

DOCUMENT RESUME

ED 369 976

CE 066 453

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 TITLE Alternative Assessment Methodologies for Workplace Education Programs.  
 INSTITUTION Wisconsin State Board of Vocational, Technical and Adult Education, Madison. Wisconsin Technical Coll. System.; Wisconsin Univ., Madison. Center on Education and Work.  
 SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC. National Workplace Literacy Program.  
 PUB DATE May 93  
 CONTRACT V198A20242  
 NOTE 29p.; For related documents, see ED 334 442-443, ED 361 535, ED 367 899-900, and CE 066 451-454.  
 PUB TYPE Guides - Non-Classroom Use (055)  
 EDRS PRICE MF01/PC02 Plus Postage.  
 DESCRIPTORS Adult Basic Education; \*Adult Education; Adult Students; Criterion Referenced Tests; \*Evaluation Methods; \*Literacy Education; Literature Reviews; Standardized Tests; State Programs; \*Student Evaluation; \*Testing; Test Reviews; Trend Analysis  
 IDENTIFIERS \*Alternative Assessment; Participatory Evaluation; Wisconsin; \*Workplace Literacy

ABSTRACT

A semester-long study examined the assessment instruments and techniques currently being used by companies participating in the Wisconsin Workplace Partnership Training Program (WWPTP). Twenty-four instruments that may be categorized as either standardized tests, competency-based and criterion-reference measures, or participatory assessment instruments were being used by WWPTP sites. The popularity of standardized tests was attributed primarily to their convenience. Competency-based and criterion-referenced measures were used mainly to test for learning or mastery in specific content areas. Despite their increasing popularity in K-12 classrooms, participatory assessment techniques (including the use of portfolios) were not generally used in workplace education programs. (The following items are included in this document: 13 questions to be asked when selecting assessment instruments and procedures for workplace education programs; detailed reviews of 6 popular standardized tests; a list of 4 self-assessment instruments; and literature search information.) Contains 44 references. (MN)

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ALTERNATIVE ASSESSMENT METHODOLOGIES FOR  
WORKPLACE EDUCATION PROGRAMS

Gail E. Dyer

May 1993

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## INTRODUCTION

Assessment of learning is an area of on-going concern to education providers in the workplace. Although there are numerous commercial instruments available and new methods of assessment are being developed all the time, few of these instruments or methods incorporate the specifics of adult learning and even fewer utilize methodologies appropriate for use in workplace education programs.

This semester-long project, conducted in cooperation with the Center for Education and Work of the University of Wisconsin at Madison, has attempted to provide an overview of the assessment instruments and techniques currently in use by companies participating in the Wisconsin Workplace Partnership Training Program (WWPTP) and a literature search of those that hold potential for improved assessment when adapted for the workplace. Responses to the January 1993 Local Partner Survey administered by the Center on Education and Work identified the instruments being utilized by WWPTP sites:

Adult Basic Learning Examination (ABLE) - Level 2

Algebra mastery Test

CASAS

Career Planning Program (CPP)

GED Book Post-Test

Industrial Reading Test

Rosenthal Individual Reading Assessment

Side By Side

Skills Bank

Test of Academic Skills (TASK)

Test of Academic Skills (TASK) - Level 2  
Test of Adult Basic Education (TABE)  
Tests of Applied Literacy Skills  
Tests of General Educational Development  
The Reading and Arithmetic Indexes  
Wide Range Achievement Test (WRAT)  
Wide Range Achievement Test (WRAT-R)  
Reading Progress Scale  
Modumath  
Nelson-Denny  
Drake Systems Computer Assessments  
GED Pre-Test  
Accuplacer Computer Testing  
Math Test of Labor Grade One

Reviews from The Mental Measurements Yearbooks are included later in this report and all comments on the tests' strengths and limitations come directly from the test reviewers' reports. (Not all instruments have been reviewed by the Yearbooks.)

