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REGIONAL DIFFERENCES IN JUNIOR COLLEGES

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Summary

This study examines the geographical distribution of various junior college characteristics. Scores for six factors or categories of college characteristics, identified in earlier ACT research, were computed for each of 581 accredited junior colleges. When these junior colleges were classified and analyzed by geographical region, significant differences were found among regions on all six factors--Cultural Affluence (or Private Control), Technological Specialization, Size, Age (or Conventionalism), Transfer Emphasis, and Business Orientation (or High Cost). The regional differences are discussed and implications are suggested for research and counseling as well as for junior college planning.

Regional Differences in Junior Colleges

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The junior college is a large and important segment of higher education in the United States, and it shows signs of becoming the largest and, in some respects, the most important. The increasing importance of junior colleges emphasizes the need for comprehensive information about these institutions. 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 accurate knowledge about such colleges.

The purpose of the present study is to examine the geographical distribution of various junior college characteristics. Such information may provide clues to the influences that mold and shape the structures of junior colleges, and to the major adaptive responses of the college as an organization. More important, it may provide illuminating information about the alternatives for the orderly development of junior colleges.

The basis for this research is the study by Richards, Rand, and Rand (1965) of junior college environments, in which 36 different characteristics of junior colleges were identified. Through use of factor analysis, the complex relationships among these 36 college characteristics

were reduced to a limited number of categories that can be interpreted in terms of their underlying nature.

Six such categories, or factors, were obtained and given names which seemed to reflect their general meaning. These factors were Cultural Affluence, Technological Specialization, Size, Age, Transfer Emphasis, and Business Orientation. These factors organize the information currently available about junior colleges into a brief profile. This brief profile can be used to characterize individual junior colleges or groups of junior colleges. In the present study, the profile was used to describe junior colleges grouped according to their location.

Method

Estimation of Factor Scores. Using the data in American Junior Colleges (Gleazer, 1963), the first step in the present research was to estimate six factor scores for each of 581 accredited junior colleges. For each factor, three or four variables with high loadings on that factor and low loadings on all other factors were selected. Each variable was used in estimating only a single factor. Using the Doolittle procedure, multiple correlations were computed between variables and factors. The factor loadings served as validity coefficients; i.e., as the correlations between variables and factors. The variables chosen to represent each factor, the beta weight for each variable, and the multiple correlation between each group of variables and the corresponding factor are shown in Table 1.

Table 1

Institutional Variables, Beta Weights, and Multiple Correlations for Estimating Factor Scores for Junior Colleges

Factor	Factor Loading	Beta
Cultural Affluence (multiple correlation with factor = .85)		
1. Relative Library Size	.69	.3775
2. % of Foreign Students	.64	.4022
3. Faculty/Student Ratio	.50	.2241
4. Private vs. Public Control	.47	.1851
Technological Specialization (R = .83)		
1. Realistic Orientation	.73	.4044
2. Technological Emphasis	.67	.3351
3. % of Males in the Student Body	.64	.2741
Size (R = .89)		
1. Total Enrollment	.83	.5149
2. Variety of Curriculum	.66	.2931
3. Library Size	.67	.2614
Age (R = .87)		
1. Age	.67	.4700
2. % of Facutly which is Full-Time	.60	.3715
3. % of Part-Time Students	-.64	-.3380
Transfer Emphasis (R = .89)		
1. Teacher Training Emphasis	.68	.5924
2. % of Graduates going to Four-Year Colleges	.60	.4084
3. Liberal Arts Emphasis	.49	.2938
Business Orientation (R = .82)		
1. Enterprising Orientation	.57	.4582
2. % of Facutly with Doctoral Degree	.53	.4156
3. Tuition	.49	.3806

The multiple regression formula for each factor was determined from these beta weights, and was used to estimate a scaled factor score

(with mean = 50 and standard deviation = 10) for each college. In computing the estimated factor scores, the mean was substituted for a missing score on any variable. Inspection of the score distributions suggested, however, that a normalizing transformation would be desirable, and that the precision of the factor scores would justify only a small range of transformed scores. Accordingly, the estimated factor scores were converted to stanines (Guilford, 1952, p. 503),[1] which are normalized standard scores with a mean of 5 and a standard deviation of 1.96.

