R E P O R T R E S U M E S

ED 013 381 24 AA 000 236

INSTITUTIONAL RESEARCH AND THE ACADEMIC PROGRAM. NEW DIMENSIONS IN HIGHER EDUCATION, NUMBER 20.

BY- BOYER, ERNEST L.
DUKE UNIV., DURHAM, N.C.

REPORT NUMBER BR-6-1722-20 PUB DATE APR 67
CONTRACT OEC-2-6-061722-1742
EDRS PRICE MF-$0.50 HC-$3.04 76P.

DESCRIPTORS- *INSTITUTIONS, *RESEARCH, *COLLEGE PROGRAMS, PROFESSORS, CHANGE AGENTS, HIGHER EDUCATION, *EDUCATIONAL CHANGE, *ACADEMIC EDUCATION, LITERATURE REVIEWS,

A SEARCH OF THE LITERATURE ON INSTITUTIONAL RESEARCH WAS MADE TO FIND AN ANSWER TO ONE QUESTION--TO WHAT EXTENT HAS INSTITUTIONAL RESEARCH ACTUALLY HELPED IMPROVE COLLEGIATE LIFE GENERALLY AND THE ACADEMIC PROGRAM IN PARTICULAR. FROM THE SEARCH, THE AUTHOR DRAWS THE CONCLUSION THAT THE RECENT FLURRY OF RESEARCH ACTIVITY HAS NOT BEEN ACCOMPANIED BY A LARGE AMOUNT OF EFFECT. LITTLE DIRECT EVIDENCE ABOUT THE IMPACT OF INSTITUTIONAL RESEARCH WAS FOUND. JUDGEMENT OF THE EFFECTS OF THIS RESEARCH WAS MADE FROM INDIRECT EVIDENCE AND FROM THE OPINIONS OF INFORMED OBSERVERS. THE REPORT EXAMINES THOSE ASPECTS OF HIGHER EDUCATION THAT HAVE CHANGED, THOSE THAT HAVE REMAINED RELATIVELY STABLE, AND THE DEGREE TO WHICH INSTITUTIONAL RESEARCH MAY OR MAY NOT HAVE BEEN A SIGNIFICANT FORCE. REPRESENTATIVE STUDIES ARE CITED, AND THE FINAL SECTION DISCUSSES WAYS IN WHICH INSTITUTIONAL RESEARCH MIGHT INCREASE ITS IMPACT IN THE FUTURE. THE AUTHOR CONCLUDES THAT (1) IN PART, THE FAILURE OF INSTITUTIONAL RESEARCH TO AFFECT ACADEMIC AFFAIRS DIRECTLY AND SUBSTANTIALLY CAN BE ATTRIBUTED TO INTERNAL SHORTCOMINGS OF THE PROFESSION THAT RELATE TO STRUCTURE, FUNCTION, THEORY, AND STYLE OF COMMUNICATION, AND (2) THE FUTURE EFFECTS OF ACADEMIC RESEARCH WILL HINGE ON THE WILLINGNESS OF EDUCATORS TO VIEW CHANGE AS AN ALLY RATHER THAN AS AN IMPEDIMENT. (AL)

NEW DIMENSIONS
in Higher Education

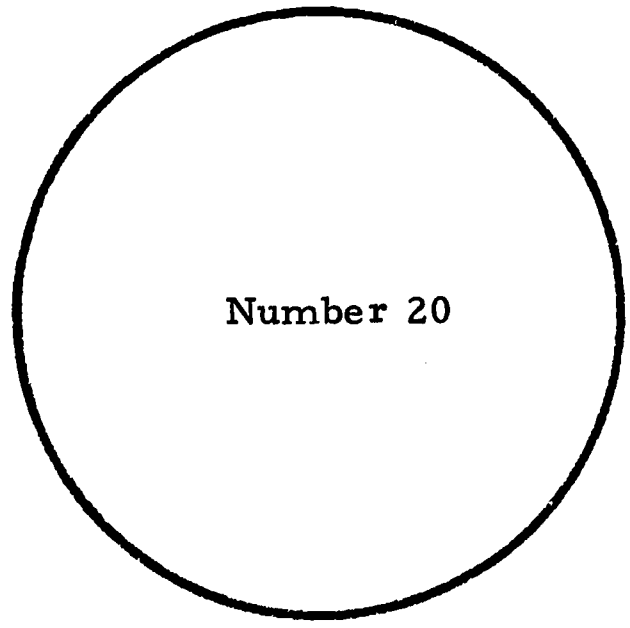
Number 20

INSTITUTIONAL RESEARCH AND THE ACADEMIC PROGRAM

April, 1967

The literature research review reported in this manuscript was made possible by Contract Number OEC 2-6-061722-1742 between Duke University, Durham, North Carolina and the United States Office of Education.

NEW DIMENSIONS
IN HIGHER EDUCATION



†INSTITUTIONAL RESEARCH AND THE ACADEMIC PROGRAM

Ernest L. Boyer

Everett H. Hopkins, Editor

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

JOHN GARDNER, Secretary
Office of Education
HAROLD HOWE II, Commissioner

ABOUT THE AUTHOR

Ernest Leroy Boyer is Vice President for University-Wide Activities of the State University of New York. He holds the degrees of master of arts and doctor of philosophy from the University of Southern California, where his field was speech pathology and audiology. In addition, he did post-doctoral work in medical audiology at the University of Iowa Hospital in 1960 and in the administration of higher education at the Harvard University Institute for Academic Deans in 1961.

Dr. Boyer has taught at Upland College (Upland, Calif.), the University of Southern California, and Loyola University in Los Angeles. In addition to his present position at the State University of New York, his administrative background includes experience as Academic Dean at Upland College, director of the Joint Commission to Improve the Education of Teachers of the Western College Association, and director of the Center for Coordinated Education at the University of California at Santa Barbara.

Dr. Boyer is a member of the American Speech and Hearing Association, Pi Kappa Delta (forensics), Alpha Kappa Sigma (scholarship), and the Association for General and Liberal Studies. He serves on the board of directors of the Mennonite Psychiatric Hospitals, the Commission on Experimentation and Research of the Council for Small Colleges, and is a member of the boards of trustees of Friends' World College and Messiah College. He has contributed articles to professional journals in the fields of speech and hearing, communications, and education.

TABLE OF CONTENTS

FOREWORD

(If and when this manuscript is published for general distribution, the Editor will gladly prepare an appropriate Foreword for the wider audience.)

HIGHLIGHTS

1. Institutional research continues to become an increasingly important factor in the higher education community.

2. There is, however, no body of literature that addresses itself to the central question: "To what extent has institutional research actually helped improve collegiate life generally and the academic program in particular?"

3. By inference and indirect evidence it does seem obvious that institutional research has had a constructive impact on many administrative aspects of college and university affairs.

4. While institutional research--organized both formally and informally--also has studied educational matters such as curriculum, teaching methods, and student development, this effort has had only minor impact on the heart of collegiate life--the academic program. This conclusion is supported by the paucity of relevant literature, the comments of informed observers, and the degree to which many academic tenets and methods remain essentially what they were generations ago.

5. In part the failure of institutional research to affect academic affairs directly and substantially can be attributed to several internal shortcomings of the profession that relate to structure, function, theory, and style of communication.

6. On the whole, and in spite of whatever self-improvement institutional research might successfully make, its future as an agent of academic change is largely dependent on the willingness of educators to view change as an ally rather than an impediment, and to become active partners in the design and evaluation of institutional studies.

7. Several suggestions are made as to the ways in which the higher education community as a whole can use self-study and evaluation to the benefit of its fundamental purposes and obligations.

I. INTRODUCTION

The position of institutional research in higher education continues to move forward. The volume of research, already substantial, increases steadily. A host of administrators, pressed hard to justify the growing cost and scope of their operations, have established internal research programs designed to evaluate the past and present and cast light on the future.

Although this vigorous activity is generally impressive, the focus of this review is more upon the <u>impact</u> of research than upon either its growth or its popularity. Indeed, the central issue concerns the relevance of research to the fundamental purposes of formal education and the degree to which institutional research can become more than a peripheral partner in the process of college reform. The crux of the matter is this: To what extent has institutional research actually helped <u>improve</u> collegiate life generally and the academic program in particular?

The response to this query is disappointing, for a search of the literature makes clear that the recent spate of research activity has not been accompanied by a surge in influence. Existing research

bibliographies go on endlessly and yet very little is known about what actually happens once a project has been completed, a conclusion drawn, and a statistical table appropriately filed.

This is not to say that the problem of relating research to subsequent action has been completely ignored. For example, Lins[1] optimistically titled a collection of research articles he put together "Basis for Decision." Also, the Third Annual National Institutional Research Forum was devoted entirely to a study of the relationships between research and institutional planning.[2] Yet the results of of these efforts are singularly unconvincing. No close relationship between research and decision-making has been established, and the very silence of the literature suggests that institutional researchers have examined virtually all aspects of college life except the question of how they themselves contribute to the growth and development of their parent enterprise.

To conclude that little is known about the impact of institutional research does not and should not mean that the matter is closed. Since direct evidence is lacking, conclusions about the matter must be drawn from indirect evidence and from the judgment of informed observers. Specifically, we must look at actual changes in higher education and then infer from the literature the extent to which institutional research has been involved. Therefore, the sections that

follow will examine those aspects of higher education that have changed, those that have remained relatively stable, and the degree to which institutional research may or may not have been a significant force. A few representative studies will be cited to support the conclusions. The final section of this review will discuss ways in which institutional research might increase its impact in the future.

II. INSTITUTIONAL RESEARCH AND EDUCATIONAL MANAGEMENT

An observer of higher education is impressed first of all by the changes in management concepts and methods that have occurred on college campuses. Most institutions, even those that are hard-pressed financially, now have access to data processing equipment. Registration is no longer a three- or four-day adventure in chaos. Alumni records are likely to be well kept and up to date. Admissions decisions typically are based on some sort of formula for predicting success rather than on the visceral judgment of an administrative officer. Facilities are more appropriately designed to serve a planned purpose, and they are more fully utilized. Administrative officers are more businesslike about budget procedures, and projected financial needs are more sophisticated and realistic. In short, colleges and universities have moved toward a more orderly way of managing their nonacademic affairs.

