AN INVESTIGATION OF THE RELATIONSHIP BETWEEN PERFORMANCE ON THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN PICTURE ARRANGEMENT SUBTEST AND SOCIAL INTELLIGENCE IN CHILDREN

THESIS

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The Wechsler Intelligence Scale for Children (WISC) Picture Arrangement (PA) subtest has often been assumed to be a measure of social intelligence.

The present study compared WISC PA performance and performance on a verbal conditioning task (production of plural nouns) as a measure of social intelligence. Four groups, high and low PA with reinforcement, and high and low PA without reinforcement, were compared on production of plural nouns over two consecutive four-minute periods. The four groups did not differ significantly in the production of plural nouns.

The present study, using verbal conditionability as a measure of social intelligence, found no evidence to support the assumption that WISC PA performance is a measure of social intelligence in children.
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CHAPTER I

INTRODUCTION

Because it places a premium on the individual's ability to comprehend and size up situations involving human or otherwise practical considerations, the Picture Arrangement (PA) subtest used in certain of the Wechsler intelligence scales has often been assumed to be a measure of social intelligence (Ferinden and Jacobsen, 1969, p. 25; Glasser and Zimmerman, 1967, p. 76; Hewitt and Massey, 1969, p. 28).

As typically defined, social intelligence is "the type of intelligence involved in an individual's dealings with other people and with social relationships" (Drever, 1968, p. 273). The exact nature of intelligence itself has long been a source of disagreement among psychologists. Drever (1968, p. 141) has described intelligence as "the relating activity of the mind." Because of the difficulty involved in defining intelligence precisely some psychologists have sidestepped the problem, and have come to think of intelligence as what intelligence tests measure (Chaplin, 1969, p. 244).

Social intelligence as a concept suffers from this same imprecision in definition. While there may be a number of other factors involved, it is reasonable to assume that a
sensitivity in social situations is an important part of social intelligence. In order to react with facility in social situations, it would appear that the individual must be able to pick up subtle cues such as the facial expressions and tone of voice of those with whom he is interacting. He must also be able to relate these sometimes barely perceptible signals to his store of past experience in a way that allows him to adapt to novel social situations quickly and effectively.

The PA subtest involves the visual interpretation of social situations, presented in comic-strip form, without the use of language. This requires attending to the appropriate social cues and the ability to apply past social experience to new situations (Freeman, 1962, pp. 248-250; Massey, 1965, p. 44). The assumption that a PA performance reflects social intelligence rests largely on these considerations.
CHAPTER II

REVIEW OF THE LITERATURE

Several studies have been done on the relationship between performance on the PA scale of the Wechsler Adult Intelligence Scale (WAIS) and social intelligence. These studies have used either college undergraduate students or psychiatric patients as subjects. Schill (1966) did a study on the use of the PA subtest of the Wechsler Intelligence Scale for Children (WISC) as a predictor of social intelligence in children.

Schill (1966), using the Social Introversion (SI) scale of the Minnesota Multiphasic Personality Inventory (MMPI) as a measure of social introversion-extraversion, with 36 college undergraduates serving as subjects, found evidence to support his hypothesis that individuals scoring high on the SI scale show more impairment on WAIS PA performance than those who score low on the SI scale. The results were interpreted as contributing to the impression of introverts as being largely perceptually unaware and as lending empirical support to the practice of forming hypotheses concerning a subject's social facility on the basis of his PA performance.

Schill, Kahn, and Muehleman (1968) compared high and low PA subjects on their participation in high school and
college extracurricular activities. Subjects were 77 male and 55 female college undergraduates. It was found that high PA subjects participated in significantly more extracurricular activities than low PA subjects. These results support the hypothesis that high PA subjects are generally more socially oriented than low PA subjects.

Schill, Kahn, and Muehleman (1968) compared PA performance on the WAIS with performance on Greenspoon's plural nouns verbal conditioning task. The subjects were 115 college undergraduates. The results supported the experimental hypothesis that high PA subjects would perform better on the conditioning task than low PA subjects, and were interpreted as being consistent with the clinical assumption that high PA subjects are more socially aware than low PA subjects.

