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TEST OF ADULT COLLEGE APTITUDE (TACA). MANUAL FOR
ADMINISTRATION, SCORING AND INTERPRETATION.
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CONSTRUCTION, TEST OF ADULT COLLEGE APTITUDE (TACA), SAINT
LOUIS

THIS PRELIMINARY MANUAL OUTLINES CONTENT, ADMINISTRATIVE
AND SCORING PROCEDURES, ANTECEDENT RESEARCH, AND AVAILABLE
NORM DATA FOR THE TEST OF ADULT COLLEGE APTITUDE (TACA). THE
TACA, A COMBINED TEST AND ANSWER SHEET ADAPTED FOR VISUAL
SCORING BY AN OPTICAL SCANNER, CONSISTS OF 22 ITEMS ON
BIOGRAPHICAL DATA (AGE, SEX, OCCUPATION, FAMILY AND MARITAL
STATUS, EDUCATION, CULTURAL, AND OTHER PURSUITS) AND 54
MULTIPLE-CHOICE VERBAL AND NUMERICAL ITEMS. PROCEDURES
INCLUDE A 45-MINUTE TIME LIMIT, CALCULATION OF RAW SCORES
(RIGHT ANSWERS AND PERSONAL DATA) AND PERCENTILE RANKS, AND
(WHEREVER POSSIBLE) WELL-SUPERVISED LARGE GROUP TESTING
SESSIONS. THE TEST WAS FORMULATED ON THE BASIS OF WASHINGTON
UNIVERSITY RESEARCH RELATING BIOGRAPHICAL INFORMATION AND
OBJECTIVE TEST DATA TO ACADEMIC SUCCESS AMONG EVENING
DIVISION PARTICIPANTS.   NORM DATA AVAILABLE FOR
INTERPRETATION ARE BASED MAINLY ON STUDIES INVOLVING 149
PARTICIPANTS IN FRESHMAN ENGLISH AND 102 STUDENTS IN BUSINESS
AND BEGINNING PSYCHOLOGY. FINDINGS SIGNIFICANTLY CORRELATED
TACA SCORES WITH CLASS ACHIEVEMENT. THE DOCUMENT INCLUDES TWO
FOOTNOTES, FOUR TABLES AND THE TEXT OF THE TEST. (LY)

TEST OF ADULT COLLEGE APTITUDE

(TACA)

King M. Wientge
Philip H. DuBois
Washington University

Manual for Administration,

Scoring and Interpretation

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PURPOSE OF TACA[1]

In recent years increasing enrollments in evening college divisions have been evidence of a growing interest of adults in continuing their education.

A variety of reasons may prompt this concern, and considerable effort is being made to investigate the psychological characteristics of adult students. In order to advise prospective students adequately there has arisen a need for an objective index of their learning capacity. Also, many adults are concerned about their ability to handle the demands of formal courses and are anxious to know before they enroll how their learning ability compares with that of other adults in evening classes. The Test of Adult College Aptitude is being developed to fill the need for a brief measure of the learning potential of the adult who is considering entering a program of continuing education.

CHARACTERISTICS OF TACA

Structure and Development

The test consists of two parts, each printed on one side of an answer sheet. Part I contains 22 items covering biographical information such as age, sex, occupation, and class rank.

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1. In the preparation of this manual, care has been taken to follow, where applicable, the recommendations of the American Psychological Association, (Standards for Educational and Psychological Tests and Manuals, 1966).

Part II comprises 54 five-choice verbal and numerical items which require the identification of the one choice that does not belong with the other four.

Although the test is structured in two parts, it is administered as a whole. A 45-minute limit for completing both sections has been found adequate.

The test grew out of previous studies[2] conducted at Washington University relating biographical information and objective test data to academic success in the evening division population.

The biographical information blank administered in the research project consisted of 55 items of a non-threatening nature. Thirty of these were selected on the basis of their contribution to the prediction of course grade to comprise Part I of the Research Edition of TACA. This form was administered in 1964 to a sample of 329 students enrolled in University College classes, providing a basis for the selection of the present 22 items.

