Tests of Adult Basic Education: Ability to Predict Success in Postsecondary Health Occupations Programs

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TESTS OF ADULT BASIC EDUCATION: ABILITY TO PREDICT SUCCESS

IN POSTSECONDARY HEALTH OCCUPATIONS PROGRAMS

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Abstract: In 1985, Kentucky implemented new admission and exit requirements for postsecondary vocational programs. The purpose of the research project funded by the Kentucky Department of Education was to evaluate the effectiveness of predetermined grade equivalent levels on the reading and mathematics sections of the Tests of Adult Basic Education as an admission tool for applicants to postsecondary health occupations programs. Variables included the successful completion or non-completion of a health program, and scores from the Kentucky Vocational Achievement Test. The population included 1542 students who were accepted in five different health occupations programs for a two year time period. The findings revealed that the Tests of Adult Basic Education reading and mathematic grade equivalent scores and number of attempts were not good predictors of program completion or non-completion. Less that 10% of the Kentucky Vocational Achievement Tests' variance was explained by an combination of predictor variables. Further research is recommended.

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In 1985, the Kentucky Board of Education revised admission and exit requirements for postsecondary students in state supported vocational-technical schools. The revised admission standards included the use of the Tests of Adult Basic Education (TABE). Minimum scale scores for the mathematics and reading sections were established by state personnel with input from teachers from each program area. TABE grade equivalent scores at the tenth grade level for reading and mathematics were required for admission to Practical Nursing (PN), Surgical Technology (ST), Respiratory Therapy (RT), and Medical Assistant (MA) programs. Dental Assistant (DA) grade equivalent scores were set at the seventh grade level for reading and eighth grade level for mathematics. Applicants who failed to meet minimum admission scores were enrolled in remediation programs and were required to take the TABE again upon completion of the remediation program.

Prior to 1985, the only exit requirement was successful completion of program requirements. The Kentucky Board of Education established two additional exit requirements effective July 2, 1985. Tenth grade equivalent scores in both reading and mathematics were required for granting a diploma. Students admitted with less than tenth grade equivalent scores were enrolled in mathematics and reading remedial programs concurrent with enrollment in vocational programs in order to reach the standards required for a diploma. In addition, the Kentucky Vocational Achievement Test was developed and successful completion was required for a diploma.

Health occupations teachers and personnel from the Office of Vocational Education (OVE) in Kentucky were concerned about the level of scores and the amount of time spent in remediation programs to

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obtain the required scores. Teachers throughout the state were of the opinion that applicants should enter health programs with the reading and mathematics skills needed to successfully complete the course of study. Textbooks and supporting materials used in some health programs are written at the twelfth grade or higher. State or national licensure examinations are required of PN, MA, ST, RT, and DA graduates prior to entering the work force and these tests are written at or above the twelfth grade level. Thus, the researcher in this study was of the opinion that the effectiveness of the new admission requirements warranted investigation.

Related Studies

Research studies, related to predicting success on postsecondary health occupations programs, are lacking in the literature. Either the research has not been conducted or has not been reported. However, research findings are reported for some nursing programs.

Registered Nursing Prediction Studies

The vast number of studies related to predicting success in registered nurse (RN) programs were reviewed and summarized by Taylor, Nahm, Loy, Hams, Berthold, and Wolfer (1966), Schwirian (1978), and Grant (1986). The authors identified a total of 271 prediction studies and categorized the studies into (a) predictors of program completion or non-completion, (b) predictors of success in nursing school, and (c) predictors of success on RN licensure examination.

Predictors of RN program completion. Schwirian (1978) reviewed 51 studies from 1965 to 1975. In program completion studies, the predictor variables were past academic achievement measured by high school or college grade point averages and rank in school. The

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variables, achievement, academic aptitude, and intelligence test scores, were used to predict program completion. The author reported that program completion studies in this time frame did not identify a consistent profile of characteristics of program non-completers. However, the author noted that the College Board Scholastic Aptitude Test (SAT), American College Testing Program (ACT), and the National League of Nursing Pre-Nursing Guidance and Entrance Examination (NLN PGN) were found to be highly correlated with the National League for Nursing Achievement Test (NLN ACH).

