

## Social Maturity and Intelligence\*

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**= Abstract =** A comparison was made between K-WISC subtests and Vineland Social Maturity Scale to confirm the feasibility of K-WISC as an index of social competence, particularly the Picture Arrangement subtest. Subjects were 34 child psychiatry patients who were not classified as mental retards or brain damaged.

Social Maturity Scale score correlated most highly with Vocabulary subtest score, FSIQ and VIQ while showed lowest correlations with Digit Span and Picture Completion subtests. Picture Arrangement subtest correlated with Social Maturity Scale at .05 level of significance, while it did not significantly correlate with Comprehension subtest which was assumed to reflect social intelligence. Therefore, it is doubtful that Picture Arrangement subtest can reflect social competence or social intelligence validly in the sense of the adaptive behavior measured by the Vineland Social Maturity Scale. Further research regarding Social Maturity Scale is needed with IQ constant to see how it can be used helpfully to determine social competence of mentally retarded or brain damaged children.

**Key Words:** *Social maturity, Intelligence*

### INTRODUCTION

The controversy regarding the usefulness of the intelligence testing has not yet settled. Although reviews of the intelligence tests (Littell 1960; Zimmerman and Woo-Sam 1972, for the WAIS; Himelstein 1966 & 1968 for the 1960 S-B; Woo-Sam and Zimmerman 1973, for the WPPSI) tend to support its psychometric validity, it does not necessarily mean confirmation of the usefulness of the intelligence testing in the usual life.

The main issue concerns what the intelligence is and what the intelligence test measures. Recently, questions arose in regard to the usefulness of the intelligence testing from various aspects. From the behavioristic points of view of psychodiagnosis (which includes, of course, the use of more than just intelligence tests), the behaviorists criticize that psychodiagnostic instruments are poor predictors of behavior (Weiner 1972). Since, according to Weiner, prediction, not understanding, is the goal, the behaviorists would say that test situations

should be samples of the behavior to be predicted so that predictions do not have to depend upon a series of inferences.

From their point of view, humanistic psychologists reject traditional psychodiagnostic testing primarily because diagnosis leads to personality classification, which they regard as a discriminatory, stigmatizing, dehumanizing procedure that assigns people to negatively-valued pigeonholes and unjustifiably presumes the right of one person to pass judgment on another (Weiner 1972).

From theoretical point of view, one facet to the concern about theory is whether theories of intelligence as they are reflected in tests and the use of test results are in step with the changes taking place in theories in related areas—personality, development, psychopathology, learning, psychotherapy. In regard to this issue, Anastasi (1967) comments that the refinements of test construction have far outstripped the tester's understanding of the behavior the tests are designed to measure. The point here is that unless a given test has a reasonably mature and explicit theoretical base, it would be impossible to assess its consistency with

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your own views as the test user. It should be recognized that none of the individual tests can actually assess directly what its constructor defines as intelligence, but that the author's concepts of intelligence did enter into how and with what he constructed his test(s).

A consideration, therefore, on the part of the examiner in regard to using intelligence tests (and which tests he should use) depends to some extent on a knowledge of the theoretical concepts endorsed by the test author and an awareness of his own beliefs about what intelligence is and how best it can be assessed.

Misuses of intelligence tests for assessing intelligence can occur at any and every stage in the total assessment process as following (Lutey 1977):

A. The test may be being misused if it is selected for a purpose neither intended by the test author nor demonstrated to be acceptable by other users and researchers. The test may also be misused if it is given for no purpose or the purpose is very fuzzy.

B. The test is misused any time that the administration and/or scoring violates the conditions under which the test was standardized to the point that the norms are no longer applicable to the given subject.

C. The test is misused if the results are bent to support a bias of the examiner, when the interpretation includes dogmatic conclusions that go beyond what the test can provide, when the classification associated with the resulting IQ is viewed as a permanent label, or no interpretation at all is given of the results.

What the IQ test measures? There is no question that IQ tests tap at least some abilities that are an important part of human cognition (Zigler and Seitz 1982). For example, responses on an IQ test require abstracting ability, reasoning, speed of visual information processing, and many other formal cognitive processes that appear and reappear with regularity in factor-analytic studies of human intelligence-test performances. The correlation between IQ score and school performance is found to be approximately 0.70 (McClelland 1973).