An item pool of approximately 100 verbal and numerical items requiring a choice of the dissimilar word or number was administered to 249 students. Difficulty analysis resulted in the retention of 54 items comprising Part II of the present test.

2. DuBois, Philip H. and Wientge, King M. Factors Associated with the Achievement of Adult Students, University College Research Publications, Washington University, St. Louis, Missouri, 1964.

Machine Scoring and Statistical Analyses

The test may be scored rapidly on an optic scanner linked to a computer.

Computer print-outs provide raw scores as well as test statistics such as raw scores, item analyses, frequency distributions, means, and standard deviations. TACA is designed to permit scoring and reporting of statistical analyses in a much shorter period of time than has been possible with older methods.

ADMINISTRATION AND SCORING PROCEDURES

Preliminary Preparations

The test may be given by course instructors; however, to insure optimal conditions, it is desirable for experienced test administrators to supervise large group testing sessions. The examiner should be thoroughly familiar with the directions for administering the test.

Seating arrangements should be planned to guard against comparison of answers. After all persons are properly seated the examiner should see that each has a No. 2 lead pencil for marking the test sheet. A small supply of extra pencils should be on hand to use as needed.

Directions for Administration of TACA

The following directions should be read aloud to the examinees:

"The test which you will complete is the Test of Adult College Aptitude. It is a brief test of academic ability developed to inform adults how their learning ability compares with that of other students enrolled in evening classes. Please answer the items to the best of your ability.

"Only No. 2 lead pencils are to be used in marking the test sheet. Ink or ballpoint pens are not usable.

"The tests will now be distributed. (Wait until tests are distributed before proceeding.)

"Look at the top of the side printed in red ink. PRINT your full name, last name first, on the line provided in the upper left corner. Then print today's date ___ / ___ / ___. On the second line, print the name of your instructor and the city in which your institution is located.

"You will be allowed a total of 45 minutes to complete both parts of the test. The parts are NOT separately timed. After completing Part I turn your test sheet over, read the instructions for Part II at the top of the page and continue working. Do not spend time on any one item. If you are not sure of an answer,

go on to the next item. After completing the test go back and check your work and try to fill in the items which you have omitted. If you wish to change an answer erase the unwanted mark completely.

"When I say BEGIN, read the instructions printed at the top of the page for Part I, which consists of biographical information questions. Do the EXAMPLE and start working immediately. Are there any questions?

"Ready, BEGIN."

At the end of 15 minutes say: "Remember to go right on to Part II as soon as you finish Part I."

At the end of 45 minutes, say: "Time is up."

Ask the examinees to pass in the test sheets and pencils.

Scoring Procedures

The raw score for each part is the total number of items "right." Choices in the biographical information items which were shown in previous research[3] to be related positively to a maturity factor are each given a score of one. It is possible to have 4 out of 5 of the choices to be so scored, as exemplified by item 15 in which the marking 1, 2, 3, or 4 or more group memberships is scored as a "correct" choice. There is a maximum possible score of 20 on Part I. The item selected "correctly" as dissimilar in each group of 5 choices in Part II is given a score of one, resulting in a total possible score of 74 for both parts.

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3. DuBois-Wientge, ibid., p 2.

Hand Scoring

Hand scoring keys are available for users who wish to score by hand.

Place the appropriate hand scoring key on the appropriate side of the test, i.e., place the Biographical Information Key on the side marked Part I and count the number of black pencil marks which appear. Only one mark can be counted for a question. Although the number of items is 22, the maximum possible number of correct responses is 20.

Write the total of black pencil marks counted in the space in the block at right hand bottom of the page. The count should be written under the column headed Raw Score, on the line for Part I.

Next turn the test sheet over and place the scoring stencil for Part II on the test. Count the number of correct responses which appear (maximum is 54) and write that number at the top of the page on the line for Raw Score. Turn the test sheet over and insert the raw score for Part II under the Part I score. Add the scores for Part I and Part II and insert the sum on the line marked total.

