Predicting Performance on the Florida Teacher Certification Examination

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Purpose and Perspective

The purpose of this study was to examine factors which might predict performance on the Florida Teacher Certification Examination (FTCE). The FTCE was given to candidates for certificates in Florida for the first time in November, 1980. It was given again in April, 1981. Since the FTCE is relatively new, there has been no research to help college officials determine what variables might be used as predictors of FTCE performance.

For several years, the College of Education at the University of South Florida has been requiring students to take the American College Test (ACT) during the first term of enrollment. Since either the ACT or the Scholastic aptitude Test (SAT) is now required for all students prior to admission to a teacher training program throughout Florida, it was considered important to determine the nature of the relationship between these tests and the four tests of the FTCE. Because only data on the ACT are available, no SAT scores could be examined within the context of this study.

Methodology

There were 127 graduates of State approved programs from the College of Education at USF who took the FTCE in November of 1980 or April, 1981. By matching computer tapes from the College with tapes of the FTCE it was possible to identify 64 graduates who took both the certification exam and the ACT two years earlier. For 61 of these 64 subjects, GPA's were available for their first two years of college work.

Pearson correlations were run among all variables, generating concurrent validity coefficients among the entry measures of GPA, ACT-English, ACT-Math, ACT-Social Science, ACT-Natural Science, and ACT-Composite; concurrent validity coefficients among the Math, Reading, Writing, and Professional Practices tests of the FTCE; and predictive validity coefficients on each of the entry measures for each of the tests of the FTCE.

Stepwise regression analyses were performed on the data set, using three regression models as described in the *SAS User's Guide*, 1979 edition: Stepwise Regression, Forward Selection Regression and Maximum R-Square Improvement Regression.

Means and standard deviations were generated on all measures.

All analyses were performed with the facilities of the University of South Florida Computer Center.

Results

Means and standard deviations on all variables are presented in Table 1.

TABLE 1

Mean and Standard Deviations
on GPA, ACT and Florida Teacher
Certification Examinations (FTCE)

Variable	N	Mean	SD
GPA	61	2.92	.49
ACT-ENG	64	19.61	4.38
ACT-MTH	64	15.72	6.82
ACT-SOC-SC.	64	20.75	6.35
ACT-NS	64	21.55	5.79
ACT-COMP	64	19.44	4.74
[a]FTCE-MTH	64	224.03	14.19
[a]FTCE-READ	64	218.50	10.52
[a]FTCE-PROF	64	226.02	9.42
[b]FTCE-WRIT	64	7.55	1.59

[a]Passing score is 200.
[b]Passing score is 6.

Pearson correlations on the variables are shown in Tables 2, 3, and 4. Table 2 contains intercorrelations among the six predictor variables. Table 3 contains intercorrelations among the four criterion variables. Predictive validity coefficients are presented in Table 4.

The median correlation among the six predictor variables (Table 2) was .49. If ACT-Composite is excluded, the median correlation drops to .43, with correlations ranging from .13 between GPA and ACT-Math to .66 between ACT-Math and ACT-Natural Science. All correlations except that between GPA and ACT-Math were significant at or beyond the .05 alpha level.

The median correlation among the four criterion variables (Table 3) was .44. The correlations ranged from .17 between FTCE-Professional and FTCE-Writing to .47 between FTCE-Math and FTCE-Reading. All correlations except that between FTCE-Professional and FTCE-Writing were significant at or beyond the .05 alpha level.

TABLE 2

Intercorrelations Among the Predictor Variables: GPA & ACT

	ACT-ENG	ACT-MTH	ACT-SOCSC	ACT-NS	ACT-COMP
GPA	*.30 (N=61)	.13 (N=61)	**.37 (N=61)	*.30 (N=61)	**.34 (N=61)
ACT-ENG		**.42 (N=64)	**.64 (N=64)	**.55 (N=64)	**.77 (N=64)
ACT-MTH			**.43 (N=64)	**.66 (N=64)	**.80 (N=64)
ACT-SOCSC				**.56 (N=64)	**.81 (N=64)
ACT-NS					**.86 (N=64)

$*p \leq .05$
$**p \leq .01$

TABLE 3

Intercorrelations Among the Criterion Florida Teacher Certification Examinations (FTCE)

Variables:	FTCE-READ	FTCE-PROF	FTCE-WRIT
FTCE-MTH	**.47 (N=64)	**.46 (N=64)	**.42 (N=64)
FTCE-READ		*.26 (N=64)	**.45 (N=64)
FTCE-PROF			.17 (N=64)

$*p \leq .05$
$**p \leq .01$

The median correlation between the six predictor variables and the four criterion variables and the four criterion variables (Table 4) was .44. The lowest predictive validity value was .14 between GPA and FTCE-Writing. The highest was .67 between ACT-Composite and FTCE-Math. Overall, GPA was the poorest predictor of the ceriterion variables, generating a median coefficient of .24. The best predictor was ACT-Composite, with a median coefficient of .52. Next best was ACT-Social Science, with a median coefficient of .49. Overall, the six predictor variables correlated highest with FTCE-Math; the median predictive validity value for FTCE-Math was .52. The predictor variables correlated lowest with FTCE-Professional, with a median predictive validity value of .35.