The findings of the literature search have been grouped into three categories: standardized tests; competency-based and criterion-referenced measures; and, participatory assessment techniques. The literature was searched using the following criteria:

1. What has been written about assessment of learning? For adults? In the workplace?
2. Have these instruments, measures, and techniques proved satisfactory (are they valid, reliable, and practical)?

3. Are they particularly suited to adults in the workplace? Can they be adapted for that use?

Standardized tests frequently are used because they are convenient and yield an easily-understood measure: a grade level equivalent. This may prove problematic, however, when the learning is designed to be specific to a job or industry where grade levels are irrelevant.

While most commercially available tests are generally valid and reliable, they may have been normed using only certain segments of the population (e.g., are not culturally representative) or were designed for use with children. Some educators skirt these issues by claiming to use the tests as preliminary screening or placement devices. While this practice may be convenient, it may not be as successful as personal interviews and teacher-made instruments that are keyed to the actual subject material being taught and the already-existing knowledge of the worker.

Competency-based measures are used to test for learning or mastery in specific content areas. Assessments techniques may include pencil-and-paper tests, observation of performance, self-assessment, and input by supervisors and peers. Criterion-referenced assessments test learners against a pre-determined set of standards that relate directly to the learning. These criteria are usually teacher-generated, with input from those people knowledgeable about the tasks and the skills and knowledge they require. The bibliography includes books and articles that would be helpful to anyone who is developing these kinds of assessments.

Participatory assessment is based on substantial input and decision making by the learner. The most promising method of participatory assessment is the use of a portfolio to document and demonstrate learning progress. Portfolios can

be designed to assess a wide range of outcomes and can accommodate differences in instructional techniques and subject content.

This method is gaining popularity slowly in K - 12 classrooms and is being considered for use in local technical colleges. But, generally, it has not reached the workplace education field. Commercially produced portfolio materials have not received good reviews by educators because the standardized approach is the antithesis of good portfolio assessment practice. The bibliography for these areas cites the most current sources of information for instructors considering using these techniques.

The final bibliography lists a number of definitive works dealing with adult education in general. Because workplace education programs deal exclusively with adults, it is important to base any assessment decisions (as well as instructional design decisions) on the principles of adult learning.

I have also included a short list of instruments that can be self-administered and self-scored that show the readiness of a learner to be self-directed in her or his learning, the learning styles she or he might have, and what modes of decision making are used by the learner. These instruments can help the educator and the learner to know to what degree self-directed learning will be successful (and where a more hands-on approach might be more appropriate) and what learning styles will facilitate learning.

As workplace education programs become more sophisticated and as educators working in these settings develop more of their own authentic assessment instruments and techniques, I see a need for increased understanding in the areas of test validity and reliability, adult learning theory, and context-specific instructional development. The contents of this paper can provide assistance to those workplace educators who are ready to move beyond

a K-12-centered pedagogy (the art or science of teaching children) approach to an adult-centered, andragogical (the art of helping adults learn) perspective.



QUESTIONS TO BE ASKED WHEN SELECTING  
ASSESSMENT INSTRUMENTS AND PROCEDURES  
FOR WORKPLACE EDUCATION PROGRAMS

1. What is the purpose of the assessment?
2. What information do I need to find out?
3. Will this instrument/procedure give me the information I need?
4. Is the assessment instrument appropriate for use with adults?
5. How will the results be helpful to the learner?
6. How reliable (measuring consistently), valid (testing what it is intended to measure), and practical (in terms of cost and time required) is the instrument?
7. How much time, money, and staff are needed to administer the test?
8. Is the instrument culturally sensitive?
9. Is there congruence between the instrument and the content taught and the nature of instruction?
10. Is the measurement needed to compare learners' scores against other learners' scores or to assess individual progress or competence?
11. Will the instrument be used as a diagnostic tool or for selection or placement?
12. What will be the end use of the scores? Do confidentiality issues need to be addressed?
13. What other options are available? Which is the best option?

REVIEWS OF STANDARDIZED TESTS

## ADULT BASIC LEARNING EXAMINATION (ABLE)

Purpose: "Designed to measure the educational achievement of adults who may or may not have completed twelve years of schooling ... also useful in evaluating efforts to raise the educational level of these adults."