Intelligence-test performance is also greatly influenced by a variety of motivational and/or personality variables that have little to do with either formal cognition or achievement variables. The observations of the subject's ways of approaching and responding to the various tasks during the test procedure can provide information of equal or

more value than that obtained by the instrument itself (Zach 1966).

Intelligence tests provide some information about cognitive development, useful information about the child's ability to profit from school, and guidepost for measuring change and for evaluating the effects of environmental variables (Lutey 1977).

Despite the assets that make the IQ test an attractive evaluation measure, the IQ alone is an inadequate indicator of outcome. There are a myriad of factors that determine the quality and character of human functioning, and one can obtain a very high IQ score and still not behave admirably in the real world that exists beyond the confines of the psychologist's testing room. This fact is evidenced strikingly in the very modest relation that has been found between IQ scores obtained in childhood and measures of everyday performance in life in the postschool period. McClelland (1973) estimates this correlation to be around 0.20.

Therefore, a proposal is made by other psychologists that intelligence should be replaced by social competence as the major indicator of the success or failure of social intervention programs. Defining social competence has proved to be as complex as defining intelligence, and just some guidelines are suggested here for what a useful social competence battery should include.

First, there should be measures of physical health and well-being. On too many occasions, psychologists have tended to overlook their significance as a determinant of a child's social competence. The child who is malnourished, who is ill much of the time, or who suffers handicaps of vision or hearing is clearly at a disadvantage in establishing a competent, happy relationships with adults and peers. However we may choose to define social competence, physical well-being is likely to contribute at least as much as any other single factor.

A second social competence measure should be an index of cognitive ability. This might be a standard IQ test, a Piagetian measure of cognitive functioning, or some other measure to assess cognitive functioning of a child.

Third, there should be at least one achievement measure to indicate how well a child is satisfying societal demands. In addition to some standardized scholastic achievement tests, there could also be ratings of behavior related to social expectancies, such as whether the child is involved in juvenile

delinquency, teenage pregnancy, child abuse (as either a victim or a perpetrator), dropout from school, or in the appropriate grade for his age.

The final component of a social competence index should be the measurement of motivational and emotional attributes, which is particularly hard to measure and more controversial.

Numerous other motivational and emotional variables have been employed as outcome measures in intervention research, such as children's positive responsiveness to social reinforcement (Robertson 1978; Zigler 1961; Zigler & Balla 1972); locus of control measured for both the children in the program and their parents (Coleman *et al.* 1966; Stipek 1977); expectancy of success (Gruen & Zigler 1968; Ollendick *et al.* 1971); verbal attention-seeking behavior (Kohlberg & Zigler 1967; Robertson 1978); measures of learned helplessness (Achenbach & Weisz 1975; Weisz 1975); attitude toward school (Stipek 1977); and creativity (Yando *et al.* 1979).

McClelland (1973) suggest that test should assess competencies involved in clusters of life outcomes including (a) communication skills, (b) patience, (c) moderate goal setting, and (d) ego development.

The AAMD (American Association on Mental Deficiency) listed adaptive behavior as another dimension of behavioral classification in contrast to intelligence. Adaptive behavior refers primarily to the effectiveness with which the individual copes with, and adjusts to, the natural and social demands of his environment (Matarazzo 1972). It has two principal facets: (a) the degree to which the individual is able to function and maintain himself independently, and (b) the degree to which he meets satisfactorily the culturally imposed demands of personal and social responsibility. Thus the dimension, adaptive behavior, must always be evaluated in terms of the degree to which the individual meets the standards of personal independence and social responsibility expected of his own chronological age group as well as standards of his own sex, socio-educational, and other role-specific group.

In fact, objective indices of adaptive behavior are not numerous, and the AAMD recommended in 1961 the use of Doll's Vineland Social Maturity Scale (1940, 1965) for appraisal of current functioning. This is an age scale of 117 items patterned after the Stanford-Binet, but based on interview (usually with a Parent) or observational data of the individual himself and covering the age range from

birth to over 25 years. The items are grouped into eight categories of adaptive behavior: general self-help, self-help in eating, self-help in dressing, self-direction, occupation, communication, locomotion, and socialization. The instrument yields a social age which, when divided by the individual's chronological age, yields a social quotient (SQ).

