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AUTHOR   Planisek, R. J.; And Others
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ABSTRACT
                Research has provided few guidelines or criteria
which can be utilized by college deans to decide which academically
dismissed students have the highest probability of success once
readmitted. In this study, measures of student characteristics were
sought which correlate with academic performance. 360 admission
applicants, of whom 181 sought readmission and 179 were transfer
students, were given the Cooperative School and College Ability Test
(SCAT), the Cooperative English Test, the Activities Index, and the
Sixteen Personality Factor Test (16 PF). Academic success was
measured according to their Spring Quarter GPA. Although the Deans
readmitted 225 students based on their test scores, only 93 chose to
attend class that Spring Quarter. Significant GPA correlates were
found at the .05 level or better among all categories of variables
produced a multiple correlation with Spring GPA of R=.84. The major
finding of this multivariate study had to do with the non-ability
correlates with GPA from the 16 PF and the Activities Index. The
validation of these eight correlates could have theoretical
implications for counseling the low achiever. (Author/AF)

THE SUCCESS OF THE READMITTED COLLEGE

STUDENT: A MULTIVARIATE STUDY

R.J. Planisek

G.B. Arnold

and

S.L. Ferrara

Kent State University

INTRODUCTION

During the Fall Quarter, 1967, the staff of the Examination Aids Center, EAC, compared the results of earlier studies with the findings of a study which evaluated the then existing readmission and transfer test battery. The comparison provided a self evident conclusion - the test battery was not a very efficient predictor of subsequent academic performance.

Consequently, the EAC obtained authorization from the Academic Administrative Advisory Council to begin administering a new predictor test battery. Because of an existing paucity of research on the readmitted student little help or guidance was provided from this source. Hence, the battery was the result of discussions with professionals in the areas of achievement, reading, and personality as well as the existence of potentially useful tests in these areas. Thus, the purpose of this investigation was to seek academic correlates from a multivariate battery representing many domains. It was hypothesized that such a comprehensive battery of student characteristics might account for a large portion of the variance in academic performance.

METHOD

With the approval of the campus officials the readmission study was now possible. Therefore, beginning with the Winter Quarter, 1968, applicants for readmission would be given the new test battery.

The Cooperative School and College Ability Test, SCAT, was chosen to be included in this battery because it measures two kinds of school-related abilities, verbal and quantitative. Sentence understanding and word meanings make up the measures of verbal ability. Numerical computation and numerical problem solving comprise the quantitative ability.

The Cooperative English Tests : Reading Comprehension was chosen as a measure of reading ability, which appeared to be fundamental to student success. This instrument contains a vocabulary scale which is generally accepted as a good predictor of academic success. Also, the vocabulary scale was expected to overlap with the verbal scale from the SCAT, thus, providing a validity check for this ability. The reading section consists of passages which are varied in style and content and are scored for level of comprehension and reading speed. These measures are based upon the student's recall of facts and interpretation of what was read.

The concept of environmental press was described in 1938 by the psychologist, Henry Murray. According to his theory individuals were seen as having characteristic needs, and the strength and relationships of these needs were what characterized the personality. In corollary fashion, the environment was seen as having potentials for satisfying or frustrating these needs,

and these potentials were called environmental press. Pace
and Stern have since created several instruments which are
based upon Murray's ideas of need-press. The Activities Index
by Pace and Stern consists of 300 items distributed among 30
scales of 10 items each. Thus, on the basis of its content
this instrument was selected for inclusion in this experimental
battery.

The Sixteen Personality Factor Test. 16 PF, is a factor
analytically developed personality questionnaire designed by
Cattell to measure the major dimensions of human personality
comprehensively. This instrument was chosen over other person-
ality measures because of technical considerations, i.e., the
16 PF is based on more than 25 years of published research.
Hence, this instrument proclaims a broad range of personality
factors which could provide necessary insight into the complexity
of human behavior.

The four instruments contain a total of 54 subscales which
are listed in Table 1. It should be noted that for purposes
of analysis the total subscales from the SCAT and Cooperative
English Tests will not be used because of their part-whole
affect on the correlations. However, for the SCAT the sentence
understanding and word meanings will be combined to form the
verbal score and the numerical computation will be combined with
the numerical problem solving to form the Quantitative score.