Administration: Group

Publisher: The Psychological Corporation

Prices: 1988 prices.

\$23 for examination kit: test booklet, directions for administration, one form for each of three levels, answer sheets.

\$15 for norms booklet.

\$5 for Reading Supplement.

Available: ABLE Computer Scoring software program.

SelectABLE: screening test to determine which level of ABLE is most suitable for use with a particular individual (45 items).

\$26 for 25 Ready Score Answer Sheets.

\$23 for 50 hand-scorable test sheets.

\$13 for scoring key.

\$5 for SelectABLE Handbook (1986, 15 pages)

Level 1

Population: Adults with one to four years of formal education.

Scores: Vocabulary - sentence and options read to examinee. 32 items.  
 Reading Comprehension - information from simple signs, sentence completion using cloze technique, advertisements, short reading passages. 40 items.  
 Spelling - 30 items.  
 Number Operations - 20 items.  
 Problem-solving - 20 items.

Time: 130 - 165 minutes (untimed)

Prices: \$33 for 25 hand-scorable test booklets and directions for administration.  
\$28 for scoring key  
\$8 for directions for administering (38 pages).

## Level 2

Population: Adults with five to eight years of formal education.

Scores: Same as level 1 with the addition of a Language section (30 items).

Time: 175 - 215 minutes (untimed).

Prices: same as for level 1.

## Level 3

Population: Adults with nine to 12 years of formal education who may or may not have completed 12 years of schooling.

Scores: Same as level 2.

Time: Same as level 2.

Prices: Same as level 2.

## Limitations

Spelling, levels 2 and 3 - identification of misspelled words is a proofreading skill and therefore this is not a spelling ability test, affecting content validity.

Language, levels 2 and 3 only - These items are appropriate to assess the mechanics of written language. There is no assessment of the examinee's production of written or oral expressive language.

Vocabulary, level 1 - "auditory comprehension" is what is tested since the items are dictated and examinees must select from three alternatives to complete the sentence.

Verbal and numerical scores are combined for a total score, not calculated separately and differentiated.

### Strengths

Correlated to the Stanford Achievement Test series.

All tests, manuals, and ancillary materials are well written and easy to use, and the test items appear suitably adult-oriented in content.

ABLE is a useful, efficient assessment of the educational level of adults with limited education.

Kramer, J. J. and Conoley, J. C. (1992). The Eleventh Mental Measurements Yearbook, Lincoln, NE: The Buros Institute of Mental Measurements.

**TESTS OF ADULT BASIC EDUCATION (TABE)  
(Forms 5 and 6, Survey Form)**

Purpose: "Designed to measure achievement in reading, mathematics, language, and spelling."

Population: Adults in basic education programs.

Administration: Group

Levels: Four overlapping levels:

E (easy): grades 2.6 - 4.9

M (medium): grades 4.6 - 6.9

D (difficult): grades 6.6 - 8.9

A (advanced): grades 8.6 - 12.9

Publisher: CTB Macmillan/McGraw-Hill

Price: (1988)

\$18.75 for 25 Practice Exercise and Locator Test books.

\$9.35 for 25 Practice Exercise and Locator Test SCOREZE answer sheets.

\$7.75 for Practice Exercise and Locator Test hand-scoring stencil.

\$6 for the Norms Book (1987, 146 pages)

\$8.50 for Test Coordinator's Handbook (1987, 59 pages)

\$8.50 for Technical Report (1987, 60 pages)

\$12 for Multi-level Test Review Kit (specimen set)

Time: 20 - 25 minutes for the Practice Exercise and Locator Test.

**Survey Form**

Purpose: Shortened version of Form 5 to be used for screening purposes. Items from all areas except spelling.

Time: 108 minutes.

**Total Battery**

Scores: Reading (vocabulary, comprehension, total).  
Mathematics (computation, concepts and applications, total).  
Language (mechanics, expression, total).  
Total Battery  
Spelling

Time: 203 minutes.

