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The nature and purpose of US colleges is explored within the framework of student development and its relationship to social change. Data were gathered during a 5-year study on the educational, vocational and personality development of 10,000 graduating high school seniors. A strong relationship was found between college entrance, level of ability and socioeconomic status. Of the graduates who entered college, almost 50% withdrew before obtaining a bachelor's degree, but this dropout rate did not seem to be linked with lack of ability. Academic motivation, encouraging family climate, and intellectual disposition, factors that stimulated students to enter and remain in college for 4 years, did not influence 48% of the college dropouts and 15% of the bright graduates who did not attend college. Academic, vocational and financial guidance were provided by high school counselors to those students already motivated by parental encouragement. It is proposed that identification of student potential, stimulation of educational interests and other related efforts begin in nursery and elementary school with the collaboration of teachers and counselors. Colleges should design programs to help students develop the necessary intellectual, autonomous and flexible thinking for today's society. It is also suggested that student recruitment take individual needs and personalities into consideration. (WM)

pERSONAL FACTORS IN COLLEGE CHOICE

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Each year consistently greater proportions of high school graduates have been entering college, until last year nearly an estimated 50 percent of the nation's current graduating high school seniors entered college (Cf. Bogan, 1965). In 1955 -- less than ten years ago -- the figure was 35 percent (Cf. Goldstein, 1956). As a result, many educational administrators and counselors have become increasingly concerned about criteria for screening, recruiting and placing students. The usual procedure is to find the cut-off score which will predict an adequate grade-point average in a given college on the basis of combined high school rank and academic aptitude score. Sometimes a personality measurement is added to the referent multiple regression coefficient, and in borderline cases biographical material or a teacher's or principal's rating may be considered.

Public colleges may use a lower cut-off point than more select private institutions, but the method used is the same, and it is used more rigorously the more the institution is faced with an excess of applicants. Once done, this score-counting/head-hunting (sometimes termed institutional research) begins all over again, in preparation for the next year. In this melée of correlations and classifications, many pressing questions are passed over, the answers to which should be prerequisite to any sound policy of student recruitment.

Examples of questions of this kind are: What is the purpose of our institution? What types of students do we want here, apart from those of some given ability? What types come here? Why? Once here, do they stay or leave? If

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they stay, what happens to them? What should be happening to them, and how do we go about implementing desired change? What about the students who did not come here, and the high school graduates of adequate ability who did not enter college at all? What do the students and counselors from our feeder high schools know about us, and what are we doing to help acquaint others with the nature of our institution and expectations?

These questions, long ignored by many educational policy-makers, now demand answers because the changes in society being brought about by our rapidly advancing technology have immense implications for education. Francois (1964), Michael (1965), and many others posit a radical change in our entire socioeconomic system, including the imminence of massive unemployment, as this phenomenon is understood today. Magnum (1964) and Bell (1965) argue that automation alone will not create unemployment, but their descriptions of changing patterns of employment imply the necessity for developing new skills and talents, which will be continuously subject to change and modification. And Hutchins (1965) has recently added another question: Should our colleges exist at all as they now function? He makes the point that the American college overemphasizes the role of the worker, because the specialized training acquired through higher education can be outmoded by automation. Instead, says Hutchins, college should stress the role of the learner, because there will be leisure in an automated world that man will be unable to use unless his powers of imagination, intelligence, and understanding have been developed so that he can continue learning all his life. Hutchins further contends that since even at best, the educational system cannot keep up with the developing job market, and since vocational training is more efficiently gained on the job, then:

> What education can and should do is help people become human. The object of education is not manpower, but manhood. This object we are now able to obtain. We can now make the transition from a working to a learning society. ...For the educational system (this) means a drastic reorientation of schools,

> colleges, and universities away from jobs and toward intellectual power (p. 83).

All of this is nothing new for Hutchins to say, but it does have renewed relevance to our educational enterprise. The young person entering adulthood will be called on not only to assimilate new ideas, but also to cope with and hopefully help shape radically new ways of life. He will fail all these demands on him unless he has an eagerness to learn and an autonomous, flexible disposition. This does not develop automatically. Therefore, it is urgent that we examine the extent to which our educational institutions do in fact educate in the best way possible -- that is, the extent to which they educate "the whole man", the goal described in the typical college catalog.

