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TRENDS IN THE CHARACTERISTICS OF ENTERING COLLEGE STUDENTS, 1961-65.

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EMPIRICAL FINDINGS CONCERNING TRENDS IN ENTERING COLLEGE STUDENTS' CHARACTERISTICS BETWEEN 1961 AND 1965 ARE BASED UPON TWO STUDIES OF 45 INSTITUTIONS. DATA FROM THE STUDIES USED TO FORMULATE THE TRENDS INCLUDE SEX, FATHER'S EDUCATIONAL LEVEL, HIGH SCHOOL GRADE AVERAGE, PROBABLE MAJOR FIELD IN COLLEGE, HIGHEST DEGREE PLANNED, AND EXTRACURRICULAR ACHIEVEMENTS. SELECTED CHARACTERISTICS OF THE SAMPLE OF INSTITUTIONS ARE SHOWN. THE 1961 AND 1965 MEANS AND STANDARD DEVIATIONS FOR 17 STUDENT INPUT CHARACTERISTICS ARE GIVEN. A COMPARISON OF THESE MEANS SHOWS A LARGE INCREASE IN THE PERCENTAGE OF STUDENTS PLANNING GRADUATE STUDY AND SOME VARIATIONS IN STUDENT'S MAJOR FIELD CHOICE. RESULTS OF THE CORRELATION OF EACH 1965 STUDENT INPUT CHARACTERISTICS WITH 1961 DATA SHOW THAT DIFFERENCES IN STUDENT INPUTS ARE RELATIVELY STABLE. ANALYSES WERE THEN PERFORMED TO DETERMINE IF DIFFERENTIAL CHANGES IN STUDENT INPUTS COULD BE PREDICTED FROM INSTITUTIONAL CHARACTERISTICS. DATA LIMITATIONS ARE DISCUSSED. THIS PAPER WAS PRESENTED AT THE MEETING OF THE ASSOCIATION FOR INSTITUTIONAL RESEARCH (1966). (FS)

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TRENDS IN THE CHARACTERISTICS OF ENTERING COLLEGE STUDENTS, 1961-65

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Trends in the Characteristics of Entering College Students, 1961-1965[1]

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Although the current folklore of higher education is replete with stories about the burgeoning number of college applications, the increasing selectivity of colleges, the "closing college door," and the "changing character" of the college student, very little empirical evidence about such trends is actually available. Such evidence is needed, not only to replace the folklore with fact, but also to provide an empirical base for formulating future policy on the education and development of skilled manpower.

This report presents some recent empirical findings about trends in the characteristics of entering college students between 1961 and 1965. Data on the entering freshman classes of 1961 were available from an earlier study of student input at 246 colleges and universities (Astin, 1964a, 1964b, 1965); data from the entering classes of 1965 were collected during the pilot phase of a project designed to establish a national research data bank for higher education (Astin and Panos, 1966; Panos and Astin, 1966). (The relation of the data bank project to the findings of the present study will be discussed later in the paper.) The analyses of trends will be confined to data obtained from the 45 institutions common to both studies.[2]

The procedures for collecting data in the two studies were as follows. During the fall freshman orientation or registration periods, each entering freshman completed a brief information form. The 1961 form contained 26 items about the student's socioeconomic background, high school achievements, educational aspirations,

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[1] Paper presented at the 1966 meeting of the Association for Institutional Research.

and vocational plans. The 1965 form contained a more heterogeneous assortment of 104 items, including nine of the items from the earlier 1961 form. These nine common items, which represent the best measure of the six common factors found in the 1961 data (Astin, 1965), will serve as the basis for our analysis of trends during the four-year interval. The items are:

> sex; father's educational level (six steps: from grammar school to post-graduate degree); grade average in high school; probable major field in college (post-coded into seven broad categories); highest degree planned (scored both as the percentage planning graduate work and as the percentage seeking the Ph.D. degree);

and four extracurricular achievements:

> had a major part in a play; received a rating of "good" or "excellent" in a regional or state music contest; won a prize in an art competition (sculpture, ceramics, painting, etc.); published poems, articles, or short stories.

Selected characteristics of the sample of 45 institutions are shown in Table 1. The mean for the institutional population on each variable has been set at

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Insert Table 1 about here

500, and the standard deviation at 100 (Astin, 1965). The entering freshman classes of the 45 institutions tend to be more intellectual and masculine and to be of higher socioeconomic status than entering classes-in-general. The sample also tends to be more selective and wealthier than the general population. In terms of variability, however, the sample tends to be comparable to the population, except in size of enrollment; on this variable the sample is somewhat more homogeneous than the population.

Although these data reveal moderate biases in the mean characteristics of the 45 institutions, the representative variability found in the sample indicates that the relationships among the input variables under study have not been seriously affected by the sampling bias. Size, which is the only institutional characteristic

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[2] Three additional institutions that were used in both studies have been omitted, since the 1965 data were obtained from only a portion of the entering freshman class.