It seems hardly coincidental that in these areas where constructive change has emerged, the work of institutional research clearly has been productive. Indeed, a literature survey establishes a strong link between institutional research activity and the effort of colleges to strengthen their management and improve their efficiency.

College Facilities Studies

Consider, for example, the plethora of college facilities studies found in the literature. In one such study, Ruth Weinstock[3] looked closely at the relationship between space and dollars, using the Drexel Institute of Technology as her laboratory. The study probed the economies of high-rise facilities, the cost of low-building units, the expense involved in the conversion of industrial buildings, and costs related to the parking needs of an expanding urban institution. In this case the Weinstock study gave Drexel administrators useful data for long-range planning.

Even more impressive have been attempts to look at facilities needs of total statewide systems. For example, Walker and Coffelt[4] in their study of the facilities needs of 21 colleges and universities of Oklahoma, inventoried existing land and buildings, evaluated the use of present space, and projected physical plant needs and costs. As a result of this carefully documented inventory, local officials could easily see which campus space should be abandoned, which should be replaced, and which could be used unaltered. In addition, interinstitutional comparisons were made possible and statewide projections were simplified. Such a study well illustrates how research is tied to facilities planning and provides a springboard for orderly change.

Cost-Analysis Studies

Similarly, institutional research has helped higher education management through cost-analysis studies. Three basic types of such research can be found in the recent literature. The descriptive approach, illustrated by Hull and McWhirter,[5] straightforwardly reported cost-analysis procedures used at a single institution. While such studies make no attempt to discuss the underlying assumptions that lead the college or university to select the procedures currently employed, this approach does produce a formula that may, with minor modification, be successfully adopted elsewhere.

Another approach is represented by the Swanson, Arden, and Hill[6] report in which cost-analysis procedures were based upon the examination of the total financial pattern of a post-secondary institution. The investigators presented a single model for analyzing institutional costs, and it is available to other colleges that wish to carry on a similar cost-analysis study.

A third approach to cost analysis, more sophisticated than the others, is illustrated by the Koenig[7] investigation. This study placed cost analysis within a total systems concept of a university. The investigators argued that the financial dimension of the institution is not independent of other variables. Theoretical models of

of the input-output variety were developed, based largely on mathematical simulations of the dynamics of an institution. Again, the Koenig study promises to have an impact on institutional planning by offering a cost-analysis model that can be tailored to the special needs of each institution.

Enrollment and Transfer Studies

The vigorous study of enrollment and transfer practices is yet another area where institutional research may have altered collegiate practice significantly. Lins' paper on the Methodology of Enrollment Projections[8] and Fincher's discussion of Probabilistic Versus Deterministic Models of College Admissions[9] illustrate the degree of sophistication actually reached by researchers in helping colleges decide how many students will apply and which of them should be admitted. Similarly, studies such as Richards and Holland's[10] have helped administrators understand why students choose colleges as they do. Using data from 8,292 college applicants, the authors identified intellectual emphasis, practicality, the advice of others, and social emphasis as important factors in college selection. Results of research of this type, if properly applied, may significantly alter counseling and recruitment practices at both the secondary and higher education levels.

An investigation by Grigg[11] illustrates once again a link between

research and action. In this instance, the study is useful to the administrator not only in projecting enrollments but also in estimating the characteristics and program objectives of those who will enroll.

III. INSTITUTIONAL RESEARCH AND ACADEMIC PROGRAMMING

While most institutional researchers have focused on management matters of the type described above, a few investigators have probed aspects of college life that relate even more directly to the academic program. In some instances the inquiry has emerged from within the milieu of institutional research itself. More often, however, the investigations have been carried on by behavioral scientists--psychologists and sociologists--not directly identified with the fraternity.

Even though the impact of this educationally focused research has been modest, no serious search of the literature can fail to discover studies that have earnestly sought to assess some aspect of academic life.

Studies of Teaching Methods

The attempts to compare various teaching styles and techniques illustrate one point at which the academic program and institutional research intersect. The Macomber and Siegel[12] study of teaching procedures, launched nearly ten years ago, established beyond reasonable doubt that a variety of teaching methods can be equally

effective. More recently, Hovey, Gruber, and Terrell[13] reported that the achievements of self-directed college students meeting without a professor were slightly superior to the performances of students attending conventional classes. Antioch College's examination of its own independent study program, as reported by Churchill,[14] showed that students who studied on their own did fully as well as those who regularly attended formal lectures.

On yet another front, research has established that the use of new technology can be as effective as conventional instruction. In the Chicago studies reported by Erickson and Chausow,[15] television students did as well as their colleagues who studied in a typical classroom setting. Janes[16] found that favorable attitudes toward a televised course were positively related to intelligence, length of viewing experience, self-confidence, degree of authoritarianism, and course grade. To summarize the matter, Schramm,[17] reviewing 100 studies of television effectiveness, found that 84 of the investigations reported no significant difference in achievement between televised and conventional instruction.

In recent studies conducted by an institutional research office, Stecklein and others[18] assessed over an extended period the effectiveness of a TV College. The TV College at Minnesota was organized to extend the resources of the university and to resolve, in part,

problems of space and numbers. The program was designed to enable students to complete the freshman and sophomore years via television.

In summarizing the data, Stecklein concluded that the population responding to television education differed sharply from the one originally anticipated; it consisted of the lower middle-age group rather than the college-age group initially sought. No evidence was found to support the hope that college-age students would spontaneously choose television as a vehicle for their first two years of college education.

The implications of this study are immediately apparent, and Stecklein's report related his findings to academic planning. Alternate proposals were explored, including such suggestions as modifying the program to attract the college-age group, changing the original idea to serve the interests of those actually taking advantage of the program, and expanding the program to serve more than one type of student.

In the case of the Stecklein study it seems safe to assume that institutional research may affect academic planning. Overall, however, there is no firm evidence to suggest that older instructional practices have given way to other models, even though facts seem to indicate beyond reasonable doubt that such changes would be educationally and financially advantageous.

Eckert and Neale[19] stated the problem succinctly. In their excellent review of the literature, the writers concluded that college teaching has been largely ignored by the research profession:

> while a few excellent studies have emerged, educators lack carefully planned and cumulated research to guide decisions on staffing and instructional problems. Creative contributions made by isolated investigators need to be supplemented by campus-wide studies and by well mobilized regional and national efforts.

Curriculum Studies

Occasionally researchers have turned their attention to the curriculum. In several instances this has simply meant surveying trends and reporting shifts in emphasis. For example, Bigelow[20] noted moves toward more Russian language instruction; Mayhew[21] told of increased interest in foreign languages generally; Carlin and Blackman[22] reviewed in detail the curriculum developed at the Basic College at Michigan State University; and Hayward[23] described in detail the "Beloit Plan." All of these studies are interesting and in their own way helpful. However, such studies that describe in a normative way what others are doing neither say anything about the relative effectiveness of various courses nor clarify how a particular course of study relates to college goals. Consequently, their usefulness as a tool in decision-making is sharply curtailed.

Another branch of curricular research has focused on the economics of instruction. McGrath[24] studied the curricula of 14

independent liberal arts colleges and the related costs of instruction. He found that course proliferation resulted in few courses common to all students, small classes, and an overworked and underpaid faculty. If the McGrath assumptions are accepted and the findings judged valid, colleges may be moved to consolidate course offerings and here and there to test other new curricular strategies.

In a few instances efforts have been made to judge the actual impact of a particular curriculum. In evaluating the general education program at the University of Pittsburgh, Fahey and Ball[25] found that experimental students taking core courses in English, humanities, social science, and natural science did as well as the control group, and more of them were graduated. Brinker,[26] in a study of courses taken by liberal arts students in four colleges of the Southwest, tested the assumption that an arts and science graduate should have a balanced acquaintance with humanities, social science, and natural science. Brinker reported that humanities and social science majors did not receive an adequate introduction to disciplines beyond their speciality. Parenthetically, it was noted that often advisers are motivated to promote their own departments rather than the best interests of students.

However, in spite of an isolated effort here and there, no substantial relationship between institutional research and curriculum

planning can be established. Katz and Sanford[27] said it precisely when they observed that "curriculum rarely has been made the object of systematic investigation." As a result of this neglect, the questions of what should be taught, and how and when, are still more a matter of mythology than of rational judgment.

College Dropout Studies

The extent to which academic programs adequately serve college students has been researched, indirectly at least, through so-called college dropout studies. Summerskill,[28] citing 35 college dropout studies conducted between 1920 and 1960, disclosed a median student loss of 50 percent in a decade-by-decade analysis. Examining the dropout pattern of National Merit Scholarship competitors, Astin[29] discovered no significant relationship between characteristics of an institution and the rate of attrition among gifted male students. In a contextual analysis of academic failure, Nasatir[30] studied the dropout rate of University of California freshmen who lived in six dormitories to which they had been nonpreferentially assigned. In four of the six units even the physical facilities were identical, yet Nasatir found the failure rate among the dormitories to range from 0 to 56 percent.

Such dropout studies illustrate a useful point. This type of research has persisted over four decades or more, yet the rate of

withdrawal has remained relatively static. Clearly, colleges have not found a way to use research findings in ways that will better meet student needs and reduce the withdrawal rate.

College Climate Studies

Although the academic aspects of college life have been relatively immune to change, several promising new areas of inquiry have recently emerged. This development is encouraging because the questions now being probed by some researchers are related to the total learning context and open up new lines of investigation for the future.

There is, for example, the work of Stern, Astin, Pace, and others which has examined the relationship between college environment and student needs. The practicality of this new field of inquiry can be illustrated by citing several studies. Rowe,[31] using Stern's Activities Index and Stern and Pace's College Characteristics Index, examined the characteristics of the students and the environments of three women's colleges. He found much more similarity among the students' personality characteristics than in the characteristics of the collegiate environments. In contrast to Northern colleges, all Southern colleges examined in the study tended to deemphasize student independence. The "profiles" of colleges in the study differed greatly in such factors as student self-assurance, friendliness, and

other characteristics.