With this purpose in mind, some findings are presented from our longitudinal study of 10,000 young adults. The sample consists of young people initially surveyed as graduating seniors from 37 high schools in 16 communities located between California and Pennsylvania. At intervals, during the last five years, a wide variety of data were gathered about the subjects' vocational, educational and personality development.

The data are referred to, not by way of providing conclusive answers about the effect of a particular high school, college, or work experience on the development of young people, but by way of observing trends which merit current attention and further research on large-scale and individual institutional levels. The following subjects will be examined in summary: The factors which operate to bring young people to college, and those which keep them there; the expectations young people have of college; and the consequences, especially in terms of human development, of college attendance or non-attendance, of choice of major, and attendance at a particular type of college.

Among the factors found to be related to college attendance, was one that might have been predicted on the basis of previous research: There is a strong

relationship between entrance into college, level of ability, and socioeconomic status. Socioeconomic status was based on fathers' occupations, and ability was based on equivalent School and College Ability Test (SCAT) scores. Socioeconomic status was found to be more related to college entrance than ability. Few students from high socioeconomic families failed to enter college, regardless of ability; but comparatively few students of low socioeconomic status entered college, even if they were at the highest ability level.

Though more students of high ability than low entered college, still over 30 percent of the graduates at the eightieth percentile or above on the sample's distribution of academic aptitude scores, did not attend college. Over 50 percent of the students who scored between the sixtieth and eightieth percentile on the sample's ability distribution failed to enter college. In the course of interviewing a representative group of the basic research sample, bright non-college students (defined as those in the uppermost 30 percent of the ability distribution) were asked if teachers or counselors had ever discussed their ability level with them in elementary or high school. Almost without exception, they said there had been no such discussions. Already relatively uninterested in college, these youth were not even told that at least so far as tested ability, the indications were that they had the intelligence to complete a college curriculum. The more recent research of Project Talent (Flanagan, et al., 1964) suggests this may be a diminishing problem, but one far from having been eliminated.

Among the students who entered college, nearly half withdrew before obtaining a baccalaureate degree, but attrition had relatively little relationship to lack of ability. As a matter of fact, the largest proportion of dropouts was classified at the high ability level, or uppermost 30 percent of the sample's ability distribution. What most distinguished those who entered college and persisted for four years, from the dropouts and bright youth who did not enter

college, was a complex of interrelated yet distinct factors which can be subsumed under three labels: family climate, academic motivation, and intellectual disposition.

Aspects of family climate were highly potent in this context. The persisters, proportionately more than the other students, characterized their parents as loving, interested in their children, intellectual to some degree, more sought after by their children for advice, and, above all, more likely to encourage their children to attend college. Seventy percent of the college persisters, while seniors in high school, stated that their parents definitely wanted them to attend college. But parental encouragement was reported by only 48 percent of the dropouts, and 15 percent of the bright high school graduates who did not attend college.

Considering the marked relationship between parental interest and college persistence, the role of student personnel workers was investigated, to see whether they tended to compensate for lack of parental encouragement by working closely in high schools and colleges with potentially able students who lacked parental support. No such compensation was observed. The vast majority of subjects who reported any kind of regular attention from teachers or counselors were those encouraged by their parents and already highly motivated. These students reported greater support from teachers and counselors not only in academic matters, but also in vocational and financial guidance.

Indifference about seeking financial aid is one salient indication of lack of academic motivation. The dropouts and bright noncollege students often stressed they were unwilling to accept a loan, and uninterested in inquiring about other forms of student assistance. The following are some other motivational factors which differentiated persisters from dropouts, and dropouts from bright noncollege students:

The early decision to attend college. The largest proportion of persisters made their decision to attend college in elementary school, and frequently felt it was taken for granted by their family that they would attend college. The dropouts decided to attend college much later and often drifted into college just as they subsequently drifted out.