Table 1

Characteristics of the Sample of 45 Institutions

Institutional Characteristic*	Mean	Standard Deviation
Estimated Freshman Input Factors:		
Intellectualism	563.8	103.4
Estheticism	511.6	94.3
Status	562.8	99.0
Pragmatism	516.4	81.3
Masculinity	530.1	81.6
Selectivity	556.8	115.3
Size	516.7	69.9
Per Student Operating Budget	536.5	92.2
Percentage of Males	531.3	96.9

* As reported in Who Goes Where To College? (Astin, 1965). The mean and standard deviation of the population of four-year accredited institutions have been set at 500 and 100, respectively, for each institutional characteristic.

where the sample differs substantially from the population in variability, has virtually no relationship with other freshman input characteristics (Astin, 1965, p. 30).

Results and Discussion

Table 2 shows the 1961 and 1965 means and standard deviations for the 45

Insert Table 2 about here

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institutions on each of 17 student input characteristics. The standard deviations shown in the last two columns of Table 2 can be used to estimate variability within the sample on each input characteristic. An increase in a given standard deviation between 1961 and 1965, for example, would indicate that the institutions had become more heterogeneous with respect to that input characteristic. Actually, the two columns of standard deviations show very little change between 1961 and 1965 in the relative differences among entering freshman classes. The data on high school grades, father's educational level, and the student's educational aspirations indicate only a very slight trend toward greater homogeneity among the entering classes. These results run somewhat counter to the current folklore, which implies that differences among student bodies are becoming more extreme because of the ever-increasing selectivity of a few "elite" institutions. Since the variation within the sample on both selectivity and wealth was considerable (see Table 1), this finding cannot be dismissed as an artifact caused by the pecularities of our sample.

A comparison of the 1961 and 1965 means in Table 2 reveals some interesting trends over the four years in the characteristics of entering freshmen. Of special interest is the large increase in the percentage of students planning graduate study. The implications of this trend for the administrator are clear: if the graduate and professional schools are not prepared to accommodate this unprecedented onslaught, the guidance personnel at the secondary and undergraduate levels must seriously

Table 2

Entering Freshman Classes at 45 Institutions:
Changes in 17 Student Input Characteristics Between 1961 and 1965

Student Input Characteristic	Means		Standard Deviations	
	1961	1965	1961	1965
Percent males	58.5	58.1	26.3	26.0
Median high school grade point average*	3.04	3.08	.36	.34
Median level of father's education**	13.8	14.2	1.6	1.5
Percent planning graduate study	48.6	67.4	20.3	15.3
Percent seeking Ph.D. degree	23.7	30.4	18.4	17.8
Percent majoring in:				
Arts and Humanities	16.0	21.3	9.0	8.4
Biological Sciences	4.0	6.6	2.6	3.7
Business	6.8	7.5	7.6	8.9
Education	9.1	6.4	8.1	7.4
Engineering	5.6	4.2	8.2	6.4
Physical Sciences and Math	13.9	14.3	9.9	9.7
Social Sciences	8.3	12.9	5.3	5.9
Undecided on major	21.7	15.5	5.8	6.7
Won high rating in state music contest	9.7	10.8	6.5	5.6
Had a major part in a play	25.2	23.1	6.3	5.6
Published original writing	10.5	24.3	4.7	9.2
Won a prize in an art competition	4.9	5.6	2.6	2.4

* Grade-point averages are calculated on a 4-point (A=4) scale.

** High School graduate = 12 years; college graduate = 16 years, etc.

reconsider their attempts to encourage so many student to continue their education beyond the baccalaureate level. The fact that this pronounced increase in the entering students' educational aspirations has not been accompained by a comparable improvement in their academic performance in high school suggests that the proportion of students with unrealistic vocational plans is becoming greater. On the other hand, if the graduate and professional schools are willing and able to accomodate these additional students then the average academic ability of graduate and professional students will necessarily decrease over the next few years.

The distributions of major fields shown in Table 2 also reveal some interesting trends. There has been a decline in the percentages of students choosing education and engineering, and an increase in the percentages choosing arts and humanities, biological sciences, and social sciences. The percentages choosing business, physical sciences, and mathematics show relatively little change. It should be noted that these increases are probably attributable in part to the drop in the proportion of undecided students. If the undecided students are excluded in computing both sets of percentages, the gains become less pronounced, and the decreases for business and education become greater.

Although it is difficult to say with any certainty why these particular shifts in the chosen major fields of entering college freshmen have occurred, some tentative explanations can be proposed. One possibility, for example, is that the greater popularity of the humanities and the social sciences reflects students' increased concern with political causes and with problems of social change in general. An alternative explanation is that these trends are simply the result of the increased interest in graduate training mentioned earlier: that is to say, the humanities and the social sciences are more appropriate fields for the pursuit of the Ph.D. and other graudate degrees than are the fields of business and education.

Table 2 suggests that the frequency of extracurricular accomplishments

changed little between 1961 and 1965, with the exception of "published original writing." However, the apparent increase in the frequency of this achievement may be partially attributable to a slight modification of the item: a qualifier in the 1961 version which excluded articles published in the high school paper was omitted in the 1965 version.

