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ABSTRACT

Choosing an appropriate measure of study skills is a requisite in high-quality educational programming, but the information about such tools is limited. This paper compares selected study skills measures in terms of standard psychometric properties to determine salient features of each measure. Three categories of study skills measures are considered. The first is measures that have a long, dated history. Four measures that have been available for more than half a century are described. Although these measures are not often used now, they illustrate that study skills measures have been in use for a long time. The second category is that of measures in current use with varied histories. Choosing from measures described in the "Mental Measurements Yearbook" results in the selection of three measures available for current use: (1) the Study Skills Counseling Evaluation Survey (G. Demos, 1962); (2) the Survey of Study Habits and Attitudes (W. Brown and W. Holtzman, 1967); and (3) the Study Attitudes and Methods Survey (W. Michael, J. Michael, and W. Zimmerman, 1972). Only the Survey of Study Habits and Attitudes stands up to examination for contemporary study skills measurement. The third category is that of measures that are recent releases with limited histories. The American College Testing (ACT) Study Power Assessment (ACT, 1987) and the Learning and Study Strategies Inventory-High School Version (C. Weinstein and D. Palmer, 1990) are two noteworthy examples. (Contains 23 references.) (SLD)

Study Skills Measurement: Choosing the Most Appropriate Instrument

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Study Skills Measurement: Choosing The Most Appropriate Instrument

Concerns related to student achievement are rampant, and K-12 educators nation-wide experience pressures from many directions to improve the quality of education. One point of focus with some educators has been the strengthening of students' study skills (Marshak, 1992). Choosing an appropriate measure of study skills is a requisite in high-quality programming, but the information about such tools is limited. This paper will compare selected study skills measures in terms of standard psychometric properties to determine salient features of each measure. Three categories of study skills measures will be considered. These include measures that have a long, but dated history; measures that are in current use with varied histories; and, measures that are recent releases with limited histories.

Study Skills Measures With A Long, Dated History

Despite the limited availability of information about top-notch study skills measures, some measures actually have been available for more than half a century. The original Mental Measurements Yearbook (1938/1972) lists four measures under the heading "Study Habits and Skills." Three of these are unreviewed measures of isolated skills such as reading and constructing tables and graphs. The fourth, which is more broad-based, is described here.

Tyler-Kimber Study Skills Test. This measure, developed by H. T. Tyler and G. C. Kimber about 1937 for use with students in Grades 9-16, was described by two reviewers as more a measure of intelligence than of study skills (Jones, 1938; Wrenn, 1938). Wrenn noted that, despite its authors' assertion of suitability for use with both high school and college students, the Tyler-Kimber Study Skills Test was normed only with junior college students and contained content too advanced for all but the rarest of high school students. McCall (1941/1972) noted a tendency for some portions of the test to "measure degree of daring . . . or something else alien to study skills" (p. 375). Salisbury (1941/1972) described this measure as "more nearly a test of the ability to *find* (emphasis added) materials than of the power to study them" (p. 377).

Study Habits Inventory. One of the earliest study skills measures was the Study Habits Inventory developed by C. G. Wrenn in approximately 1934 for use with students in Grades 12-16. Jones (1941/1972) criticized the lack of objectivity inherent in the process used by Wrenn to select the 30 items included in this measure. A revised version of this inventory came on the scene in 1941. Scates (1949), writing in The Third Mental Measurements Yearbook, described this inventory as so short that only seven or eight minutes was sufficient time to complete it. He further described the measure as one intended for clinical use with primary emphasis on responses to individual items rather than the total score. Beyond the inherent age/grade-related limitation, Scates criticized the Study Habits Inventory because only 12 of 28 items were discriminating in the case of females. In sum, Scates questioned the validity of the measure as well as other aspects of its standardization.

