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AUTHOR   Oakland, Thomas
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ABSTRACT
        Empirical evidence is presented regarding the use of
the estimated learning potential (ELP). The data reported come from
three instruments: the Wechsler Intelligence Scale for
Children-Revised (WISC-R), the reading and math components of the
California Achievement Tests, and the System of Multicultural
Pluralistic Assessment (SOMPA) Sociocultural Modalities Scales. Four
modalities (family size/structure, socioeconomic status, and urban
acculturaltion) were used for establishing the ELP from the WISC-R
data. The sample was drawn from three racial-ethnic groups and two
social classes in grades 1 through 3. Results show the common
tendency for middle class children to outperform the lower class on
IQ and achievement, as well as the relative ranking of the
racial-ethnic groups on IQ and achievement data. The IQ correlations
for reading and math tend to be stronger for lower class children
within each racial-ethnic group. The concurrent prediction of reading
and math achievement is accomplished more accurately with IQs than
ELPs. Compared to WISC-R IQs, the adjustment of IQs to form an
estimated learning potential tends to decrease the test's
effectiveness to predict current and later achievement. (GK)

Predictive Validity of the WISC-R IQs and

Estimated Learning Potential

Thomas Oakland
Department of Educational Psychology
The University of Texas
Austin, TX   78712

How to use tests fairly and accurately with persons from different

racial-ethnic and social class groups has been a continuing issue for

education and psychology and remains a vital issue in the 1980's.

Previous approaches include developing culture-fair tests and devising

culture-fair selection models. More recently Mercer (1978) proposed the

use of an estimated learning potential (ELP) as another means to more

accurately describe the intellectual abilities of children from minority

groups and to predict later performance. This paper presents empirical

evidence regarding the use of the ELP.

Method

The data reported herein come from three major instruments: the

Wechsler Intelligence Scale for Children-Revised (WISC-R), the reading

and math components of the California Achievement Series, and the System

of Multicultural Pluralistic Assessment's (SOMPA) Sociocultural Modalities

Scales (Mercer & Lewis, 1978). The Sociocultural Modalities Scales

assess the social and cultural characteristics of a child's family back-

ground in four areas: family size, family structure, socioeconomic

status, and urban acculturation. These four modalities are used as the

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basis for establishing the ELP from the WISC-R data.[1] Achievement data were obtained on two occasions, once when the other data were obtained (the spring of 1976) and again three years later (the spring of 1979).

A stratified random sampling design was employed to select 467 children from grades 1 through 8 from the three racial-ethnic groups (Anglo, Black, Mexican American), from two social classes (middle and lower) and of both genders from a public school population of 55,000. IQ and achievement tests were administered to children; sociocultural data were obtained through mother interviews.

The Pearson correlations of achievement with IQ and ELP allow us to examine concurrent and predictive relationships for children from the two social classes and the three racial-ethnic groups.

Results and Discussion

The means, standard deviations, and sample sizes for the total group, for the two social classes, and for racial-ethnic by social class are reported (Table 1) to describe the sample. The total group approximates a normal sample with respect to IQ and achievement. The tendency for middle class children to outperform lower class children on IQ and achievement is common within the U.S. and is present here. The relative ranking of the racial-ethnic groups on the IQ and achievement data (e.g., Anglo, Mexican American, and Black) also is common. The ELPs tend to

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[1]$ELP = (actual\ IQ - estimated\ IQ/SE_{est})\ (15) + 100$

Estimated IQ is determined by summing the weighted scores from Mercer's Sociocultural Modality Scale (i.e., family size, family structure, SES, and urban acculturation) and adding a constant. The estimated IQ is the average score predicted for persons having a particular combination of sociocultural characteristics. Thus, the estimated IQ is the average score of persons from a particular sociocultural background, a norm for that group.

be higher than the IQs from which they are derived. This is particularly
apparent among lower class children, especially the blacks and Mexican
Americans.

Concurrent Relationships

The IQ-achievement correlations for reading and math are approximately
.70 for the total group and in the low to mid .60s for the two social
classes. Among the three racial-ethnic groups the correlations are about
10 points higher for Anglos than for the blacks and Mexican Americans.
Within each racial-ethnic group the correlations tend to be somewhat
stronger for lower class children.

In contrast, the ELP-achievement correlations for the total group are
in the high .40s. Differences among the correlations from the middle
and lower class are sizable. Differences among the correlations from
the three racial-ethnic groups are slightly greater, too. The correlations
for blacks are highest, followed by Mexican-Americans and Anglos. Within
the blacks and Anglos, the correlatens are higher for lower class children.

The concurrent prediction of reading and math achievement clearly
is accomplished more accurately with IQs than ELPs. ELP-achievement
correlations never exceed those between IQ-achievement. Among the 24
pairs of correlations, 13 IQ-achievement correlations are significantly
higher than those for ELP-achievement; the remaining 11 pairs are not
statistically different. Significant differences are least apparent for
lower class Anglo, for middle class Mexican-American, and for black
children.

Predictive Relationships

The IQ-achievement correlations for reading and math are in the .70s
for the total group and in the .60s and .70s for the two social classes.

