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A DESCRIPTION OF JUNIOR COLLEGES

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Summary

In a population of 581 accredited junior colleges, measures of 36 major attributes were intercorrelated. With unity in the diagonal, a principal components analysis was carried out, extracting 12 factors with an eigenvalue greater than 1.00. The first six of these factors were rotated to a final solution through the Varimax procedure. The six rotated factors were titled: Cultural Affluence, Technological Specialization, Size, Age, Transfer Emphasis, and Business Orientation. The junior college factors are not congruent with factors for four-year colleges.

A Description of Junior Colleges

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The increasing interest in higher education shown by the general public and the burgeoning studies of colleges and universities have emphasized the need for comprehensive information about the characteristics of colleges and the ways in which colleges differ. Such information is essential to gaining an understanding of the effect on student growth and development of different college environments.

In the past seven years, several ways of describing institutions of higher education have been tried. Pace and Stern (1958) have developed the College Characteristics Index (CCI), a true-false inventory which measures 30 features of the environmental "press" of the college. Astin and Holland (1961) have developed the Environmental Assessment Technique (EAT) which attempts to assess the environment in terms of eight characteristics of the student body: its size, average intelligence, and six "personal orientations"--Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic--based on the proportion of students in each of six classes of major field. These EAT variables were found to account for a substantial amount of variance in CCI scales, and later they were shown to predict the "effects" of the college as reported by the student (Astin, 1963). Still another way to describe college environments is factor analysis of

various measures of college characteristics (Astin, 1962, 1965a). Finally, college environments have been viewed simply as a set of potential stimuli, or "observable characteristics of the college that are capable of changing the sensory input to the student attending the college" (Astin, 1965b).

Previous studies of college environments, however, have been restricted to four-year colleges granting the baccalaureate degree. The nearly 600 accredited junior colleges in the United States have been ignored. Indeed, the failure of behavioral scientists concerned with education to consider junior colleges is pervasive. For example, in a recent book of more than 1000 pages self-described as "a psychological and social interpretation of the higher learning" (Sanford, 1962), the index cites ten references to junior colleges, which is six references fewer than to house masters at Harvard. Moreover, the majority of the few references to junior colleges patronize and dismiss junior colleges as another two years of high school.

The major exception to the general neglect of junior colleges is the work of the University of California Center for the Study of Higher Education. This work, however, has involved general treatments of junior colleges (Medsker, 1960), sociological studies of single junior colleges (Clark, 1960), and studies of the articulation between two- and four-year colleges (Knoell and Medsker, 1964). No attempt has been made to develop descriptions of junior college environments or to study the effect of junior colleges on students.

This disregard of junior colleges is unfortunate because of several trends in our society. The population of college-age people is growing rapidly, and changing employment patterns have produced an increasing need for highly trained, skilled personnel and declining need for unskilled workers. As a result, the demand for education beyond high school is expanding very rapidly, and there is no indication of any decline in the future. In spite of the serious social problems resulting from these trends, many four-year colleges, and especially the most prestigious institutions, have been unwilling (or unable) to make any response other than increasing selectivity. As a result, it is probable that most of the burden of meeting the increased demand for education beyond high school will fall on junior colleges. Some projections estimate that by 1970, some junior college will be the first college attended by 75% of entering college freshmen (Prudential, 1963). In this situation, the interests of students, of colleges, and of society demand that plans for the future growth of junior colleges be as rational as possible and based on knowledge of colleges and their effects upon student development and accomplishment.

The present study is a step in providing the knowledge necessary to intelligent planning for better junior colleges. The basic purpose is to organize the information currently available about junior colleges into a brief profile. Such a brief profile can be used both to characterize individual junior colleges, and in subsequent research to study the effects of colleges on students more efficiently. The basic technique is a

factor analysis of 36 measures of junior college characteristics. This study, therefore, is largely a replication in a population of junior colleges of Astin's (1962) study of four-year colleges.

Procedure

Population of Junior Colleges

The group of junior colleges consisted of 581 accredited, two-year colleges. This group included all junior colleges for which data are reported in American Junior Colleges (Gleazer, 1963), with the exception of colleges which are exclusively for the training of priests, members of religious orders, etc. The sole restriction for inclusion in American Junior Colleges is that the college be recognized by regional or state accrediting agencies. Therefore, the group of colleges studies should be considered the population of accredited junior colleges, rather than a sample of some population.