Astin[32] has taken yet another approach to the study of college environments and college administrators and has given data by which college contexts and college goals can be compared. In a 1962 study, he concluded that colleges vary in terms of affluence, size, private versus public control, masculinity or femininity, homogeneity of environment, and realistic (technical) emphases. Subsequently, he[33] noted that the aspirations of entering freshmen were harmonious with the characteristics of the institutions they selected.

It is still too early to determine what impact such college-wide assessments will have upon the institution. However, in at least one study still in progress, 12 small colleges[34] are cooperatively gathering college climate data and will, through faculty workshops, use the findings to assess the total college program. As a result of this analysis the colleges will consider changes when such are indicated. This interinstitutional commitment to pay serious attention to the findings of institutional research is a significant development.

College Impact Studies

Other promising research directly related to the academic program has examined the impact of the total college program on the student. Selected references from the literature illustrate how

this dimension of research may be useful to academic planners.

Webster, Freedman, and Heist[35] reported that personality changes among college students are in the direction of greater liberalism in political, social, and religious attitudes. There is change toward less authoritarianism and greater self-expression. Freedman,[36] generalizing on Vassar College data, reported that after four collegiate years students tended to be (a) more mature but less stable, (b) less feminine, (c) less authoritarian and more tolerant, and (d) more liberal in religion.

Lehmann and Dressel[37] reported that both males and females became less stereotyped in their beliefs from the freshman to senior year at Michigan State University. The move was toward more flexibility and less rigidity.

A descriptive study by Murphy and Raushenbush[38] traced the progress of 46 girls at Sarah Lawrence College. The investigators concluded that during the college years these students had developed a strong sense of social responsibility, gained confidence in personal relationships, and developed clearer self-roles.

A study by Vreeland and Bidwell[39] investigated how the goals at eight Harvard residential houses influenced student attitudes and values. They found that greater changes occurred among students

when fellow students and the housemasters held common goals. The affective climate of the house was found to be a powerful force in determining value and attitude change. Active involvement with fellow students accounted heavily for the degree of the change.

It seems obvious that the Vreeland and Bidwell research offers at least one college administration the kind of analysis it needs to make decisions wisely. Overall, this move to measure the changes in student attitudes and values during the college years suggests that colleges, at long last, may understand the extent to which their programs assist or deter in the fulfillment of their ambitiously stated goals.

IV. THE LIMITED IMPACT OF RESEARCH

But what about the use that will be made of studies such as these? To what extent do college administrators take seriously research which suggests that goals and programs are not interlocked? To what extent do faculty members re-examine course content when research suggests that little has been learned or that there may be a better way to teach? To what degree are student-teacher ratios reassessed when data suggest that instruction may be offered equally effectively to large and small groups? To what extent are new instructional devices employed when evidence suggests that they can be as effective as conventional procedures?

The answers are not encouraging. The academic community still considers lecture instruction essential in spite of the demonstrated effectiveness of alternate methods. The measure of "good" teaching still remains largely as mystical as it was in the time of Thomas More. The assumed virtues of today's curriculum seem almost unassailable, even though many widely accepted postulates about how to organize for instruction are matters of tradition rather than demonstrated fact.

The examples of untested assumptions and questionable concepts could go on almost endlessly. However, the point is simply this: Although the managerial and administrative aspects of university affairs have improved--and for this institutional research can take some credit--the curricular and instructional dimensions of higher education have remained relatively fixed.

The reason for this limited impact on academic affairs seems related, in part, at least, to the basic posture of the institutional research profession itself. Studies, such as those just summarized, are promising first steps, but in the main the professional institutional researchers have stood in the wings when academic questions were being occasionally probed by members of other professions and disciplines. Consequently, little information about teaching and learning has been gathered in a systematic fashion. As Nevitt Sanford observed:

> our main impression . . . is of how much remains to be done . . . . Colleges will change only when more knowledge of what they do and of what they might do has been produced and made available to educators . . . . The need for theory is also apparent, but what is more striking is the paucity of empirical studies.[40]

David Riesman assessed research and development in this way:

> There is one mission which the university serves, but which, on the whole, has been insufficiently appreciated in higher education: the research and development function of higher education itself. Today . . . the increasingly national orbits of higher education signify that

> institutions can no longer automatically assume that they know who their customers are or what they require. Institutional, or in-house, research has its own dilemmas . . . but in any case, such research exists in only a few places . . . .[41]

Samuel Baskin, director of Program Development and Research in Education at Antioch College, commented at the 1964 National Institutional Research Forum that

> higher education has for too long allowed itself to be caught up in its own straitjacket of traditions and customs in teaching and learning. Despite recent developments in higher education, the change agent is still badly needed. Something has been missing for far too long, which I suspect relates to our own unwillingness to examine our assumptions about teaching and learning, and to our unreadiness to ask ourselves some questions about how we go about the educational process. Someone needs to take hold. Why not the educational researcher?[42]

And so we reach the conclusion that institutional research, for all of its notable contribution to the educational enterprise as a whole, has had a limited and even minor impact on its heart--the academic program.

V. INCREASING THE IMPACT OF RESEARCH

The academic world has flourished with unprecedented vigor in recent years partly as a result of its major commitment to seeking new knowledge and re-examining conventional wisdom. Why, then, has it had only indifferent success with its efforts at self-analysis, evaluation, and improvement? Why are the nature of human learning, the relative merits of various instructional methods, and the dynamics of educational organization not yet fully understood? Why has the idea of orderly institutional change proved successful only on the administrative periphery of the academic world? Why, in short, has institutional research--the vehicle developed by the educational community itself to facilitate ongoing efforts to improve education--had only an incidental effect on the academic program?

An answer may be found by considering ways through which both the structure and the methods of institutional research may be strengthened. The emphasis here is not upon the studies conducted independently by psychologists and sociologists. Rather, the goal is to find ways to make more effective the work of those research offices that are established as a formal part of the administrative structure. Six recommendations are proposed.

First, the impact of institutional research will increase as the identity and the purposes of the profession are sharpened.

The plain fact is that in spite of increased activity and visibility institutional research still maintains a clouded image and a controversial lodgement in the institutional hierarchy. Perhaps the difficulty begins with the very term "research," which in the academic world is generally understood to emphasize the acquisition of new knowledge. Yet institutional research is much concerned with compiling statistics and assembling data about past events such as enrollment trends and student attrition. While such data-gathering is important, few academicians consider it research in the proper sense of the term; thus the very terminology blurs the image of institutional research by introducing a perplexing and even spurious flavor to the whole business.

In addition to data-gathering, much organized institutional research is concerned with evaluating very specific institutional programs. How accurately do admissions procedures predict the performance of entering students? What is the comparative cost of teaching a given number of students English or physics at various grade-levels? What are the comparative costs of recruiting new faculty members by departments? What are the space-utilization rates of various types of facilities? Again, such activities are

important, and while in some respects they have the flavor of research, they represent a sort of research that fails to command the full respect of academicians.

A major problem, then, centers on the fact that institutional research does not present a clear, coherent picture of itself to the academic community. It means different things to different people. Its function seems to revolve erratically and even illogically around an investigation-experimentation-data collection-evaluation axis, and there is a certain hint of the counterfeit about its basic posture as a research activity.

The difficulty could be alleviated, if not eliminated, in several ways. For instance, institutional research could become generally known as "institutional studies," thus removing much of the ambiguity. Or it could follow the lead of Charles Kettering, who defined research as "an organized method of finding out what you are going to do when you can't keep on doing what you are doing now," and add the phrase "and development" to its designation. Such terminology would come closer to candidly recognizing the fact that there is a practical dimension to the purpose, that institutional research does not pretend to be wholly devoted to esoteric contemplation of broad academic and educational issues.

A third and better alternative would require institutional research

to experiment with various ways to organize its own operations and seek to create an organizational structure commensurate with the range of responsibilities placed upon it. In this scheme an Office of Institutional Research might be divided into four sections, each with a discrete yet interlocking function: Education (or Institutional) Research, Operations Analysis and Evaluation, Policy Study, and Statistical Information.

Second, the impact of institutional research will grow as it increasingly probes fundamental educational problems.

While clarifying its function, institutional research also must increasingly investigate problems of real consequence. One faculty member characterized the institutional research organization on his campus as "the Bureau of Questionnaires, Trivia, and Impedimenta." While his expression may be unusually blunt, his scornful attitude toward institutional research is not uncommon.

Consider this comment by Christian Bay:

> One of the crucial needs . . . is a greater research inventiveness in the study of educational processes. It is obviously easier to count A's and B's than to make estimates of intellectual alertness and vigor; but this is not a good reason to count A's and B's to the exclusion of more meaningful inquiries.[43]

What we are calling for are institutional research studies that strike hard at the problems of real concern to the college community

itself. As a practical means to this end it is proposed that with increased frequency influential members of the campus community become actively involved in the design of the research studies. Is it unreasonable to suggest that a responsible group of administrators, faculty, and even students actively participate in determining the educational questions to be researched on a given campus in a given year? Indeed it seems reasonable to assert that the results of institutional research will not generally be accepted, let alone sought out, unless the problems being probed reflect the interests of the people who will be affected. David Riesman describes the typical college faculty member as one who is more committed to his professional guild than toward an institution: "The guilds are oriented to their substantive subject matters and hardly at all to the questions of how these are taught . . . ." It is proposed that the institutional researcher, in an effort to involve the professor in matters beyond the guild, see to it that professors themselves become partners in the research process by helping to decide the issues to be examined.

As a final note on this point of campus-wide collaboration, it should be urged that an organized office of institutional research coordinate whenever possible the work of sociologists and psychologists who may independently be conducting research related to one aspect or another of the academic program. As the institutional research program exerts such efforts and from time to time brings

such professionals into the formal research program of the institution, the prospects of influencing the educational aspects of college life will sharply increase.

Third, the impact of institutional research will increase as comprehensive and empirically supported theories are developed to guide the effort.

If the broad topics investigated are to have real impact on the academic program, they must be based upon theories relating to teaching, to personality, to learning, or to the process of change. Some basic assumptions as to how people and institutions function must be formulated.