Predictors of RN success in nursing school. One or more criterion variables were used to measure success in nursing school. 'The most frequently used variables *were* nursing grade point average (NGPA); nursing achievement test; and NLN ACH; the Psychological Corporation Achievement Test (PCAT); and scores fromt he state licensure examination, the State Board Test Pool Examination (SBTPE). In recent studies, the SBTPE has been replaced in some states with the National Council Licensure Examination for Registered Nurses (NCLEX-RN). Nursing aptitude tests, NLN PNG and Psychological Corporation Tests Pre-Nursing Examination (PCT PNE) were used as predictors.

Taylor, et al. (1966), reviewed 111 unpublished prediction studies and analyzed 77 published studies that were conducted from 1939 to 1964. He concluded that high school grades, standardized academic achievement tests, and intelligence tests can be used to predict success in RN programs. These three predictors accounted for the largest amount of variance in multiple correlation studies.

Predictors of RN success on licensure examination. Variables used to predict success on state licensure tests included NGPA, NLN ACH, and

PC-AT . Grant (1986) updated **Schwirian's** review of PN prediction studies. He **reported** that reading ability was the most consistent measure of nursing grade point average **(NGPA),** NLN ACH. and **SBTPE.**

Practical Nursing Prediction Studies

Only a few studies have been conducted to predict success in licensed practical nursing (LPN) programs. The predictor variables used in practical nursing studies nere more varied and results were more diverse than in registered nursing studies. **Kittner** (1982), McCormick (1966), Meadow (1961, 1964), National League of Nursing (1954), Rowan (1959), Seither (1974), **Treich** and Eoss (1987), and Weber, King, and Pitts (1972) reported positive significant correlations between age and success in LPN programs. Older students seemed to perform better on criterion variables than did younger students. The relationship between some measures of past education and success were included in four studies. **The** National League of Nursing (1954) and Rowan (1959) **reported** that older students with less formal education tended to *score* higher on measures of success than younger students with more formal education. Meadow (1964) and **Treich** and Boss (1987) reported **a** different finding. They found that students with more formal education scored higher on measures of success than students with less formal education.

Aptitude tests were studied as predictors of success in LPN programs. In addition, Grippando (1973) reported significant positive correlations between ACT and GPA (.438), and between ACT. and State **Board** Licensing Examination (.542).

Tests of Adult Basic Education Studies

Two studies were identified that used TAEE as a predictor variable to measure success in vocational educational programs with mixed

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results. Kittner (1982) reported a positive correlation between the
TABE and program completion between TA8E and 100 business education
students.   Moreover, Clemens (1983) found no correlation between TABE
and successful completion of a child care program or job placement.

<div align="center">Purpose</div>

The purpose of this research project was to evaluate the
effectiveness of the TAEE as a predictor of success of students
enrolled in postsecondary health occupations programs.   Specifically,
the study evaluated the ability of predetermined grade equivalent
scores on reading and mathamatic sections of the TA8E to predict
success or lack of success of health occupations students.   The purpose
was formulated into the following research questions:

1.   Is there a relationship between (a) TA8E reading and
mathematics grade equivalent scores, (b) number of TABE reading and
mathematics attempts; and (c) program completion or non-completion?

2.   Is there a relationship between (a) TABE reading and
mathematics grade equivalent scores, (b) number of TA8E reading and
mathematics attempts, and (c) KVAT scores?

<u>Limitations</u>

Several limitations for this study are noted.   Because grade
equivalent scores are not true interval data, the power of the test of
significance was reduced.   Due to the existence of minimum admission
scores, the range of TABE scores was somewhat restricted.   Original
TAEE scores were used to expand the range.   An additional limitation of
the study was lack of complete data for all subjects.   However,
statistical analysis was conducted only on variables with complete
data.

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Research Methodology

Population

The study was conducted in schools of Practical Nursing (PN), Dental. Assistant (DA), Surgical Technology (ST), Respiratory Therapy (RT), and Medical Assistant (MA) funded by the Office of Vocational Education (OVE) in Kentucky. The OVE sponsors 18 PN, 3 DA, 2 ST, 1 RT, and 4 MA programs.

The sample included all classes accepted into all OVE sponsored PN, DA, ST, RT, and MA programs that used TA8E test data in admission decisions. Some programs began use of TABE with the 1985 class and others began use in the 1986 class. In addition, several schools admitted more than one class per year. The total sample included all students admitted to the five health occupations programs with TABE scores between Fall, 1985 and Fall, 1986.

