RELATIONSHIPS BETWEEN GOODENOUGH DRAW-A-MAN TEST PERFORMANCE AND SKIN COLOR AMONG PREADOLESCENT JAMAICAN CHILDREN * 1

Department of Educational Psychology, The University of Wisconsin

ROBERT E. GRINDER, WENDY S. SPOTTS, AND MARGARET WOOSTER CURTI 2

A. INTRODUCTION

Developments in intelligence and personality testing during the Twentieth Century have resulted in sophisticated, technical instruments for assessing individual differences, and it is in this area that the discipline of psychology has made its most significant impact upon society. But refined as they are, psychological tests have been more effective in yielding reliable differences among members of the same ethnic group than in establishing what differences there are, if any, between members of different ethnic groups.

Prior to this century, Caucasians were convinced of the superiority of their own stock. Industrial progress in other parts of the world paled before their own triumphs of manufacturing, communication, transportation, and warfare. Darwin's biogenetic theory of evolution provided scientific justification for the belief that hereditary factors were the determinants of man's capacity to learn and survive. G. Stanley Hall, enamoured by the notion that each man recapitulates the history of the race in his development, believed that he and men like himself had the instincts of modern civilization embedded in their psychophysical natures. Hence, he viewed Caucasians as the forerunners of a superanthropoid race and perceived the men of other cultures to be lagging behind as members of "adolescent races" (6).

The development of intelligence tests provided more sophisticated evidence for believing that the Caucasians were superior to other ethnic groups. In the United States, the major effort in establishing ethnic-group differences has involved the comparison of intelligence-test performances of whites and Negroes, and American Negroes have been shown, on the average, to score...
lower on intelligence tests than whites. The mass testing by the Army in World Wars I and II provides conspicuous support for the assumption that, as a group, Negroes appear to be mentally inferior to whites (12). Attempting to control environmental factors, McGurk (11) matched white and Negro subjects in terms of age, sex, and social class, and demonstrated that his white subjects were intellectually superior. Hundreds of research studies have corroborated these findings (12), and in a recent summary of their results Klineberg (10) states: "As far as mental tests are concerned, the issue is not one of whether on the average Negro children obtain lower test scores than whites. Of that there can be no doubt" (10, p. 198). Seemingly, these differences result from innate, genetic factors, but Klineberg (8, 9, 10) convincingly argues that they emerge because the earlier research efforts had not actually equated environmental variables. Even when subjects have been matched on a satisfactory socioeconomic scale, Klineberg asks: "Do motivation, self-confidence, opportunity for wider experience, and other related factors count for nothing?" (10, p. 199).

Another problem of the earlier studies is that many approached the issue more from the point of view of defending rather than testing the assumption of white intellectual superiority. For example, in their study of race crossing in Jamaica, Davenport and Steggerda (2) pose the following question: "Does our material throw any light on the relative capacity of the Negro and the hybrid to play a part in carrying forward the white man's civilization?" (2, p. 470). Not surprisingly, their discussion conveys a mien of preconceived judgments:

Certainly races of mankind differ in physical proportions, just as dogs do; and just as dogs differ in their instincts and capacity to take advantage of special training, so it would not be strange if humans differ in these respects. ... It seems to us the outcome of the present studies is so clear as to warrant the conclusion that they put the burden of proof on the shoulders of those who would deny fundamental differences on the average, in the mental capacities of Gold Coast Negroes and Europeans. ... The great social difficulty with the mulatto is that so often, and on the average, he fails to progress far beyond the adolescent stage (2, pp. 468-472).

Davenport and Steggerda's reasoning becomes obviously suspect upon inspection of their methodology. Vicissitudes of collecting the data precluded randomizing the students, sailors, and city people that constituted the sample of 370 adults and 1,200 children and adolescents. Although such variables as educational attainment, rural or urban residence, sex, and
social standing were considered, data were actually obtained on a “catch-as-catch-can” basis. At one point, 31 subjects were drawn from the general penitentiary in Kingston to make up a portion of the adult sample—“assuming that half the prisoners of Jamaica come from the country and the other half from the city, the liberty was taken of concluding that our 370 adults came in equal proportions from city and urban communities” (2, p. 9). Subjects were grouped into one of three color classes, designated as “Black,” “Brown,” or “White”; nevertheless, genetic constitution was assessed by simply asking subjects about themselves. Occasionally, older members of the community or government officials were asked to corroborate on a “pedigree” given by a subject. All the tests—e.g., the Goodenough Draw-a-Man Test, Knox Moron Test, and Army Alpha Test—were administered by the two Caucasian, middle-class researchers.