Reinterpretation of Factors. Inspection of the high-scoring and low-scoring colleges on each factor suggested that the interpretation of three of the six factors should be modified. The fact that the factor scores suggested reinterpretation of some factors confirms the conclusion that this factor solution should be considered only a first approximation to the ordering of complex phenomena, and that the titles given the factors should not be taken too literally.

First, on the Cultural Affluence factor, colleges which traditionally have been considered highly affluent (Pine Manor, Gulf Park, etc.) do, for the most part, have high scores on this factor. There are also many colleges which have high scores which could not be considered affluent by any reasonable criterion. These colleges are typically very small

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[1]A Xerox copy of the table showing the stanine score for each college on each factor is available for $1 from the Research and Development Division, American College Testing Program, Box 168, Iowa City, Iowa 52240. Please remit payment with order. Make checks payable to: American College Testing Program.

colleges under private or religious control. Because many of the variables with high loadings on this factor were expressed in "per-student" terms, it is possible for a college with an extremely small library and an extremely small faculty to obtain a high score on this factor if it also has an extremely small student body. Moreover, public colleges with generally larger student bodies tended to obtain low scores on this factor, even those (such as Foothill) which appear quite affluent in the usual sense of the word. A better title for this factor, therefore, might be Private Control.

Second, the Age factor appears to require reinterpretation. In a recent article, Stanley (1965) attempts to identify the oldest junior college in the country. Several candidates for this distinction are mentioned. Unfortunately, the leading candidates have an average score on this factor which is only moderately high. This suggests that Conventionalism might be a better title for this factor since age alone without more traditional characteristics of colleges such as a high proportion of full-time faculty and full-time students, does not produce a high score.

Finally, the Business Orientation factor should be reinterpreted. Specifically the Enterprising Orientation variable (the percent of students specializing in such fields as business administration, marketing, etc.) seems less important in producing a high score on this variable than Tuition and the Percent of Faculty with Ph.D.'s. While these two variables give some suggestion of affluence, such an interpretation would be inconsistent with the low loadings on such variables as Endowment

and Relative Library Size obtained in the earlier study of junior colleges (Richards et al., 1965). Therefore, a better title for this factor might be High Cost.[2]

Analysis of Regional Differences. Seventeen colleges of the original 581 have become four-year colleges or have closed since American Junior Colleges (Gleazer, 1963) was published. These 17 colleges were excluded from the analysis of regional differences. The remaining 564 colleges were grouped into seven regions: New England, Mideast, Great Lakes, Plains, Southeast, Southwest and Rocky Mountains, and Far West. The states included in these regions are shown in Table 2.

Table 2

States included in Regions for Study of Regional Differences in Junior College Characteristics

New England includes:
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Mideast includes:
Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania
Great Lakes includes:
Illinois, Indiana, Michigan, Ohio, Wisconsin
Plains includes:
Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota

[2]It should be noted, however, that Deep Springs College, which has no tuition since all students receive full scholarships, obtained the highest possible score (9) on this factor. This appears to be a result of a very high proportion of Ph.D.'s on the faculty (3 of 6) combined with substituting the mean for the missing Enterprising Orientation score.

Table 2 (cont.)

Southeast includes:
Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia

Southwest and Rocky Mountains includes:
Arizona, Colorado, Idaho, Montana, New Mexico, Oklahoma, Texas, Utah, Wyoming

Far West includes:
Alaska, California, Hawaii, Nevada, Oregon, Washington

The next step was to compute the mean and standard deviation on each factor for each region and for the total sample. Results are summarized in Table 3.

Table 3

Means and Standard Deviations of Junior College Characteristics by Regions

Region	Cult'l Affl. (Pvt. Cont'l)	Tech. Specl'n	Size	Age (Conventionalism)	Trsfr. Emph.	Busn's Orien. (High Cost)
New England (N = 41)						
Mean	5.56	4.07	4.07	5.02	3.54	7.17
S.D.	1.98	2.65	1.58	1.88	1.43	1.62
Mideast (N = 80)						
Mean	5.04	5.40	4.54	4.28	3.88	6.48
S.D.	1.96	2.47	1.59	1.94	2.05	1.48
Great Lakes (N = 60)						
Mean	4.30	5.55	5.33	4.22	5.32	5.58
S.D.	2.15	1.75	1.99	1.86	1.75	1.41

Table 3 (cont.)