Measures of Junior College Characteristics

Thirty-six institutional variables were selected for study. The choice of variables had two primary aims: first, to include at least some data for all methods which are currently used in characterizing institutions, and, second, to include as many as possible of the variables Astin (1962) used in his study of four-year colleges. Unless stated otherwise, the information about junior college characteristics was obtained from American Junior Colleges (Gleazer, 1963). In most cases the information in this compendium was reported by each junior college for the academic year 1961-62.

Type Characteristics. Among the most commonly used ways of classifying colleges are type of control and curricular emphasis. The following five measures of these characteristics were included in this study:

1. Private versus Public Control--Public score 0; private score 1.

2. Degree of Religious Control--Non-denominational score 0; Protestant score 1; Catholic score 2.

3. Liberal Arts Emphasis--No liberal arts curriculum 0, liberal arts plus other curricula 1, liberal arts curriculum only 2.

4. Teacher Training Emphasis--No teacher training 0, teacher training plus other training 1, teacher training only 2.

5. Technical Training Emphasis--No technical school training 0, technical training plus other training 1, technical school only 2.

Financial Characteristics. Measures of five financial characteristics were included. In order to eliminate any correlations due simply to differing sizes of junior colleges, all financial characteristics (except tuition) were divided by the junior college's total enrollment thus expressing each measure on a "dollars per student" basis.

6. Tuition--For public institutions, non-resident fees were used.

7. Endowment--Estimated market value.

8. Operating Budget--Annual expenditures for educational and general purposes.

9. Capital Income--Gifts and appropriations for capital purposes.

10. Scholarship Funds--Amount of money available for scholarships.

Student Characteristics. The following fourteen characteristics of the student body were assessed as follows:

11. Percentage of Males in the Student Body

12. Percentage of Out-of-State Students in the Student Body

13. Percentage of Foreign Students in the Student Body

14. Percentage of Part-Time Students in the Student Body

15. Percentage of Students Earning Half or More of their College Expenses

16. Total Enrollment--In order to obtain a more nearly normal distribution, the score on this variable is the square root of the total number of students enrolled.

17. Aptitude Level--The score used for this variable was average composite score on the American College Testing Program's national test battery of applicants to each college in the academic year 1962-63. Unpublished ACT research indicates a correlation of .96 between average composite scores of applicants and average composite scores of freshmen who actually enter colleges. The ACT test battery is a typical test of academic potential, with reliabilities and validities against grade criteria of the magnitude to be expected for such tests (ACT Technical Report, 1965).

18. Realistic Orientation--Percentage of students studying agriculture, forestry, engineering, etc.

19. Intellectual Orientation--Percentage of students studying science, mathematics, philosophy, etc.

20. Social Orientation--Percentage studying education, nursing, etc.

21. Conventional Orientation--Percentage studying accounting, secretarial, etc.

22. Enterprising Orientation--Percentage studying political science, pre-law, business administration, marketing, etc.

23. Artistic Orientation--Percentage studying art, music, journalism, etc.

Variables 18-23 compose the heart of the Environmental Assessment Technique (Astin and Holland, 1961). There is some doubt as to the appropriateness of using these variables in a factor analysis, since there is an ipsative relationship among them. Nevertheless, they were included in this study because they tap important information and in order to replicate as nearly as possible Astin's (1962) study of four-year colleges. Astin's results, in addition, were clear and meaningful, which suggests that the results were not seriously affected by the ipsative scoring of the EAT variables. In the present study, the EAT variables are based only on fields which clearly belonged in one of the types. Students in an undifferentiated "liberal arts" curriculum were not considered.

24. Homogeneity--Score on this variable is the difference between the highest and lowest EAT variable. High scoring (homogeneous) colleges tend to have students in only one curriculum, while low scoring (heterogeneous) colleges have students enrolled in a wide variety of fields.

Faculty Characteristics. These included:

25. Percentage of Faculty Holding a Doctoral Degree

26. Percentage of Faculty Holding a Masters Degree

Variables 25 and 26 concern the extent to which the faculty has training beyond the baccalaureate degree. On an over-all basis, about one-third of the members of junior college faculties have only a bachelors degree. Scores on these two variables differ from Astin's (1962) study of four-year colleges in that, in this study, they were based on the total faculty, both full-time and part-time.

27. Percentage of Faculty which is Full-Time

28. Faculty-Student Ratio--Number of full-time faculty divided by number of full-time students.

Miscellaneous Characteristics. Included here are:

29. Library Size--Number of books in the library.

30. Relative Library Size--Number of books divided by the total enrollment.

31. Variety of Curriculum--Total number of different fields of study offered.

32. Percentage of Graduates Going On to Four-Year Colleges

33. Growth Rate--Percentage of increase in enrollment between 1958 and 1962.

34. California Location--Colleges located in California 1, other colleges 0. This variable was included because California has the most extensive junior college system in the country, and we wanted to investigate whether this system has any special characteristics which

distinguish it from other junior colleges.

