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ABSTRACT

More than half of the colleges and universities in the U.S. require entering freshmen to present scores on the American College Test (ACT) as a condition of admission. Within recent years, colleges and universities have been asked to determine procedures whereby prior educational achievement and life experiences could be evaluated and college level credit could be awarded. One response to this need has been the College Level Examination Program (CLEP). As interest in CLEP grew, it became readily apparent that validation of prior achievement and experience needed additional information in order to make realistic choices. Since the ACT examination already had been established as a condition for admission, the ACT appeared to be the most satisfactory instrument to use for predicting success on CLEP. The method that proved to be most satisfactory was the tally matrix from which probabilities were computed, as described in this report. The probabilities of earning credit based on ACT scores are disclosed in the tables accompanying the text. The method described for obtaining probabilities was computerized, thus permitting a generalized application of the technique. Nevertheless, the procedure can be accomplished manually and can be of significant value in counseling students, in program planning, and in evaluation monitoring of the CLEP program. (Author/PG)

THE AMERICAN COLLEGE TEST AS A PREDICTOR OF SUCCESS ON THE COLLEGE LEVEL EXAMINATION PROGRAM

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THE AMERICAN COLLEGE TEST AS A PREDICTOR OF SUCCESS ON THE COLLEGE LEVEL EXAMINATION PROGRAM

More than half of the colleges and universities in the United States require entering freshmen to present scores on the American College Test (ACT) as a condition of admission. The reliability and usefulness of the ACT has permitted admissions officers and other administrators to employ the test results in a wide variety of applications. One of the most interesting and useful applications lies in the use of the various area test scores to indicate the probability of success in college. When the full range of research services are available, counselors are able to provide academic and social counseling in a dimension more nearly individualized and thus more likely to benefit marginally qualified students.

Within recent years, colleges and universities have been asked to determine procedures whereby prior educational achievement and life experiences could be evaluated and college level credit could be awarded. One response to this need has been the College Level Examination Program (CLEP). CLEP is a battery of achievement tests designed to measure college level knowledge in various educational disciplines. Ordinarily, colleges conduct studies to determine the appropriate CLEP area test that relates to a given course or courses and from these studies minimum CLEP scores are established for awarding credit.

Arkansas State University began awarding credit for CLEP in 1971. After a comprehensive study of those general education courses which could be related to areas measured by CLEP, minimum score requirements were established. Through 1973, 1,617 individuals have written all or selected parts of the examination and 1,422 have earned credit.

As interest in CLEP grew, it became readily apparent that prospective students, counselors, admission officers, and others concerned with the problem associated with the validation of prior achievement and experience needed additional information in order to make realistic choices. Students and counselors required some indication of potential success on the CLEP examination while university officials needed some standardized method to determine that CLEP credit was being awarded on a sound basis and that given scores were rationally related to performance on other accepted instruments. Since the ACT examination had already been established as a condition for admission, the ACT appeared to be the most satisfactory instrument to use for predicting success on CLEP.

A series of regression equations were formulated to determine the predictability of CLEP performance from ACT scores. Table I disclosed the results of the regression analyses. In each CLEP area except fine arts and humanities, three models were developed. The first employed only the ACT area score as a predictor, the second model used the ACT composite score as a lone predictor, and the third utilized all four ACT area scores plus the composite as predictors. A comparison of the percent of variance explained (RSQ) in the first and second models indicated that the use of the ACT composite score resulted in an equation

TABLE I

MULTIPLE CORRELATION AND REGRESSION RESULTS
USING CLEP SCORES AS CRITERION, ACT SCORES AS PREDICTOR

CLEP Test	ACT Area Score			ACT Composite			ACT Scores						
	Wt.	RSQ	Constant	Wt.	RSQ	Constant	Eng.	Math	S.S.	N.S.	Comp.	RSQ	Constant
English Comp.	15.02	.58	163.06	14.04	.52	173.25	9.46	-.21	1.65	-1.28	6.74	.63	131.55
Natural Science Total Score	11.20	.55	214.16	14.22	.54	160.29	.64	1.98	2.41	7.99	.30	.59	173.96
Biology Subscore	1.07	.44	22.32	1.37	.45	16.78	.20	.05	.35	.75	-.03	.49	17.54
Physical Science Subscore	1.00	.49	25.11	1.28	.48	20.14	-.15	.20	.08	.60	.45	.53	21.84
Mathematics	10.51	.65	255.62	11.40	.45	229.38	-1.90	8.15	-1.27	-1.68	7.66	.66	244.18
Humanities	-----	---	------	9.54	.39	247.70	3.69	-2.42	2.56	.04	6.38	.47	233.84
Fine Arts	-----	---	------	.87	.24	27.34	.23	-.34	.16	.04	.83	.29	26.26
Literature	.85	.33	27.44	.88	.37	26.29	.37	.17	.27	.07	.55	.44	24.96
Social Science History	7.90	.44	270.19	10.61	.45	211.20	1.40	-.15	4.47	.93	3.72	.49	216.97
History Subscore	.67	.35	29.20	.87	.33	24.91	.11	.07	.50	.10	.06	.37	25.89

not significantly inferior to the area test except for mathematics. The failure of the third model which included all ACT scores to reduce the unexplained variance to a useful level was disappointing. Nevertheless, the strength of the equations did warrant further investigation to determine if a satisfactory relationship could be established.