Johnson (1969) did a study similar to Schill's (1966) study comparing WAIS PA performance with MMPI SI scores, using psychiatric patients as subjects, and failed to verify the earlier findings. In fact, when the Lie scale exclusion criterion imposed by Schill was ignored, the socially introverted group showed significantly superior PA performances compared to the socially extroverted group. Johnson, in an attempt to explain the failure to verify Schill's findings, suggests that there might be an interaction between degree of pathology and MMPI SI scores in psychiatric patients that is
not necessarily present in college students. Age and intelligence quotient (IQ) ranges also differed for the two samples. However, the results do point up the need for further empirical research into the relationship between PA performance and social intelligence.

Krippner (1964) correlated the scaled scores obtained on the WISC PA subtest with two measures of social maturity from the Vineland Social Maturity Scale, two measures of mental health from the Mental Health Analysis, Elementary Form, a measure of parent occupational level and chronological age for 53 elementary school boys. The subjects, aged eight to twelve years, were referred for academic problems, primarily in reading. No significant correlations were found between PA performance and any of the other measures. It was concluded from this study that there were no indications that PA performance reflected social intelligence.

Studies done by Schill et al., using normal adults as subjects, have all yielded results consistent with the clinical assumption linking high PA scores with social intelligence. However, Johnson's (1969) study using psychiatric patients as subjects found results inconsistent with Schill's (1966) findings. This may be attributable to the nature of the MMPI SI scale as an index of social intelligence or to their interpretation of the meaning of PA. It might perhaps
measure a different set of variables depending on the population under study.

In the only study involving the WISC PA subtest, Krippner (1964) found no basis for the use of this subtest as a measure of social intelligence. However, Krippner correlated PA scaled scores with what were considered to be indices of social competence, defined as "the progressive capacity to look after oneself and others" (Krippner, 1964, p. 366). The degree to which social competence, so defined, is synonymous with social intelligence, as it is defined here, is questionable. It is doubtful whether the PA subtest can rightfully be assumed to assess such a capacity. Because of this Wechsler (1969, p. 176) prefers to speak of the PA subtest as reflecting "general intelligence applied to social situations," rather than social intelligence.

Finally, although Krippner's subject sample was average in terms of mean IQ and mean PA scaled scores, it was composed of referral cases. It is conceivable that this procedure may have built a bias of some sort into the experiment.
CHAPTER III

STATEMENT OF THE PROBLEM

Several studies have found empirical support for the assumption that PA performance reflects social intelligence in normal adults. To date, the only study aimed at determining whether a similar relationship also exists in children, found no evidence supporting such an assumption (Krippner, 1964). However, there may be enough methodological eccentricities in this study to warrant a further look at the problem.

The present study was designed to investigate the relationship between PA performance and social intelligence in children, by employing a verbal conditioning task as the criterion for social intelligence in essentially the same manner as in Schill et al., (1968).

A verbal conditioning task was selected as the criterion because the reinforcement contingency is clearly social in nature, and because it appeared reasonable to assume that it would be those individuals most sensitive to subtle social cues who would be most susceptible to the conditioning. Here sensitivity implies the ability to utilize these cues effectively in modifying one's own behavior to better adapt to a particular social situation.
If the predicted relationship between PA scores and sensitivity to social cues was found, it would lend support to the assumption that PA performance reflects social intelligence and would therefore have relevance for clinical work with children.

Thus, the purpose of the study was to determine whether scores on the PA subtest of the WISC could effectively predict performance on a verbal conditioning task. The particular task selected was a modification of Greenspoon's (1963) plural noun paradigm, in which the subject is reinforced by a head nod and the spoken sound "mm-hmm" from the experimenter, immediately following the emission of a plural noun. If the conditioning is effective, the subject's rate of production of plural nouns should show an increase with continued reinforcement.

The experimental hypothesis predicts that the increase in rate of production of plural nouns in the Greenspoon task would be greater for high PA subjects than for low PA subjects. High PA subjects are defined as those subjects whose scaled scores on the WISC PA subtest equal or exceed twelve. Low PA subjects are defined as those subjects whose scaled scores on the WISC PA subtest are equal to or less than eight.
CHAPTER IV

METHOD

Subjects

Because sex of the examiner and sex and age of the subject have been shown to interact with susceptibility to verbal conditioning (Cieutat, 1962; Baer and Goldfarb, 1962; Cieutat, 1964), it was decided that a female examiner would administer the verbal conditioning task to a sample composed of sixth-grade girls.

