offer to these times, it is the hope of purposeful change based upon accurate information and careful analysis.

About five years ago, ETS launched a program in higher education which had as its major purpose, broadening the base of information available to colleges. Nationwide, the enormous surge of interest in institutional research and self-study was just beginning, and ETS responded by establishing the Institutional Research Program for Higher

Education or IRPHE as it has become known to the more than 500 colleges and universities which have used its services.

IRPHE's Major contribution has been the development of professionally designed research instruments and scoring services. These are used by institutions to gather information about themselves and about their students. At present, IRPHE offerings include measures of student characteristics, tests of academic ability and achievement, and measures of institutional environment. All of these measures are descriptive in the sense that they furnish information about what exists, or what various groups of people perceive to exist, on the campus. The assumption has been that an accurate assessment of the present would place the college in a better position to make improvements for the future. And while there is probably no reason to think the assumption invalid, the fact is that very few research descriptions have led to improvements in education. Most educational research projects--on and off the campus--end with the writing of the report. If it is widely circulated, so much the better; more people have access to the information. Nevertheless, it appears extremely easy for entire faculties to ignore research findings in education.

Lest you experienced administrators think that I am about to naively propose that ETS can induce college faculties to use the results of research to improve educational practices, let me assure you that I make no such promise. I do think, however, that we can devise more action-oriented

models that will make it more difficult to ignore the gaps between the research descriptions of what is and the educational questions of what should be.

The research model to which most social scientists aspire is some variation of the I-S-O (Input-Situation-Output) model. At its best, the I-S-O model provides information that is useful in answering questions such as, What kind of output occurs when a defined situation acts upon a given input? In educational terms, when the I-S-O model is used well, it stresses relationships between entering students, learning environments, and graduates.

It would appear that the model presently typified by the IRPHE descriptive instruments has the potential for becoming a more dynamic I-S-O model if emphasis can be placed on the linkage or relationships between measures. Since this is a task of considerable proportion, it is suggested that long-range planning in higher education at ETS aim toward ETS personnel and equipment providing more help with the complex analyses of relationships. While ETS has worked with rather intricate relationships in its own research, we have not yet ventured into the provision of such services for others in higher education. As I indicated earlier, the burgeoning number of campus offices of institutional research has placed an enormous demand upon the available pool of research

personnel, and the great bulk of IRPHE users (middle-grade colleges) lack the personnel, the equipment, and the funds to conduct the complex analyses necessary to get the most information from their data.

Although the I-S-O model becomes dynamic when relationships or linkages are established, it becomes a call-to-action only when the desired outcome can be stated.

Prizing diversity in higher education as we do in this country, it is obviously impossible for ETS to prescribe the directions that each institution should take to improve itself. Our criteria for quality education must remain flexible. We can say, however, that each institution can evaluate itself by the criterion of doing well whatever it thinks it should be doing. Measures can be obtained of the effectiveness of a university or a college or a department in moving toward its self-defined goals. Thus, the evaluation model, which implies institutional action, might be described as an I-S-O-G model in which input, situation, output, and goals are measured and--more importantly--related.

Although any model is necessarily an over-simplified and idealized version of reality, it serves its purpose if it gives direction to program planning. Use of the I-S-O-G institutional research and evaluation model has led to the program proposal for Institutional Evaluation which was sent to you.

Let me sketch briefly a summary of the instruments and relationships which are proposed for the higher education program. Since the clarification of educational goals is a keystone of the I-S-O-G model, I shall start with a description of the goals measures.

1. The Institutional Goals Inventory (IGI) is proposed as a measure of the institution as perceived by various members of the academic community. It would consist of approximately 100 items in ten to twelve scales and would be administered to faculty, administrators, students, and perhaps, trustees. The respondents would be asked to state whether they considered a specific goal to be very important, important, doubtful, or not important. Some of the questions that might be studied with this instrument would be differences in goal perceptions between faculty and trustees for example, or between liberal arts and engineering faculties, or between senior and junior faculty members, or between faculty who served on policy committees and those who did not. In addition to performing a research function, the instrument can be used as an effective vehicle for discussion, and hopefully for the clarification of institutional goals.
2. The companion instrument to the Institutional Goals Inventory is the Institutional Functioning Inventory. The IGI would tell the institution what it wants to do; the IFI would tell what it believes it is, in fact, doing. The Institutional Functioning Inventory was developed in cooperation with the Institute for Higher Education of Teachers College at Columbia.

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under a grant from the Kettering Foundation, and it will be available through IRPHE this fall.