Turn to Table 1, page 8 of this manual to obtain the percentile to be recorded for the Total Score. Table 1 provides percentiles for the total score only. Additional data will need to be collected to determine if separate scores for Parts I and II have utility.

Machine Scoring

TACA is printed on an adapted IBM test answer sheet
and can be scored at the rate of 600 per hour, both sides,
on an optic scanner scoring machine. If the optic scanner
is connected directly to a computer, raw scores can be fed
to the computer as input to produce various programmed
output. Such useful test statistics as raw scores, per-
centiles, frequency distributions, item analy , means
and standard deviations, and correlation matrices become
quickly available print-outs.

Users of TACA can mail them in groups of not less than
50 to the Division of Research, University College, Washington
University, for machine scoring at no cost.* A print-out
which includes the raw score for each test, the percentiles,
and means and standard deviations for the group of tests sub-
mitted will be promptly returned to the sender, along with
the test sheets.

* This service is provided at no cost until further notice
  to aid in the development of norm tables and validity
  data for TACA.

DATA AVAILABLE FOR INTERPRETATION

Description of Norm Data

Table 1 presents norm data for TACA for 329 students enrolled in University College, the evening division of Washington University. The raw score given is the total number right or scored plus (Part I plus Part II) out of 74 possible.

T A B L E 1

Test of Adult College Aptitude
Preliminary Norms
University College Students; N = 329

Raw Score	Percentile Rank		Raw Score	Percentile Rank
64-65	99		38-39	49
62-63	99		36-37	43
60-61	99		34-45	35
58-59	97		32-33	29
56-57	95		30-31	24
54-55	92		28-29	20
52-53	88		26-27	16
50-51	84		24-25	12
48-49	79		22-23	8
46-47	74		20-21	5
44-45	69		18-19	3
42-43	62		16-17	2
40-41	55		14-15	1

Validity

At the present time, available validity data include correlations of the total TACA score with course grade or cumulative grade point average (GPA), in beginning psychology, English classes, and a Business School class - all of which were Evening Division courses at Washington University.

One hundred forty-nine students enrolled in beginning (freshman level) English classes were administered TACA. Correlations were found of .36 between the total TACA score and course grade, and of .54 between total TACA and the cumulative grade point average. Table 2 shows the average scores for TACA for each grade level.

T A B L E   2

Mean TACA Scores by Grade Level for 149
Students Enrolled in Freshman English

Final Class Grade	TACA Mean Score	Number of Students	Cumulative Mean GPA**
A	54.3	12	2.53
B	44.1	43	1.87
C	35.6	62	1.17
D F*	29.9	11	.46
All other (Inc., Withdrawn,Nx,etc.)	37.4	21	.58

* Only one F grade was awarded
** GPA maximum is 3.00

It will be noted in Table 2 that the mean TACA score for the twelve subjects who obtained a final course grade

of A is 54.3 These same students excel in other courses, as evidenced by the cumulative grade point average of 2.53 out of a possible 3.0.

Table 2 also reveals a significant decrease in the mean TACA score and in grade point average for each succeeding grade level--B, C, and D F.

The scores in the "all other" category, which includes students who withdrew, did not complete the required work or did not take the final examination, are influenced by several variables in such ways as to make meaningful discussion difficult. Their mean TACA score of 37.4 is 1.8 points higher than the mean score for those who made C grades. Apparently a number of adults in this category have the ability to complete the course successfully. The reasons for adult students not completing are numerous and include factors not related to intellectual ability, such as increased job demands, increased family demands, illness and transfer out of town. This group also has a mediocre cumulative grade point average of .58 which is less than a C average.

The difference between means for the final grade groups is interesting to note. There is a 5.7 raw score difference between mean TACA scores for the C and D F groups, an 8.5 raw score difference between B and C groups and a 10.2 difference between A and B groups. It is quite likely that teachers have less clearly defined constructs for grading a student C or D F than they do in awarding an A or B. The smaller difference

between means for the C and D F final grade groups is indicative of the greater overall similarity of performance by these two groups, both on TACA and in the classroom itself.