What is called for here is aptly described by Nevitt Sanford:

> What directions ought inquiry now to take? In the first place, there should be an increased effort to develop theory--theory of personality development and theory pertaining to the structure and functioning of institutions in their social setting. From time to time in this volume the authors have called attention to the need of such theory. They have been prompted both by a sense of what might be achieved when modern theories are utilized and by an appreciation of what might result from a continued lack of theory: research on higher education will continue to increase, and unless theoretical work keeps pace with empirical observation, we shall court the danger of being overwhelmed by a mass of disconnected facts.[44]

Seen in the light of its weak theoretical underpinning, institutional research is vulnerable to criticism. With its emphasis on

ad hoc studies, its fondness for pretentious methodology, and its careful avoidance of offending the power structure, institutional research scarcely has been able to develop a foundation of concept, hypothesis, and purpose adequate to support the sort of activity that holds promise of having major impact.

As indicated, the individual studies that flow from theory should cover a wide range of institutional affairs. There may be theories about the teaching process, the nature of learning, the constraints on institutional management, the students' role in administration, the dynamics of change in the academic community, the function and impact of institutional research itself. The point is that the gathering of data is not enough if institutional research is to influence the collegiate program in constructive ways. There is a need to see to it that research activity is well grounded in theory.

Fourth, the impact of institutional research will increase as its practitioners actively participate in the process of institutional change.

Institutional researchers have, from time to time, taken a curiously ambivalent attitude toward the issue of change as it relates to their own work. They generally favor educational innovation, either as a separate idea or as part of growth throughout the academic community. In designing their studies they refer freely to change as

a goal, and they use evidence of change as an instrument for measuring or estimating the impact of their efforts. Even so, some of them have fostered what amounts to a professional tenet that institutional researchers must not have a voice in the direct action whereby change occurs. Someone else, they argue, should evaluate their studies and decide whether and how institutional affairs should be altered in view of the data presented.

This position possesses a degree of logic and validity. Surely the institutional researcher must fully heed the restraints imposed by objectivity. Clearly he must avoid the fact and the appearance of manipulating people. Plainly he must not announce the results of a study, or draw conclusions or make recommendations, until he is reasonably certain of his case, even though delay may make him appear to be devious if not pusillanimous. Obviously he cannot do his job properly if his role is primarily one of management rather than investigation. In these respects there is justification for the researcher's habitual avoidance of the evaluation-judgment-decision function.

But the institutional researcher does not operate with appreciable effectiveness if he extends the notion of professional integrity to mean that he should not interpret his studies in terms of institutional implications, evaluate existing institutional agencies and programs

on the basis of his studies, or offer his recommendations about how his institution should proceed. What he is doing is adopting the pose of intending no harm because he takes no part in the final stages of a whole process where someone in the organization may well be offended or injured. This stance is self-defeating. Data presented by a person who refuses to endorse it with his own opinion of what it means and how it should be used is not likely to command serious attention and respect.

Unfair or distorted as this view of the institutional researcher may be, it is an interpretation he invites by taking a narrow view of his organizational function, and it limits the impact of his professional efforts. Whatever the hazards and complexities of compromising the part of his varied role that is truly research, the practitioner becomes a full and respected partner in the academic enterprise only as he develops a candid, realistic attitude toward the part of his role that requires him to be a direct agent of institutional change. Therefore, it is recommended that with increased frequency the educational researcher evaluate, conclude, recommend, document--not wholly in theoretical and hypothetical terms, but to the precise point of how specific institutional activities could be improved. Then he will have done much to create circumstances that will help institutional research achieve the major impact that it must assume.

Fifth, there is a need to present and disseminate research findings in effective ways.

If the impact of research is to reach its potential, the findings must be more effectively transmitted. To whom should institutional research address itself? Obviously to a variety of audiences: faculty members, presidents, trustees, deans, business officers, students, alumni, the institution's parent community, foundation officers, leaders of business and industry, governmental representatives, the general public. But first and most emphatically, institutional research should address itself to the people who hold the power to make a firm decision in a given matter. The institutional researcher, to be effective, must define a variety of audiences sensitively and plan his activities in terms of capturing the attention of the people who hold the power to take action on the matter at hand. In short, there must be a strategy for getting action, and thus far institutional research has not been effectively conducted in this fashion. Efforts have been fragmentary, random, only loosely related to a broad grasp of institutional purpose and need. All too often researchers have talked with other researchers, selected topics of their own interests, and examined them with a jargon that virtually guarantees either dismissal or scorn.

To this point, what is a president or a trustee to do with a paper

on "Using a Matrix of Coefficients as a Planning Tool," "Methodological Complex," or "Combined Ratio and Cohort-Survival"? Of what use, or importance, is a weighty document consisting largely of graphs and tables that codify the socio-economic-intellective characteristics of the institution's students? How many times do we need proof that predictions of academic performance are imperfect, that faculty mobility is related to everything from salary to the wifely pecking order, and that students do not respond uniformly to any single scheme of dormitory accommodations?

Recently, Harvard psychologist Gordon W. Allport took his colleagues to task for their research activities. "The besetting sin is irrelevance," he said at a meeting of the American Psychological Association in 1965, adding: "We have too few restraints holding us to the structure of life as it is lived. We find ourselves confused by our intemperate empiricism which often yields unnamable factors, arbitrary codes, unintelligible interaction effects, and sheer flatulence from our computers."[45] At almost the same time Professor Allport's Harvard associate, sociologist Pitirim Sorokin, addressed the American Sociological Association this way: "The steam shovels of numerous investigating crews have dug up an enormous mass of 'facts' . . . . Today's predominantly analytical and fact-finding sociology . . . condemns itself to the sterile state of knowing more and more about less and less."[46]

To the examination of the reasons why institutional research has had a disappointing impact, the conclusion must be added that its style of communication leaves something to be desired.

As a remedy it is proposed that institutional research actually experiment with various ways to communicate its findings to those who need to know. Different techniques should be tried and these various approaches may actually become a part of a research design itself.

For example, let us assume that an office of institutional research has good but largely unused data on three topics--independent study, advanced placement, and computer-assisted instruction. First, the research staff might determine how much various people and groups of people on the campus know about each of these topics, and what attitudes and opinions they hold. Then three different methods of presenting data to the academic community might be devised; one, let us say, built around printed dissemination following typical committee discussion; another in which the data are presented orally and visually to selected campus leaders in a workshop situation; and a third in which the institutional research staff participates in a conference of department heads and chief administrators that presumably will decide what action, if any, to take on the matter at hand.

In each situation the decision-making process can be observed, recorded, and analyzed. Follow-up surveys can determine the extent to which campus understanding of and attitudes toward each topic have changed, and the community's degree of acceptance or rejection of the decisions regarding what action to take about independent study, advanced placement, computer-assisted instruction, or whatever, can be identified.

There are, of course, many possible combinations and variations of topics, groups of people, and methods of disseminating information that might be tested. Even though the task would be literally endless, this attempt to find the most effective way to communicate is an approach that institutional researchers must explore if they are to serve the academic community as action-oriented agents of change.

Sixth, the impact of institutional research will increase as the willingness to change becomes a commitment of the institution.

It would be pointless to belabor the fact that the educational community, not being impervious to the forces that require human institutions to change or perish, has indeed changed in many ways during its history. What does require emphasis, however, is the fact that for the most part change in the educational community, and particularly in the academic program, has been grudging, minimal, and disorderly. Typically, it has been a reaction to crisis

rather than a systematic, far-sighted anticipation of the ways in which the educational community can best serve society without debasing itself or succumbing to deleterious forces. All in all, change in the academic program is inevitable, since the notion that formal education will perish is unacceptable. Thus far in history that simple, stark fact has generated much divisive abrasion in the academic world. On the whole, the academic community has yet to examine seriously the proposition that a positive approach to change, a determination to develop it in orderly ways, holds immense promise for helping academicians to accomplish their fondest dreams and highest purposes.

If the academic community is to explore candidly the ways in which change might become an ally instead of an impediment, the minority of faculty members and administrators who lead the way and set the style must begin to conduct their affairs accordingly. They must help design exploratory studies that presuppose the need to change and seek to discover specific objectives toward which the process of change can and should be directed. They must indicate not only a wholehearted willingness but a relentless determination to examine and test every tenet and practice by which they conduct their affairs. They must insist that institutional research programs have resources adequate to the task at hand, that due emphasis is placed on educational research, and that institutional

researchers present their results and conclusions in comprehensible form.

Above all, these leaders of the academic community must help shore up the weak theoretical framework within which institutional research now operates. After all, they are the ones who establish institutional goals, fashion institutional policies, and allot institutional resources. The strategy by which goals are to be achieved within policy limits can hardly be conceived entirely or even primarily by subordinates, and yet such theory as now underlies institutional research has been developed largely by its practitioners themselves, often without the benefit of endorsement or thoughtful attention from institutional leaders.

What we have been considering in this matter of leadership is developing a sound theoretical foundation for institutional research that focuses on strategic rather than tactical theory. This is the level at which the institution devises not a plan for institutional research, but forms a concept of the role and the scope of self-examination, experimentation, and innovation in institutional affairs. It is on this level that the interrelatedness of research and action will be woven into the institutional fabric if, indeed, the academic community is ever to use change constructively rather than merely to attempt to cope with it. Above all, it must be pre-

pared to receive data objectively and to change programs and develop new hypotheses which become the bases for new research.

VI. A RESEARCH MODEL: A COMPARATIVE STUDY OF INSTITUTIONAL DEVELOPMENT

In this direction, beginning with sound theory and aiming at the root of substantive issues, lies good promise first of making educational research an integral part of the teaching-learning process; and second, of making change an orderly, constructive force in academic affairs. As an example of an effort conceived in this vein, consider the following description of a cooperative institutional research project being conducted by four colleges of similar purpose, type, and size. Note especially the theoretical rationale and its relationship to institutional objectives, the involvement of representatives of all segments of the campus community as interpreters and evaluators as well as subjects, the evidence of top-level commitment to the project, and the clear intention to seek change in institutional objectives and methods if the results of the inquiry warrant such recommendations.