Region	Cult'l Affl. (Pvt. Cont'l)	Tech. Specl'n	Size	Age (Conven-tional-ism)	Trsfr. Emph.	Busn's Orien. (High Cost)
Plains (N = 74)						
Mean	5.07	4.88	4.68	5.80	5.66	3.95
S.D.	1.76	1.64	1.53	1.33	1.56	1.71
Southeast (N = 134)						
Mean	5.42	4.20	4.29	5.75	4.97	4.62
S.D.	1.68	1.86	1.59	1.95	1.77	1.71
Southwest & Rocky Mountains (N = 77)						
Mean	5.22	5.14	5.38	5.39	5.61	4.48
S.D.	1.81	1.43	1.64	1.64	1.67	1.53
Far West (N = 98)						
Mean	4.44	5.61	6.79	4.02	4.83	4.17
S.D.	1.58	1.17	1.94	1.80	1.70	1.46
Total (N = 564)						
Mean	5.01	4.97	5.05	4.98	4.90	4.99
S.D.	1.86	1.93	1.92	1.94	1.86	1.87

One could make a strong case for the proposition that the total group of junior colleges for this study is the population, and that therefore statistical tests of the significance of differences are both unnecessary and meaningless. There is also some doubt as to the appropriateness of analyzing group differences on normalized scores using the same group on which the transformation was based, since the between variance depends on the within variance. Nevertheless, an objective way was needed for

deciding which differences will be considered important and for estimating which differences are greater than might be expected for groups of the same size chosen at random from the total population of junior colleges. Therefore, standard statistical analyses were made of the mean differences. A simple analysis of variance was computed across the seven regions on each of the six variables. Results are shown in Table 4.

Table 4

Analysis of Variance of Regional Differences

in Junior College Characteristics

Factor	M.S. for Groups	M.S. for Errors	F
Cultural Affluence (Private Control)	16.89	3.32	5.09**
Technological Specialization	31.85	3.47	9.18**
Size	76.12	2.93	25.98**
Age (Conventionalism)	50.87	3.26	15.61**
Transfer Emphasis	42.40	3.06	13.86**
Business Orientation (High Cost)	96.24	2.52	38.19**

* $p < .05$
** $p < .01$

degrees of freedom = 6/557

The last step in the analysis was to make comparisons among the regional means. On each factor the Newman-Keuls method (Winer, 1962)

was used to compare all possible pairs of means. This procedure seems to be the most satisfactory method currently available for making "post-hoc" comparisons, such as were made in this study. The comparisons of means are summarized in Table 5.

Discussion

The results shown in Tables 4 and 5 reveal that there are regional differences among junior colleges on all six characteristics. These differences may have important implications for counseling, for research, and for planning for future junior colleges.[3] The differences, and some of their implications, are summarized below.

On the Cultural Affluence, or Private Control factor the main trend seems to be for colleges in the Great Lakes states and in the Far West to be lower than colleges in other regions. No doubt this results in part from a general emphasis in these states on public education. It is also possible that junior colleges in these regions have modeled themselves after state universities, or have sought an identity of their own, rather than imitating private liberal arts colleges.

The major trend on the Technological Specialization factor is for colleges in New England and in the Southeast to be lower than colleges in other regions. This trend may be related to different conceptions of the role of the junior college, and a de-emphasis of vocational training

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[3]In this connection, it should be noted that approximately 200 junior colleges have been established since American Junior Colleges (Gleazer, 1963) was published. At the present time, no source of comprehensive information about the characteristics of these colleges is available.

