CORRELATIONS BETWEEN THE SLOSSON INTELLIGENCE TEST, THE SHIPLEY - INSTITUTE OF LIVING SCALE, AND THE INTELLECTUAL EFFICIENCY SCALE OF THE CALIFORNIA PSYCHOLOGICAL INVENTORY

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CORRELATIONS BETWEEN THE SLOSSON INTELLIGENCE TEST, THE SHIPLEY-INSTITUTE OF LIVING SCALE, AND THE INTELLECTUAL EFFICIENCY SCALE OF THE CALIFORNIA PSYCHOLOGICAL INVENTORY

An Abstract

Presented to

the Graduate Council of

Austin Peay State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

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by

Karen Jean Wheeler

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ABSTRACT

The California Psychological Inventory (CPI), the Slosson Intelligence Test (SIT), and the Shipley-Institute of Living Scale (SILS) were administered to 43 undergraduates enrolled in psychology classes at Austin Peay State University, Clarksville, Tennessee.

The Intellectual Efficiency (Ie) scale scores of the CPI were compared with scores from the SIT and SILS by the use of the Pearson product-moment correlational technique.

The Ie scale scores correlated .52 with the SIT scores and .39 with the SILS scores. The coefficients were significant at the .01 and .05 levels, respectively. The SIT and SILS scores correlated .49, which attained significance at the .01 level. No significance was obtained when the SILS Abstraction score was correlated with the CPI-Ie and the SIT scores.

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Karen Jean Wheeler

August 1980

To the Graduate Council:

I am submitting herewith a Thesis written by Karen Jean Wheeler entitled "Correlations between the Slosson Intelligence Test, the Shipley-Institute of Living Scale, and the Intellectual Efficiency Scale of the California Psychological Inventory." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Psychology.

John D. Martin
Major Professor

We have read this thesis and recommend its acceptance:

Cyril J. Sadowski
Minor Professor
or
Second Committe Member

Darland E. Blair
Third Committee Member

Accepted for the
Graduate Council:

William H. Ellis
Dean of the Graduate School

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CHAPTER I

INTRODUCTION TO THE PROBLEM

In 1956, Harrison Gough published the full eighteen-scale California Psychological Inventory (CPI). He contends that the CPI was created in order to achieve two goals. The first goal was to develop an instrument which would assess characteristics important for social living and social interaction, favorable and positive personality characteristics rather than pathological. The second goal was to develop an instrument which would contain brief and precise subscales for the measurement of the variables assumed to reflect the relevant characteristics for social living (Gough, 1975).

The normative sample consisted of 6,200 males and 7,150 females who ranged widely in age, socioeconomic status, geographic area, and occupation. The sample is not a true random sample since whites are overrepresented (Gough, 1975).

The Intellectual Efficiency (Ie) scale of the CPI was developed to "indicate the degree of personal and intellectual efficiency which the individual has attained" (Gough, 1975, p. 11). Items for the scale were selected by comparing high school students who scored in the upper and lower 25% on conventional intelligence tests. The items which significantly differentiated the two groups were retained (Gough, 1975).

Reynolds and Nichols (1977) studied the validity of 16 of the 18 scales of the CPI. Using data obtained from a sample of 861 National Merit Scholarship recipients, they found that the 16 scales which were considered showed a substantially strong relationship to criterion variables.

Southern and Plant (1968) conducted a study with members from the Mensa organization. In order to qualify for Mensa an applicant must score in the 98th percentile or above on a standardized intelligence test designed for individuals or groups. They reported significantly higher Ie scale means than the means of the normative samples. It was concluded that the Ie scale of the CPI adequately differentiates functional levels of intelligence.

In a study conducted involving 149 freshmen at a small liberal arts college for women, high achievers (highest 25%) and low achievers (lowest 25%) were selected on the basis of their grade-point average (GPA). Since the Ie scale differentiated the two groups at the .01 level of significance, the investigators concluded that the scale seems to be able to differentiate high achievers and low achievers based on GPA (Flaherty & Reutzel, 1965).

Purkey (1966) found that the Ie scale correlated highly with SAT scores used for identifying students in the gifted range. He administered the CPI and the Self-Ranking Inventory to 158 gifted and average boys and girls. The students in the gifted range scored higher on the Ie scale

than those in the average range with a mean difference of approximately 20 T-score points. He concluded that the Ie scale is able to differentiate gifted and average students.