A critical look at the Davenport and Steggerda study, with its environmental variables flying in the wind, is easy from the added vantage of a quarter of a century of experience. And yet Margaret Wooster Curti (1), in the late 1930s, perceived the absence of rigor in their investigation. Convinced that the results of the study were inconclusive—due to sampling biases and to the neglect of SES factors and of the effects of Caucasian examiners upon the test performances of Negro subjects—she initiated the study (that is reported here) in Jamaica in 1940, in order to give more consideration to procedural variables. Curti hypothesized, as Klineberg (8, 9, 10) does, that differences between ethnic groups in intelligence-test scores would disappear if methodology could provide suitable controls for environmental variables.

B. Method

1. Subjects

Nine hundred and forty-one Jamaican school children representing light-skinned (106), mixed (197), and darkskinned (638) subjects constituted the sample. Subjects ranged in age from 7.5 to 10.5 years.

Subjects were selected by first rating Jamaican schools on the basis of their social-class milieu. Six classification categories were developed in 1939 by Margaret Wooster Curti and officials of the Jamaican Office of Education. The categories ranged from well-to-do private preparatory schools, on the one hand, to lower-class government schools, on the other. After the social standing of every school on the island had been classified in this fashion, schools representative of the six strata were randomly selected for testing. Eventually, subjects were drawn from approximately 50 schools
throughout the island. By and large, every child in a chosen school who was in middle childhood was used as a subject, except in the instance of large schools, where the number of children employed was about 35.

Dates for testing the subjects were made through the Jamaican Office of Education. A few weeks prior to a visit to a school, memoranda were sent to the teachers explaining the purpose of the investigation and exhorting them to encourage their pupils to be in attendance.

2. Assessment of the Independent Variables

At the school, Dr. Curti assigned a color rating to each subject. In doubtful cases she consulted her Jamaican assistants. The ratings were based primarily upon observation of each subject's skin color, hair texture, and nose breadth. Subjects were cast into one of six categories which ranged from very black at one end of the continuum to very white at the other.

In order that evaluations of socioeconomic status might be made, each subject was asked to indicate in writing the number of siblings at home, the presence or absence of electricity and telephone in his house, his parents' occupations, and his own vocational ambitions. From these data, ratings were made of the SES of each subject's family. The ratings were based on a five-point scale, which was weighted heavily in terms of whether the father was engaged in a professional, managerial, or laborer occupation.

3. Assessment of the Dependent Variable

Indices of subjects' intelligence were obtained with the Goodenough Draw-a-Man Test (4). Instructions set forth by Goodenough (4) were followed explicitly, and the protocols were scored according to her elaborate scoring scheme. Moreover, the children were tested in groups with one assistant for every 10 children. In order to avoid the possible contaminating effects of a Caucasian on the performance of Negro children, the tests were administered to these children by colored, native examiners who spoke the Jamaican dialect. Overcrowding of subjects in small rooms was avoided, and time limits for the tests were strictly enforced.

C. Results

Raw scores on the Goodenough Draw-a-Man Test ranged from 3 to 43. Although the range of the distribution was fairly extensive, visual inspection of the data revealed that the Draw-a-Man scores were extremely skewed toward the lower regions of the scale, making the use of the mean as a measure of group trends questionable. As a consequence of this consid-
eration, subjects' Draw-a-Man Test scores were divided at the median into a high and a low group. In addition, proportionately far more subjects were categorized as dark in skin color than as white; therefore, the color scale was collapsed from six classifications into three: light, mixed light-dark, and dark. Finally, since neither the SES nor the color-rating scale appeared amenable to interval scaling, chi-square analyses were employed to determine whether the measures of color and intelligence were statistically independent.