Instrumentation

The instruments used by the researcher to collect the data included the (a) TABE, (b) LPN Assessment Test, and (c) the Kentucky Vocational Achievement Test (KVAT). The predictor variables used were (a) original TABE reading grade equivalent score (TABER1); (b) original TA8E mathematics grade equivalent score (TABEM1); (c) number of repeat TABE reading scores per individual (TABER); and (d) the number of repeat. TABE mathematics scores per individual (l'ASEM). The criterion variables used were (a) completion of the health program or non-completion (CA); (b) LPN Assessment Test; and (c) KVAT, a required exit competency examination.

Tests of Adult Basic Education (TABE). The TA8E are achievement tests developed to measure basic reading, mathematics, and language

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the California Achievement Tests (CAT), Edition 1970 (CAT-70) by Tiegs

and Clark (1970). In 1975, the TABE was aquated to the CAT using a

national sample of 18,000 students. Level E (easy), M (medium), and D

(difficult) of the TABE were equated to Level 2 (grades 2.5 to 4.9),

Level 3 (grades 4.5 to 6.9), and Level 4 (grades 6.5 to 8.9) of CAT.

In addition, the two parallel forms of TABE were developed and

significantly correlated using test and retest method. The Pearson

Product Correlation coefficient for the total test battery was .75.

The content of the TABE was identified, items written, field

tested and final item selection procedures were followed to assure

content validity. In addition, a random subsample of the

standardization sample responses were subjected to item analysis.

Level D of the TABE was used in this study. The reading section

contained 85 test items that measure vocabulary and comprehension

skills.   The mathematics section contained 98 test items that measures

computation, fractions, concepts, and problem skills. The language

section contained 132 items that measures mechanics, expression, and

spelling skills. The total battery of tests contains 315 test items.

LPN assessment test. The LPN Assessment Test was developed to

measure students mastery of nursing skills and knowledge in preparation

for the National Council for Licensure Examination (NCLEX) LPN test.

The LPN Assessment test parallels the NCLEX-LPN and contains five

subtests covering mental health, maternity, pediatrics, medical, and

surgical nursing.

Content validity was established in the design phase.   The

selection and writing of test items was based upon the guidelines given

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for **NCLEX-LPN.** The content validity was further determined by examination of the relationship between LPN Assessment and **NCLEX-LPN** scores. In the standardization sample of 1564 LPN students, the correlation coefficient for all five subtests was .863.

Two forms of the LPN Assessment Test were developed. The forms were subjected to correlation analysis and produced a Pearson Product Correlation coefficient of .93 for all five subjects.

Kentucky Vocational Achievement Tests (KVAT). The KVAT was developed as a competency examination required for graduation from the DA, ST, RT, and **MA** programs. Teachers from each program area with assistance from the **OVE** developed the KVAT and established minimum **passing** scores.

Content validity was established in the design phase. Test item selection was based upon the validated task lists and objectives for each program area. Test items were written, field tested, and revised by teachers and OVE personnel.

Program completion. **Program** completion was measured as any **applicant** who completed a course of study in any of the five health occupations programs and maintained a **70%** grade point average. The PN, DA, ST, and MA programs are 11 months in length. The RT program is 24 months in length. Graduates receive diplomas and are **eligible** to sit for state or national **licensure** examinations.

Data Collection

A letter of support, with permission to access student records, was obtained from the Deputy Superintendent of Vocational Education in Kentucky. A copy of the letter was sent to the 18 program coordinators and respective counselors, principals, and regional administrators with

a report of the data

collection. Responses were tabulated and dates and times were

scheduled.

A standard procedure was followed at each **school.** The program

coordinator was the initial contact person and assisted in the

identification of **the** classes and programs to **be** included in the

study . Students admitted to the Health Occupations programs with TABE

scores were included. Students were assigned numbers from one to the

total admitted to each program. After all data were collected,

students were reassigned numbers from one to the total sample size per

program and entered into **a** computer memory. Data were entered into **the**

University of Louisville's main frame computer utilizing the

Statistical Analysis System **(SAS).**

Data Analysis

Means, standard deviations and minimum/maximum values were

calculated for **TABE** reading and mathematics scores **and KVAT** scores.