35. Age of Institution--Colleges founded since 1954 scored 0, colleges founded between 1945 and 1954 scored 1, colleges founded between 1930 and 1944 scored 2, and colleges founded before 1930 scored 3.

36. Placement Service--Colleges having a placement service scored 1, other colleges scored 0.

Method

Product moment correlations were computed among the 36 variables.[2] Since not all scores were available for all colleges, a program which allows for missing data was used. Thus correlations are based only on those colleges for which data were available. The resultant correlation matrix was factored by the principal components method based on eigenvalues and eigenvectors with unity in the diagonal and extraction of all factors with an eigenvalue greater than 1.00. This procedure, including the use of unity in the diagonal, is Harris's (1964) Model A factor analysis and it follows the rationale presented by Kaiser (1960). A major advantage of this procedure is that it produces factors which are linear combinations of the observable variables, thus making it possible to compute factor scores (Kaiser, 1965).

Twelve factors with an eigenvalue greater than 1.00 were extracted. However, several considerations--including an unsatisfactory preliminary rotation of all twelve factors, a comparison of communalities after extraction of each factor with the highest correlation for each variable,

and a plot of the eigenvalues--suggested that only half of these twelve factors should be included in the factor rotation. Accordingly, the first six factors were rotated to a final solution by the Varimax procedure (Kaiser, 1958).

Results

The mean, standard deviations, and number of colleges for which a score was available for each variables are shown in Table 1. Some variables are highly skewed. For the most part, these variables are those on which a relatively large number of colleges had a score of 0. For example, many junior colleges (especially public colleges) have no endowment. As a result the distribution of endowment is quite skewed. In such cases, of course, there is no transformation which will eliminate the skewness.

Table 1

Means, Standard Deviations, and Numbers of Observations for Junior College Characteristics

Variable	No. of Colleges for which Data Available	Mean	Standard Deviation
1. Private (versus Public) Control	581	.32	.47
2. Degree of Religious Control	581	.22	.49
3. Liberal Arts Emphasis	574	.91	.38
4. Teacher Training Emphasis	574	.58	.49
5. Technological Emphasis	574	.75	.47
6. Tuition	533	394.57	383.90
7. Endowment/Student	509	340.56	2116.56
8. Operating Budget/Student	482	648.59	567.78
9. Capital Income/Student	191	305.56	489.72
10. Scholarship Funds/Student	520	20.31	71.12
11. Percentage of Males	571	58.48	23.08
12. Percentage of Out-of-State Students	501	15.38	22.31

Table 1 (cont.)

Variable	No. of Colleges for which Data Available	Mean	Standard Deviation
13. Percentage of Foreign Students	578	.80	1.64
14. Percentage of Part-Time Students	571	29.17	27.02
15. Percentage of Students Earning 1/2 of Expenses	386	52.09	27.68
16. Total Enrollment	579	30.10	22.07
17. Aptitude Level of Students	314	18.14	2.07
18. Realistic Orientation	497	25.26	24.30
19. Intellectual Orientation	497	6.86	8.00
20. Social Orientation	497	24.79	19.94
21. Conventional Orientation	496	26.39	22.48
22. Enterprising Orientation	497	9.51	14.61
23. Artistic Orientation	496	5.36	10.42
24. Homogeneity of Environment	497	47.60	23.62
25. Percentage of Faculty with Ph.D.	575	6.92	8.44
26. Percentage of Faculty with Masters	577	61.34	20.59
27. Percentage of Faculty which are Full-Time	579	65.06	26.64
28. Faculty-Student Ratio	575	.07	.07
29. Library Size (units of 1000 books)	570	12.76	11.19
30. Relative Library Size	569	27.68	44.13
31. Variety of Curriculum	575	17.68	14.70
32. Percentage of Graduates Going to Four-Year Colleges	467	59.50	24.08
33. Growth Rate	476	59.79	89.59
34. California Location	581	.12	.33
35. Age of College	581	1.86	1.19
36. Placement Service	581	.66	.47

The correlations among the various junior college characteristics are presented in Table 2. The unrotated matrix of the twelve factors with an eigenvalue greater than 1.00 is presented in Table 3. The factor solution for the Varimax rotation of the first six factors is given in Table 4.