The Problem To Be Studied Is Clearly Identified

Much is known about the ways in which student and faculty characteristics influence college environments. Even so, there has been little effort to discover how such knowledge might be deliberately

used to help colleges improve themselves in ways designed to enhance learning and better serve the campus community at a time when that community seems to be fragmenting, losing sight of institutional purpose, and suffering the effects of deteriorating communication among its major components--students, faculty, and administration.

If these assumptions are either true or sound enough to warrant serious contemplation, there is need for research that not only describes the characteristics of the college and its population, but that also tests strategies for the improvement of the college climate in ways that will enable all members of the community to understand, rather than merely react to, the forces that bear on them. Hopefully, greater understanding will lead to greater ability to anticipate problems and control circumstances in productive and progressive ways.

Specific Goals Are Set Forth

The ultimate aim of this study is to improve the climate for learning and scholarly activity on each state university campus. Conceptually, it is a commitment to sensitive, orderly research aimed at identifying, analyzing, and understanding the vagaries of institutional growth and the dynamics of institutional change. It has the following specific aims:

(1) To identify and describe the characteristics of four colleges that are shifting from teacher training to the arts and sciences.

(2) To determine in some detail the characteristics of students who enroll in these colleges and the changes that occur in them during their campus experience.

(3) To engage students, faculty, and administrators in a cooperative study and appraisal of the institutions, using the data gathered.

(4) To involve all elements of the campus community in the change process by encouraging each college to develop a model by which to measure its program and progress against its own immediate and long-range goals.

(5) To discover how the phenomenon of change varies from campus to campus, and to analyze the reasons for such variations.

This sequence of data collection, analysis, interpretation, evaluation, and recommendation will be performed each year over a four-year period. Undoubtedly the general strategy will be modified by experience and by the prevailing problems and specific goals of each college. Since the ultimate purpose is to develop models for controlled change that can be used by other colleges and universities, the project will document ways in which strategy might be modified in terms of the specific circumstances and plans of each institution.

A Methodology Is Defined.

Through a variety of techniques--personal interviews, standard questionnaire instruments, and special instruments to be developed

--comparable data about each college will be collected. The initial focus of the study will be on the colleges as organizations, to determine how their educational and management programs operate at present, the aspirations and expectations of various segments of the campus community, and the ways in which people associated with the college now perceive its characteristics and objectives.

The Total Campus Is Involved.

Initially, opinion will be sought from all faculty, administrative officers, and entering freshmen; at the same time, a random sample of sophomores, juniors, and seniors will be questioned. Samples of opinion will subsequently be taken continually throughout the study, and during the fourth year the full questioning will be repeated. Close attention will be paid to the views of influential members of the faculties and student bodies over a period of time. Faculty actions and reactions to identifiable issues will be recorded, as will student responses and concerns as expressed through organizations that give voice to student affairs.

The intent of this part of the project is first to define as precisely as possible the characteristics and objectives of each college as they are perceived by students, faculty, and administrators at the outset of the study; second, to record evidences of change as they occur during a four-year span; and third, at the end of the four-year span,

to duplicate as closely as possible the comprehensive survey with which the study began. This will produce a mass of data bearing on the process of change on each campus.

Each summer this evolving body of information will be presented to a series of workshops composed of faculty, students, administrators, and consultants who will be asked to interpret and evaluate it in terms of the progress, or lack thereof, that each college seems to be making toward its stated goals. The conferees will be asked to consider questions such as these: What is the evidence and extent of institutional cohesiveness? On what issues and in what ways is there segmentation among students, faculty, and administration? Is there segmentation within these major groups, and if so, in what ways and for what reasons? To what extent are the college's stated objectives understood and supported by members and components of the campus community? What are the major similarities and differences among the four colleges? In situations that are comparable at the outset, do different changes occur on various campuses over a period of time? What factors can be isolated to account for variable change in given situations? Can concepts and techniques that have been productive on one campus be incorporated usefully on other campuses? What level and type of support do the president and other senior administrators receive from the campus community? What are the evidences of and reasons for increasing,

decreasing, or unchanging support? Does this vary from campus to campus? If so, why?

These questions are only illustrative. The whole analysis and evaluation process will undoubtedly generate new questions, cause review of stated college goals and perhaps recommendation for modification of them, and focus campuswide attention on the fact that institutions must and do change. In addition, certain foreseeable hypotheses will be tested (for example, prevailing campus attitudes are established by an identifiable minority of faculty, students, and administration; colleges exhibiting low agreement about future goals will not be able to effect major changes; student attitudes and values will change in different ways on campuses that deliberately merge in-class and out-of-class learning experiences; college presidents must have a high degree of faculty support to accomplish major changes), and unpredictable hypotheses undoubtedly will be devised and examined. While no rigid pattern for the analysis and evaluation process can or should be assumed, the study does presuppose that new data discussed in new ways by representatives of all segments of the college will lead the community to think about itself in different ways, to reconsider traditional assumptions, and to seek practical ways to incorporate new programs and objectives in the fundamental structure of the organization.

A Commitment to Change Is Established.

Ultimately, the project should lead first to an identification of the forces and processes whereby change occurs in institutions of the sort being examined; second, it should lead to the development of a general theory encompassing factors that accelerate change, facilitate desirable change, and arrest undesirable change. Whether such a theory will prove to be useful in the conduct of institutional affairs is, of course, the fundamental point of the entire project.

This project is not in any sense cited as a breakthrough in institutional research or even as an unusually perceptive or well-designed study. Rather, it is offered as an example of the solid, meaningful sort of activity through which the academic community can come to grips with fundamental questions about the educative process. It pays full heed to theory, both strategic and tactical. It involves decision-makers from the conceptual stage through intermittent evaluation and revision to ultimate conclusion and recommendation. It clearly postulates the possibility, even the probability, of discovering evidence so compelling that the colleges involved will simply have to respond in positive ways.

In this instance the researchers are acting as agents of change. The program is action-oriented. Its purposes are clear and relevant to substantive matters, and it is geared to identify and mesh with

the realities of the power structures involved. Impact of some sort must result, and at the time when the project is in only its first stage it is difficult to believe that its impact will not extend to academic programs.

VII. A FINAL OBSERVATION

Many of the preceding remarks have dealt rather roughly with institutional researchers. The intent has been not to scold or exhort. Rather, it has been to cast at least a moderate amount of light on the reasons why the immensely important activity of institutional research has failed, on the whole, to make significant contributions to the real business of education, which is to do the best possible job of transmitting knowledge, stimulating the growth of intellectual maturity, and discovering new knowledge.

In this review matters of structure, function, attitude, style, and theory have been examined, and on many important counts it seems that institutional researchers might improve themselves dramatically.

But so might countless key people whose acceptance and support are indispensable ingredients in a vigorous, productive institutional research program. And to say that institutional researchers must first conduct their affairs in ways that earn the respect of enough key people is to beg the question: Does the institution really want an action-oriented research program that will address itself seriously to academic affairs as well as to housekeeping matters?

If the institution does, in fact, want such a program, if the people who set style and create opinion on a campus are willing to test their professional tenets and techniques against new theories and new knowledge, then the institution will get what it wants at a level that will command a high degree of respect. A few institutions have so proven. Researchers capable of conducting such programs exist; more can be trained. Countless promising theories wait to be tested; more will be developed, particularly if the climate becomes favorable. And there is no dearth of informed, responsible suggestions about ways in which the academic community might improve itself and the service it renders to its constituents.

But what is in short supply is the wholehearted desire to seek better ways to teach, to communicate, to administer. If nature abhors a vacuum, it also resists displacement; and human nature, having had several thousand years to refine natural law, tends to resist forces that even seem to lead toward personal displacement. And so when all is said and done, the question of whether educational research is to become a vital force in academic affairs depends on the individual faculty member, dean, department head, president, assessing his own professional posture and saying, "There may be a better way . . . " And meaning it.

FOOTNOTES

1. L. Joseph Lins, ed., "Basis for Decision: A Composite of Institutional Research Methods and Reports of Colleges and Universities." Journal of Experimental Education, vol. 31, p. 88-228. 1962.

2. L. Joseph Lins, ed., The Role of Institutional Research in Planning. Proceedings of the 3rd Annual National Research Forum, May 5-7, 1963. Madison, Wis., Office of Institutional Studies, University of Wisconsin, 1963.

3. Ruth Weinstock, Space and Dollars: An Urban University Expands. New York, Educational Facilities Laboratory, 1961.

4. Charles R. Walker and John J. Coffelt, Physical Facilities for Higher Education in Oklahoma. Self-Study Report No. 5. Oklahoma City, Oklahoma State Regents for Higher Education, 1964.

5. L. E. Hull and D. A. McWhirter, Unit Cost Analysis Procedure, Indiana University. Bloomington, Indiana University Foundation, 1964.

6. John E. Swanson, Wesley Arden, and Homer E. Hill, Financial Analysis of Current Operations of Colleges and Universities. Cooperative Research Project No. 1853. Ann Arbor, Institute of Public Administration. University of Michigan, 1966.

7. Herman E. Koenig et al., A Systems Approach to Higher Education--A Comprehensive Report of Progress. National Science Foundation Project C-396. Interim Report No. 3. East Lansing, Division of Engineering Research, Michigan State University, 1966.

8. L. Joseph Lins, Methodology of Enrollment Projections. Washington, American Association of Collegiate Registrars and Admissions Officers, 1960. (Available from Publications Office, American Council on Education, Washington, D. C.)

9. Cameron Fincher, Probabilistic Versus Deterministic Models on College Admissions. Athens, Ga., Institute of Higher Education, University of Georgia, 1965.

10. James M. Richards, Jr., and John L. Holland, A Factor Analysis of Student "Explanations" of Their Choice of a College. ACT Research Report No. 8. Iowa City, American College Testing Program, 1965.

11. Charles M. Grigg, Recruitment to Graduate Study. SREB Research Monograph No. 10. Atlanta, The Southern Regional Education Board, 1965.