Frequency distributions *were* calculated **for** program completion or

non-completion, and **number** of reading and mathematics attempts.

The relationship between each predictor variable and the criterion

variables was investigated using Pearson Product Correlations to test

each research question. A forward, stepwise multiple regression was

conducted to explore the relationships between combinations of

predictor and criterion variables. The level of significance was set

at 0.05.

Results and Discussion

Descriptive Statistics

The PN programs represented the largest sample size of 1002 with

682 (68.1%) completers and 320 (31.9%) non-completers (Table 1). As

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indicated in Table 2, the number of times the reading section of TABE was taken in order to obtain the 10th grade requirement ranged from 1 (85.6%) to 5 (0.1%). Mathematics attempts ranged from 1 (62.3%) to 5 (0.6%). The reading grade equivalent mean for the PN sample of 985 was 11.22 with a range of 6.0 to 12.9. For the sample of 984, the mathematics mean was 10.06 with a range of 5.0 to 12.9. TA8E data were not available for 17 LPN students. As indicated in Table 3, the mean of the LPN Assessment Test scores was 528 with a range of 120 to 979 for the 682 program completers.

Of the 150 DA students, 118 (78.67%) completed the programs and 32 (21.33%) were non-completers (Table 1). One hundred twenty-two (91.04%) DA students obtained the required seventh grade reading score on the first attempt and 90 (74.38%) students required only one mathematics test (Table 4) to achieve the required eighth grade level score. TABE reading grade equivalent mean was 11.0 with a range of 6.7 to 12.9 range for the DA sample of 134. Data were not available for 16 students. TA8E mathematics grade equivalent mean was 9.77 with a range of 6.4 to 12.9 for the DA sample of 120. Data were not available for 30 DA students. As indicated in Table 3, the mean of the DA KVAT scores was 81.8 with a range of 55 to 119 for 88 of the 118 DA program completers with complete data.

Of the 132 ST students, 98 (74.2%) completed the program and 34 (27.76%) were non-completers (Table 1). One hundred and seven students (92.24%) and 91 students (79.13%) required only one reading and mathematics attempt respectively (Table 5). Data were not available for 16 students for the reading test and 17 students for the mathematics test. Aa indicated in Table 3, the TASE reading grade equivalent mean

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Frequency and Percentage Distribution of Student Completers/

Non-completers From Health Occupations Programs

Program	Completers/ Non-completers	n	%	Cumulative Frequency
PN	Non-completers	320	31.9	320
	Completers	682	68.1	1002
DA	Non-completers	32	21.33	32
	Completers	118	78.67	150
ST	Non-completers	34	25.76	34
	Completers	98	14.24	132
RT	Non-completers	29	32.95	29
	Completers	59	67.05	88
NA	Non-completers	28	16.47	28
	Completers	142	83.53	170

was 11.8 with a range of 8.2 to 12.9 and a sample of 116. The

mathematics mean was 10.9 with a range of 5.7 to 12.9 for a sample of

115. The ST KVAT mean was 147.1 with a range of 103 to 188 for a

sample of 86 ST program completers with complete data.

Of the 88 RT students, 59 (67.05%) completed the program and 29

(32.95%) were non-completers (Table 1). As indicated in Table 6, 83

(94.32%) and 80 (90.91%) passed the reading and mathematics sections of

TABE respectively on the initial attempt. As indicated in Table 3, the

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Table 2

Frequency and Percentage Distribution of **TABE** Attempts for PN Students

Variable	*Number* of Attempts	n	%	Cumulative Frequency
PN				
Reading	1	843	85.6	843
	2	123	12.5	966
	3	16	1.6	982
	4	2	**0.2**	**984**
Data not available		17		1002
Mathematics	1	613	**62.3**	**613**
	2	296	**30.0**	**909**
	3	63	**6.4**	**972**
	4	7	**0.7**	979
	5	6	0.6	985
Data not available		17		**1002**

sample of 88 RT students with TA8E reading *scores* had a mean grade

equivalent of 11.69 with an 8.2 to 12.9 range.   The TABE mathematics

mean was 11.14 with a range of 5.6 to 12.9.   The mean of the RT KVAT

scores was 82.3 and ranged from 60 to 106 for a sample of 38 RT

completers.   KVAT data were not available for 21 RT program completers.