Additional analyses of these four-year trends were performed by correlating each 1965 student input characteristic with a variety of 1961 data. Some of these results are shown in Table 3. The first column of coefficients in Table 3, which

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Insert Table 3 about here

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shows the correlations between the 1961 and 1965 input measures, indicates that differences among institutions in most student input measures change very little over time. In particular, differences among the entering classes' average high school grades, educational aspirations, and father's educational level appear to have remained very stable during the four-year interval. The percentages of entering students planning to study business, engineering, and physical sciences or mathematics also reveal that institutional differences remain much the same. The least stable differences in institutional inputs are the percentages of students who are undecided about their major fields and the percentage who report receiving awards in art during high school.

Although these findings show fairly conclusively that differences in student inputs are very stable, the fact that the correlations were less than perfect indicates that some differential changes in student inputs have occurred during the past four years. In order to discover some of the possible influences on these differential changes, partial correlations were computed between several institutional characteristics and each 1965 input measure, holding constant the effects of the relevant 1961 input measure. In short, these analyses were performed to determine if differential changes in student inputs could be predicted from institutional characteristics such as size,

Table 3

Prediction of 1965 Student Input Characteristics from 1961 Data

Student Input Characteristic	r between 1965 and 1961 means	Partial r (1961 measure held constant) between 1965 measure and Institutional Selectivity
Percent males	.98	.01
Median high school grade point average	.91	.35*
Median level of father's education	.97	.06
Percent planning graduate study	.92	.20
Percent seeking Ph.D. degree	.96	.33*
Percent majoring in:		
Arts and Humanities	.83	-.21
Biological Sciences	.75	.06
Business	.92	-.20
Education	.84	-.30*
Engineering	.97	.06
Physical Sciences and Math	.94	.01
Social Sciences	.86	-.08
Undecided on major	.40	.42**
Won high rating in state music contest	.87	-.22
Had a major part in a play	.80	.06
Published original writing	.79	.49**
Won a prize in an art competition	.56	.13

* $p < .05$

** $p < .01$

selectivity, type of control, and geographic region. The only institutional characteristic that yielded more than one statistically significant partial correlation with the 17 input measures was selectivity -- an estimate of the relative concentration of highly able students in the student body (see Astin, 1965). These partials are shown in the last column of Table 3. The two largest partials ($p < .01$) suggest that students who have previously published original writing and students who are undecided about their choice of a major field have become increasingly concentrated in the more selective institutions. This conclusion is consistent with the observed increase in the variance among institutions on these two measures (Table 2).

The positive partial correlations of selectivity with the students' grades and educational aspirations would suggest that the more talented, more motivated students are becoming increasingly concentrated in the selective institutions. However, this conclusion may not be warranted, since the institutional variance on these two measures (Table 2) actually decreased slightly between 1961 and 1965.

It is important to note here that the method used to measure trends is likely to affect the conclusions about what factors influence trends. Thus, if we were to define a "trend" simply as the absolute change in a given input measure (i.e., 1965 minus 1961), we would reach conclusions somewhat different from those stated in the previous paragraph. Selectivity, for example, would no longer show any relationship to changes in the median grade-point average or in the percentage planning to get Ph.D. degrees; instead it would show a substantial negative relationship (-.45) to change in the percentage planning graduate work. However, our conclusions regarding the effects of selectivity on changes in the percentage of undecided students and the percentage of students who published original writing would not change if this alternative definition of change were used. The purpose of this discussion is not so much to debate the relative merits of different types of change scores, as to emphasize that the conclusions may vary, depending upon the

particular measurement technique used.

In spite of these qualifications, the potential value of such analyses of trends in student inputs is clear. Even with the relatively small sample of 45 institutions, it has been possible to demonstrate several important facts:

1. Differences among institutions in most student input characteristics are highly stable over an interval of four years.
2. There is no clear evidence, at least among the four-year institutions, either that the institutions are becoming increasingly selective as a group or that the gaps among institutions in relative selectivity are widening. However, those students who have published original writing prior to entering college seem to be increasingly concentrated in the more selective institutions.
3. Several major changes in the educational and career plans of entering freshmen have occurred during the past four years. These trends may have important implications for educational policy, guidance and counseling, and manpower planning.

Perhaps the major limitations of the data presented here are the relatively small size of the institutional sample and the availability of measures at only two points in time. The analyses of factors influencing trends, for example, might have proved to be more definitive if trends could have been plotted for a greater number of institutions at several different time points. In the ACE higher education data bank mentioned earlier, standardized information on student input characteristics will be collected annually from a stratified national sample of approximately 300 colleges and universities. Although the major function of this project will be to conduct

longitudinal studies of student development, the data bank will make it possible routinely to monitor trends in the distribution of entering students for an extended period of time. By monitoring these input data regularly, we shall attempt to detect and analyze trends in a variety of student input characteristics almost as they occur. It is our hope that these studies will provide both a corrective for the educational folklore, and -- more importantly -- a sound empirical basis for educational theory, research, and planning.

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American Council on Education

Logan Wilson, President

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