Examples of some of the scales in the IFI are: Concern for Undergraduate Learning (UL), Concern for Advancing Knowledge (AK), Concern for Improvement of Society (IS), Concern for Innovation, etc. Some revision of the IFI may be needed later to make items, scales, and analyses comparable to those of the IGI.

It is primarily the perception of the actual functioning of the college that is of interest in the use of this instrument. But of special importance to a program of evaluation is the relationship between institutional goals and achievements. If, for example, there is a high agreement that developing the aesthetic appreciations of students is an important goal of the college, then we would expect the following items from the IFI to be answered positively: There is a campus art gallery in which travelling exhibits or collections on loan are regularly displayed. At least one poetry reading, open to the campus community, has been given within the past year. Foreign films are shown regularly on or near the campus.

Still more information is available when measures of the goals and perceived functions of the college are related to student growth measures such as the Cultural Sophistication Scale of the College Student Questionnaires. I will describe the CSQ as measures of input-output

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later, but let me point out in this context that CSQ would give measures of student response to the presence of an intellectual-aesthetic extracurriculum. Students scoring high on Cultural Sophistication would answer positively items such as these from the CSQ: How interested are you in modern art? How frequently do you discuss foreign films with your acquaintances? Do you enjoy reading poetry?

Thus, from the IGI, IFI, and CSQ and their interrelationships, a college could obtain information about goal agreement regarding aesthetic experience, institutional provisions for accomplishing these goals, and measures of the impact of such provisions on student attitudes.

3. Another "set" of companion instruments is proposed for measuring teaching goals and accomplishments. The Teaching Goals Inventory (TGI) is similar to the Institutional Goals Inventory, but is designed for faculty to report their instructional goals for each course taught. Examples of TGI scales might be: teaching students to think critically, providing content for career preparation, instilling interest in subject-matter, and the like. Like the IGI, analyses by various subgroups would give useful information. Questions of special interest for the Teaching Goals Inventory might be: Do instructors have different goals for freshmen courses than for senior courses? Do history instructors have different goals from those of physics instructors? What is the extent of agreement on goals within various departments?

4. The companion instrument to the TGI is the Student Instructional Report (SIR). The TGI tells what the instructor is trying to do; the SIR measures the students' reactions to his efforts. For example, if the instructor has a high score on the TGI scale, Instilling Interest in Subject-Matter, then he might hope that a large number of students would agree with items such as the following: I plan to take the next course in the subject. I discuss the subject with fellow students. I have read at least two non-required books in the field.

The data from the Student Instructional Report would be made directly available to the instructor and thus he would receive a "rating" from the students on his self-determined teaching goals. Aside from the values of the research findings, the very process of stating teaching goals and receiving feedback on accomplishments may go a long way toward improving instruction throughout the institution. At least the information would go directly to the person who can do most about improving teaching in the institution--the instructor.

The ramifications of the interrelationships of the TGI and SIR with other instruments in the program are very great indeed. If, for example, a departmental summation of teaching goals reveals that faculty are primarily concerned with teaching for mastery of subject-matter, then student performance on academic major field tests will be of special interest.

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Comparison of the IGI and the TGI may reveal some apparent inconsistencies in goals. One might find, for example, that engineering faculty agree that the institution should be concerned with student values but that they, individually and collectively, teach subject-matter in their courses.

5. Ability and Achievement Tests would be provided for the program as short group measures but provision would also be made for incorporating into the analysis test measures already used by the institution. Tests proposed for the program are:

- a) a 12-minute test of academic aptitude,
- b) a 75-minute test of achievement in five general education areas of English Composition, humanities, natural sciences, mathematics, and social sciences-history.
- c) a 45-60 minute test of achievement in major field.

Achievement tests would be used in a longitudinal plan with general education tests being given in the freshmen and sophomore years, and major field tests administered in the junior and senior years.

6. Student Attitudes and Values would be assessed along dimensions such as idealism-cynicism, independence-dependence of judgment, intellectual-non-intellectual disposition, rigidity-openness, and the like. Scales in this instrument would also include measures of upperclass students' satisfactions or dissatisfactions with various aspects of their college experience.

7. Measures of Student Characteristics are already available in the College Student Questionnaires. Designed for administration prior to registration and after at least a year's experience on campus, the CSQ contains measures of family background, secondary school activities, educational and vocational plans, educational subculture (vocational, collegiate, academic, nonconformist) and student attitudes.

See diagram for summary.

In describing this battery of instruments, I have attempted to convey the program aspects through examples of relationships between measures. To make both the instruments and the relationships more concrete, I'd like to use some actual data and analyses of relationships from some of the instruments presently available through ETS.