In contrast to these studies are the findings of Evans (1969). He attempted to determine the effectiveness of the Achievement via Conformity (Ac) scale, the Achievement via Independence (Ai) scale and the Ie scale as predictors of GPA, and to test for differences in the relationships of the scales to quantitative and verbal ability. He administered the CPI, the Cooperative English Test (CET), and the Sequential Test of Educational Progress (STEP) to 204 entering freshmen at a small liberal arts college. Scholastic Aptitude Test (SAT) scores and the first semester GPA of each subject were also obtained. The quantitative (Q) scales of the SAT and the STEP were used as measures of quantitative ability. Verbal ability was measured by the verbal (V) scale of the SAT and the Total Reading Comprehension (TRC) scale of the CET. The results indicated no significant relationships between the Ie scale and GPA, verbal ability, or quantitative ability.

Watson (1967) assessed the usefulness of the CPI scales in predicting academic achievement when scholastic aptitude is controlled. The sample consisted of three groups with each group containing 100 male subjects. The normal (control) group was comprised of entering freshmen at the University of Iowa, while the remaining two groups consisted

of maladjusted freshmen (F-M) and maladjusted upper-classmen (U-M) obtained from applicants of the University Counseling Service. Entrance Test Composite scores, GPA's, and CPI scores were obtained for each subject. The Ie scores correlated .26, .32, and .22 with Composite percentiles for the U-M, F-M, and control groups, respectively, with coefficients significant beyond the .01 level for the maladjusted groups and significant beyond the .05 level for the control group. The obtained correlations between the Ie scores and GPA were .32 for U-M, .27 for F-M, and .22 for the control group, with the same levels of significance as mentioned previously for the three groups. The correlation between Ie scores and GPA with the Composite percentile rank partialed out yielded no significance for the three groups. Due to the conflicting results, it was concluded that there is a need for further clarification regarding the Ie scale and its predictive ability.

There are occasions when the clinician is unable to administer a battery of psychological tests and, therefore, uses a gross estimate of intellectual functioning to determine if further evaluation is required. That situation accentuates the need to provide valid indicators of intelligence contained on instruments which yield a personality profile. There now exists a controversy concerning the ability of the CPI to fulfill such a need.

Slosson (1963) reported a concurrent validity coefficient of .92 between scores on the Slosson Intelligence Test (SIT) and those on the Stanford-Binet Intelligence Test, Form L-M.

Rotatori and Epstein (1978) investigated the reliability of the SIT when administered and scored by special education teachers who had not been trained in psychological testing. The subjects were 53 retarded children, with chronological ages ranging from 5-16. The test-retest reliability coefficient was .94. It was concluded that the SIT can be reliably administered by personnel unskilled in psychological testing.

Martin and Rudolph (1972) found that the SIT correlated highly with the Wechsler Adult Intelligence Scale (WAIS) when administered to an adult population. They obtained correlation coefficients of .73 between the scores on the SIT and scores on the WAIS Verbal scale, .49 between the scores on the SIT and scores on the WAIS Performance scale, and .70 between SIT scores and the WAIS Full Scale score.

Martin and Kidwell (1977) assessed the validity of the SIT in a correlational study with the Wechsler Intelligence Scale for Children-Revised (WISC-R) and the National Educational Development Test (NEDT) on a private secular school population. The SIT scores correlated .79 with the WISC-R Full Scale score, .82 with the WISC-R Verbal Scale score, .50 with the Performance Scale score, and .77 with

the NEDT score. All coefficients were significant beyond the .01 level. They concluded that the SIT seems to be measuring the same factors as the WISC-R and the NEDT.

Kaufman and Ivanoff (1969) tested a rehabilitation population with the SIT and the WAIS. Intellectual functioning of the subjects ranged from mild retardation to bright normal. Obtained correlation coefficients of .93 between the SIT and the WAIS Full Scale score, .70 between the SIT and the WAIS Performance Scale score, and .96 between the SIT and the WAIS Verbal Scale score seem to indicate that the SIT is a valid instrument when used to evaluate intellectual functioning.

The Shipley-Institute of Living Scale (SILS) (Shipley, 1940), was devised to aid in the detection of mild degrees of intellectual impairment in individuals of normal original intelligence. It should not be administered to intellectual subnormals, individuals with language handicaps, or deteriorated cases.

Shipley determined the reliability of the SILS using a heterogeneous group of 322 army recruits. The obtained correlation coefficients were .87, .89, and .92 for the Vocabulary, Abstraction, and combined test, respectively. These results were significant well beyond the .01 level.

Stone and Ramer (1965) conducted a cross-validation study using the SILS and the WAIS, which were administered to 51 subjects. The obtained correlation coefficient

between the scores on the two instruments was .79, which was significant beyond the .01 level. It was concluded that the SILS appears to be valuable when an estimate of intellectual functioning is needed.