Table 2

Correlations Among Junior College Characteristics

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	--																	
2.	65	--																
3.	14	12	--															
4.	-18	-04	09	--														
5.	-45	-33	-28	25	--													
6.	32	08	-07	-22	-19	--												
7.	26	19	00	-09	-08	09	--											
8.	40	09	02	-15	-25	32	23	--										
9.	02	07	-02	01	-12	05	01	23	--									
10.	22	14	09	-02	-18	06	34	10	12	--								
11.	-31	-32	-22	-01	44	-20	-10	-23	-02	-12	--							
12.	60	35	17	-10	-43	33	13	57	09	13	-43	--						
13.	30	27	06	-06	-11	08	23	18	-01	40	-15	27	--					
14.	-41	-30	-08	08	27	-24	-13	-41	-12	-17	14	-42	-18	--				
15.	-29	-26	05	13	17	-17	01	-17	05	-09	04	-26	-09	40	--			
16.	-32	-26	-05	16	31	-22	-10	-27	-21	-16	12	-25	-07	57	19	--		
17.	-09	-08	09	08	13	-02	00	06	12	-04	03	14	03	08	20	15	--	
18.	-32	-31	-33	-23	53	-04	-04	-12	14	-11	54	-29	-08	14	04	14	08	--
19.	-11	-06	04	20	12	-16	01	-13	-03	-05	06	-13	-06	14	06	17	-17	-13
20.	08	22	17	57	-06	-07	-03	05	04	04	-18	13	04	-14	-04	-09	14	-36
21.	15	14	14	-20	-35	07	01	05	-08	05	-32	12	04	-07	-01	-08	-14	-41
22.	09	-06	04	-04	-05	13	-03	01	-10	02	00	03	02	07	00	02	01	-17
23.	16	06	01	-01	-11	07	14	18	-10	00	-27	24	06	-03	04	07	04	-20
24.	23	11	-27	-37	-15	20	04	20	20	03	05	17	03	-25	-16	-30	02	28
25.	07	06	19	02	-04	12	05	08	08	03	-06	03	10	10	-04	06	13	-01
26.	-17	-01	33	31	00	-13	-05	-15	-12	01	-04	-08	-09	-10	02	-07	00	-29
27.	14	10	01	03	-07	09	04	21	02	04	-08	19	06	-37	-32	-01	-09	-11
28.	16	12	-07	-14	-16	08	03	21	12	06	-06	13	19	00	-09	-12	-15	00
29.	03	03	09	13	05	-08	02	06	-06	00	-07	15	09	14	01	60	15	-10
30.	34	35	07	-04	-28	03	11	27	07	16	-16	34	37	-29	-11	-31	-01	-25
31.	-38	-23	01	50	42	-35	-08	-21	-16	-14	11	-27	-07	30	22	54	12	-01
32.	-02	06	35	15	-01	-20	-09	-06	-06	01	12	-07	-02	00	11	-01	-09	-22
33.	01	-03	02	-07	02	07	05	-14	-08	-02	09	-12	01	15	14	06	-04	04
34.	-21	-16	-03	09	18	-38	-02	-08	-07	-09	05	-16	07	38	08	57	23	09
35.	28	18	11	13	-04	01	00	15	-14	08	-03	26	15	-35	-23	00	05	-06
36.	-22	-20	-15	13	23	-01	01	-18	-11	-06	09	-21	-01	23	18	31	18	12

Table 2 (cont.)

Variable	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
19.	--																	
20.	00	--																
21.	-10	-27	--															
22.	-08	-17	-18	--														
23.	06	-02	-10	-10	--													
24.	-37	-11	23	-16	-12	--												
25.	-02	01	-06	15	-02	-07	--											
26.	10	25	06	-02	-02	-30	-08	--										
27.	-04	06	05	-03	06	-01	00	10	--									
28.	-08	00	03	-04	08	16	02	-18	13	--								
29.	13	09	01	-02	15	-19	12	-01	15	-02	--							
30.	-08	23	10	-09	11	15	-03	-08	02	45	09	--						
31.	29	15	-16	00	12	-51	-07	19	07	-14	34	-21	--					
32.	15	22	-06	06	02	-26	08	39	-05	-05	11	07	08	--				
33.	01	-09	-03	16	-07	-01	10	-05	-15	00	-14	-11	-07	07	--			
34.	16	-07	-04	-05	14	-23	10	-12	00	-04	33	-15	45	-03	-06	--		
35.	01	21	-06	-12	13	-02	-13	12	22	-07	30	18	08	09	-27	03	--	
36.	10	-13	-01	10	-06	-04	02	-10	02	-03	09	-20	20	-18	05	19	-09	--