The population from which the subjects were selected consisted of all of the girls in the nine sixth-grade classrooms in two local middle schools (grades 6, 7, and 8). The neighborhoods in which the two schools are located are comparable in that they are both of the same economic level. All but two percent of the subjects tested live in the neighborhood. Selection of subjects included only the girls whose verbal IQ scores on the Lorge-Thondike Intelligence Test fell within one-half standard deviation above or below the mean. This was done in order to insure that all subjects were functioning in the average range of intelligence. Selection of the subjects for the experimental and control groups will be described in the section on Procedures.
Apparatus

The Picture Arrangement Subtest Station: This station consisted of a room containing a small table and two chairs where the testing proceeded without disturbance. The PA subtest materials consisted of the Wechsler Intelligence Test manual and Picture Arrangement cards, scoresheets, a stop watch, a marking pencil, and a number of 3 x 4 inch slips of paper marked either "E" for experimental, or "C" for control, on one side, which designated to the examiner the appropriate group to receive reinforcement.

The Verbal Conditioning Station: This part of the experiment also required a room where the conditioning task was administered without interference. In addition to a table and two chairs provided for the examiner and the subject, a screen was used to conceal (from the subject's view) the desk and chair provided for the recorder. The materials for this part of the experiment consisted of a stop watch, a marking pencil, and a prepared form on which the subject's responses were recorded.

Instrument

The PA subtest is seen by Rapaport, Gill, and Schafer (1968, p. 127) as planning ability and anticipation. They state, "The subject's achievement is a reflection of his ability to anticipate the consequences of initial acts or
situations, and hence is a reflection of his planning ability."

Glasser and Zimmerman (1967, p. 80) state that the PA test "may indicate social alertness and common sense, as revealed in the application of so called 'social' intelligence, that is intelligence applied to social or interpersonal situations." It is also noted that high scores should be examined for the presence of such factors as alertness to detail, forethought and planning ability, logical sequential thought processes, and finally interest in others and in social situations and social skills. Low scores should be checked for lack of reality testing or inattentiveness.

Matarazzo (1972) sees the PA test as measuring a subject's ability to comprehend and size up a total situation. He states that this corresponds to what other writers refer to as "social intelligence" but that he prefers to see it as general intelligence applied to a social situation.

Cohen (1959), in a study, "The Factorial Structure of the Wechsler Intelligence Scale for Children at Ages 7-6, 10-6, and 13-6," dealt with the variability of factors for these age groups. He found that the PA subtest provides the best measure of general intelligence among the performance scale tests. However, it should be noted that there is only about thirty percent communality with general intelligence
in the 12- and 13-year-old age group. The usual conclusion is that the PA subtest is factorially complex and contains a large percentage of unique error variance. This unique variance may well be "social intelligence."

Selection of the Sample: The PA subtest was administered to each member of the population, in the standardized manner prescribed in the *Wechsler Intelligence Scale for Children Test Manual* (1949). The total population consisted of 182 sixth-grade girls. The test was scored immediately and all those with PA scaled scores of twelve or more were assigned to a high PA group \(N = 18\), while all those with PA scaled scores of eight or less were assigned to a low PA group \(N = 16\). Individuals with scaled scores of nine, ten, and eleven were excused from the study in the interest of defining clearly the two PA groups. Upon leaving the PA subtest station, subjects were alternately assigned to an experimental or control group, within their classification of high or low as determined by their scaled score on the PA subtest. Each individual was presented a 3 x 4 inch slip of paper and was told it was her ticket. In actuality the slips of paper were marked either "E" for experimental or "C" for control, and their purpose was to inform the examiner administering the conditioning task whether the bearer was to receive reinforcement or not. The examiners were advised whether the subjects were in the experimental
or control group, but were not informed of the subjects' performance on the PA subtest.

The Verbal Conditioning Task: The administration of the verbal conditioning task closely followed the procedure used by Crowne and Strickland (1961) in their study relating need for social approval to susceptibility to verbal conditioning. The subjects were seated facing the examiner and instructed as follows:

"I want you to help me with something. All you have to do is say all the words you can think of. Say them one at a time and keep saying them until I tell you to stop. Please don't use sentences or names and don't count. Do you have any question? All right, go ahead."