Test of Study Skills. Another measure of this period was the Test of Study Skills developed by J. W. Edgar and H. T. Manuel in 1940 for use with students in Grades 4-9. This

was a machine scorable paper-and-pencil version that Scates (1949) described somewhat more favorably than he did the Study Habits Inventory described above. The Test of Study Skills was available in two forms and it consisted of two parts. The first part dealt with use of reference materials and reading of graphs, tables, and maps; the second part dealt with critical inference in the use of printed materials. Based on the absence of items addressing such skills as outlining and selection of the main idea in reading passages, Scates criticized the test for having a name broader than its actual content. Nonetheless, he praised the measure as one without false claims--one that did what it was supposed to do to the extent that any paper-and-pencil measure can in a limited time. He also praised the manual for its authors' inclusion of cautionary statements about the validity of this test in particular and about the nature and role of standardized tests in general.

These earliest measures are no longer in common use, so the descriptions provided herein have been abbreviated. They serve, nonetheless, to illustrate that study skills measures are hardly a recent phenomenon. Indeed, such measures have been in use for more than 60 years.

Measures In Current Use With Varied Histories

Almost 30 years after the publication of the original Mental Measurements Yearbook (1938/1972), The Sixth Mental Measurements Yearbook (1965) lists 12 measures under the heading "Study Skills." Of these 12, seven are measures of one or only a few isolated skills and two are subscales of standardized achievement tests. Of the remaining three measures, only two are available for current use. These are The Study Skills Counseling Evaluation and Survey of Study Habits and Attitudes.

Subsequent editions of the Mental Measurements Yearbook reveal a similar pattern. The seventh edition (1972) lists only eight measures, none of which expand the options for consideration in this review. The eighth edition (1978) lists only nine measures. Of this number, one additional measure known as Study Attitudes and Methods Survey could be added to this review of measures in current use. Thus, three measures are included in this portion of the paper. These three are described below.

The Study Skills Counseling Evaluation (SSCE). The SSCE, developed by G. D. Demos in 1962, was intended for use with students in Grades 9-16. The intended use of the SSCE is to help high school and college students quickly and objectively identify their weaknesses in regard to use of time, study conditions, note-taking, and approach toward examinations as well as study habits and attitudes. The SSCE is a self-report measure consisting of 50 items to which students respond in terms of how frequently they follow certain study procedures or demonstrate certain attitudes toward study. The 50 items are grouped, in unequal numbers of items, into five areas labeled *Study-time distribution*, *Study conditions*, *Taking notes*, *Preparing and taking exams*, and *Other habits and attitudes*. Crossing these five areas are 17 items that comprise a sixth category labeled *Critical items of special importance* and described as items that differentiate between B and C students. With a weighted scoring process, the SSCE yields one total score ranging from 50 (a perfect score) to 250 (the poorest score). Lower scores are representative of students with overall study efficiency.

The SSCE Manual (Demos, 1962) provides very little information about the students who comprised the norming group. Although Demos reported a reliability coefficient of .94 for use of the SSCE with college students, no reliability studies with high school students were reported in the manual. The validity coefficient of .38 for prediction of gradepoint averages was described by its author as "positive and significant" (p. 4). Fleming (1965), however, criticized the measure for its poorly-written manual and described it as "an ill-considered and unnecessary addition to the clutter of mediocre instruments already in existence" (p. 1148). He stated that the SSCE would first need a number of modifications and additional information before it would be useful to schools and colleges. Davis (1965) described the SSCE as "a promising instrument . . . in need of a great deal of further refinement and validation" (p. 1147). He further noted "At the present time, the *Brown-Holtzman Survey of Study Habits and Attitudes* is a better developed instrument for essentially the same purposes" (p. 1147).