Charts I and II (courtesy of Dr. Richard Peterson, Research Psychologist at the Western Office) illustrate college profiles as measured by the IFI.

1. Chart I illustrates one important way of looking at the functioning of a university. This profile is derived from a single instrument, the IFI, analyzed to show differences in the perceptions of various subgroups on the campus. Student, faculty, and administrative perceptions agree quite well--except that students do not see as much Democratic Governance (DG) as do faculty and administrators, and administrators see more efforts at evaluation and planning than do faculty. Given sufficient professional know-how, which some colleges have and others do not, any campus could get this kind of information without ETS. ETS' primary contribution when information is derived completely from a single measure is that the costs for development, printing, computer programming, etc. can be made reasonable through the participation of many colleges.

2. Chart II illustrates the power of further information from IFI that a single institution cannot derive for itself, and that is the data to make comparisons with other institutions. The profiles for two very different types of colleges are drawn but in addition the mean or average scores for fifty institutions are shown by the heavy middle line. Thus, through ETS auspices, an institution can compare itself with other colleges. Of special interest in this comparison are the great differences in perceived Freedom (F) and Institutional Esprit (IE) on the two campuses. Apparently, faculty do not need to feel free in order to have high morale. The military academy ranks in the first percentile on freedom but at the 90th percentile on morale and shared purposes between faculty and administrators, whereas the opposite is more descriptive of the liberal arts college, with a 95th percentile ranking on Freedom, but only a 5th percentile on Esprit. As a matter of fact, there is no correlation between the Freedom and Esprit scales of the IFI.
3. Moving to a higher level of complexity, Chart III shows subgroup analyses of change between input and output measures as related to a specific situation. The shaded portion represents change in Graduate Record Examinations test scores from the freshman to the senior year for students majoring in social science, humanities, or natural sciences.

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Happily, the greatest gains in a given field are made by the appropriate majors. Despite that fact, natural science majors graduate knowing more social science, as measured by the GRE Area Tests than the social science majors do.

4. Chart IV illustrates the potential for relating instrument measures to outside variables of special interest. The 27 statements listed on the left are issues over which there were organized student protests in 1967-68. Dick Peterson obtained, from the deans of students at some 859 regionally accredited four-year institutions, information about the type of situations that students had protested during the year. For 50 of these colleges he and colleague, John Centra, were able to correlate type of protest with IFI scale scores. In this type of analysis, ETS' concern is helping the higher education community in general to understand and improve itself through research programs applicable to a broad range of colleges and universities. Let me take a moment to look at some of the interpretations arising from the correlations of IFI scales with issues of student protest.

The large number of significant negative correlations in the UL column indicates that colleges with a concern for undergraduate learning as measured by the IFI are less likely to have incidents of student protest. One could draw the conclusion that if the faculty paid more

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attention to undergraduate learning, students would be less likely to protest, or we could conclude that students attending high UL colleges are not protest-prone to begin with. The latter conclusion appears better justified. Note that negative correlations are associated with all kinds of protest issues--on and off the campus. Colleges feeling a strong concern for undergraduate learning tend to be small colleges without large research projects, Dow recruiters on campus, nationally prominent faculties, etc., and many of the colleges in this group simply do not attract the more radical students and faculty.

Consistently high positive correlations are found in the HD (Human Diversity), the IS (Improvement of Society), and the AK (Research) columns. The fact that these scales tend to describe concerns of people on the campus rather than institutional actions lends further credence to the notion that protests are more likely to be related to the nature of the student body than to institutional policies.

Two scales, Freedom (F) and Democratic Governance (DG) are measures of institutional policy and are of considerable interest in this context. The generally positive correlations in the F column lead one to believe that on these campuses the students are free--to protest. The rather high negative correlations for protests concerning

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rules regarding controversial visitors and dress regulations are probably explained by the fact that institutions stressing freedom do not have many rules regarding these issues.

Let's look, however, at the correlations in the DG column. Institutions scoring high on Democratic Governance are likely to have a low incidence of protest about campus policy, but the correlations for off-campus issues are positive, showing that the students in these colleges are not unconcerned, as are those in high UL colleges. From other data, we know that high DG colleges tend to be selective colleges with well-qualified faculty and high concern for educational innovations. They are further characterized by high scores on the IFI scales of Concern for the Improvement of Society and Freedom. In other words, these colleges would appear to attract activist students, but the low incidence of confrontation-type protests may be due to the democratic environment with its high morale and generally flexible faculty.