In the MA sample of 170, 142 (83.53% compLeted the program and 28

(16.47%) were non-completers (Table 1). As indicated in Table 7, 139

(85.80%) and 89 (54.95%) successfully passed the TABE reading and

mathematics sections respectively on the initial attempt.   The TABE

Table **3**

Means and Standard Deviation of Students' Reading, Mathematics, LPN

Assessment, and KVAT Scores With Minimum and *Maximum* Values

Variable	n	Mean	Standard Deviation	Minimum Value	*Maximum* Value
PN					
Reading Score	985	11.22	1.37	6.0	12.9
Mathematics Score	984	10.06	1.73	5.0	12.9
LPN Assessment Sc.	685	528.01	149.42	120.0	979.0
DA					
Reading Score	134	11.00	1.64	6.7	12.9
Mathematics Score	121	9.77	1.81	6.4	12.9
KVAT Score	88	81.80	11.80	55.0	119.0
ST					
Reading Score	116	11.8	1.33	8.2	12.9
Mathematics Score	115	10.9	1.89	5.7	12.9
KVAT Scores	86	147.1	21.20	103.0	188.0
RT					
Reading *Score*	88	11.69	1..28	8.2	12.9
Mathematics Score	88	11.14	1.74	5.6	12.9
KVAT Score	38	82.30	10.70	60.0	106.0
MA					
Reading Score	162	10.85	1.65	5.0	12.9
Mathematics Score	62	9.48	2.05	5.0	12.9
KVAT Score	134	112.10	13.30	77.0	149.0

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Table 4

Frequency and Percentage Distribution of TABE Attempts for Dental
Assisting Students

Variable	Number of Attempts	n	%	Cumulative Frequency
DA				
Reading	1	122	91.04	122
	2	9	6.72	131
	3	1	0.75	132
	4	2	1.49	134
Data not available		16		150
Mathematics	1	90	74.38	90
	2	26	21.49	116
	3	5	4.13	121
Data not available		29		150

reading grade equivalent mean was 10.85 with a range of 5.0 to 12.9 and

the mathematics mean was 9.48 with a 5.0 to 12.9 range in grade

equivalents for the sample of 162. Data for both TABE sections were

not available for 8 MA students. The mean of the MA KVAT scores was

112.1 and ranged from 77 to 149 for 134 of the 142 program completers

with complete data (Table 3).

Statistical Analysis of Research Questions

The ability of the TABE to predict program completion was the

basis of the first research question. The number of times each section

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Table 5

Frequency and Percentage Distribution of TABE Attempts for Surgical
Technology Students

Variable	Number of Attempts	n	%	Cumulative Frequency
ST				
Reading	1	107	92.24	107
	2	8	6.90	115
	3	1	.S6	116
Data not available		16		132
Mathematics	1	91	79.13	91
	2	15	13.04	106
	3	7	6.09	113
	4	2	1.74	115
Data not available		17		132

of TABE was taken by applications was included as a predictor of
program completion.

Research Question 1. Is there a relationship between (a) TABE
reading and mathematics grade equivalent scores, (b) number of TABE
reading and mathematics attempts; and (c) program completion or
non-completion?

Statistically significant correlation coefficients were obtained
from the PN and ST programs only. No significant correlations were
obtained in the DA, RT, and MA programs. Table 8 indicates a
significant, linear relationship between each predictor variable and

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Table 6

Frequency and Percentage Distribution of TABE Attempts for Respiratory
Therapy Students

Variable	Number of Attempts	n	%	Cumulative Frequency
RT				
Reading	1	83	94.32	83
	2	4	4.55	87
	3	1	1.14	88
Mathematics	1	80	90.91	80
	2	7	7.95	87
	3	1	1.14	88

the criterion variable of program completion/non-completion. The
number of TABE reading attempts was negatively correlated with a
Pearson r of -.19 and n of 986. The number of mathematics attempts was
negatively correlated with a Pearson r of -.17 and n of 986. LPN
program completers required more than one TA8E test to obtain the
required score as indicated by the negative correlations. The reading
score was positively correlated to program completion with a Pearson r
of .22 and n of 985. The mathematics score was positively correlated to
program completion of a Pearson r of .14 and n of 984.