Each subject assigned to the experimental group said words for eight minutes, during which time every plural noun emitted by the subject received immediate positive reinforcement from the examiner. Reinforcement consisted of a head nod and the spoken sound "mm-hmm." Each subject assigned to the control group said words for eight minutes but received no reinforcement during this time.

The task was divided into two four-minute periods with no break between them to make possible a comparison of the groups on the change in the proportion of plural nouns emitted from one four-minute period to the other. The frequency of the subject's plural and non-plural responses, for
each four-minute period was charted by a recorder seated behind the subject and screened from his view.

After eight minutes the subjects were stopped and asked the following:

1. What do you think this was all about?
2. How did you decide which words to say?
3. Did you notice any change in the words you were saying?
4. Did you notice anything I did? (If "mm-hmm" is not spontaneously mentioned, the subject will then be asked, "What about my saying 'mm-hmm'?")
5. Why do you think I was saying "mm-hmm"?

None of the subjects recognized the fact that they were being reinforced for emitting plural nouns. The subjects reported to the experimenter that they had no idea as to what the study was about or how they decided which words to say. The subjects may have been motivated to give such a report in an attempt to help the experimenter, or may not have been consciously aware of the reinforcement contingencies in effect.

The five questions were derived from interviews used in other verbal conditioning experiments (Greenspoon, 1955; Crowne and Strickland, 1961; Schill, Kahn, and Muehleman, 1968), and are considered to be an adequate test of the subject's awareness of the reinforcement contingency.
The purpose of this study was to determine whether scores on the PA subtest of the WISC effectively predicted performance on a verbal conditioning task. This experimenter hypothesized that high PA subjects will produce more plural nouns in the Greenspoon Task than the low PA subjects. The subjects placed in the high PA group are those subjects whose scaled scores on the WISC PA subtest are greater than or equal to twelve. Low PA subjects are those whose scaled scores on the same WISC PA subtest are equal to or less than eight. The subjects scoring 9, 10, or 11 on the subtest were omitted to assure adequate separation of the groups.
CHAPTER V

RESULTS

The measure of performance was the ratio of plural nouns to the total number of words produced, expressed as a proportion. The mean ratio computed for each four-minute period and the total eight-minute period for each of the four groups are presented in Table I. The mean change in the ratio of plural nouns to the total number of words produced from the first four-minute period to the second, computed for each of the groups, is also presented in Table I.

Table II shows the actual number of plural nouns and other words emitted over the first and second four-minute periods. The actual change in the number of words used is also shown.

Table II indicates that in all groups more "other words" were emitted than plural nouns. The data suggest that reinforced subjects emitted more responses (plural nouns and other words) than did non-reinforced subjects. Due to unequal numbers of subjects in the cells, the statistical comparisons were performed upon the adjusted proportional data presented in Table I.
TABLE I
THE MEAN PROPORTIONS OF PLURAL NOUNS EMITTED AND MEAN CHANGES IN PROPORTION EMITTED OVER THE TWO FOUR-MINUTE PERIODS FOR THE FOUR PICTURE ARRANGEMENT GROUPS

<table>
<thead>
<tr>
<th></th>
<th>First Four-Minute Period</th>
<th>Second Four-Minute Period</th>
<th>Total Eight Minutes</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>High PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>.3874</td>
<td>.4489</td>
<td>.4135</td>
<td>.0614</td>
</tr>
<tr>
<td>Low PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>.3054</td>
<td>.3414</td>
<td>.3224</td>
<td>.0360</td>
</tr>
<tr>
<td>High PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>.2601</td>
<td>.3209</td>
<td>.3163</td>
<td>.0607</td>
</tr>
<tr>
<td>Low PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>.2730</td>
<td>.2821</td>
<td>.2806</td>
<td>.0091</td>
</tr>
<tr>
<td>Group</td>
<td>First Four-Minute Period</td>
<td>Second Four-Minute Period</td>
<td>Change Between First and Second Periods</td>
<td>Total Plural</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------</td>
<td>---------------------------</td>
<td>----------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td>Plural Nouns</td>
<td>Other Words</td>
<td>Plural Nouns</td>
<td>Other Words</td>
</tr>
<tr>
<td>High PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>207</td>
<td>356</td>
<td>218</td>
<td>267</td>
</tr>
<tr>
<td>Low PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>173</td>
<td>400</td>
<td>160</td>
<td>319</td>
</tr>
<tr>
<td>High PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>114</td>
<td>317</td>
<td>110</td>
<td>250</td>
</tr>
<tr>
<td>Low PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>128</td>
<td>383</td>
<td>131</td>
<td>357</td>
</tr>
</tbody>
</table>
Table III shows the mean scores for the high, low, experimental, and control groups on the verbal conditioning task.