The perceived importance, before entrance, of going to college and graduating. Almost all of the persisters, before entrance, felt it was extremely important to graduate from college, a feeling shared by a considerable minority of the dropouts and nonattenders. However, by 1963, four years after graduation, a majority of bright graduates who had not gone on to college regretted the decision, and the greatest worry expressed by a large proportion of dropouts, was how to return to school.

The willingness to study. Persisters reported studying much more than dropouts, even when level of ability and hours per week spent in paid employment, were held constant.

The endorsement of the ideal over the practical purpose of college. By 1963 the largest proportion of persisters viewed the main purpose of education as the gaining of knowledge and appreciation of ideas. Most of the dropouts and able noncollege students considered the purpose of college to be practical, vocational training. Since this attitude was also held by dropouts who had stated intentions of completing a four-year curriculum, these students may not even have accomplished their vocational goals.

The more utilitarian outlook of the dropouts and nonattenders, as compared with the college persisters, was reflected in their attitudes as measured by the

Center's Omnibus Personality Inventory scales (Center for the Study of Higher Education, 1962). Three of the scales -- Thinking Introversion, Complexity, and Estheticism -- measure tendency toward abstract, reflective thinking, intellectual inquiry, tolerance for ambiguity, and openness to artistic experience and appreciation. Together they are taken as a comprehensive operational measurement of intellectual disposition. The standard scores obtained by each subject were combined in such a way as to classify him at a high, middle, or low level of intellectual disposition -- or in the uppermost 30 percent, middle 40 percent, or lower 30 percent of the distribution on the combined scale as theoretically based on the normative sample of the Omnibus Personality Inventory.

A minority of subjects was found at the high level of intellectual disposition, whatever their post high school pursuits. Nevertheless, this dimension did differentiate the college persisters from the dropouts, and the dropouts from the bright nonattenders. Twenty percent of the persisters were at the high level of intellectual disposition, compared to 10 percent of the dropouts, and 4 percent of the bright graduates who did not attend college. At the other extreme, the low -- and quite possibly anti-intellectual -- level of intellectual disposition, fell 44 percent of the persisters, 62 percent of the dropouts, and 76 percent of the able noncollege students.

The Autonomy scale of the Omnibus Personality Inventory similarly differentiated those who entered college and persisted. This scale is a major measure of authoritarianism, and indicates the extent to which the individual tends toward flexible, open-minded, independent, and objective thinking, rather than toward intolerant, stereotyped, authority-directed, and unquestioning thinking. The mean differences between extreme groups spanned nearly a standard deviation; that is, few persisters scored as low as the average score obtained by the able high school graduates who did not attend college. The dropouts scored higher in Autonomy than the nonattenders, but were much closer to them

than to the consistently higher scoring persisters.

This discussion of Autonomy is pertinent to the current college scene, especially to the one at the University of California. Recent events at Berkeley have led many to believe that our college campuses generally are ridden with a "new breed" of rebellious, overly autonomous, even anarchistic youth. This view is not corroborated by the attitudes, opinions, and values elicited by the questionnaires, inventories and personal interviews in the present study. In point of fact, most college students in the study not only exhibited little intellectual and social commitment, but also a self-centeredness not unlike that for which students of the fifties have frequently been indicted. And if the persisters in the sample manifested more autonomy than dropouts or non-students, they still did not as a group possess a level of autonomy commensurate with a great degree of intellectual, creative, and critical thinking. This assessment is in agreement with similar, recent statements made by Katz (1965) and Lewis (1965).

In early interviews, students showed a conspicuous lack of involvement with the colleges of their choice, along with a marked lack of information about colleges in general. In order to see whether this kind of ignorance and disengagement was characteristic of the high school graduates as a whole, the entire sample was questioned about specified institutions: Ohio State University, the University of California, and San Francisco State College (public institutions); Antioch, Oberlin, Swarthmore, and Reed colleges (private institutions); St. Olaf's, the University of the Pacific, and the University of Portland (church-related institutions).