Table 8 indicates that mathematics scores correlated to completion
or non-completion from ST programs. The pearson r of 0.19 was
significant ($p < .05$) with an n of 115.

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Table 7

<u>Frequency and Percentage Distribution of TAEE Attempts for Medical</u>

<u>Assisting Students</u>

Variable	Number of Attempts	n	%	Cumulative Frequency
MA				
Reading	1	**139**	85.80	139
	2	**22**	13.58	161
	3	**1**	.62	162
Data not available		**8**		**170**
	1	89	**54.95**	89
	2	65	**40.12**	**154**
	3	6	3.70	**160**
	4	2	**1.23**	**162**
Data not available		**8**		**170**

Data from the PN and ST programs were subjected to stepwise

multiple regression analysis to identify the correlation of each

predictor variable to the criterion variable. Table 9 indicates the

order in which the variables entered in the PN stepwise regression

equation for 984 students. TABE reading scores and number of

mathematics attempts were entered. The proportion of variance accounted

for in program completion or non-completion by these variables was

5.85% ($R^2 = 0.0585$).

Table 9 indicates that mathematics scores and number of reading

attempts were correlated to completion or non-completion from ST

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Table 8

TAEE Reading/Mathematic Attempts and Grade Equivalent Scores for

Practical Nursing and Surgical Technology Students

Variable	r	P	n
PN.			
Reading Attempts	-.19	.0001	**986**
Mathematics Attempts	-.17	.0001	986
Reading Score	.22	.0001	985
Mathematics Score	.14	.0001	984
ST			
Mathematics Score	.19	.0001	115

programs for 115 students. The amount of variance explained by these

'variables was 8.13% (R^2 = 0.0813).

Research Question 1 was found to require a negative response for

DA, RT, and MA programs since no predictor variables were correlated to

program completion or non-completion. However, a positive response *was*

found for PN and ST programs.

Research Question 2. Is there a relationship between (a) TABE

reading and mathematics grade equivalent scores, (b) number of TA8E

reading and mathematics attempts, and (c) KVAT scores?

Statistically significant correlation coefficients were obtained

in all programs except RT. The PN's reading and mathematics attempts

were negatively correlated with the reading and mathematics scores were

positively correlated to LPN Assessment Test scores (Table 9). The

degrees of correlation were small, ranging from an r of 0.08 to an r of

0.14.

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Summary Table for Stepwise Regression for Criterion Variable

Completion/Non-completion in Practical Nursing and Surgical Technology

Programs

PN Step	Variable Entered	Number In	Partial R ** 2	Model R * * 2	F	PROB > F
1	Reading Score	1	0.0507	0.0507	52.4525	0.0001
2	Mathematics Attempts	2	0.0078	0.0585	8.0823	0.0046
ST Step						
1	Mathematics Score	1	0.0382	0.0382	4.4822	0.0364
2	Reading Attempts	2	0.0432	0.0813	5.2627	0.0237

The mathematics score was positively correlated to the DA's KVAT
scores. Table 10 indicates a moderate amount of correlation with an r
of 0.26. The correlation was significant at - .03

Table 10 indicates that mathematics attempts were negatively
correlated to ST'S KVAT scores while TABE reading and mathematics scores
were positively correlated to KVAT. The correlations of -0.48 for
mathematics attempts and 0.46 for mathematics scores represent the
greatest degree of correlations for two variables within a single
program. The correlations were significant at .0001.

MA's KVAT scores were positively correlated to the TA8E reading
and mathematics grade equivalent scores. Table 10 indicates that the

Table 10

Correlation Between TABE **Reading/Mathematic Attempts/Grade** Equivalent Scores and LPN Assessment **Test/KVAT** Scores

Variable	<u>r</u>	P	n
PN			
Reading Attempts	-.14	.0003	675
Mathematics Attempts	-.08	.0300	675
Reading Score	.27	**.0001**	674
Mathematics Score	.14	.0003	674
DA			
Mathematics Scores	.26	.0326	66
ST			
Mathematics Attempts	-.48	.0001	68
Reading Score	.33	.0058	69
Mathematics Score	.46	.0001	68
MA			
Reading Score	.48	.0001	127
Mathematics Score	.18	.0408	127

reading score was moderately correlated with an <u>r</u> of 0.48 while the mathematics score had a low correlation with an <u>r</u> of 0.18.