Table 3

Unrotated Factor Matrix, Eigenvalues, and Communalities

Variable	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	h^2
1. Private (versus Public) Control	76	11	16	09	-02	-06	-19	03	-01	10	-23	-21	78
2. Degree of Religious Control	58	23	01	03	-07	19	-12	02	06	28	-19	-40	72
3. Liberal Arts Emphasis	16	48	-28	27	-11	-11	06	33	24	-16	09	06	63
4. Teacher Training Emphasis	-29	58	-16	-27	-22	-06	13	-32	-09	26	10	-07	78
5. Technological Emphasis	-65	-12	12	-38	-14	-06	-16	-10	01	01	-08	04	66
6. Tuition	44	-25	09	11	02	-48	-05	-18	-15	03	00	07	56
7. Endowment/ Student	26	02	23	10	-25	10	-29	-39	22	-35	01	-10	62
8. Operating Budget/ Student	57	01	31	-12	-09	-22	13	03	-19	-30	16	14	68
9. Capital Income/ Student	17	-18	02	-15	-38	04	38	06	-06	-19	47	-26	71
10. Scholarship Funds/Student	32	09	07	05	-32	19	-30	-25	41	-15	22	06	65

Table 3 (cont.)

Variable	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	h^2
11. Percentage of Males	-47	-34	-08	-39	-16	05	-30	28	07	-03	-04	11	70
12. Percentage of Out-of-State Students	70	20	27	00	01	-24	15	04	-07	-07	-12	02	72
13. Percentage of Foreign Students	35	15	33	05	-33	24	-31	-07	24	09	02	20	63
14. Percentage of Part-Time Students	-66	-03	14	44	-10	17	09	06	-12	10	-07	-07	74
15. Percentage of Students earning 1/2 of Expenses	-41	02	-06	33	-31	12	33	-18	01	-21	-16	22	64
16. Total Enrollment	-63	26	50	18	14	-02	-04	14	05	11	-02	-06	80
17. Aptitude Level of Students	-13	10	30	-05	-37	-30	47	05	31	01	-17	14	71
18. Realistic Orientation	-38	-62	24	-40	-17	00	-10	18	09	-14	-05	-06	84
19. Intellectual Orientation	-27	32	-04	03	08	16	-26	-13	-29	-24	15	-34	57
20. Social Orientation	13	55	-21	-34	-33	00	25	-14	-10	32	-08	-12	80
21. Conventional Orientation	29	-01	-07	43	49	28	23	-01	34	08	18	09	80
22. Enterprising Orientation	-02	-02	-04	33	-15	-50	-34	05	-14	20	02	26	63
23. Artistic Orientation	13	28	32	10	10	00	06	-15	-35	-44	-31	09	67
24. Homogeneity of Environment	39	-59	11	-15	04	12	24	08	19	14	-09	-02	68
25. Percentage of Faculty with Ph.D.	03	07	14	28	-36	-31	-06	33	00	09	30	-26	61
26. Percentage of Faculty with Masters	-08	48	-53	-10	09	-09	-01	-02	20	-13	09	23	66
27. Percentage of Faculty which are Full-Time	23	19	18	-32	34	-18	-18	-01	-01	08	48	13	65
28. Faculty-Student Ratio	29	-11	20	02	-15	41	-04	13	-47	19	25	34	78
29. Library Size	-13	48	54	01	11	-03	-01	28	07	05	01	-02	64
30. Relative Library Size	53	16	10	-10	-24	44	04	12	-18	16	-09	29	74

Table 3 (cont.)

Variable	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	h^2
31. Variety of Curriculum	-60	51	20	-12	05	02	-02	-15	-07	00	07	07	72
32. Percentage of Graduates Going to 4-Year Colleges	-06	42	-41	03	-18	07	-18	44	-02	-18	-06	14	67
33. Growth Rate	-11	-18	-14	40	-26	-09	-28	-02	-07	13	-17	-04	43
34. California Location	-44	26	54	11	05	16	07	18	08	-05	07	-11	64
35. Age of College	23	39	19	-48	20	-06	-12	13	21	-01	-27	06	68
36. Placement Service	-37	-07	29	13	02	-12	-01	-36	14	31	14	19	55
Eigenvalue	5.70	3.44	2.39	2.08	1.70	1.56	1.52	1.32	1.29	1.21	1.18	1.07	