A majority of the college students in our sample claimed some knowledge of only two universities -- Ohio State University and the University of California -- but then showed by their answers they actually knew little about them. Ohio State University was associated primarily with sports, and the University of

California was the only institution a majority of the students (60 percent) associated with academic standards. Only about 20 percent of the college students recognized Oberlin, Swarthmore, Antioch and Reed College as small institutions with high academic standards. Only 25 percent of the students checked St. Olaf's as a church-related school, and perhaps then only because of the clue contained in its name, since less than 5 percent of the students recognized the other church-related colleges as such. On the other hand, approximately ten percent of the students considered Antioch and Oberlin church schools. From interviews with counselors in the high schools which participated in our study, and from other research done at the Center, it became apparent that a great many high school counselors know little more than students about the characteristics and aims of most colleges.

With the exception of a small minority who attended a few select institutions, most of the students picked their colleges first, for proximity; second, because of peer popularity; and third, out of a generally vague notion about the prestige of the institution. When the students were asked in interviews what they expected of college, they usually had very little to say other than that they expected to have to study harder, and to make new friends. Many added they hoped to end up with a marketable skill. Expectations of students attending junior college were not unlike those attending major universities. Very seldom were they acquainted with the characteristics of their institution, faculty members, programs, or students (other than tie-over high school friends). Seldom, too, were they sufficiently aware of their potentials, interests, and goals, or what they wanted from college. Many of them lacked any clear self-concept to which they could relate their college experience.

Typical of parental pressure and misguided counseling is the case of the bright, personable young man interviewed at a major midwestern university.

Since he had shown an aptitude for mathematics, he had been urged by his father and high school advisor to major in engineering, which they perceived as a respectable, remunerative occupation. But as an engineering major, he had been unhappy with what he considered a rigid curriculum incompatible with his interests, and lapsed academically to the point that dismissal from the university was imminent. When he discovered his interests lay in literature and drama, and changed his major, he did very well, although it was taking him a fifth year and two summer sessions to obtain his baccalaureate degree.

This young man happened to be a fortunate individual who was able to gain his identity and achieve personal autonomy. As a rule, however, college students did not show this degree of insight, maturation or growth in depth of value. However, the college persisters as a whole did show signs of development in certain areas, when their scores obtained on the personality scales in 1959 were compared with those obtained on the same scales in 1963. After four years of college the mean standard scores of the college persisters was approximately 10 points higher on the Thinking Introversion and Complexity scales (measuring dimensions of intellectual disposition), and on the Nonauthoritarian scale, a brief scale highly related to autonomy. Mean differences on the scales between the persisters and those who withdrew from college, which had generally been 3 or 4 points just before high school graduation, had increased to nearly 10 points or a whole standard deviation four years later.

Even when there was evidence of attitudinal development or change among the high school graduates, bright or otherwise, who did not attend college, this was not impressive. On two important scales, Complexity (or intellectual inquiry and tolerance for ambiguity) and Nonauthoritarianism (or autonomy), the standard mean scores actually decreased significantly after four years. This was particularly the case for women who married immediately after graduation, and

remained full-time homeworkers, without any work or college experience.

On this basis, then, we disagree with Telford's and Plant's (1962) conclusion, arrived at after their two-year study of junior college registrants, that "...many of the changes attributed to the collegiate experience by others may be no more than developmental changes under way in young persons like those who aspire to college whether or not they attend college" (p.72). But we are more optimistic than Jacob (1957), who suggested that college makes little difference in students' values other than liberalizing them slightly. However, we are more pessimistic than Freedman (1965), who feels that extensive change in attitude generally results after two years of college. We suspect that this is true only for those already disposed to change, and that college is more a facilitating than a causal agency for this change.

This latter position can be substantiated by our data. As groups, students entering junior colleges and church-related institutions were the least intellectually disposed and autonomous in 1959 of all the students, and had changed least in measured attitudes by 1963. Men entering private non-sectarian universities were highest in intellectual disposition, compared with students entering all other types of colleges, both in 1959 and 1963, but they changed only nominally in their mean scores, suggesting they had early reached some sort of ceiling of attitude. Private non-sectarian students, comparatively high in intellectual and autonomous disposition to begin with, also generally changed most over four years, though their change in scores did not differ markedly from those of persisting students in public universities or even state colleges.