12. F. Glenn Macomber and Laurence Siegel, Final Report of the Experimental Study in Instructional Procedures. Oxford, Ohio, Miami University, 1960.

13. Donald E. Hovey, Howard E. Gruber, and Glenn Terrell, "Effects of Self-Directed Study on Course Achievement, Retention, and Curiosity." Journal of Educational Research, vol. 36, p. 346-51. March, 1963.

14. Ruth Dietz Churchill, "Evaluation of Independent Study in College Courses." Doctoral dissertation. Minneapolis, University of Minnesota, 1960. (Abstract in Dissertation Abstracts, vol. 21, No. 7, p. 1841-42. 1961.

15. Clifford G. Erickson and Hymer M. Chausow, Chicago's TV College: Final Report of a Three-Year Experiment of The Chicago City Junior College in Offering College Courses for Credit via Open Circuit Television. Chicago, Chicago City Junior College, 1960.

16. Robert W. Janes, "Preexisting Attitudes of College Students to Instructional Television." A V Communication Review, vol. 12, p. 325-36. Fall, 1964.

17. Wilbur Schramm, The Research on Programed Instruction--An Annotated Bibliography. U. S. Office of Education Bulletin No. 35, 1964. Washington, Government Printing Office, 1964.

18. John E. Stecklein and Richard Pugh, Students Enrolled in the T.V. College, Fall, 1964. University of Minnesota TV College Research Report No. 1. Minneapolis, Bureau of Institutional Research, University of Minnesota, 1965. John E. Stecklein, Earl N. Ringo, and James D. MacDonald, Students Enrolled in the T.V. College General Extension Division, Fall, 1965. University of Minnesota TV College Research Report No. 3. Minneapolis, Bureau of Institutional Research, University of Minnesota, 1966.

19. Ruth E. Eckert and Daniel C. Neale, "Teachers and Teaching." Review of Educational Research, vol. 35, p. 313. October, 1965.

20. Donald N. Bigelow, "The Center Concept and the Changing Curriculum." Higher Education, vol. 18, p. 12-16, 27-28. July, 1962.

21. Lewis B. Mayhew, ed., General Education: An Account and Appraisal. New York, Harper & Bros., 1960.

22. Edward A. Carlin and Edward B. Blackman, eds., Curriculum Building in General Education. Dubuque, Iowa, William C. Brown Co., 1960.

23. Sumner Hayward, "Recipe for Revolution: Beloit's Nineteen Ingredients." Liberal Education, vol. 49, p. 493-501. December, 1963.

24. Earl J. McGrath, "The College Curriculum--An Academic Wasteland?" Liberal Education, vol. 49, p. 235-50. May, 1963.

25. George L. Fahey and Joe M. Ball, "Objective Evaluation of a Program in General Education." Journal of Educational Psychology, vol. 51, p. 144-51. June, 1960.

26. Paul A. Brinker, "Our Illiberal Liberal-Arts Colleges: The Dangers of Undergraduate Overspecialization." Journal of Higher Education, vol. 31, p. 133-38. March, 1960.

27. Joseph Katz and Nevitt Sanford, "The Curriculum in the Perspective of the Theory of Personality Development." In Nevitt Sanford, ed., The American College: A Psychological and Social Interpretation of the Higher Learning, Chapter 11, p. 418. New York, John Wiley & Sons, 1962.

28. John Summerskill, "Dropouts from College." In Sanford, ed., The American College, op. cit., Chapter 19, p. 627-57.

29. Alexander W. Astin, "Personal and Environmental Factors Associated with College Dropouts Among High Aptitude Students." Journal of Educational Psychology, vol. 55, p. 219-27. August, 1964.

30. David Nasatir, "A Contextual Analysis of Academic Failure." School Review, vol. 71, p. 290-98. Autumn, 1963.

31. Frederick B. Rowe, Characteristics of Women's College Students. SREB Research Monograph No. 8. Atlanta, The Southern Regional Education Board, 1964.

32. Alexander W. Astin, "Influences on the Student's Motivation To Seek Advanced Training: Another Look." Journal of Educational Psychology, vol. 53, p. 303-9. December, 1962.

33. Alexander W. Astin, "Differential College Effects on the Motivation of Talented Students To Obtain the Ph.D." Journal of Educational Psychology, vol. 54, p. 63-71. February, 1963.

34. "Project on Student Development in Small Colleges" (report in progress).

35. Harold Webster, Mervin Freedman, and Paul Heist, "Personality Changes in College Students." In Sanford, ed., The American College, op. cit., Chapter 24, p. 811-46.

36. Mervin B. Freedman, "Studies of College Alumni." In Sanford, ed., The American College, op. cit., Chapter 25, p. 847-86.

37. Irvin J. Lehmann and Paul L. Dressel, Changes in Critical Thinking Ability, Attitudes, and Values Associated with College Attendance. U. S. Department of Health, Education, and Welfare, Office of Education, Cooperative Research Project No. 1646. East Lansing, Michigan State University, 1963.

38. Lois B. Murphy and Esther Raushenbush, eds., Achievement in the College Years. New York, Harper & Bros., 1960.

39. Rebecca Vreeland and Charles Bidwell, "Organizational Effects on Student Attitudes: A Study of the Harvard Houses." Sociology of Education, vol. 38, p. 233-50. 1965.

40. Nevitt Sanford, "Research and Policy in Higher Education." In Sanford, ed., The American College, op. cit., Chapter 29, p. 1009.

41. David Riesman, "Alterations in Institutional Attitudes and Behavior." In Logan Wilson, ed., Emerging Patterns in Higher Education, p. 72. Washington, American Council on Education, 1965.

42. Samuel Baskin, in Clarence H. Bagley, ed., A Conceptual Framework for Institutional Research, p. 1. Proceedings of the Fourth Annual National Institutional Research Forum, May 17-20, 1964. Pullman, Wash., Office of Institutional Research, Washington State University, 1964.

43. Christian Bay, "A Social Theory of Higher Education." In Sanford, ed., The American College, op. cit., Chapter 28, p. 993-94.

44. Sanford, "Research and Policy in Higher Education," op. cit., p. 1010.

45. Gordon W. Allport, "Traits Revisited." American Psychologist, vol. 21, No. 1, p. 8. January, 1966.

46. Pitirim A. Sorokin, Presidential Address delivered at annual meeting of the American Sociological Association. Chicago, September, 1965. Published in American Sociological Review, vol. 30, No. 6, p. 835. December, 1965.

ANNOTATED BIBLIOGRAPHY

1. Astin, Alexander W., "Differential College Effects on the Motivation of Talented Students to Obtain the Ph.D." Journal of Educational Psychology, vol. 54, p. 63-71. February, 1963.

This article discusses the impact of college on the student's educational plans as suggested by results of a four-year panel study of 6,544 high-aptitude students attending 82 institutions.

2. _____, "Influences on the Student's Motivation to Seek Advanced Training: Another Look." Journal of Educational Psychology, vol. 53, p. 303-9. December, 1962.

This article challenges the methodology and statistical procedure employed in an earlier longitudinal study (by Thistlethwaite) on shifts in educational aspirations among students.

3. _____, "Personal and Environmental Factors Associated with College Dropouts Among High Aptitude Students." Journal of Educational Psychology, vol. 55, p. 219-27. August, 1964.

This article explores the extent to which the college itself may influence the mortality and survival of students. The author's study makes use of 11 college characteristics, including affluence, size, and various orientations such as intellectual and social, as well as 6 dichotomous variables representing types of institutions.

4. Barton, Allen H., Organizational Measurement and Its Bearing on the Study of College Environments. Research Monograph No. 2. New York, College Entrance Examination Board, 1961.

This monograph classifies and summarizes recent studies in the field of organizational measurement, and suggests their relevance to higher education research.

5. Bonjean, Charles M., and Reece McGee, "Scholastic Dishonesty Among Undergraduates in Differing Systems of Social Control." Sociology of Education, vol. 38, p. 127-37. 1965.

This study examines student scholastic dishonesty at two large public institutions, one of which has an honor system.

6. Boyer, Ernest L., and William B. Michael, "Outcomes of College." Review of Educational Research, vol. 35, p. 277-91. October, 1965.

A review of recent literature related to the impact of college on students.

7. Brinker, Paul A., "Our Illiberal Liberal-Arts Colleges: The Dangers of Undergraduate Overspecialization." Journal of Higher Education, vol. 31, p. 133-38. March, 1960.

In this study of courses taken by liberal arts students in four Southwestern liberal arts colleges, the author found that humanities and social sciences majors failed to obtain an elementary acquaintance with disciplines in other fields.

8. Brumbaugh, A. J., Research Designed to Improve Institutions of Higher Learning. Office of Statistical Information and Research, American Council on Education, 1960. (Available from Southern Regional Education Board, Atlanta.)

The author discusses institutional research and explores ways to relate more effectively the work of the profession to institutional growth.

9. Capretta, Patrick J., Reginal L. Jones, Laurence Siegel, and Lila C. Siegel, "Some Noncognitive Characteristics of Honors Program Candidates." Journal of Educational Psychology, vol. 54, p. 268-76. 1963.

This study is an outgrowth of an attempt to improve the criteria used to select honors program candidates at Miami University, Oxford, Ohio. The authors conclude that noncognitive variables play some role in determining success in an intellectually oriented program; also important are the differences on these same variables between those who accept invitations to join honors programs and those who do not.

10. Carlin, Edward A., and Edward B. Blackman, eds., Curriculum Building in General Education. Dubuque, Iowa, William C. Brown Co., 1960.

This publication reviews curriculum developments at the Basic College of Michigan State University and describes in detail the

changes made in communications skills, natural sciences, social sciences, and humanities.

11. Churchill, Ruth Dietz, "Evaluation of Independent Study in College Courses." Doctoral dissertation. Minneapolis, University of Minnesota, 1960. (Abstract in Dissertation Abstracts, vol. 21, No. 7, p. 1841-42. 1961.)

This thesis examines the Antioch College independent study program and compares it to more conventional teaching procedures.

12. Davis, James A., Great Aspirations: The Graduate School Plans of America's College Seniors. National Opinion Research Center, Monographs in Social Research No. 1. Chicago, Aldine Publishing Co., 1964.