Table 4

Varimax Rotation of First Six Factors

Variable	A Cultural Affluence	B* Technological Specialization	C Size	D* Age	E* Transfer Emphasis	F* Business Orientation	h^2
1. Private Control	47	-41	-22	37	-09	23	63
2. Degree of Religious Control	47	-33	-17	23	11	-03	43
3. Liberal Arts Emphasis	06	-37	-03	-06	49	21	43
4. Teacher Training Emphasis	-05	24	22	08	68	00	58
5. Technological Emphasis	-28	67	26	-09	02	-09	61
6. Tuition	-01	-17	-29	24	-30	49	50
7. Endowment/ Student	42	-05	04	00	-08	13	20
8. Operating Budget/ Student	36	-09	-12	45	-17	32	49
9. Capital Income/ Student	32	26	-23	-03	-04	10	23
10. Scholarship Funds/ Student	48	-05	-09	-02	07	05	25

Table 4 (cont.)

Variable	A	B*	C	D*	E*	F*	h^2
11. Percentage of Males	-21	64	-06	-16	-07	-19	51
12. Percentage of Out-of-State Students	39	-34	-10	52	-06	35	67
13. Percentage of Foreign Students	64	-06	10	06	-02	07	43
14. Percentage of Part-Time Students	-17	08	50	-64	-05	-02	69
15. Percentage of Students earning 1/2 of Expenses	00	09	20	-56	14	06	38
16. Total Enrollment	-22	09	83	-13	-04	03	76
17. Aptitude Level of Students	12	30	23	03	06	42	34
18. Realistic Orientation	-11	73	-02	-09	-45	-08	77
19. Intellectual Orientation	-09	-05	28	-08	27	-19	21
20. Social Orientation	25	15	-06	23	67	02	59
21. Conventional Orientation	-02	-68	-03	-05	-22	-26	59
22. Enterprising Orientation	-17	-10	-03	-15	02	57	38
23. Artistic Orientation	16	-22	31	21	00	08	22
24. Homogeneity of Environment	21	08	-40	12	-56	-11	55
25. Percentage of Faculty with Ph.D.	14	00	08	-16	05	53	33
26. Percentage of Faculty with Masters	-27	-14	-12	07	65	-09	54
27. Percentage of Faculty which are Full-Time	-08	-08	06	60	-02	-02	37
28. Faculty-Student Ratio	50	-04	-03	-04	-20	-20	33
29. Library Size	11	-07	67	27	09	08	56
30. Relative Library Size	69	-13	-13	15	08	-20	58
31. Variety of Curriculum	-21	21	66	01	37	-10	68

Table 4 (cont.)

Variable	A	B*	C	D*	E*	F*	h^2
32. Percentage of Graduates Going to Four-Year Colleges	01	-08	-07	-14	60	-05	39
33. Growth Rate	-01	-05	-10	-47	-03	26	30
34. California Location	04	08	75	-08	-05	-07	58
35. Age of College	09	03	13	67	20	-11	52
36. Placement Service	-16	14	37	-15	-18	13	25

*Reflected factor

Finally, in order to compare the factors obtained in this study with the factors Astin (1962) obtained for four-year colleges, the Coefficient of Congruence (Tucker, 1951) was computed between each rotated factor for this study and each of Astin's rotated factors. These calculations involved only the variables common to the two studies. Results are shown in Table 5, with Astin's factors rearranged so that, to the extent possible, highest Coefficients of Congruence are in the diagonal.

Table 5

Similarity Between Factors for Junior Colleges and for Four-Year Colleges

Four-Year College Factors	Junior College Factors					
	Cultural Affluence	Technological Specialization	Size	Age	Transfer Emphasis	Business Orientation
Affluence	.5987	.0108	.0658	.1968	-.1304	.4580
Realistic Orientation	-.1971	.6639	.1265	-.0759	-.5135	-.1808
Size	-.0865	.3287	.7236	.1098	.0815	.0654
Masculinity	-.3888	.3677	.1195	-.3507	-.2957	-.2998
Homogeneity	.1394	.2877	-.5656	.0277	-.4278	-.1736
Public vs. Private Control	.4410	-.4806	-.2397	.3302	-.1921	.3542

Note.--Four-year college factors obtained from study by Astin (1962).

Discussion

The rotated factors are briefly described and interpreted below:

Factor A. The variables with high loadings on this factor describe a college which has a large number of library books per student, relatively many foreign and out-of-state students, and many faculty members relative to the number of students. It is privately or religiously controlled, and is relatively well financed. This pattern looks like the factor named Affluence by Astin (1962) in his study of four-year colleges. In the present study, however, the factor appears to involve facilities, such as the library and the faculty, more than financial wealth. An appropriate title, therefore, would be Cultural Affluence.