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Insert Table 1 about here

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These instruments were then administered to the students applying for readmission to Kent State University during the Winter Quarter, 1968. The readmitted student is defined in this study as a student who has been previously dismissed from KSU for academic reasons and is applying for reinstatement or a non-KSU student who has applied to KSU for admission but who has a record of poor academic performance at the school from which he wishes to transfer. No distinction will be made between these two types of students in this study.

The basic descriptive statistics, the mean and standard deviation, will be calculated for all of the 51 scales analyzed in this investigation. The scales will be intercorrelated to locate common sources of variance. All scales which correlate significantly at the $\alpha=.05$ level or greater with returning quarter grade point average, GPA, will be included in a multiple correlation.

RESULTS

The sample of Winter Quarter, 1968, applicants totaled N=360. This sample consisted of 181 students seeking readmission who had been academically dismissed from KSU and 179 students seeking admission to KSU as transfer students. Note: these transfer students represented only that portion of transfer students of questionable academic record and not all transfer students.

The use of the 25th percentile rank score for readmitted students and the 50th percentile rank score for transfer students on both the <u>SCAT</u> and <u>Cooperative English</u> total scores, a policy

established by the college deans, reduced this sample to N=225.
From this truncated ability sample 93 students chose to attend
class Spring Quarter, 1968, while 132 chose not to attend.
Thus, out of the original sample of 360 students approximately
38 per cent were not admitted by the deans on the basis of their
test scores, 36 per cent chose not to enroll Spring Quarter,
and 26 per cent attended classes Spring Quarter to complete
this study.

The ability test scores from the SCAT and the Cooperative
English were compared with Educational Testing Service's national
college sophomore norms. Percentile ranks computed on the basis
of the original sample of N=360 proved to be a good fit to the
ETS sophomore norms. The mean scores for colleges were compared
and found to be non significantly different; however, the standard
deviations did vary among the subgroups. Therefore, the dean's
criteria eliminated the proportions of the students indicated
by the criterion percentile ranks. Nonetheless, this tendency
toward normality enables one to conclude that the performance
displayed by this sample of readmission applicants on these
ability measures is not atypical of the general ability of college
students, but rather supports the notion that there exists a
typical distribution of abilities in this sample.

The ultimate criterion is that of successful graduation.
Since this ultimate criterion is not within the time limits of
this study Spring Quarter GPA was selected as the criterion
variable. Hence, spring GPA provides the standard which must be
predicted if the scale in question will be said to have value.

Note: this criterion is the first quarter GPA after readmission.

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Insert Table 2 about here

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Table 2 indicates those scales which correlated significantly with spring GPA at the $\alpha=.05$ level. The SCAT verbal score correlated r=.38 with spring GPA and established itself as the best predictor of the returning quarter GPA. Because this correlate is only moderate it was decided to also consider the cummulative GPA at the time of dismissal. This variable correlated r=.76 with spring GPA and is highly significant at the $\alpha=.001$ level.

The Cooperative English vocabulary correlated r=.29 with spring GPA and r=.84 with the SCAT verbal. Thus, the verbal scales were very highly correlated and both correlated with academic performance.

In addition, Table 2 shows that six of the 16PF scales correlated significantly with spring GPA at the $\alpha=.05$ level. These scales were shy-venturesome r=.26, humble-assertive r=.25, practical-imaginative r=.22, conservative-experimenting r=.21, forthright-shrewd r=.20 and casual-controlled r=-.19. Also, from the Activities Index the the exhibition-inferiority correlated r=.23 with spring GPA and order-disorder r=-.22; moreover, these two scales also intercorrelated with similar 16PF scales.

Table 2 also indicates that many of the non-ability measures from the 16PF and Activities Index are not only intercorrelated among themselves, but also are intercorrelated with the ability measures which correlated with academic performance. Therefore,

both ability and non-ability measures were correlated with
first quarter readmission GPA and with each other.

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Insert Table 3 and 4 about here

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From Table 3 the results of a stepwise multiple regression
analysis can be seen to have established a multiple R=.847
using 14 predictor variables and Spring Quarter GPA as the criterion.
Thus, the addition of the ability and non-ability predictors to
the cumulative GPA at dismissal indicates an increase in prediction
from r=.76 to R=.847.