Table 5

Summary of Statistical Analysis of Regional

Differences in Junior College Characteristics

Comparison	Cultural Affluence (Pvt. Control)	Tech. Special.	Size	Age (Conv'lsm)	Transfer Emphasis	Business Orient'n (High Cost)
1. New England Colleges compared to:						
a. Mideast Colleges	n.s.d.	lower**	n.s.d.	higher*	n.s.d.	higher**
b. Great Lakes Colleges	higher**	lower**	lower**	higher*	lower**	higher**
c. Plains Colleges	n.s.d.	lower*	n.s.d.	lower*	lower**	higher**
d. Southeast Colleges	n.s.d.	n.s.d.	n.s.d.	lower*	lower**	higher**
e. Southwest & Rocky Mountains Colleges	n.s.d.	lower**	lower**	n.s.d.	lower**	higher**
f. Far West Colleges	higher**	lower**	lower**	higher**	lower**	higher**
2. Mideast Colleges compared to:						
a. New England Colleges	n.s.d.	higher**	n.s.d.	lower*	n.s.d.	lower**
b. Great Lakes Colleges	n.s.d.[1]	n.s.d.	lower*	n.s.d.	lower**	higher**
c. Plains Colleges	n.s.d.	n.s.d.	n.s.d.	lower**	lower**	higher**
d. Southeast Colleges	n.s.d.	higher**	n.s.d.	lower**	lower**	higher**
e. Southwest & Rocky Mountains Colleges	n.s.d.	n.s.d.	lower*	lower**	lower**	higher**
f. Far West Colleges	n.s.d.[1]	n.s.d.	lower**	n.s.d.	lower**	higher**
3. Great Lakes Colleges compared to:						
a. New England Colleges	lower**	higher**	higher**	lower*	higher**	lower**
b. Mideast Colleges	n.s.d.[1]	n.s.d.	higher*	n.s.d.	higher**	lower**
c. Plains Colleges	n.s.d.	n.s.d.	higher*	lower**	n.s.d.	higher**
d. Southeast Colleges	lower*	higher**	higher**	lower**	n.s.d.	higher**
e. Southwest & Rocky Mountains Colleges	lower*	n.s.d.	n.s.d.	lower**	n.s.d.	higher**

Table 5 (cont.)

Comparison	Cultural Affluence (Pvt. Control)	Tech. Special.	Size	Age (Conv'lsm)	Transfer Emphasis	Business Orient'n (High Cost)
f. Far West Colleges	n.s.d.	n.s.d.	lower**	n.s.d.	n.s.d.	higher**
4. Plains Colleges compared to:						
a. New England Colleges	n.s.d.	higher*	n.s.d.	higher*	higher**	lower**
b. Mideast Colleges	n.s.d.	n.s.d.	n.s.d.	higher**	higher**	lower**
c. Great Lakes Colleges	n.s.d	n.s.d	lower*	higher**	n.s.d	lower**
d. Southeast Colleges	n.s.d	higher*	n.s.d	n.s.d	n.s.d	n.s.d
e. Southwest & Rocky Mountains Colleges	n.s.d.	n.s.d.	lower*	n.s.d.	n.s.d.	n.s.d.
f. Far West Colleges	n.s.d.	n.s.d.	lower**	higher**	higher*	n.s.d.
5. Southeast Colleges compared to:						
a. New England Colleges	n.s.d.	n.s.d.	n.s.d.	higher*	higher**	lower**
b. Mideast Colleges	n.s.d	lower**	n.s.d.	higher**	higher**	lower**
c. Great Lakes Colleges	higher*	lower**	lower**	higher**	n.s.d.	lower**
d. Plains Colleges	n.s.d.	lower*	n.s.d.	n.s.d.	n.s.d.	n.s.d.
e. Southwest & Rocky Mountains Colleges	n.s.d.	lower*	lower**	n.s.d	n.s.d.	n.s.d.
f. Far West Colleges	higher*	lower**	lower**	higher**	n.s.d.	n.s.d.
6. Southwest & Rocky Mountains Colleges compared to:						
a. New England Colleges	n.s.d.	higher**	higher**	n.s.d.	higher**	lower**
b. Mideast Colleges	n.s.d.	n.s.d.	higher*	higher**	higher**	lower**
c. Great Lakes Colleges	higher*	n.s.d.	n.s.d.	higher**	n.s.d.	lower**
d. Plains Colleges	n.s.d.	n.s.d.	higher*	n.s.d.	n.s.d.	n.s.d.
e. Southeast Colleges	n.s.d.	higher*	higher**	n.s.d.	n.s.d.	n.s.d.
f. Far West Colleges	higher*	n.s.d.	lower**	higher**	higher**	n.s.d.

Table 5 (cont.)