The development of objective scales for assessing level of adjustment in adaptive behavior is still in its early stages. The Adaptive Behavior Scale (Nihira *et al.* 1969) was a product of a large scale project toward this end, the Adaptive Behavior Project, jointly sponsored by the Parsons (Kansas) State Hospital and Training Center and the AAMD, with financing by the National Institute of Mental Health.

Whereas many individuals are at or near the same level of development in both spheres (IQ and adaptive behavior), many other individuals are low in one dimension but concurrently considerably higher in the second dimension. Score on adaptive behavior correlated with score on measured intelligence, ranging from 0.58 in a sample of individuals in one institution to 0.95 in a sample at another institution (Leland *et al.* 1967). These correlations indicate that measured intelligence and adaptive behavior are related but not identical.

In Korea, however, we do not have any objective data regarding correlations between measured intelligence and adaptive behavior so far. Therefore, this is the first aim of the present study. The second aim concerns the possible relationship between Picture Arrangement subtest score of the Wechsler Intelligence Scale for Children and adaptive behavior measured by the Vineland Social Maturity Scale. This hypothesis originated from Schill's (1966) finding of significant correlation between the MMPI social introversion scale and the Picture Arrangement subtest score, which can be considered as an independent index of a subject's social awareness or social intelligence.

## METHODS

### Subjects:

The subjects for the present study were 34 child patients who had visited the Child and Adolescent Psychiatry Clinic of the Seoul National University Hospital during the period from the March 1, 1984 to the February 28, 1985. Children diagnosed as having organic brain damage or as mentally retarded (IQ below 65) were not included.

The average age of the subjects was 9.74 years(SD=1.79) ranging from 5.75 to 13, mostly above 7 years except one. Most of them were primary school students (average 3.76 school years) except one Kindergarten child. Their average IQ scored 105 (SD=14.4), ranging from 70 to 128, but most of them belonged above 80 except one mentioned above as the youngest.

#### Measurement:

The Korean Wechsler Intelligence Scale for Children (K-WISC) (Lee and Suh 1974) was used to assess IQ and the Vineland Social Maturity Scale (VSMC) standardized for the Korean population (Kim and Kim 1977) was given to mothers to assess the child's adaptive behavior by the same examiner on most occasions. The examiners were clinical psychology trainees for three years at the department of Neuropsychiatry after their completion of Master degree in psychology.

Special emphasis was put on establishing satisfactory rapport between the examiner and the child before giving tests.

### RESULTS

The correlations between IQ's and K-WISC subtests and Social Maturity estimates(SQ) are presented in Table 1. As can be seen, all the IQ's and K-WISC subtests showed significant correlations except Digit Span and Picture Completion subtests which are more or less related to both immediate and remote memories. It may well be said that children who have a high (total) IQ score and good command of verbal skills tend to show a good capacity for adaptive behavior or social competence (Table 1).

It is also found that Picture Arrangement(PA) subtest correlated in a moderately significant degree ( $P<0.05$ ) with social competence as measured with the VSMS. Social intelligence may be a part of social competence as intelligence is a part of it. However, the significance level is no more than .05, thus limiting overgeneralization from PA regarding a child's adaptive behavior.

In order to explore more into the meaning (or composite) of PA, subtest correlations were determined between PA and other K-WISC subtests and IQ's (Table 2). PA correlated with PIQ most and more than any other IQ's in contrast to the fact that the VSMS correlated least with PIQ. PA did not show significant correlations with Comprehension and Arithmetic subtests while did have significant correlations with Picture Completion and Picture

**Table 1.** Correlations between IQs and each K-WISC subtests and Social Quotient(SQ)

IQs	r	Subtests	r
VIQ	0.70**	Information	0.50**
PIQ	0.58**	Comprehension	0.65**
FSIQ	0.72**	Arithmetic	0.43*
		Similarities	0.63**
		Vocabulary	0.72**
		Digit Span	0.32
		Picture Completion	0.23
		Picture Arrangement	0.43*
		Block Design	0.62**
		Picture Assembly	0.52**
		Digit Symbol	0.46**

Note: VIO=Verbal IQ, PIQ=Performance IQ; FSIQ=Full Scale IQ.