Factor B. Loadings on this factor describe a college with a technological emphasis and many students in technical programs, with many male students, with few students studying such fields as education and secretarial work, and with few out-of-state students. It is a public school which does not emphasize the liberal arts. A good title would be Technological Specailization.

Factor C. Colleges that would score high on this factor have large enrollments; large libraries; a varied, heterogeneous curriculum; many part-time students; and a placement service. The best title for this pattern would probably be Size. The college scoring high would probably be an urban-centered, open door comprehensive college, with a strong emphasis on continuing education. In addition, one would expect the high scoring college to be characterized by an impersonal atmosphere, few

personal contacts between students and faculty, several highly organized student subcultures, and a relatively clear status hierarchy of social groups.

California junior colleges are distinguished from other colleges by a high loading on this factor. It is interesting, and probably contrary to popular belief, that California location failed to load substantially on any other factor.

Factor D. Loadings represent a college which is old, which has faculty and students who are both full-time, which has few working students but relatively many out-of-state students, which has not grown, which spends relatively much money per student, and which is a private school. An appropriate title would be Age. The high scoring college would probably resemble a small, four-year, liberal arts college. It would likely have many traditions, a residential student body, and an administration which conceived of its role as acting *in loco parentis*. Such a college would also be likely to have a selective admissions policy, although not necessarily one that emphasizes academic aptitude. An alternative title, therefore, might be Traditional Exclusiveness.

Factor E. Colleges characterized by the variables loading high on this factor emphasize teacher training and liberal arts and offer a heterogeneous environment. They have many students studying such fields as education, many graduates who go on to four-year colleges, and many faculty members with masters degrees. A common denominator to most of these variables is a requirement for further education beyond junior

college, and, accordingly, many graduates of high scoring colleges seek advanced training. The best title for this factor would probably be Transfer Emphasis.

One would expect the colleges scoring low on this factor to be terminal colleges primarily concerned with practical vocational training, making little effort to model their curriculum on what has been traditional for four-year colleges. The high scoring college would be concerned more with pre-professional, exploratory training.

Factor F. The high scoring college on this factor has relatively many students in fields characterized as Enterprising, relatively many faculty members with Ph.D.'s, high tuition, bright students, and many out-of-state students. In addition, it spends an above average amount of money per student. The interpretation of this factor is less manifest than was the case for the preceding factors. As an aid in the interpretation, colleges with high scores on the Enterprising Orientation variable were identified. Two types of college appeared to predominate. First, small private colleges on the East coast with many students studying sales and retailing, and, second, large public colleges on the West coast with many students studying management. The trait common to these two kinds of colleges appears to be an emphasis on providing students with a business skill having immediate utilitarian value. This factor, therefore, might best be named Business Orientation.

The comparison of the factors for this study with Astin's (1962) factors for four-year colleges indicates some similarity, but in no case

was the Coefficient of Congruence high enough to justify considering factors identical. In the present study, of course, no attempt was made to use Astin's solution as a criterion in the rotation of the junior college factors. On the other hand, an independent analytic rotation is probably a more stringent test of equivalence of factors than is using one solution as a criterion for the rotation of another solution, and independent analytic rotations do produce good matches between rotated factors in some cases (Richards, 1965a, 1965b). Therefore, these results appear to mean that junior colleges are different from four-year colleges, and that it would not be appropriate to apply a classification scheme developed for one type of college to the other type.

The factors obtained in this study make it possible to describe and compare junior colleges in terms of factor scores. To illustrate this procedure the profiles of estimated factor scores for two junior colleges are compared in Figure 1. Two colleges were selected with the expectation that they would show markedly different profiles. One college was a private, religious school in the Midwest, and the other was a public, urban, technical school on the West Coast. Figure 1 demonstrates that the profiles are indeed quite different. The private Midwestern school is more affluent in cultural facilities, is not characterized by technological specialization, is smaller, and is older. It puts more emphasis on transfer to a four-year college, and it tends to provide students with a business skill.