### Strengths

Equivalent Forms 5 and 6 are intended to provide norm-referenced scores as well as criterion-referenced scores for basic skills.

Correlated with the Tests of General Educational Development (GED).

### Limitations

Only cursory information about the norming sample is provided, but this is obviously one of the areas of greatest interest to test users.

Length of time to administer the Survey Form: 1 hour 48 minutes.

Kramer, J. J. and Conoley, J. C. (1992). The Eleventh Mental Measurements Yearbook. Lincoln, NE: The Buros Institute of Mental Measurements.

## WIDE RANGE ACHIEVEMENT TEST - REVISED (WRAT)

Purpose: "To measure the codes which are needed to learn the basic skills of reading, spelling, and arithmetic."

Population: Level 1 - ages 5.0 to 11.11 years; Level 2 - 12.0 to 75 years.

Publisher: Jastak Associates, Inc.

Price Data: (1987)

\$10 per 25 test forms (level 1 or 2)

\$15 per 10 large print edition test forms (level 1 or 2)

\$10 per set of 2 plastic word list cards

\$25 per tape cassette

\$20 per manual (1984, 82 pages)

\$45 per starter set including test forms for levels 1 and 2, set of plastic cards, and manual.

Large print edition is available.

Time: 15 - 30 minutes.

Administration: Individual or group.

### Strengths

The instructions for administering and scoring the individual subtests are clearly presented, as are the procedures for converting raw scores to standard scores and grade equivalents.

### Limitations

Test is "designed to measure basic school codes rather than comprehension, reasoning, or judgment processes."

There are questions about its validity and reliability.

Approach used to investigate item bias is "recognized as inappropriate."



“The characteristics of the adult sample are so vague and confusing that the use of the WRAT-R with individuals above age 18 is probably not advisable.”

Kramer, J. J. and Conoley, J. C. (1989). The Tenth Mental Measurements Yearbook. Lincoln, NE: The Buros Institute of Mental Measurements.

## INDUSTRIAL READING TEST

**Purpose:** "The Industrial Reading Test (IRT) was developed for the purpose of measuring reading ability in industry and in vocational schools."

**Population:** Grade 9 and over vocational students and applicants or trainees in technical or vocational training programs.

**Price Data:** (1982 prices)

- \$10 per 25 test booklets
- \$5.75 per 50 IBM 805/OpScan answer sheets
- \$1.75 per hand scoring key
- \$2.85 per manual
- \$4.50 per specimen set

**Time:** 40 (45) minutes

**Publisher:** Psychological Measurement Division, The Psychological Corporation

### Strengths

"The manual for the IRT is complete and honest. Statistical data are plentiful and sufficiently impressive. Test scores are correlated with grades in a variety of vocational programs and with many other tests."

"The instructions to examinees -- including the appropriate directions to answer all items -- are clear."

### Weaknesses

"To make the material relevant and meaningful to the student, the authors used reading passages that contain information which is general knowledge to many (if not most) adults. As a result, the items do not require that the examinee obtain information from reading the passage...Good performance on the test [is not] dependent upon comprehension of the passage."

Not recommended for testing reading comprehension "even though it will be difficult to find a test with as much material relevant to industrial applicants, an effort should be made to find a test that measures reading comprehension."

Mitchell, J. N., Jr. (Ed.) (1985). The ninth mental measurements yearbook. Lincoln, NE: The Buros Institute of Mental Measurements.

## STANFORD TEST OF ACADEMIC SKILLS (TASK)

Population: Grades 8 - 10, 11 - 12, and grade 13 in junior/community college.

Scores: Reading, English, mathematics.

Prices: (1973 - not included because of age of data)

Levels:

Level 1 - Grades 8 - 10; Forms A, B

Level 2 - Grades 11 - 12 and grade 13 in junior/community college

Strengths:

“The [mathematics] test is a broad survey of standard mathematics skills and appears to be a good sample of core content typically covered by the end of junior high school.”

“In general, for a broad-range achievement test in basic academic skills, TASK is relatively well constructed and attractively presented ... For general surveys of broad academic skills the test is clearly useful.”