The method which proved to be most satisfactory was the tally matrix from which probabilities were computed. Briefly, the technique required that a matrix be constructed with a given CLEP score along the ordinate and ACT composite score along the abscissa. All CLEP scores with more than two digits were reduced to a two-digit score. Each score pair was then tallied into the matrix. For example, a CLEP score of 45 and an ACT score of 25 would have been tallied in the cell corresponding to row 45 and column 25. Additionally, if the CLEP score was equal to or greater than the score required for awarding credit, a tally was also made in a separate part of the cell. Thus, when all tallies had been made, each cell contained the cell N and the number receiving credit. Each column was summed and the total receiving credit in each column was divided by the column total to obtain the probability of scoring well enough to earn CLEP credit with each ACT score. Since the probabilities obtained were not always in a straight line descent, it was necessary to smooth them over the entire range. This was accomplished by constructing a matrix with probabilities from 0 to 1 along the ~~abscissa~~ ORDINATE. Each column probability was then plotted and a curve fitted. From this smoothed plot, probabilities of earning CLEP credit could be read directly.

TABLE II

PROBABILITIES OF EARNING CLEP CREDIT BASED UPON ACT COMPOSITE SCORE

ACT	Humanities F.A. 20002 & 20502	Humanities English 20003	Humanities Eng. 20003 & 20013	Nat. Sci G.S.P. 10203	Nat. Sci. G.S.S. 10003	Math 10103	History 12013	History 12013 & 12023	English 10003a	English 10003a & 10003b
10	3	2	0	0	0	7	5	0	0	0
11	5	3	0	0	0	14	10	0	0	0
12	7	5	0	0	0	21	15	0	7	0
13	9	6	0	0	4	27	20	0	14	0
14	11	7	0	6	7	33	26	2	20	0
15	13	8	2	12	15	41	29	4	24	2
16	15	11	3	19	13	41	35	5	27	3
17	17	15	4	25	18	42	40	7	37	8
18	19	17	5	29	23	50	45	8	53	10
19	21	20	6	36	27	57	51	10	58	16
20	24	23	8	41	32	65	56	11	64	22
21	29	27	10	47	37	71	62	13	70	28
22	33	30	12	55	42	78	68	17	76	34
23	38	43	15	64	49	86	73	21	82	39
24	43	49	18	71	55	91	80	26	86	46
25	49	54	23	79	61	95	83	32	92	58
26	54	60	28	89	68	96	86	37	94	69
27	59	66	32	92	74	97	91	43	96	82
28	64	72	37	96	81	100	93	49	98	88
29	70	78	50	100	88	100	97	56	100	97
30	76	90	61	100	100	100	98	63	100	100
31	100	100	75	100	100	100	100	74	100	100
32	100	100	100	100	100	100	100	100	100	100
33	100	100	100	100	100	100	100	100	100	100
34	100	100	100	100	100	100	100	100	100	100
35	100	100	100	100	100	100	100	100	100	100
36	100	100	100	100	100	100	100	100	100	100
	N=1353	N=1353	N=1353	N=1340	N=1341	N=1219	N=1297	N=1297	N=1374	N=1374
	Mean CLEP	Mean CLEP	Mean CLEP	Mean CLEP	Mean CLEP	Mean CLEP	Mean CLEP	Mean CLEP	Mean CLEP	Mean CLEP
	46.4	45.2	45.2	47.8	45.8	486.5	44.7	44.1	474.3	474.3
	Mean ACT	Mean ACT	Mean ACT	Mean ACT	Mean ACT	Mean ACT	Mean ACT	Mean ACT	Mean ACT	Mean ACT
	21.8	21.8	21.8	21.8	21.8	21.9	21.8	21.8	21.7	21.7

The probabilities of earning credit based upon ACT scores are disclosed in Table II. A total of 30 hours may be earned by the CLEP examination in the indicated general education courses.

The method for obtaining probabilities described above was computerized thus permitting a generalized application of the technique. Nevertheless, the procedure can be accomplished manually and can be of significant value in counseling students, in program planning, and in evaluation monitoring of the CLEP program.