Students majoring in applied subjects such as engineering, business, and education, had the lowest intellectual disposition and autonomy scores of all subject major groups, and seemed to have been comparatively (even almost literally) impervious to change over four years. In fact, persisting engineering

majors showed a decrease in Complexity, and changed in other measured attitudes only nominally. Engineering majors who changed to the liberal arts, however, were considerably more intellectually oriented and autonomous than the persisting engineers. This was even more the case when level of ability and socioeconomic status were held constant. All indications are that the same phenomena may be expected for business and education majors.

Observation of other variables, outside the realm of measured attitude, adds further questions about the pervasiveness of change in values among college students. On a number of questionnaire items which probed reading habits, cultural activities, and social awareness, neither the college nor noncollege subjects showed much or any change over the four years. Yet when asked about religious values, most college students reported change, about equally divided between valuing religion less and valuing it more; most noncollege students reported no change at all. It may be that only certain individuals are prone to change or that change is confined to selected areas. In any event, most of the change observed was among those who persisted in college.

In line with programs recently urged by various educational leaders, all these findings point toward the need, for stern assessment and restructuring of basic administrative and academic practices. To recapitulate:

Although ability was related to educational pursuit and development in college, more related were the variables of socioeconomic status, motivational factors, attitudinal disposition, family environment, and specifically, parental encouragement.

Only minimal efforts were reportedly made by teachers and student personnel workers in high schools and colleges to encourage able students who reported indifferent parents.

Large numbers of youth entered college for questionable reasons or for no

reason at all, were unknowledgeable about their interests, needs, and abilities, the nature of the college experience, and the characteristics and expectations of their own colleges.

Many high school counselors and college administrators themselves had insufficient knowledge about the character of the institutions their students enter.

There was a general lack of intellectual development and autonomous thinking among the young adults.

Change of values and attitude in selected areas was unquestionably associated with persistence in college, but varied in degree and kind by type of college entered and subject major elected.

Dropout students and majors in applied subjects such as business, engineering and education, were least disposed toward intellectuality and autonomy, as measured by these traits. Only comparatively nominal changes in these traits occurred among the high school graduates who did not attend college, including those of high ability.

As a group, the noncollege students, in the first four years after high school, showed a decrease in tendency towards intellectual inquiry, tolerance for ambiguity, and autonomy. Evidently it is precisely the youth most likely to be affected by the dramatic changes which an automated age will bring, who are least prepared to cope with change.

The lack of flexibility and intellectual interests found among even the bright young people who chose not to go to college was disquieting, but more distressing was the lack of intellectual and creative interests observed among the education and applied majors. For these are the potential teachers and technologists who will help prepare our children for the new age, and who will be responsible, in some important part, for the philosophical and technological changes that will characterize it.

This being the case, the question of student recruitment follows naturally.

There may first be a need to regard college recruitment as one phase in the process of education, not merely as a self-contained procedure of screening candidates who happen to apply at a given college. Consider the many able youth who do not enter college, the very early age at which the most motivated and persisting students decide upon college, the influence of parental encouragement, and the lack of counseling when self-understanding and parental encouragement are lacking. Consider, too, that the college experience may facilitate the development of educational motivation and flexible attitudes primarily in those already so disposed as a result of early childhood experience. If this is indeed the case, it is urgent that identification of potential, stimulation of educational interests, familiarization with the value of college, and related efforts in college recruitment should begin in nursery and elementary school, neighborhood centers, and youth guidance centers. And teachers and counselors should be regular collaborators in this continuing enterprise.

But the process of student recruitment does not end with formal admission to college. Information is needed about what happens to students of differing characteristics after they enter college. Assuming that we must become more of a learning society, and that man will have to be capable of autonomous, flexible and intellectual thinking if he is to master his technological environment, then the college, each college, must determine whether it is helping its students to develop these traits. It should also know if the right student is being recruited for the right program, and if the program itself is relevant to personal and social needs. If the colleges should continue with vocational programs, there will still remain the need to ascertain whether the training given does indeed prepare for the performance of new and changing functions.