Limitations

“There is no attempt to include, and no possibility for, diagnosis of reading difficulties.”

Buros, O. K. (Ed.) (1978). The eighth mental measurements yearbook. Highland Park, NJ: Gryphon Press.

## ACT CAREER PLANNING PROGRAM

Purpose: This is “a set of tests and inventories designed to help students who are making career plans to use information about their measured aptitudes, inventoried interests, self-reported competencies, values, and grades.”

Population: Entrants to post-secondary educational institutions.

### Scores:

8 interest scores: business contact, business detail, trades, technology, science, health, creative arts, social service.

7 experience scores: (same as interest, excluding health)

6 ability scores: mechanical reasoning, numerical skills, space relations, reading skills, language usage, clerical skills.

Plus background and plans questions and 12 optional local items.

Prices: (1976 - not included because of age of data)

Time: 150 - 160 minutes.

### Strengths

“The scope of information furnished by the one-page report is impressive. Equally impressive is the manner in which the data is economically organized and clearly communicated.”

“The eight abilities measured are important to a wide range of occupations.”

### Limitations

“Little data is presented to support the reliability and independence of the Vocational Interest Profile Scores. The number of items per scale is not given.”

Buros, O. K. (Ed.) (1978). The eighth mental measurements yearbook. Highland Park, NJ: Gryphon Press.

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PARTICIPATORY ASSESSMENT AND PORTFOLIO ASSESSMENT  
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## SELF-ASSESSMENT INSTRUMENTS

## Self-Directed Learning Readiness Scale

Guglieimino and Associates

734 Marble Way

Boca Raton, FL 33432

## Preferences in Ways of Asking Questions and Making Decisions

by Allen F. Harrison, D.P.A. and Robert M. Bramson, Ph.D.

inQ

P. O. Box 10213

Berkeley, CA 94709

## Learning Styles Inventory

by Albert A. Canfield, Ph.D.

Northville, MI 48167

## Perceptual Learning Styles

In James, W. B., & Galbraith, M. W. (1985). Perceptual learning styles: Implications and techniques for the practitioners. Lifelong Learning: An Omnibus of Practice and Research, 8 (4), 20-23.

## LITERATURE SEARCH INFORMATION

Terms searched through the University of Wisconsin's library system:

adult basic education (and work)  
 assessment  
 competence  
 competency based educational tests  
 criterion referenced test  
 educational evaluation  
 educational tests and measures  
 employees, training of  
 employer supported education  
 human performance  
 industry and education  
 informal assessment  
 job evaluation measures  
 job performance evaluation  
 job training evaluation  
 language abilities testing  
 minimum competency testing  
 occupational training  
 performance assessment  
 performance standards  
 proficiency  
 reading assessment  
 reading evaluation  
 skill development evaluation  
 work and learning  
 work samples

Terms searched through the Educational Resource Information Center (ERIC)

assessment instruments (adult)  
 job  
 job evaluation measures  
 job performance tests  
 measurement techniques  
 performance standards

skills development measures  
training assessment  
work sample tests

Terms searched through Current Index to Journals in Education

academic achievement  
adult basic education  
adult education  
adult learning  
adult literacy  
adults  
assessment  
basic skills  
business education  
educational assessment  
educational research  
evaluation  
evaluation methods  
functional literacy  
functional reading  
illiteracy  
individualized instruction  
industrial training  
instructional design  
instructional development  
instructional effectiveness  
job skills  
job training  
learning  
learning strategies  
literacy  
literacy education  
measurement techniques  
metacognition  
needs analysis  
nontraditional education  
outcomes of education  
performance based evaluation

portfolios  
reading ability  
reading achievement  
reading process  
reading research  
reading tests  
self-evaluation  
skill development  
standardized tests  
student evaluation  
success  
teaching methods  
test reliability  
test validity  
training  
training methods  
work  
work attitudes  
work environment  
work experience  
workplace literacy  
writing  
writing evaluation  
writing process  
writing research  
writing skills  
writing strategies  
writing tests