Stepwise multiple regression analysis was conducted on data from the PN, DA, ST, and MA programs to obtain r-square for predictor variables and the model's regression r-square. All predictor variables were correlated to KVAT scores from the PN programs but only one

variable, reading scores, entered the true **stepwise** regression equation due to the low semi-partial correlations of the other variables. Table 11 indicates that TABE reading scores explained only 7.48% (R' = 0.0748) of **the** variance in KVAT scores for 685 **PN** students.

TABE **mathematic** scores were the only variable correlated to KVAT scores for the DA sample. Table 11 indicates that TABE mathematics scores explained 6.10% (R^2 = 0.0610) of the variance in KVAT scores for 88 DA students.

Three variables were moderately correlated to the ST's **KVAT** scores but only mathematics attempts entered the **stepwise** regression equation. **Table** 11 indicates that the number of TABE mathematics attempts explained 23.50% (R^2 = 0.2350) of the variance in KVAT scores for 86 ST students.

TABE reading scores explained 23.51% of the variance in KVAT scores for 134 **MA** students. Table 11 indicates that mathematics attempts added 5.72% to the total explained variance of 29.24% (R^2 = 0.2924) for 134 MA students.

Research Question 2 was found to require a negative response for the RT program as no predictor variables were correlated to KVAT scores. Part or all of Research Question 2 yielded a positive response for the **PN,** DA, ST, and MA programs.

Conclusions and Recommendations

Overall, the findings of this study revealed that the new admission and exit criteria were not effective in measuring characteristics needed to succeed in **postsecondary** health occupation programs. The The TAEE was not a good predictor of program completion or non-completion of students to any of the five programs. The

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'*Table* 11

Summary Table of Stepwise Regression for Criterion Variable LPN

Assessment/KVAT Scores

Step	Variable Entered	Number In	Partial $R^{**}2$	Model $R^{**}2$	F	PROB > F
PN						
1	Reading Scores	1	0.0748	0.0748	54.3075	**0.0001**
DA						
1	Mathematics Scores	1	**0.0610**	**0.0610**	**4.0909**	0.0474
ST						
1	Mathematics Attempts	1	0.2350	**0.2350**	**20.2767**	**0.0001**
MA						
1	Reading Scores	1	0.2351	0.2351	38.4210	**0.0001**
2	Mathematics Attempts	1	0.0572	0.2924	10.0311	0.0019

correlation coefficients and r-squares from stepwise multiple

regression analysis were relatively small for the PN and ST students

with less than one-tenth of the variance expLained by the predictor

variables. In this sample of 1542, 443 (29%) students were

non-completers. Discriminant analysis was conducted to classify

membership into completion or non-completion without success.

The inability of the **TABE** to predict completion or non-completion

is similar to **Schwirian's** (1978) findings that research has been unable

to identify characteristics of non-completers. Additional studies

using different predictor variables to measure program completion or

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non-completion should be conducted. Non-cognitive variables that measure motivation, persistence, family responsibilities, maturity, career capability, and emphasis on retention should be investigated. This may yield data to identify characteristics of postsecondary health occupations non-completers.

The predictor variables were correlated with KVAT scores in the PN, DA, 'ST, and MA programs. Correlation coefficients and r-squares from the PN and DA programs were significant but small with less than one-tenth of the KVAT variance explained by the predictor variables.

Correlation coefficients from the ST and MA programs were significant. TABE mathematics attempts explained about one quarter (23.50%) of the ST's KVAT scores. TABE reading grade equivalent scores and number of attempts explained about one-third (29.24%) of the MA's KVAT scores. The sample sizes of these programs were 86 and 134 respectively, and represented approximately 6'0% of the students for each program. The ST and MA samples *were* considerably less than the 685 LPN sample. The high percent of KVAT variance explained in the two programs could be due to the small sample sizes.

Additional studies, using different cognitive and non-cognitive variables to predict academic success in postsecondary health occupations programs, should be conducted. Specifically, different measures of reading and mathematics abilities should be studied to yield comparative data that may assist in determining if these skills are needed for success.

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