A program of evaluation can be reciprocal in value. The nature, purpose,

and composition of the institution can be delineated, even as it changes, and this knowledge can be communicated where needed. The commendable work begun by Astin (1965), through his Environmental Assessment Technique, and Pace (1963), through his College and University Environment Scales, can be filled out, made more precise, and bridged where its inevitably large gaps exist. Done consistently, meaningful profiles (going far beyond ability level of freshman input or graduate student output) of all institutions could then be communicated to administrators, educators, teachers, counselors, parents, and students.

A second challenge centers in the necessity to recruit students with their individual needs and personalities in mind. An applicant for short term assistance from a social welfare agency must go through an elaborate intake interview, complete with comprehensive "face sheet." But, as a rule, we are satisfied to spend thousands of dollars on a student without knowing more about him than his Scholastic Aptitude Test score and high school record. These scores, and what takes place on the registration line, constitute our sum of knowledge of the students' needs, shortcomings, talents, and goals. Recalling that students generally know so little about the possible meaning college can have for them, and are given so little assistance in discovering it before they make the major decisions which shape their lives, it is surprising that the attrition rate is no higher.

But now there are a number of instruments, such as the Activities Index, Omnibus Personality Inventory, and Opinion, Attitude and Interest Survey, which could help us understand more of the total personality of each college applicant. We could then identify the culturally, psychologically or intellectually impoverished, the exceptionally creative, the social or psychological misfits, and be better able to devise programs suited to their needs. These are the students colleges may invite, but frequently do not nurture, so that like all visitors

made to feel unwelcome, they tend to drift toward the door -- and quietly withdraw.

A third and final challenge: The recruitment process should become innovative. A few ideas come to mind in this respect: The possibilities in what Heist (1962) has labeled "student mix" have yet to be explored. Students of restricted interests could be identified and given the opportunity to mix with more intellectually mature students, or with certain faculty members who awaken intellectual interests and make patent the expectations of the institution. A mediocre college could widen its students' horizons by acting as host for a year to a group of students and faculty members from an outstanding college, who would act as intellectual leaven. Campus housing facilities could be used for similar purposes. Much might be gained, for example, from closer social and educational contacts between engineering and liberal arts majors in a natural setting -- under the same roof.

Intermediary colleges might be seriously considered, somewhat in the style suggested by Hutchins. Here, beginning with the junior year in high school and extending for four years, the student would be given opportunity to explore his personality, potentials, and goals. Still unencumbered by the demands of specialization which would follow later, he would be free to familiarize himself with those broader aspects of life which are the subject matter of a liberal education. Regional admissions committees could be formed to revise institutional profiles, work with high school personnel, and communicate with other regional committees. (Meaningful institutional profiles would have to include far more than students' ability level, the proportion of freshmen or seniors planning on graduate school, the faculty-student ratio, and the proportion of the faculty with doctorates. Information of this kind can say a great deal or nothing about an institution.)

Profitable and catalytic discussion might well center on such recent innovations as: honors programs and honors colleges within larger institutional settings; consortia of small private colleges which encourage collaboration among faculties and mutual use of facilities; the Union of Experimental Colleges recently formed out of the determination to make higher education a more enriching experience; the program and goals of the educational research office at Vassar College, and its attempt to bring more meaning to the education of women; efforts such as those being made at Claremont's technical college, Harvey Mudd, to "liberalize" and "scientize" technical programs, and to "teach creativity" to engineers; the recently enacted federal bills which promote research and development, improved teacher training and counseling services, and help for the culturally deprived.

There is a great and recognized need for programs such as these, multiplied in number, and continuously re-evaluated and revised. The consensus of the 1965 White House Conference on Education was that American colleges are for the most part failing to produce flexible, informed men, capable of adapting to the strains imposed by a dramatically changing society. The worse indictment was that few steps are being taken to improve this situation. But, however much these innovations in assessment, recruitment, and education are needed, they must not constitute a kind of social engineering or manipulation of the individual. They should be designed not to restrict freedom, but to assure it; in a truly free society every man should have the opportunity to learn, to make informed choices about his life, and to achieve the personal power which is the by-product of understanding. As much to the point, the effectiveness of such programs will inevitably depend upon the extent and quality of our engagement in them as students, teachers, administrators, and scholars.

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