\*  $P<0.05$ , \*\*  $P<0.01$

**Table 2.** Correlations between Picture Arrangement subtest and other K-WISC subtests and IQs

IQs	r	Subtests	r
VIQ	0.51**	Information	0.54**
PIQ	0.78**	Comprehension	0.34
FSIQ	0.68**	Arithmetic	0.31
		Similarities	0.40*
		Vocabulary	0.54**
		Digit Span	0.23
		Picture Completion	0.45**
		Block Design	0.44**
		Picture Assembly	0.52**
		Digit Symbol	0.37*

Note: VIO=Verbal IQ, PIQ=Performance IQ, FSIQ=Full Scale IQ.

\*  $P<0.05$ , \*\*  $P<0.01$

Assembly. This result may suggest another caution in regard to the interpretation of PA score for predicting a child's adaptive behavior or social competence.

What PA subtest means in the area of social competence needs further intensive research. What we can say now is that it may tap some other aspects of adaptive behavior than what the VSMS measures.

### DISCUSSION

How well can an IQ score predict or correlate with an individual's social competence?

Bayley (1968 & 1970) administered the Califor-

nia Psychological Inventory (CPI), the self-rating personality scale developed by Gough (1957), to her subjects when they had reached the age of 36 and correlated the score on each of the 18 personality traits of the CPI of these 36-year-olds with the same individual's W-B Verbal Scale subtest scores earned when he was age 16 and also with the same individual's WAIS Verbal Scale subtest scores earned at the same time (age 36). Males who at age 36 are high in the personality trait called *socialization* also earned high scores at age 16 on the W-B Digit Symbol subtest, and on each of the four of the remaining subtests of the W-B. The correlations between CPI socialization at age 36 with the five W-B subtest scores at age 16 are found to be of the order of 0.78 (Digit Symbol), 0.60 (Digit Span), 0.60 (Comprehension), 0.58 (Vocabulary), and 0.56 (Information). These same positive personality-intellectual behavior correlations (*i.e.*, socialization with each W-B subtest) are still high for males at age 36, although they appear to have become slightly lower for two of the subtests (Vocabulary and Information) on retest 20 years later. However, socialization as a personality trait does not correlate with these same Wechsler subtests as highly for females as it does for males at either age 16 or 36.

Thus, we can see that what the CPI socialization dimension reflects may be somewhat different from what the VSMS measures in the sphere of social competence.

A more elaborate and comprehensive work on the dynamic interrelationship between personality and measured intelligence was accomplished by Gittinger known as Gittinger Personality Assessment System (PAS) (Gittinger 1961 & 1964; Saunders & Gittinger 1968; Thetford & Schucman 1969 & 1970; Schucman & Thetford 1970). It is a system developed on a clinical file of some 20,000 W-B-I and WAIS test protocols from primarily normals, although numerous patient protocols also are included. For most of these WAIS records they also have a personality and behavioral description of the same tested individual including biographical, social, educational, and occupational information, plus a wealth of other objective psychological test results.

As a miniature theoretical (personality) system, the PAS conceives of personality structure and function in terms of complex patterns of interaction involving (a) a person's inherent or primitive predispositions, (b) the quality of the environment in

which he develops, and (c) the kinds of adaptations he makes in response. The system provides also a means of measuring or assessing the resultant or current end stage of this process (namely Gittinger's unique pattern analysis of the Wechsler Scales).

Three major components of personality structure are identified by the following three dimensions: (1) the Externalizer-Internalizer (E-I) dimension assessed by the deviation analysis of Wechsler's *Digit Span* subtest, (2) the Regulated-Flexible (R-F) dimension assessed by the similar *Block Design* score, and (3) the Role Adaptive-Role Uniform (A-U) dimension assessed by the *Picture Arrangement* deviation score.

Three specific *Wechsler subtests* are thought to reflect the three major levels of personality structures in connection with each of the three personality dimensions of which the PAS conceives.

The *Digit Span* subtest is thought to reflect a person's inherent or primitive level of orientation, the *Arithmetic* subtest mirrors the basic level of compensation over this primitive level, and the *Information* subtest is an index of the extent of the current surface level of compensation or adjustment of both his other levels of adjustment in relation to further interpersonal and growth experiences.

Mayman *et al.* (1951) offered a framework of propositions concerning intelligence and personality, in which they mentioned that every individual is born with a potentiality for intellectual development that we may call his natural endowment, and that this native potentiality unfolds through a process of maturation within the limits set by this endowment.