Data for this report on the graduate school plans of seniors are based on self-administered questionnaires completed in the spring of 1961 by 33,982 June graduates sampled from 135 colleges and universities. Approximately 85 percent of the eligible students completed a questionnaire.

13. Doi, James I., and Keith L. Scott, Normative Data on the Utilization of Instructional Space in Colleges and Universities. Madison, Wis., American Association of Collegiate Registrars and Admissions Officers, 1960.

The norms in this space utilization publication, now out or print, were computed using the techniques described in Russell and Doi, Manual for Studies of Space Utilization in Colleges and Universities, 1957.

14. Donaldson, Robert S., Fortifying Higher Education: A Story of College Self Studies. New York, Fund for the Advancement of Education, 1959.

This publication analyzes and evaluates the use of self-studies in American colleges and universities. Illustrations of practices at particular colleges and universities are included.

15. Dressel, Paul L., and Irvin J. Lehmann, "The Impact of Higher Education on Student Attitudes, Values and Critical Thinking Abilities." Educational Record, vol. 46, p. 248-58. 1965.

This article reports selected findings of a Michigan State University study of the degree and direction of change of students

at various stages of progress through college.

16. Eckert, Ruth E., and Daniel C. Neale, "Teachers and Teaching." Review of Educational Research, vol. 35, p. 304-17. October, 1965.

This article reviews recent literature relevant to college teaching.

17. Erickson, Clifford G., and Hymer M. Chausow Chicago's TV College: Final Report of a Three Year Experiment of The Chicago City Junior College in Offering College Courses for Credit via Open Circuit Television. Chicago, Chicago City Junior College, 1960.

This report summarizes results of a three-year study of TV instruction in the Chicago City Junior College.

18. Fahey, George L., and Joe M. Ball, "Objective Evaluation of a Program in General Education." Journal of Educational Psychology, vol. 51, p. 144-51. June, 1960.

This article evaluates the program in general education initiated in the liberal arts college of the University of Pittsburgh in 1955.

19. Fincher, Cameron, Probabilistic Versus Deterministic Models in College Admissions. Athens, Ga., Institute of Higher Education, University of Georgia, 1965.

Two basic approaches to college admissions are discussed in this article. The author contends that a probabilistic point of view in college admissions is more in keeping with contemporary science than a deterministic view.

20. Ford, Donald H., and Hugh B. Urban, "College Dropouts: Successes or Failures." Educational Record, vol. 46, p. 77-92. 1965.

This article describes part of a continuing research program developed to identify the student response patterns which best matched the educational environments provided by the Pennsylvania State University. The findings have affected admissions criteria and couseling programs.

21. Freedman, Mervin B., "Studies of College Alumni." In Nevitt Sanford, ed., The American College: A Psychological and Social Interpretation of the Higher Learning, p. 847-86. New York, John Wiley & Sons, 1962.

In this chapter the author reviews a study of young Vassar College alumnae, concluding that developmental changes during the college years persist among graduates.

22. Gottlieb, David, and Benjamin Hodgkins, "College Student Subcultures: Their Structures and Characteristics in Relation to Student Attitude Change." School Review, vol. 71, p. 266-89. 1963.

From results of their study, the authors conclude that a differential rate of change in student attitudes occurs within the same college student body.

23. Grigg, Charles M., Recruitment to Graduate Study. SREB Research Monograph No. 10. Atlanta, The Southern Regional Education Board, 1965.

This study analyzes the planned and actual enrollment patterns of seniors in Southern colleges.

24. Hayward, Sumner, "Recipe for Revolution: Beloit's Nineteen Ingredients." Liberal Education, vol. 49, p. 493-501. December, 1963.

This article describes a revised curriculum plan instituted at Beloit College involving a three-level, nine-term, four-year calendar providing on-campus, field, and vacation term experience.

25. "Higher Education, U.S.A." Sociology of Education, vol. 37. 1963.

This entire issue is devoted to higher education and contains articles on intellectual climates, the meaning of bachelor's degrees, and student opinions.

26. Hovey, Donald E., Howard E. Gruber, and Glenn Terrell, "Effects of Self-Directed Study on Course Achievement, Retention, and Curiosity." Journal of Educational Research, vol. 36, p. 346-51. March, 1963.

This article reports upon results of a study of achievement by self-directed college students meeting without a professor.

27. Hull, L. E., and D. A. McWhirter, Unit Cost Analysis Procedure, Indiana University. Bloomington, Indiana University Foundation, 1964.

A descriptive approach to cost-analysis procedures is presented.

28. Janes, Robert W., "Preexisting Attitudes of College Students to Instructional Television." A U Communication Review, vol. 12, p. 325-36. Fall, 1964.

This study found that favorable attitudes toward a televised course were positively related to intelligence, length of viewing experience, self-confidence, degree of authoritarianism, and course grade.

29. Katz, Joseph, and Nevitt Sanford, "The Curriculum in the Perspective of the Theory of Personality Development." In Nevitt Sanford, ed., The American College: A Psychological and Social Interpretation of the Higher Learning, p. 418-44. New York, John Wiley & Sons, 1962.

In this chapter the authors state that, despite its importance, the curriculum rarely has been made the subject of systematic investigation and call attention to the need for continuing experimentation.

30. Knoell, Dorothy M., and Leland L. Medsker, Factors Affecting Performance of Transfer Students From Two to Four Year Colleges. Cooperative Research Project No. 1133. Berkeley, University of California, 1964.

This report is a study of 7,243 junior college students who transferred in 1960 to a sample of 41 four-year colleges and universities in 10 states.

31. _____, and _____, Articulation Between Two-Year and Four-Year Colleges. Cooperative Research Project No. 2167. Berkeley, University of California, 1964.

This report is a continuation of a large-scale investigation (Knoell and Medsker, Factors Affecting Performance of Transfer Students from Two to Four-Year Colleges). It includes a more intensive analysis of the academic records of the transfer students, of factors related to success or failure, and of articulation problems.

32. Koenig, Herman E., and others, A Systems Approach to Higher Education--A Comprehensive Report of Progress. Division of Engineering Research, National Science Foundation Project C-396, Interim Report No. 3. East Lansing, Michigan State University, 1966.

This report describes a project to develop a dynamic systems model of a university. The model, stated mathematically, is an explicit representation of the flow of students and other resources required to sustain the institution. It considers the costs as only one part of the total system.

33. Lehmann, Irvin J., and Paul L. Dressel, Changes in Critical Thinking Ability, Attitudes, and Values Associated with College Attendance. Cooperative Research Project No. 1646. East Lansing, Michigan State University, 1963.

The authors discuss findings of an empirical study of beliefs and values held by students at Michigan State University. Among other findings, they reported that students in the study group became more flexible and relative in their system of values.

34. Leonard, Elizabeth W., "Attitude Change in a College Program of Foreign Study and Travel." Educational Record, vol. 45, p. 173-81. 1964.

This article reports results of a study of 85 students enrolled in Adelphi University who went overseas in the years 1957-61. The author concludes that foreign travel and study can produce a much greater change in attitude in a far shorter time than can a regular program of campus study.

35. Linn, Robert L., A. Junius, and K. Patricia Cross, A Guide to Research Design: Institutional Research Program for Higher Education. Princeton, Educational Testing Service, 1965.

This volume presents research strategies and designs applicable to studies of students and their environments. It is particularly concerned with proper use of instruments and data available through the Educational Testing Service.

36. Lins, L. Joseph, Methodology of Enrollment Projections for Colleges and Universities. American Association of Collegiate Registrars and Admissions Officers, 1960. (Available from Publications Office, American Council on Education, Washington, D. C.)

This paper explains enrollment projection techniques using the curve-fitting method, ratio method, cohort-curvival method, and correlation analysis.

37. _____, ed., The Role of Institutional Research in Planning. Proceedings of the Third Annual National Research Forum,

May 5-7, 1963. Madison, Wis., Office of Institutional Studies, University of Wisconsin, 1963.

These proceedings consist of papers presented at a conference devoted entirely to a study of the relationship between research and institutional planning.

38. _____, "Basis for Decision: A Composite of Institutional Research Methods and Reports of Colleges and Universities." Journal of Experimental Education, vol. 31, p. 88-228. 1962.

This special issue includes more than 30 articles on such topics as the purposes and organization of institutional research, self studies, cost analysis, faculty load, faculty satisfactions, facilities planning, student fees and costs, student needs, satisfactions and success.

39. Lunsford, Terry F., ed., The Study of Campus Cultures. Fourth Annual Institute on College Self Study. Boulder, Colo., Western Interstate Commission for Higher Education, 1963.

This collection of papers deals with faculty culture, student culture, and interactions of various campus subcultures. It also includes suggestions for administering studies of campus cultures and considers the administrative implications of such analyses.

40. Macomber, F. Glenn, and Laurence Siegel, Final Report of the Experimental Study in Instructional Procedures. Oxford, Ohio, Miami University, 1960.

This study demonstrated that a variety of teaching methods can be equally effective.

41. McGrath, Earl J., "The College Curriculum--An Academic Wasteland?" Liberal Education, vol. 49, p. 235-50. May, 1963.

The author summarizes a study of curricula and the related costs of instruction of 14 independent liberal arts colleges.

42. _____, ed., Cooperative Long Range Planning in Liberal Arts Colleges. New York, Institute of Higher Education, Teachers College, Columbia University, 1964.

This is a collection of papers presented at a conference of presidents of liberal arts colleges under the sponsorship of the Institute of Higher Education. The topics covered are quality and

cost, institutional research, tuitions, admissions policies, and policy formulation.

43. Mayhew, Lewis B., ed., General Education: An Account and an Appraisal. New York, Harper & Bros., 1960.

In this article the author views the trend to increase foreign language and area study offerings.

44. Michael, William B., and Ernest L. Boyer, "Campus Environment." Review of Educational Research, vol. 35, p. 264-76. October, 1965.

A review of recent literature on the impact of the campus environment on students.

45. Miller, James L., Jr., State Budgeting for Higher Education: The Uses of Formulas and Cost Analysis. Michigan Governmental Studies No. 45. Ann Arbor, Institute of Public Administration, University of Michigan, 1964.