**TABLE III**

**MEAN SCORES ON VERBAL CONDITIONING TASK**

<table>
<thead>
<tr>
<th>Group</th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plural Nouns</td>
<td>Other Words</td>
</tr>
<tr>
<td>High PA group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First four minutes</td>
<td>23.00</td>
<td>38.44</td>
</tr>
<tr>
<td>Second four minutes</td>
<td>24.22</td>
<td>29.67</td>
</tr>
<tr>
<td>Total</td>
<td>47.22</td>
<td>68.11</td>
</tr>
<tr>
<td>Change</td>
<td>+1.22</td>
<td>-8.77</td>
</tr>
<tr>
<td>Low PA group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First four minutes</td>
<td>19.22</td>
<td>44.44</td>
</tr>
<tr>
<td>Second four minutes</td>
<td>17.78</td>
<td>35.44</td>
</tr>
<tr>
<td>Total</td>
<td>37.00</td>
<td>79.89</td>
</tr>
<tr>
<td>Change</td>
<td>-1.44</td>
<td>-9.00</td>
</tr>
</tbody>
</table>

In order to satisfy the requirement for homogeneity of variance, an Arcsin transformation was performed on the data, thus converting the proportions to radians. Such a procedure weights the smaller proportions, which have small variance, more heavily. Two analyses of variance were then performed on the data, in order to determine whether any
significant effects were associated either with PA performance, verbal conditioning, or an interaction between the two.

One analysis compared the four groups on the production of plural nouns over the full eight-minute period. The results of this analysis are presented in Table IV.

### TABLE IV

**ANALYSIS OF VARIANCE: PROPORTION OF PLURAL NOUNS EMITTED IN THE TOTAL EIGHT-MINUTE PERIOD**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>1</td>
<td>.0338</td>
<td>.7336</td>
<td>.3985</td>
</tr>
<tr>
<td>VC</td>
<td>1</td>
<td>.0406</td>
<td>.8818</td>
<td>.3552</td>
</tr>
<tr>
<td>PA X VC</td>
<td>1</td>
<td>.0064</td>
<td>.1401</td>
<td>.7108</td>
</tr>
<tr>
<td>ERROR</td>
<td>30</td>
<td>.0460</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The second analysis compared the groups on the change in production of plural nouns from the first four-minute period to the second. The results of this analysis follow in Table V.

The results indicated that subjects who were reinforced in the verbal conditioning task did not emit a significantly greater proportion of plural nouns than did subjects who received no reinforcement. Also, there were no significant
TABLE V

ANALYSIS OF VARIANCE: CHANGE IN PROPORTION OF PLURAL NOUNS EMITTED FROM THE FIRST FOUR-MINUTE PERIOD TO THE SECOND FOUR-MINUTE PERIOD

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>1</td>
<td>.0124</td>
<td>1.6700</td>
<td>.2061</td>
</tr>
<tr>
<td>VC</td>
<td>1</td>
<td>.0016</td>
<td>.2152</td>
<td>.6461</td>
</tr>
<tr>
<td>PA X VC</td>
<td>1</td>
<td>.0014</td>
<td>.1922</td>
<td>.6642</td>
</tr>
<tr>
<td>ERROR</td>
<td>30</td>
<td>.0075</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

differences in the proportion of plural nouns emitted when subjects were compared on the basis of their PA scaled scores.

In order to test the experimental hypothesis, a product-moment correlation coefficient was used between the PA scores and the change scores, comparing the halves of the verbal conditioning task for those subjects exposed to the conditioning procedures. The results were non-significant ($r = .2293$).