TABLE 4

Correlations Between Predictor Variables - GPA & Act - and Criterion Variables - Florida Teacher Certification Examinations (FTCE)

Predictor Variables	Criterion Variables			
	FTCE-MTH	FTCE-READ	FTCE-PROF	FTCE-WRIT
GPA	**.39 (N=61)	*.25 (N=61)	.22 (N=61)	.14 (N=61)
ACT-ENG	**.53 (N=64)	**.54 (N=64)	*.27 (N=64)	**.45 (N=64)
ACT-MTH	**.61 (N=64)	**.35 (N=64)	**.36 (N=64)	.20 (N=64)
ACT-SOCSC	**.51 (N=64)	**.50 (N=64)	**.35 (N=64)	**.47 (N=64)
ACT-NS	**.51 (N=64)	**.54 (N=64)	**.34 (N=64)	**.37 (N=64)
ACT-COMP	**.67 (N=64)	**.58 (N=64)	**.42 (N=64)	**.45 (N=64)

$*p \leq .05$
$**p \leq .01$

The three stepwise regression procedures (Stepwise, Forward Selection, and Maximum R^2) produced highly similar results. Therefore, only the results of the Stepwise procedure are reported. In the Stepwise procedures, predictor variables were entered only if they had an F-statistic significant at the .15 alpha level. The results of the regression analyses for each criterion variable are summarized in Table 5. Regression results are shown with ACT-Composite included and with ACT-Composite excluded.

As indicated in Table 5, the regression system accounted for the most variance for the criterion, FTCE-Math (R^2 about .54) and the next most variance for the criterion FTCE-Reading (R^2 about .37). The regression system accounted for the least variance for the criterion, FTCE-Professional (R^2 about .17). This pattern held both when ACT-Composite was included among the independent variables and when it was excluded. When ACT-Composite was included, it accounted for the most variance, except in the case of FTCE-Writing. When ACT-Composite was excluded from the anlyses, no one predictor variable was clearly dominant; ACT-Math was foremost for FTCE-Math and FTCE-Professional, ACT-English was foremost for FTCE-Reading, and ACT-Social Science was foremost for FTCE-Writing. GPA was an important contributor only for FTCE-Math.

TABLE 5

Stepwise Regression Results on Each Criterion Variable, With and Without ACT-COMP Included Among The Predictor Variables

Criterion Variable	Stepwise Including ACT-COMP		Stepwise Excluding ACT-COMP	
	Variable Added	R Square	Variable Added	R Square
FTCE-MTH	ACT-COMP	.48	ACT-MTH	.40
	GPA	.51	GPA	.50
	ACT-MTH	.54	ACT-ENG	.55
FTCE-READ	ACT-COMP	.33	ACT-ENG	.29
	ACT-MTH	.37	ACT-NS	.36
FTCE-PROF	ACT-COMP	.16	ACT-MTH	.12
			ACT-SOCSC	.17
FTCE-WRIT	ACT-SOCSC	.24	ACT-SOCSC	.24
	ACT-ENG	.28	ACT-ENG	.28

Educational Implications

The Florida Teacher Certification Examination is relatively new and has only been administered since November of 1980. The results of this study may help College of Education personnel determine if the ACT results or GPA at time of admission will be helpful in anticipating the level of performance on the Florida Teacher Certification Examination.

These results show that the best predictor of success on the Mathematics, Reading and Professional Education subtests is the composite ACT score. However, the relationship between the ACT composite and the Professional Education subtest is not very large.

Grade point average at time of admission to the College of Education is a predictor only for the Mathematics subtest and even here it is only a weak predictor.

Generally, the predictor data available for this study do not hold up well in predicting success on the Professional Education and Writing subtests. The information that is needed for success on the Professional Education subtest is that which is taught in courses in the College of Education. It seems reasonable that neither lower level GPA nor aptitude tests completed prior to taking these courses would be expected to contribute to predicting scores on this subtest. Such was the case.

It is also understandable that predicting how well a person will do on a writing test, using an objective predictor test such as the ACT, would be rather difficult. The reliability in grading the writing exams may also affect the predictability of the results.

Overall, it appears that the College of Education admission data are most promising for predicting success on the Mathematics and Reading subtests of the Florida Teacher Certification Examination. The predictability of the Professional Education and Writing subtests is low and care should be exercised in predicting these scores.

Further research needs to be done to see if the results obtained for USF students are similar to results obtained at other colleges of education in the University System. While one might anticipate similar results, replication of the study would be advisable.