The SIT and the SILS were administered to 40 undergraduate college students in order to determine the validity and reliability of each instrument. The obtained correlation coefficients between the SIT and the SILS from the initial testing was .46, and .54 from the second testing. Obtained test-retest reliability coefficients were .83 and .80 for the SIT and SILS, respectively. All of the coefficients were significant beyond the .01 level (Martin, Blair, Stokes, & Lester, 1977).

In a cross-validation study conducted at the Oregon State Hospital, the WAIS and the SILS were administered to 140 subjects with all major psychiatric classifications included in the group. The obtained coefficient was .80, which was significant beyond the .01 level. The researchers concluded that the SILS may be used in an institutional setting when economy of time is desired (Wiens & Banaka, 1960).

Other investigators have concluded that the SILS proves to be a good measure of intellectual functioning when compared to the WAIS Full Scale score. Obtained correlation coefficients range from .73 to .90 in these reports (Bartz, 1968; Sines & Simmons, 1959).

The purposes of the present study were to determine whether the Ie scale of the CPI could be used as a valid measure of intellectual functioning of college students, and to compare the Ie scale with existing tests of mental ability which are well established.

CHAPTER II

METHOD

Sample

The sample used in the present study consisted of undergraduate students enrolled in psychology classes at Austin Peay State University, Clarksville, Tennessee. The sample was composed of 43 students of which 28 were female and 15 were males.

The subjects ranged in age from 18 to 49 years, with a mean age of 24 years and a standard deviation of 7.48. The sample included sophomores, juniors, and seniors, with the mean level of education being 15 years, and a standard deviation of .71.

Description of the Instruments

The Slosson Intelligence Test (SIT) was introduced in 1963 by Richard L. Slosson for use as a quick individual intelligence test. His purpose in constructing the SIT was to provide an abbreviated form of the Stanford-Binet Intelligence Scale, Form L-M, which could be quickly and easily administered.

The Shipley-Institute of Living Scale (SILS), also called the Shipley-Hartford, was devised as an aid in detecting mild degrees of intellectual impairment in individuals of normal original (premorbid) intelligence

(Shipley, 1940). It may also be used as a test of intelligence. The SILS yields a vocabulary score, abstraction score, and a combined score.

The California Psychological Inventory (CPI) is a self-administered personality test which consists of 480 items. It is composed of 18 scales which are divided into four separate categories. Standard scores are derived by converting the raw scores into T-scores, which are then interpreted by comparing the T-scores to the normative sample.

Administration and Scoring

The SIT was administered individually to each subject over a two-month period. The CPI and the SILS were administered both individually and in groups over the same two-month period. The instruments were scored according to the directions provided in the respective manuals.

CHAPTER III

RESULTS

The Pearson product-moment technique was employed to compute the correlation coefficients. In the computations, IQ scores were used for the SIT, and total raw scores were used for the Ie scale of the CPI and the SILS. Table 1 summarizes the correlations for all measures. Means and standard deviations are summarized in Table 2.

TABLE 1

Correlations between tests

Tests	r
1. CPI-Ie-SIT	.52**
2. CPI-Ie-SILS (Combined)	.39*
3. CPI-Ie-SILS (Vocabulary)	.50**
4. CPI-Ie SILS (Abstraction)	.13
5. SIT-SILS (Combined)	.49**
6. SIT-SILS (Vocabulary)	.75**
7. SIT-SILS (Abstraction)	.08

*Significant at .05 level

**Significant at .01 level

TABLE 2

Means and standard deviations

	Test	M	SD
1.	CPI-Ie	45.81	11.10
2.	SIT	117.09	13.06
3.	SILS (Combined)	62.84	6.26
4.	SILS (Vocabulary)	30.37	3.61
5.	SILS (Abstraction)	32.47	4.78

CHAPTER IV

DISCUSSION

The correlation coefficients obtained in the present study were comparable to the significant coefficients reported in the literature, with the exception of the SILS Abstraction scale scores when compared with the SIT scores. The findings of the present study support Gough's contention that the Ie scale of the CPI indicates the degree of intellectual efficiency which the individual has attained. The concurrent validity of the Ie scale scores was evidenced by the high correlation with other test scores purported to measure intellectual functioning.

Analysis of the results of the present study seems to indicate the inadvisability of using the SILS when more than an assessment of verbal abilities is required, since the SILS does not appear to offer a comprehensive sampling of other cognitive abilities.

The high correlations obtained in the present study justify the use of the Ie scale of the CPI as a valid measure of intellectual functioning when a gross measure of intelligence is warranted in order to determine if further evaluation is required. Although the CPI does not allow the examiner to determine the subject's reasoning abilities, the test is economical and offers a personality profile as well as a valid measure of intellectual functioning.

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