Among the three racial-ethnic groups the correlations generally are in the low .70s and fairly similar with one exception (the .59 IQ-math correlation among blacks). Within the racial-ethnic groups, somewhat higher correlations are reported for middle class Anglos and Mexican Americans and for lower class blacks.

In contrast, the ELP-achievement correlations are in the mid-.50s for the total group and the two social classes. The correlations again differ markedly between the three racial-ethnic groups. The correlations for Anglos tend to be in the mid.40s, for blacks in the low.50s to .60s and for the Mexican Americans in the mid.50s to .70s. Within each racial-ethnic group somewhat higher correlations are reported for lower class Anglos and blacks and for middle class Mexican Americans.

Differences among the IQ and ELP to predict later achievement continue to favor IQ. Thirteen of the 24 pairs of correlations again are statistically significant in favor of IQ predicting achievement. All of the remaining 11 pairs of correlations are not statistically different. As with the concurrent data, significant differences between using the IQ or ELP to predict later achievement is least apparent for lower class Anglo, for middle class Mexican American, and for blacks.

Summary and Conclusions

Thus, compared to WISC-R IQs, the adjustment of IQs to form an estimated learning potential tends either to decrease or to not improve the test's effectiveness to predict current and later achievement.

The magnitude of the IQ-achievement correlations generally is high, accounting for about 50% of the variance associated with both reading and math. There is a tendency for the predictive coefficients to be higher than the concurrent coefficients; this is particularly true for Mexican

American children. The concurrent coefficients for blacks and Mexican Americans tend to be similar and lower than those for Anglos. The predictive coefficients for Anglos and Mexicans tend to be similar and higher than those for blacks.

References

Mercer, J. R., & Lewis, J. F. System of Multicultural Pluralistic Assessment. New York: Psychological Corporation, 1978.

TABLE 1

Means, Standard Deviations, and Ns for IQ, Estimated Learning Potential (ELP) and Achievement[1]

	N	IQ		ELP		Reading Achievement (1976)		(1979)		Math Achievement (1976)		(1979)	
		X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD	X̄	SD
TOTAL	396	98	16	99	15	4.9	2.1	5.1	2.0	5.0	2.0	5.4	2.1
Middle[2]	234	104	15	100	15	5.8	1.9	5.8	1.9	5.7	1.9	6.2	2.0
Lower	162	90	13	97	14	3.9	1.9	4.1	1.8	4.1	1.7	4.3	1.9
ANGLO	166	105	16	100	15	5.7	2.2	5.8	2.1	5.8	2.1	5.9	2.3
Middle	110	111	13	101	15	6.6	1.6	6.8	1.5	6.4	1.8	6.9	1.7
Lower	56	93	14	98	16	4.0	2.1	4.3	3.0	4.5	1.9	4.4	2.1
BLACK	122	92	13	99	14	4.6	2.0	4.7	1.7	4.5	1.8	4.8	2.0
Middle	67	96	13	100	16	4.9	1.9	5.0	1.7	4.8	1.7	5.2	1.9
Lower	55	87	12	98	12	4.1	1.9	4.1	1.6	4.1	1.7	4.2	2.0
MEXICAN AMERICAN	108	95	15	99	15	4.3	1.9	4.6	2.0	4.1	1.7	5.3	1.9
Middle	57	101	15	101	17	5.2	1.7	5.3	1.8	5.4	1.8	6.1	1.8
Lower	51	87	11	95	12	3.5	1.6	3.8	1.8	3.9	1.6	4.2	1.4

[1] Achievement scores are expressed in stanines. Years in parentheses refer to when the achievement data were acquired. IQ (and thus ELP) data were acquired in 1976.

[2] Middle and lower refer to family socioeconomic status designations.

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TABLE 2

Correlations[1] of IQ and ELP with Achievement

	Concurrent (1976)[2]						Predictive (1979)					
		Reading			Math			Reading			Math	
	IQ	ELP	IQ-ELP	IQ	ELP	IQ-ELP	IQ	ELP	IQ-ELP	IQ	ELP	IQ-ELP
Total	71	48	23*	69	46	23*	74	55	19*	70	52	18*
Middle[3]	63	40	23*	60	40	20*	75	55	20*	66	50	16*
Lower	65	60	5	60	55	5	60	57	3	61	56	5
Anglo	73	43	30*	67	42	25*	72	46	26*	73	50	23*
Middle	58	37	21*	54	35	19*	67	47	20*	62	45	17*
Lower	61	60	1	57	57	0	50	49	1	58	58	0
Black	63	57	6	59	55	4	69	61	8*	59	51	8*
Middle	50	47	3	48	46	2	64	57	7*	49	48	1
Lower	75	68	7*	69	65	4	73	75	-2	67	64	3
Mexican American	64	50	14*	60	46	14*	75	71	4	71	63	8*
Middle	50	45	5	50	47	3	77	78	-1	66	68	-2
Lower	59	49	10*	50	41	9*	60	54	6	58	43	15*

[1] All decimals are removed

[2] Years in parentheses refer to when the achievement data were acquired. IQ (an thus ELP) data were acquired in 1976.

[3] Middle and low refer to family socioeconomic status designations.

* p < .01