Survey of Study Habits and Attitudes (SSHA). The original SSHA (Brown & Holtzman, 1967) was developed in 1953. During the period from 1953 through 1967, it was revised in several ways including omission of the authors' names from the original title. Some of the original items were changed and others were added, lengthening the measure from 75 to 100 items. Form H is intended for use with high school students in Grades 7-12. It is recommended as a screening instrument for students who need immediate attention, as a diagnostic instrument for the counselor to use with those students who are having academic difficulty, as a teaching aid to enable students to understand effective study principles and the importance of the role of motivational factors in academic success, and as a research tool. The SSHA is a self-report measure consisting of 100 items that are arranged into four 25-item subscales labeled *Work Methods*, *Delay Avoidance*, *Teacher Approval*, and *Education Acceptance*. Students respond to the items in terms of how frequently they perceive the items to describe themselves. Scores on the first two subscales are summed to obtain a score for *Study Habits*, the last two subscales are summed to yield a *Study Attitudes* score, and the sum of all subscales is labeled *Study Orientation*. A perfect raw score on this survey is 200. The manual includes a table for converting raw scores for each category into percentile ranks.

The SSHA Manual (Brown & Holtzman, 1967) presents validity and reliability information that supports use of the SSHA-Form H as a research tool and as a counseling or teaching aid. Validity correlations between SSHA-Form H scores and grades in school, defined as the gradepoint average (GPA), range from .44 to .66 (all statistically significant), with .55 as the weighted average for Grade 7 students in a representative national sample. Correlations between SSHA-Form H scores and scholastic aptitude tests for this same sample ranged from .24 to .44, with a weighted average of .32. These findings indicate that the SSHA-Form H validly measures traits that are relevant to academic success, but are not measured in scholastic aptitude tests. Reliability studies with a four-week interval yielded test-retest correlations of .93 or better. These results indicate that the SSHA-Form H scores are sufficiently stable to justify using them either to predict future behavior or to examine changes in study habits and attitudes after interventions.

Shay (1972) stated that the SSHA "is a good teaching aid for teachers and counselors--and useful to those students who are frank in responding and motivated to improve" (p.1211).

But, he cautioned against its use as a screening or diagnostic instrument without further research. He also warned that interpretation of subscales should be done with caution. Higgins (1972) considered the SSHA to be a well constructed instrument, useful as a counseling aid, a research tool, and a screening instrument (though he noted that it had not been validated for screening). Roark and Harrington (1972) said that screening use should be limited to detecting students who might need counseling related to their study habits and attitudes. Both Shay and Higgins mentioned the instrument's ease of use and scoring.

Study Attitudes and Methods Survey (SAMS). The SAMS, developed in 1972 by W. B. Michael, J. J. Michael, and W. S. Zimmerman, is intended for use with both college and high school students (Grades 7-16) to assess study attitudes, motivation, and habits in order to identify students who may be helped through counseling. The subscales of the SAMS are *Academic interest-love of learning*, *Academic drive-conformity*, *Study methods*, *Study anxiety*, *Manipulation*, and *Alienation toward authority*. This measure consists of 150 items describing school-related situations to which the student respond in terms of how self-descriptive the statement. The items are evenly distributed over the six subtests. Students who score high on the first three subtests and low on the last three subtests are believed to possess characteristics which will make them high achievers.

Berger (1978) criticized the SAMS based on a lack of reported information about its norming with high school students and described validity evidence presented in the manual as non-persuasive. In sum, he said the SAMS should be used with caution. In a more forceful approach, Lombard (1978) was redundant in proclaiming his unwillingness to recommend the SAMS.

The age of a study skills measure is not a reliable predictor of its availability for current use. The three measures just described were developed in 1962, 1967, and 1972 and are still available for purchase and use. Other measures developed during the same period are no longer available. Alternately, the continued availability of a measure is not a reliable predictor of its value and worth. Of the three instruments described above, only one–Survey of Study Habits and Attitudes–stands up to examination.

Recent Releases With Limited Histories

The most recent Mental Measurements Yearbook lists two additional study skills measures that are worthy of note. These are the ACT Study Power Assessment and Inventory and the Learning and Study Strategies Inventory–High School Version.