Now, if we make a comparison between the correlations of SQ and IQ on the one hand and the three major levels of personality structure of the PAS in connection with the three Wechsler subtests reflecting the three personality dimensions, we can find a very interesting order of correlations.

The *Digit Span* subtest which is thought to reflect a person's inherent or primitive level of orientation gives one of the lowest correlations (0.32, nonsignificant) between SQ and IQ. The *Arithmetic* subtest thought to mirror the basic level of compensation over the primitive level shows a moderate correlation (0.43,  $P < 0.05$ ), while the *Information* subtest which serves as an index of the extent of the current surface level of compensation or adjustment gives one of the highest correlations (0.50,  $P < 0.01$ ) between SQ and IQ.

Therefore, it may well be said that SQ measured by the Vineland Social Maturity Scale reflects a personality aspect which is related to a person's surface level of adjustment rather than the inherent or primitive level of orientation. The adaptive behavior or social competence it taps may be more related to a maturation process affected by the intellectual stimulation in the environment than his or her natural endowment or potentiality in terms of Mayman's propositions. This makes it more clear what the VSMS measures in contrast to the Wechsler Intelligence Scale whether it concerns intelligence or social competence.

In this study children having organic brain damage or mental retardation were not included, but another study for them may be needed in Korea focusing on the relationship between their adaptive behavior in the daily life and the social maturity index. Doll (1965) mentioned that the VSMS is useful in distinguishing between mental retardation with social incompetence (feeble-mindedness) and mental retardation without social incompetence (which is often confused with feeble-mindedness).

A recent review by Nihira and Shellhaas (1970) indicated that with measured intelligence held constant, score on the Adaptive Behavior Scale was highly useful in (a) determining the best educational or vocational program for a given institutionalized retarded individual, and (b) determining the extent of change or other outcome result of a rehabilitation program for any given individual.

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= 국문초록 =

## 사회적 성숙과 지능

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김 중 술

지능의 전통적 의미보다 넓은 개념의 사회적 능력의 견지에서 “한국판 Vineland 사회성숙도 검사”와 한국판 Wechsler아동용 개인지능검사간의 상관관계를 고찰하고, 다음으로서 “차례맞추기” 소검사와 다른 소검사들과의 관계를 고찰함으로써 그것의 사회적능력 지표로서의 가치를 검토하고자 하였다.

연구대상은 1984년 3월 1일부터 1985년 2월 28일까지 서울대학교병원 소아정신과에 내원한 환자들중에서 지능박약과 두뇌의 기질적손상의 진단을 받은 환자를 제외한 34명의 소아 환자였다. 그 결과는 다음과 같다.

1. Wechsler 지능검사의 언어성지능지수(VIQ), 동작성지능지수(PIQ) 및 전체검사지능지수(FSIQ)와 사회성숙도검사치(SQ) 사이, 그리고 지능검사의 거의 모든 소검사와 SQ 사이에는 의미있는 상관관계가 있었다.

2. 특히 “어휘문제”소검사, FSIQ 및 VIQ와 SQ사이에 높은 상관관계가 있었고 “숫자문제”와 “빠진곳 찾기”소검사와의 사이에 가장 낮은 상관관계가 있었다.

3. “차례맞추기”소검사와 가장 상관관계가 높은 것은 PIQ, FSIQ 및 “어휘문제”소검사였고, 특히 사회적 지능을 반영하는 것으로 알려진 “이해문제”소검사와의 사이에는 통계적으로 의미있는 상관관계가 발견되지 않았다.

4. 이와 같은 결과로 보아 “차례맞추기”소검사로 사회성이나 사회적 능력 혹은 사회적 지능을 가늠하는 것은 타당치 않으며 지능검사는 사회적 능력평가를 위한 변인중의 하나에 불과함을 알 수 있었다.

앞으로 정상인을 대상으로 “차례맞추기”소검사와 다른 Wechsler지능검사의 다른 소검사들간의 상관관계를 재검토할 필요가 있겠고, 동일한 지능수준의 지능박약 및 두뇌손상 환자들의 사회성숙도 검사결과와 다른 사회적 능력지표들과의 관계를 밝히기 위한 별도의 연구가 필요할 것으로 사료된다.