Comparison	Cultural Affluence (Pvt. Control)	Tech. Special.	Size	Age (Conv'lsm)	Transfer Emphasis	Business Orient'n (High Cost)
7. Far West Colleges compared to:						
a. New England Colleges	lower**	higher**	higher**	lower**	higher**	lower**
b. Mideast Colleges	n.s.d.[1]	n.s.d.	higher**	n.s.d.	higher**	lower**
c. Great Lakes Colleges	n.s.d.	n.s.d.	higher**	n.s.d.	n.s.d.	lower**
d. Plains Colleges	n.s.d.	n.s.d.	higher**	lower**	lower*	n.s.d.
e. Southeast Colleges	lower*	higher**	higher**	lower**	n.s.d.	n.s.d.
f. Southwest & Rocky Mountains Colleges	lower*	n.s.d.	higher**	lower**	lower**	n.s.d.

* $p < .05$
** $p < .01$

[1] These differences exceed the critical Neuman-Keuls value, but since the next larger value was not significant, they are not considered significant.

related to community occupational needs, or to general social conditions such as a predominance of agriculture over industry in much of the South. This general picture may change, therefore, as a result of such changes in American society as increasing industrialization of the South.

The major trend on the Size factor is for colleges in the Far West to be larger than colleges in other regions. Colleges in the Great Lakes states and in the Southwest and Rocky Mountains states also tend to be relatively large. It is interesting that this pattern does not follow very closely the distribution of population in the country. This suggests that sociological or political factors, rather than need, may have produced this pattern with the result that the various regions of the country may not offer students equal opportunity for junior college education. The strong tendency for colleges in the Far West to be very large results mainly from the pattern of higher education in California, which, of course, results in turn from a carefully thought-out plan for coordinating junior colleges with other institutions of higher education.

On the Age or Conventionalism factor, colleges in the Southeast, Southwest and Rockies, and Plains states are high while colleges in the Far West are low. A number of trends, no doubt, produced this pattern. Many of the Negro junior colleges in the South are quite old (as junior colleges go), although in many cases they were not established as two-year colleges. Such colleges are also unlikely to be very innovative because of socio-political conditions in the South. Similarly, many of the junior colleges in California have been established very recently. In New England,

the region where many of the oldest and most traditional four-year colleges are located, the junior colleges are only average on this factor.

On Transfer Emphasis, colleges in New England and in the Mideast are extremely low, with few significant differences among other regions. This trend no doubt results from the fact that higher education in these two regions is dominanted by a few private, affluent, and prestigious four-year colleges and universities. These institutions are highly selective in admitting freshmen, and in general have little interest in admitting transfer students at the junior level. Also, it may be that other regions of the country (particularly the Midwest) offer much teacher training in junior colleges, while in New England and the Mideast such training is more restricted to four-year teachers colleges. Such different patterns of teacher education and accreditation may, in part, produce the relatively low score on Transfer Emphasis for New England and the Mideast.

The major trend on the Business Orientation, or High Cost factor is for colleges in New England, the Mideast, and the Great Lakes to be much higher than colleges in other regions. It is probable that High Cost is a better title for this pattern than is Business Orientation. It is also probable that these differences merely reflect a general pattern in higher education in the various regions, and that much the same pattern would have been obtained if the cost of attending four-year colleges had been considered.

The implications of this study for research appear obvious. If a researcher wishes to investigate general trends in junior college education,

he should be careful to sample representatively from the various regions of the country. It appears that obtaining a sample in only one region is not a convenient shortcut to overcome the difficulties of obtaining a national sample, since different results would probably be obtained from a sample of New England colleges than would be obtained from a sample of Far West colleges.

Similar implications for student counseling can be drawn from these results. Such counseling should, of course, be based on the characteristics of the particular junior college under consideration. The results of this study, however, do provide a useful general orientation, and do suggest important matters that should be considered in the counseling process. For example, if a student wishes to obtain technological training, the counselor probably should give him different advice if he lives in the Southeast than if he lives in the Far West. Similarly a student aspiring to the bachelor's degree but wishing to economize by attending a local junior college for the first two years while continuing to live with his parents probably should receive different advice depending on whether he lives in New England or in the Plains states.

Finally, these results may provide clues to needs of students or of society that are not being fully met by existing junior colleges in any given region of the country. Such needs might be given special consideration in planning for new junior colleges in that region.

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