The primary goal of this study was to provide a brief profile which can be used to characterize junior colleges, and which will make possible

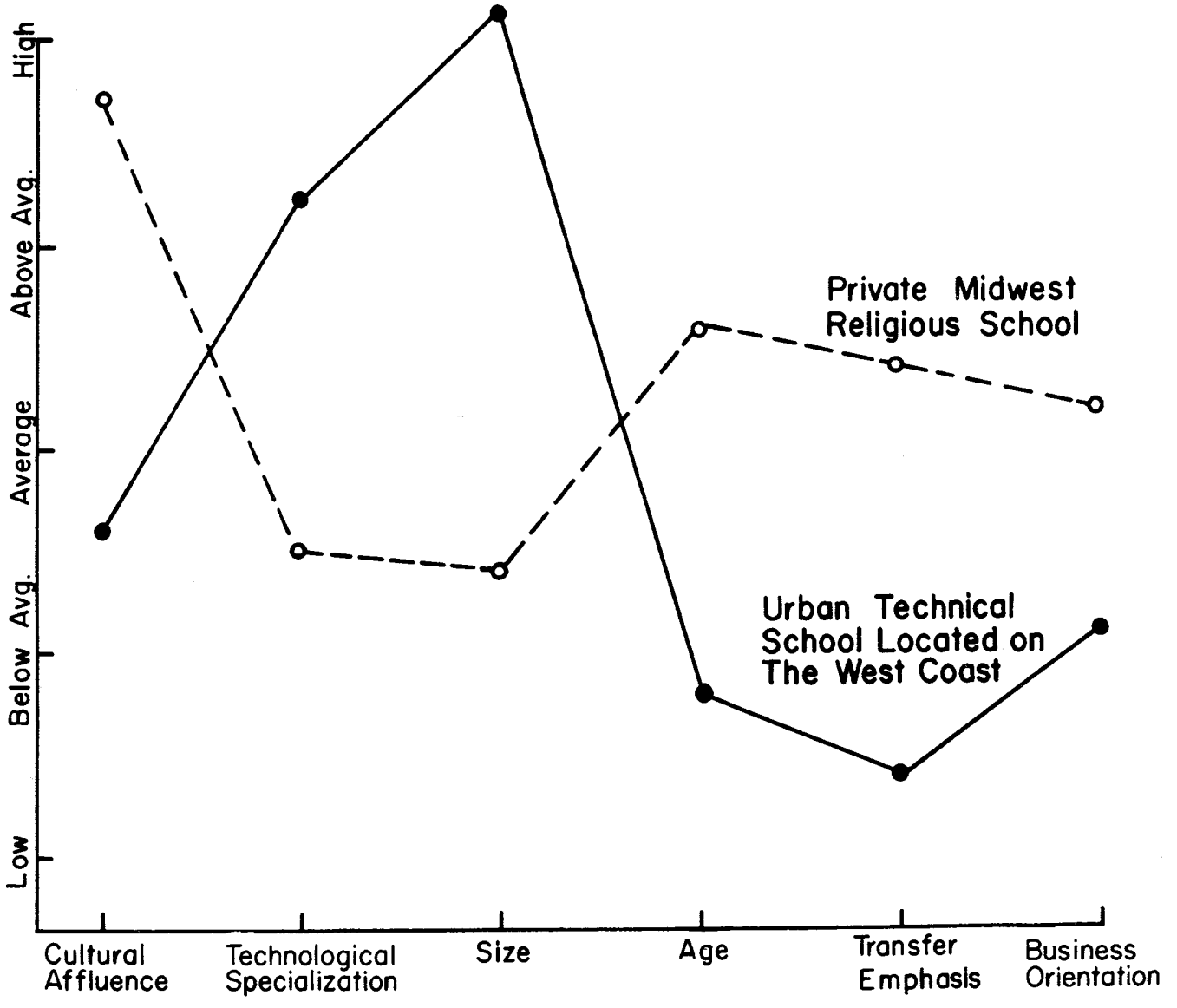

Fig. I Comparison of profiles of Two Junior Colleges on Six Factor scores

more efficient research on the effects of junior colleges on their students. It seems clear that this goal was attained, for the original 36 scores were reduced to six factors which are reasonably clear and easily interpreted. The reduction to six representative factors provides a simple, economical set of items for assessing junior college environments in research on the ways in which different colleges affect student accomplishment and growth. We hope, however, that this profile will be regarded only as a first step, that junior colleges will now receive the attention from researchers that is warranted by their importance to society, and that this attention will in turn lead to better descriptive schemes, better studies of junior college effects, and, ultimately, to better junior colleges.

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Footnotes

[1]The authors are indebted to Max R. Raines, Renee M. Huntley, and H. Bradley Sagen for their critical reading of the manuscript.

[2]All computations for this study were carried out at the University of Utah Computer Center.