Table 4 contains the results of a stepwise multiple regression
analysis using the ability and non-ability measures but excluding
the cumulative GPA. The multiple correlation obtained for the
thirteen predictor variables was R=.461. Consequently, these
variables were able to predict academic performance to a moderate
degree without the knowledge of previous academic performance.

DISCUSSION

The information available to college deans or counselors,
who have the responsibility of readmitting students with a poor
academic background, is often limited to a grade point average
and possibly the results of some ability measure. This investi-
gation was an attempt to look at additional measures as predictors
of academic success. To some extent the results as stated above
seem encouraging. Nevertheless, caution must be utilized when
interpreting these results.

The reported correlations with first quarter returning GPA
were based upon 26 per cent of the original sample of N=360,

the total sample tested during the Winter Quarter, 1968. The explanation for this small final sample is not clear. No information was obtained for the 36 per cent who chose to attend KSU after being officially readmitted. This reduction in sample size is a major limitation of this study.

In any event the performance of those who did attend is the most important factor. The mean GPA at dismissal was 1.56 (on a 4 point system A=4, B=3, etc.) for this group compared with a 1.95 mean first quarter returning GPA. The difference between these means is not significant (t=1.67/df=93,181) at the $\alpha.05$ level. However, the improvement is positive but the difference could be entirely due to the readmission percentile rank criterion.

The most meaningful finding of this study lies in the 16PF and Activities Index scales which correlated significantly with GPA and were able to increase the multiple R's. These writers believe that validation of these correlates could provide useful information to those who counsel students known as underachievers. These non-ability scales appear to reveal personality character-istics which if changeable may lead to improved academic perform-ance through counseling or therapy.

SUMMARY

Research has provided few guidelines or criteria which might be utilized by college deans to decide which academically dismissed students have the highest probability of success once readmitted. Consequently, measures of student characteristics were sought which correlate with academic performance.

Readmission applicants Winter Quarter, 1968, were given the SCAT, Cooperative English, Activities Index, and the 16PF.

Academic success was measured according to their Spring Quarter GPA.

The deans readmitted 225 students, from the Winter Quarter, 1968, sample of N=360. However, only 93 chose to attend class Spring Quarter. Thus, after testing 360 students only 26 per-cent remained to complete the study.

Significant GPA correlates were found at the $\alpha=.05$ level or better among all categories of variables. Fourteen predictor variables produced a multiple correlation with spring GPA of R=.84.

The major finding of this multivariate study had to do with the non-ability correlates with GPA from the 16PF and Activities Index. The validation of these eight correlates could have theoretical implications for counseling the low achiever

TABLE 1

Scales Used In This Study

I. The School and College Ability Tests (SCAT)

  1. Sentence understanding
  2. Numerical computation
  3. Word meanings
  4. Numerical problem solving

II. Cooperative English Tests

  1. Vocabulary
  2. Level of Comprehension
  3. Speed of Comprehension
  4. Total Reading Comprehension

III. The Activity Index

  1. Abasement-assurance
  2. Achievement
  3. Adaptability-defensiveness
  4. Affiliation-rejection
  5. Agression-blame avoidance
  6. Change-sameness
  7. Conjunctivity-disjunctivity
  8. Counteraction-inferiority avoidance
  9. Deference-restiveness
  10. Dominance-tolerance
  11. Ego achievement
  12. Emotionality-placidity
  13. Energy-passivity
  14. Exhibitionism-inferiority avoidance
  15. Fantasied achievement

  16. Harm avoidance-risk taking
  17. Humanities, social science
  18. Impulsiveness-deliberation
  19. Narcissism
  20. Nuturance-rejection
  21. Objectivity-projectivity
  22. Order-disorder
  23. Play-work
  24. Practicalness-impractical
  25. Reflectiveness
  26. Science
  27. Sensuality-Puritanism
  28. Sexuality-prudishness
  29. Supplication-autonomy
  30. Understanding

IV. Sixteen Personality Factor Questionnaire "16 PF"

  1. Reserved-outging
  2. Less intelligent-more intelligent
  3. Affected by feelings-emotionally stable
  4. Humble-assertive
  5. Sober-happy-go-lucky
  6. Expedient-conscientious
  7. Shy-venturesome
  8. tough-minded-tender-minded