A product-moment correlation coefficient was also used in comparing the change scores and the PA scores within the control subjects. The results were also non-significant ($r = .1525$). Since none of the values was significant at the .05 level, no further statistical analyses were performed on the data.
CHAPTER VI

DISCUSSION

The failure to find a statistically significant enhancement in Greenspoon conditioning in high versus low PA subjects may be a result of the small sample size. There may also be other factors that could have affected the results of the experiment. It is possible that the PA subtest is not a measure of "social intelligence" or that the Greenspoon task is not a measure of "social intelligence."

Schill et al., (1968) used 115 subjects in comparing WAIS PA performance with performance on a verbal conditioning task. In view of the practical restrictions placed on the present study, with regard to the availability of personnel, time, money, and appropriate subjects, a larger sample could not be achieved. The major limiting factor of the aforementioned restrictions was the unavailability of appropriate subjects. There were not enough subjects scoring significantly high or significantly low on the PA subtest to insure an adequate subject pool with proper separation between the two groups. Thus, each of the final four groups consisted of nine subjects, with the exception of the high PA control group, which had seven subjects.
With groups of this size the possibility of error or chance factors materially affecting the results of the study is increased.

The decision to limit the conditioning period to eight minutes, instead of the 15-minute period employed by Schill et al., may also have influenced the findings. This decision was based on observations in preliminary trials that the sixth-grade girls' verbal productivity dropped off sharply after eight minutes.

In an attempt to increase the likelihood that differences in conditionability reflected differences in non-verbal intelligence, as indicated by PA performance, the population was restricted to individuals of average verbal intelligence. It may be that this procedure also reduced the differences in conditionability among the subjects. It is probable, considering the successes of verbal conditioning experiments with children in the past (Cieutat, 1962; Baer and Goldfarb, 1962; Cieutat, 1964), that by using a larger sample and extending the conditioning time, there would be a greater probability that the Greenspoon effect would have appeared. Although the above cited methodological questions cannot be ignored, the results may well serve as negative evidence as to the validity of the hypothetical construct "social intelligence" or of the premise
that the WISC PA reflects "social intelligence" in children (Cronbach and Meehl, 1955).

In view of the lack of significance in the effect of the verbal conditioning, and the restrictions involved with regard to sex of the examiner and sex, age, and verbal intelligence of the subjects, caution should be exercised in generalizing from these results. However, a statistical analysis of the findings in general support Krippner's (1964) study in which he found no evidence supporting the assumption that WISC PA performance reflects social intelligence in children. For the purpose of this study a verbal conditioning task was used as a measure of social intelligence and the lack of significance in the verbal conditioning task with respect to the WISC PA performance supports the idea that possibly this subtest may not measure social intelligence in children.

It may be that in normal adults, the PA subtest reflects social intelligence to a greater degree than it does in children. Differences in PA performance among children may be related to other factors more basic to effective performance on this test. For example, variables like visual acuity, sequencing, or opportunity for cultural experience may be involved to a greater extent with children than with normal adults. If this is so, a similar phenomenon may be operative in psychiatric patients, such as those used
as subjects in Johnson's (1969) study. In other words, there is a possibility that the PA performance of certain psychiatric patients may reflect the impairment of some functions directly related to effective performance on this test and somewhat less related to social intelligence.

Further work involving larger samples, longer conditioning periods, variations in the sex of the examiner and the sex and age of the subjects is needed before more definitive statements can be made concerning the effectiveness of the PA subtest as an index of social intelligence in children.
Because effective performance on the PA subtest requires the ability to analyze and comprehend social situations, this subtest has often been assumed to be a measure of social intelligence. Several studies investigating this assumption and reporting somewhat inconsistent results were discussed. The present study compared WISC PA performance and performance on a verbal conditioning task, using 34 sixth-grade girls as subjects. Four groups, high PA with reinforcement, low PA with reinforcement, high PA without reinforcement, and low PA without reinforcement, were compared on production of plural nouns over two consecutive four-minute periods. The four groups did not differ significantly in the production of plural nouns.

The present study found no evidence to support the assumption that PA performance is a measure of social intelligence in children, as indicated by verbal conditionability. However, in view of the restrictions imposed on the sample, and failure to find statistical significance, caution should be exercised in interpreting the results. Further work is necessary to clarify the relationship between PA performance and social intelligence.
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