One hundred two students from a beginning psychology class and an evening business school class were given TACA. Coefficients of .28 between total TACA and class grade, and of .38 between total TACA and Cumulative G.P.A. were obtained. More encouraging figures resulted from administration of the test to an additional 135 students enrolled in Freshman English classes. The relationship between total TACA and the class grade was .35 while the correlation of total TACA with G.P.A. was .52.

Means and standard deviations for the three groups are given in Table 3. Figures are reported for the separately scored parts of the test as well as the total score.

T A B L E   3

Means and Standard Deviations of Scores for
Total and Separately Scored Parts

N	Means			Standard Deviations		
	Part I	Part II	Total	Part I	Part II	Total
135	6.55	32.99	39.51	3.07	9.09	10.45
149	6.60	32.90	39.48	3.11	9.24	10.50
102	9.31	32.36	41.68	3.53	9.52	10.70

Reliability

Reliability by Kuder-Richardson Formula 20 for Part II
and correlations of Part I with Part II for three groups of
subjects follow:

T A B L E 4

N	K-R 20 (Part II)	Corr. of Part I & Part II Scores
135	.96	.29
149	.96	.25
102	.95	.17

Reliability of Part I scores (as indicated by con-
sistency over time) is undoubtedly very high. Since the
material is heterogeneous, an internal measure of relia-
bility is not appropriate.

TEST OF ADULT COLLEGE APTITUDE

KING M. WIENTGE   PHILIP H. DuBOIS
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PART I

24 or under   25 29   30 39   40 49   50 or over

MARITAL STATUS

single   married   divorced   separated   widowed

BER OF INDIVIDUALS DEPENDENT UPON YOU FOR
ORT (exclude yourself)

none   1   2 3   4 5   6 or more

BER OF COLLEGE HOURS COMPLETED TO DATE

none   1 30   31 90   91 120   more than 120

OSE FOR TAKING COURSES IN COLLEGE
(all which apply)

    better job or employer's request

    personal satisfaction

    develop hobby

    complete bachelor's degree

    complete certificate

OCCUPATION

               skilled or
unskilled   semi-skilled   farmer   businessman   professional

? CURRENT OCCUPATIONAL DEMANDS

    almost exclusively manual work

    almost exclusively intellectual work

    a combination of manual and intellectual work

YOU SUPERVISE OR DIRECT THE WORK OF OTHERS?

    yes   no

ANSWER TO 8 IS YES, HOW MANY DO YOU SUPERVISE?

    1 5   6 20   21 50   more than 50

R EDUCATION

    12th   1 yr   2 4 yr   college   graduate
grade or less college college   graduate   student

K IN CLASS IN HIGH SCHOOL (estimate if not
accurately known)

    top   2nd   3rd   4th
  quarter quarter quarter quarter

R GRADES REFLECT YOUR ABILITY FAIRLY
CURATELY (mark one):

  almost   most of
  always   the time   not very often   almost never

---

13 ARE YOU A MEMBER OF AN AFFILIATED
ACTIVITY SUCH AS THE PTA
NEIGHBORHOOD ASSOCIATION ETC

    yes   no

14 ARE YOU A MEMBER OF A CAREER
ORGANIZATION SUCH AS PROFESSIONAL
ASSOCIATIONS, LABOR UNIONS, ETC

    yes   no

15 TOTAL OF MEMBERSHIPS INDICATED
IN ABOVE TWO QUESTIONS

    0   1   2

16 INTEREST IN RELIGION AS EVIDENCED BY
ATTENDANCE AT CHURCH OR SYNAGOGUE

    weekly   occasionally   rarely

17 HOME OWNER?

    yes   no

18 DURING THE PAST YEAR MARK HOW MANY TIMES
YOU ATTENDED ART EXHIBITS

    0 or 1   2 5   more than 5

19 DURING THE PAST YEAR MARK HOW MANY TIMES
YOU ATTENDED CLASSICAL CONCERTS

    0 or 1   2 5   more than 5

20 HOW DO YOU RATE YOURSELF AS A READER
IN TERMS OF SPEED AND COMPREHENSION

    excellent   good   average

21 NUMBER OF NON FICTION BOOKS
READ IN THE PAST 12 MONTHS

    none   1 5   6 10

22 ESTIMATE NUMBER OF BOOKS YOU
PERSONALLY OWN

    0 24   25 49   50 74

(TURN OVER TO PART II)