This report discusses management considerations in developing budget data.

46. Montgomery, James R., Proceedings of the Research Conference on College Dropouts. Cooperative Research Project No. F-065. Knoxville, University of Tennessee, 1964.

This volume discusses needed research, institutional policies and procedures which encourage withdrawals and dropouts, and early warning signs of dropouts, and provides a bibliography of relevant studies.

47. Murphy, Lois B., and Esther Raushenbush, eds., Achievement in the College Years. New York, Harper & Bros., 1960.

This is the report of an empirical and descriptive study at Sarah Lawrence College, tracing the changes in personality of 46 girls from the freshman through the senior year.

48. Nasatir, David, "A Contextual Analysis of Academic Failure." School Review, vol. 71, p. 290-98. Autumn, 1963.

This article reports upon a study of the dropout rate of 1,782 University of California (Berkeley) freshmen who lived in six dormitories to which they had been nonpreferentially assigned. In four

of the six units even the physical facilities were identical, yet the author found the failure rate among the dorms to range from 0 to 56 percent. He concluded that college success or failure was determined by the interaction of the individual and the social context.

49. Research in Higher Education: Guide to Institutional Decisions. New York, College Entrance Examination Board, 1965.

This volume contains papers presented at the Invitational Conference on Educational Research at Harvard University in June, 1964. Topics discussed include admission procedures, student ecology, and Federal concern for research.

50. Richards, James M., Jr., and John L. Holland, A Factor Analysis of Student "Explanations" of Their Choice of a College. ACT Research Reports No. 8. Iowa City, American College Testing Program, 1965.

In this report the authors used data from a sample of 8,292 high school students who were college applicants. Four major areas of influence on choice of college were identified: intellectual emphasis, practicality, advice of others, and social emphasis.

51. _____, and Sandra W. Lutz, The Assessment of Student Accomplishment in College. ACT Research Reports No. 11. Iowa City, American College Testing Program, 1966.

This report summarizes data from a questionnaire designed to assess the nonacademic accomplishments of college students. To the authors, the results suggest that the nonacademic scales possess some construct validity and are relatively independent of academic grades and recognition.

52. _____, Leonard P. Rand, and Lorraine M. Rand, "A New Way to Measure Environment." Junior College Journal, vol. 36, No. 7, p. 18-20. 1966.

This article reviews data from 581 accredited two-year colleges. The study identifies 36 characteristics of the colleges, from which six factors (cultural affluence, technological specialization, size, age, transfer emphasis, and business orientation) were selected for measurement.

53. Riesman, David, "Alterations in Institutional Attitudes and Behavior." In Logan Wilson, ed., Emerging Patterns in Higher Education, p. 66-73. Washington, American Council on Education, 1965.

This article examines the professional attitudes, motives, interests, and values that characterize pace-setting institutions and highly influential academicians.

54. Rowe, Frederick B., Characteristics of Women's College Students. SREB Research Monograph No. 8. Atlanta, The Southern Regional Education Board, 1964.

In this study the author used Stern's Activities Index and Stern and Pace's College Characteristics Index to examine characteristics of the students and the environments of three women's colleges.

55. Russell, John D., and James I. Doi, Manual for Studies of Space Utilization in Colleges and Universities. American Association of Collegiate Registrars and Admissions Officers, 1957. (Available from Publications Office, American Council on Education, Washington, D. C.)

This manual describes techniques for conducting space utilization studies in colleges and universities.

56. Sanford, Nevitt, ed., The American College: A Psychological and Social Interpretation of the Higher Learning. New York, John Wiley & Sons, 1962.

This volume represents an approach by behavioral scientists to higher education as a field of intellectual inquiry. Topics discussed are the student, the collegiate environment, behavior of students in college, interaction between students and progress of the college, and the effects upon students of the college experience.

57. Schramm, Wilbur, The Research on Programed Instruction--An Annotated Bibliography. U. S. Office of Education Bulletin No. 35, 1964. Washington, Government Printing Office, 1964.

This review of 100 studies of the effectiveness of television instruction found that 84 of the investigations reported no significant differences in achievement between televised and conventional instruction.

58. Stecklein, John E., How to Measure Faculty Work Load. Washington, American Council on Education, 1961.

This is an educational management study of faculty work-load factors.

59. _____, and Richard Pugh, Students Enrolled in the T.V. College, Fall, 1964. University of Minnesota TV College Research Report No. 1, Bureau of Institutional Research. Minneapolis, University of Minnesota, 1965.

This report is an assessment of the effectiveness of a TV College over an extended period of time.

60. _____, Earl N. Ringo, and James D. MacDonald, Students Enrolled in the T.V. College General Extension Division, Fall, 1965. University of Minnesota TV College Research Report No. 3, Bureau of Institutional Research. Minneapolis, University of Minnesota, 1966.

The authors assess effectiveness of a TV College over an extended period of time.

61. _____, _____, and Joanna Samuels, Characteristics and Attitudes of Persons Who Expressed an Interest in the T.V. College General Extension Division, but Did Not Enroll, Fall, 1965. University of Minnesota TV College Research Report No. 4, Bureau of Institutional Research. Minneapolis, University of Minnesota, 1966.

This report considers characteristics of would-be students of a TV College.

62. _____, Renee Ward, and Ingeborg Marquardt, The T.V. College Non-credit Audience, Winter, 1965. University of Minnesota TV College Research Report No. 2, Bureau of Institutional Research. Minneapolis, University of Minnesota, 1965.

Another report in a series which considers characteristics of non-credit students of a TV College.

63. Stickler, W. Hugh, ed., Experimental Colleges: Their Role in American Higher Education. Tallahassee, Florida State University, 1964.

This volume, an outgrowth of a "Colloquium on Experimental Colleges" held in 1964, contains descriptions of experimental programs at 10 institutions.

64. _____, and Milton W. Carothers, The Year-Round Calendar in Operation. SREB Research Monograph No. 7. Atlanta, The Southern Regional Education Board, 1963.

Reasons for year-round operation, and its financial implications, problems, and trends are discussed in this report. Case studies of nine institutions operating on year-round calendars are included.

65. Summerskill, John, "Dropouts from College." In Nevitt Sanford, ed., The American College: A Psychological and Social Interpretation of the Higher Learning, p. 627-57. New York, John Wiley & Sons, 1962.

This chapter cites 35 college dropout studies conducted between 1920 and 1960 which disclose a median student loss of 50 percent in a decade-by-decade analysis.

66. Swanson, John E., Wesley Arden, and Homer E. Hill, Financial Analysis of Current Operations of Colleges and Universities. Co-operative Research Project No. 1853, Institute of Public Administration. Ann Arbor, University of Michigan, 1966.

This publication is a recent attempt to provide a theoretical basis for a systematic approach to financial operations in higher education.

67. Trent, James W., Irene J. Athey, and Judith L. Craise, "Technology, Education, and Human Development." Educational Record, vol. 46, p. 93-103. 1965.

Findings from a longitudinal five-year study conducted at the Center for the Study of Higher Education, University of California, Berkeley, are reported. It considers three aspects of the data: factors affecting the initial decision to attend college, characteristics which distinguish students with different patterns of progress through college, and development of students enrolled in liberal arts, technological, and teacher-training programs.

68. Vreeland, Rebecca, and Charles Bidwell, "Organizational Effects on Student Attitudes: A Study of the Harvard Houses." Sociology of Education, vol. 38, p. 233-50. 1965.

This study investigated the ways in which the goals at eight Harvard College residential houses influenced student attitudes and values.

69. Walker, Charles R., and John J. Coffelt, Physical Facilities for Higher Education in Oklahoma. Self Study Report No. 5. Oklahoma City, Oklahoma State Regents for Higher Education, 1964.

This study of the facilities needs of 21 colleges and universities in Oklahoma inventoried existing land and buildings, evaluated the use of present space, and projected physical plant needs and costs.

70. Webster, Harold, Mervin Freedman, and Paul Heist, "Personality Changes in College Students." In Nevitt Sanford, ed., The American College: A Psychological and Social Interpretation of the Higher Learning, p. 811-46. New York, John Wiley & Sons, 1962.

This article concludes, both from theory and from empirical data, that for freshmen the capacity to learn is in a highly undeveloped state and that shifts in such ability can be expected, especially among highly gifted students.

71. Weinstock, Ruth, Space and Dollars: An Urban University Expands. New York, Educational Facilities Laboratory, 1961.

The author presents a case study of Drexel Institute of Technology as a representative urban institution. The six areas of inquiry considered in this report are economics of the high-rise building, economics of low building units which can be vertically expanded, conversion of industrial buildings, parking, arrangement of space to achieve high utilization, and determination of future space requirements.

72. Willingham, Warren W., Research and Development, A Report to the Trustees of the College Entrance Examination Board. New York, College Entrance Examination Board, 1965.

This is a statement of objectives for research in higher education based primarily on institutional research.

73. Wilson, Kenneth M., Of Time and the Doctorate--Report of an Inquiry into the Duration of Doctoral Study. SREB Research Monograph No. 9. Atlanta, The Southern Regional Education Board, 1965.

A monograph report of a study of selected aspects of graduate study at Southern universities.

REACTIONS

In order for this second series of "New Dimensions in Higher Education" to better serve the needs of colleges and universities throughout the nation, reader reaction is herewith being sought. In this instance, with respect to Institutional Research and the Academic Program, the following questions are asked:

1. Can you suggest other completed research, the results of which would add significantly to this report?

2. What problems related to this subject should be given the highest priority, in terms of further research?

3. What helpful suggestions do you have for individual institutions, administrators, or faculty members who are interested in establishing institutional research, planning, or self-study programs?

4. What has been the experience of your institution insofar as the impact of institutional research on the academic program is concerned?

5. Are there special problems or programs in this area of institutional activity that command special attention of the United States Office of Education?

Kindly address reactions to:

Dr. Winslow R. Hatch
Bureau of Higher Education Research
Office of Education
U. S. Department of Health, Education, and Welfare
Washington, D. C. 20202