  9. Trusting-suspicious
  10. Practical-imaginative
  11. Forthright-shrewd
  12. Placid-apprehensive
  13. Conservative-experimental
  14. Group-dependent-self-sufficient
  15. Undisciplined-controlled
  16. Relaxed-tense

TABLE 2

SPRING QUARTER G.P.A. CORRELATES
WITH THE FOLLOWING INTERCORRELAT-
ING SCALES FROM PERSONALITY AND
ABILITY MEASURES

INSTRUMENT	VARIABLE	VARIABLE'S CORRELATION WITH SPRING G.P.A.	CORRELATION OF VARIABLES
16PF	HUMBLE-ASSERTIVE	.2492	.3625
16PF	SHY-VENTURESOME	.2660	
16PF	FORTHRIGHT-SHREWD	.2048	.2926
16PF	CASUAL-CONTROLLED	-.1934	
16PF	CONSERVATIVE-EXPERIMENTING	.2118	.2573
16PF	HUMBLE-ASSERTIVE	.2492	
ACTIVITY INDEX	EXHIBITIONISM-INFERIORITY AVOIDANCE	.2261	.4051
16PF	HUMBLE-ASSERTIVE	.2492	
ACTIVITY INDEX	EXHIBITIONISM-INFERIORITY AVOIDANCE	.2261	.4161
16PF	SHY-VENTURESOME	.2660	
ACTIVITY INDEX	ORDER-DISORDER	-.2183	.2442
16PF	CASUAL-CONTROLLED	-.1934	
S.C.A.T.	VERBAL	.3800	.2623
16PF	FORTHRIGHT-SHREWD	.2048	
S.C.A.T.	VERBAL	.3800	.2264
16PF	PRACTICAL-IMAGINATIVE	.2215	
S.C.A.T.	VERBAL	.3800	.3267
16PF	CONSERVATIVE-EXPERIMENTING	.2118	
COOP READING	VOCABULARY	.293	.2658
16PF	CONSERVATIVE-EXPERIMENTING	.2118	
COOP READING	VOCABULARY	.293	-.2472
ACTIVITY INDEX	ORDER-DISORDER	-.2183	

TABLE 3

Multiple Correlation Readmission Study for Winter 1968
*(includes cumulative GPA)

Variable Name	Regression Coefficient	Beta Weight
*Cum. GPA.	1.008	.7695
Humble - Assertive 16PF	.0597	.138
Shy - Venturesome 16PF	.072	.1396
Forthright - Shrewd 16PF	.0437	.0967
Undisciplined - Controlled 16PF	-.0487	-.104
Order - Disorder Stern	.0139	.0495
Conservative-Experimental 16PF	-.041	-.088
Coop. Reading Vocabulary	-.0228	-.1899
SCAT - Verval	.0126	.131
Practical-Imaginative 16PF	.022	.049
Exhibitionalism-Inferiority Stern	.021	.0587
SCAT - Math	-.003	-.029
Coop. Reading Comprehension	.006	.025
Coop. Reading Speed	.001	.005

Multiple Correlation $R=.847$, Constant Term $= -.369$
$F=12.48$, $df= 14/69$, $p<.01$

TABLE 4

Multiple Correlation Readmission Study for Winter 1968

Variable Name	Regression Coefficient	Beta Weight
Shy-Venturesome 16PF	.134	.259
Forthright-Shrew 16PF	.109	.241
Verbal SCAT	.037	.380
Undisciplined-Controlled 16PF	-.068	-.145
Verbal Cooperative Reading	-.030	-.250
Quantitative SCAT	-.017	-.158
Reading Speed Cooperative Reading	.020	.147
Exhibitionism-Inferiority Stern	.025	.169
Practical-Imaginative 16PF	-.034	-.074
Order-Disorder Stern	.015	.053
Humble-Assertive 16PF	.007	.016
Conservative-Experimental 16PF	.006	.013
Comprehension Cooperative Reading	.0002	.0007

Multiple Correlation $R=.461$, Constant Term$=.801$
$F=1.45$, df$= 13/70$; $p < .10$