NORM GROUP

PART I
PART II
TOTAL

INSTITUTION:

DO NOT WRITE IN THIS SPACE

Instructions: One item in each series does not belong.
Indicate the item which does not belong by blackening
the space between the dotted lines below the item. Be
certain to make your marks heavy and black.

SAMPLE

	brown	tree	green	yellow

	uniform	angular	sheer	precipitous
	malign	benign	benevolent	beneficial
33⅓%	333	33 ⅓	33	33/100
marriage	bigamy	monogamy	polygamy	matriarchy
	definite	certain	fallible	fixed
	⁵⁄₂	2 50	$^{10}/_4$	25²
putrefaction	purulent	putridness	putresence	purificatory
	gibe	tale	anecdote	jest
	brook	stream	ocean	rivulet
pyramid	cube	sphere	cone	polygon
minution	propensity	proclivity	disposition	confirmation
	5²	2500/100	5₂	5·5
indulgence	temperance	abnegation	abstinence	forbearance
clairvoyant	spiritual	ethereal	evanescent	fictitious
insolent	impudent	imprudent	impertinent	shameless
wanderer	philatelist	philologist	philosopher	philanthropist
emancipate	arrest	encompass	impound	cloister
	C	100	CC−C	XXX + XIV
mausoleum	bier	epitaph	catacomb	tomb
rectangle	cylinder	triangle	trapezoid	parallelogram
4/9 × 2/3	1/3 × 1/3	1/6 × 2	2/2 × 1/3	2/6 × 6/6
√49	√64	√81	√36	√42
fetid	rank	aromatic	rancid	musty
Roosevelt	Churchill	Hitler	Stalin	Krushchev
sagacity	discretion	progeny	prudence	discernment
dissent	object	dispute	remonstrate	rescind
X²/5	(X²)	1X²	X²/1	5X²/1

28.	abacus	calculator	denominator	computer	adding machine
29.	p=xy	p=x y	p=(xy)²/1	p=1xy	p=(xy)
30.	funny	farcical	fantastic	humorous	laughable
31.	execrable	abhorrent	estimable	detestable	infamous
32.	k=(4 y)	k=2y+2y	k=(1+3)y	k/4=y	k=(2)²/y
33.	bias	tendency	bent	inclination	position
34.	venerate	deprecate	eulogize	extol	esteem
35.	temperate	moderate	unbearable	pacific	dispassionate
36.	lucid	articulate	equivocal	explicit	precise
37.	objective	just	biased	equitable	impartial
38.	vilify	traduce	slander	extol	libel
39.	C = πd	C/d= π	C= π 2r	2r=C/π	π=2C/d
40.	inept	inert	dormant	languid	quiescent
41.	cogent	cogitate	muse	ruminate	contemplate
42.	verify	infer	probate	validate	authenticate
43.	disgruntle	disconcert	perplex	bewilder	confuse
44.	X²y/X	X²y/x²	Xy²/y	2Xy²/2y	2X²y/2X
45.	recall	remiss	reminisce	recollect	retrospect
46.	ominous	sinister	somber	propitious	dire
47.	exhibit	manifest	evince	display	evolve
48.	novice	graduate	apprentice	recruit	fledgling
49.	R − S>0	S + R>0	0 + R>S	S+0<R	R−0<S
50.	uncouth	barbarous	crude	unaffected	indecorous
51.	deceive	beguile	trick	dupe	redress
52.	malediction	benediction	anathema	imprecation	deprecation
53.	abbreviate	curtail	protract	shorten	reduce
54.	emasculate	mutilate	castrate	fertilize	caponize