ACT Study Power Assessment and Inventory. Two evaluation instruments are included in Study Power, a study skills training program developed in 1987 by American College Testing Program (ACT) for students in Grades 10-12. The Study Power Assessment (SPA) assesses study skills knowledge and the Study Power Inventory (SPI) measures self-reported behaviors related to study skills. These inventories are used to identify individual students who need academic assistance, to pinpoint shared academic needs of classroom groups, and to motivate all students toward use of more effective study techniques.

The SPA consists of 100 true-false items, and SPI is 85 self-descriptive behavioral items. Both sets are grouped into six scales labeled *Managing Time and Environment*, *Reading Textbooks*, *Taking Class Notes*, *Using Resources*, *Preparing for Tests*, and *Taking Tests*. An outstanding feature of the two measures is the fact that students can administer and score the measures by themselves. A second feature is the time factor; both can be completed within one normal class period.

SPA and SPI differ in regard to interpretation. Students interpret their own SPA scores using a printed table to determine how their raw scores compare with those of other high school students and to identify areas of strength and weakness. The SPI, in contrast, must be interpreted by a teacher or counselor. Kiewra (1995) noted, however, that no guidelines exist for this interpretation.

Kiewra (1995) described the SPA and SPI as sound in terms of test development practices with a norm group of more than 9000 high school students from 30 representative schools. He praised the measures for their age-appropriate, clearly-constructed, uniform items which address important topics, but he criticized the failure to assess some behaviors he considers crucial to studying. These behaviors include learning to take adequate lecture notes, developing study aids to represent facts and relationships, learning to record and study various kinds of examples, learning to study appropriately for different test types, and learning to use motivational and metacognitive strategies to support academic ones. Because of these omissions, Kiewra identified validity as a limitation, noting also that no evidence exists to indicate that students who score higher actually use greater or more effective study practices. He praised the reliability of the measures as appropriately high at .94 and .92, respectively, with an appropriately moderate intercorrelation of .47. Nonetheless, he considered these measures promising. Singh (1995) agreed and added that a strength of the measures is their focus on a link to instruction and intervention.

Learning and Study Strategies Inventory-High School Version–LASSI-HS. First published in 1990 by C. E. Weinstein and D. R. Palmer, the LASSI-HS is intended for use with students in Grades 9-12 to measure their use of learning and study strategies and methods. Kiewra (1996) noted that the authors promote the LASSI-HS as a counseling tool, a basis for prescribing individual remediation, a pre/post assessment device, and a program evaluation tool. A 76-item self-report instrument, the LASSI-HS is divided into 10 scales that are labeled *Attitude*, *Motivation*, *Time Management*, *Anxiety*, *Concentration*, *Information Processing*, *Selecting Main Ideas*, *Study Aids*, *Self Testing*, and *Test Strategies*. Kiewra noted that these scales can be grouped in cognitive, metacognitive, motivational, and affective factors but are not based on any systematic model of studying. Commenting that the LASSI-HS includes the best collection of items he had observed among such inventories, he nonetheless noted some omissions (i.e., note recording and procedural tasks).

Kiewra (1996) also criticized the LASSI-HS based on its limited norming sample–a group of 500 to 800 students per grade level, but from a single city. Williams (1996) added that, although separate norms are provided for each grade level, they do not differ noticeably from one another at any grade level. Although reliability estimates are provided for the individual scales,

no is provided for the entire instrument (Kiewra). Kiewra noted that the scales seem to measure a common behavior based on reasonable internal consistency, but intercorrelations between scales were not reported, leaving in question the degree to which they measure unique behaviors. He also emphasized the lack of test-retest reliability estimates as a caution against using the inventory for pre/post assessment of instruction effects. Furthermore, he noted that no validity information was provided and concluded that this lack of psychometric evidence makes use of the instrument risky and premature. Williams agreed with this caution, but added his opinion that good content and construct validity can be inferred from user validity claims of educational practitioners regarding the original college form of the instrument from which the LASSI-HS was adapted.

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