The results presented in Table 1 suggest that there is a strikingly strong association between skin color and intelligence as measured by the Goodenough Draw-a-Man Test ($\chi^2 = 47.76, \ p < .001$). Subjects of light skin color appear to obtain higher scores. Moreover, the lack of independence holds when comparisons are made within each sex ($\chi^2 = 22.79, \ p < .001$ for boys; $\chi^2 = 25.40, \ p < .001$ for girls).³

<table>
<thead>
<tr>
<th>Skin color ratings</th>
<th>Total</th>
<th>Intelligence</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>H</td>
<td>$\chi^2$</td>
</tr>
<tr>
<td>Light</td>
<td>29</td>
<td>77</td>
<td>47.76*</td>
</tr>
<tr>
<td>Mixed light-dark</td>
<td>89</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Dark</td>
<td>387</td>
<td>251</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .001$, two-tailed test.

The analyses presented in Table 1, taken in the absence of SES controls, indicate that Davenport and Steggerda may have been correct in assuming that the Negro has failed "to progress far beyond the adolescent stage." These data, however, may be highly contaminated by systematic influences which develop as a result of living for years under different environmental conditions. For example, one would expect greater opportunity for educational and intellectual enrichment among the higher rather than the lower SES groups, and inspection of Curti's distribution of subjects in the SES categories showed that very few of the subjects rated dark in skin color were classified as being from professional families, and very few of the

³ Since the data also revealed that there was no difference between boys and girls on the Draw-a-Man Test ($\chi^2 = .49$), male and female data were combined in subsequent analyses.
light-skinned subjects were classified as being from lower-class, laborer families. This sharp social-class cleavage suggests, therefore, that the analyses presented in Table 1 may reflect intellectual differences correlated more highly with social class than with skin color. Hence, one might expect that further comparisons between the measures of color and intelligence within the five SES ranges would markedly reduce the influence of social class upon the analyses.

TABLE 2
COMPARISONS BETWEEN RATINGS OF SKIN COLOR AND INTELLIGENCE SEPARATED BY SOCIAL CLASS

<table>
<thead>
<tr>
<th>Skin color ratings</th>
<th>Low-middle class L</th>
<th>H</th>
<th>Middle-middle class L</th>
<th>H</th>
<th>High-middle class L</th>
<th>H</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light</td>
<td>6</td>
<td>8</td>
<td>3</td>
<td>13</td>
<td>14</td>
<td>43</td>
<td>5.54*</td>
</tr>
<tr>
<td>Mixed light-dark</td>
<td>19</td>
<td>17</td>
<td>17</td>
<td>20</td>
<td>17</td>
<td>39</td>
<td>5.25*</td>
</tr>
<tr>
<td>Dark</td>
<td>120</td>
<td>58</td>
<td>58</td>
<td>60</td>
<td>30</td>
<td>40</td>
<td>3.93*</td>
</tr>
</tbody>
</table>

* Not significant at .05 level, two-tailed test.

Unfortunately, the narrow range of color distinction within both the highest and lowest social-class groups precluded realistic comparisons within either group between color and intellectual performance. However, the distribution of subjects by color was more satisfactory within the three middle SES groupings. The findings presented in Table 2 support the assumption that comparisons made between color and intelligence will be statistically independent when tests are conducted within SES groupings. It is noteworthy that when the 586 subjects of Table 2 are compared by color and intelligence, disregarding the social-class ranges, the chi-square test indicates a strong, significant association between the measures. The data suggest, therefore, that (a) differences in environmental status between color groups readily affect comparisons between measures of color and intelligence; and (b) when social class is controlled, the magnitude of apparently innate differences in intellectual function is decreased to insignificant proportions.

D. DISCUSSION

The widespread belief (3, 10) that variables associated with differences in social class greatly affect relationships between skin color and intelligence is supported by the findings of this study. The results confirm the conclu-
sions of earlier studies that lightskinned children excel those with darker skin in intellectual performance. However, the 1940 comparison of children in Jamaica permitted greater attenuation of environmental stimulation than would have been possible in a study in the United States; thus, in contrast to most American studies (3), this investigation has shown that measures of color and intelligence are independent when tests are conducted within the middle ranges of social-class strata.

Although Margaret Wooster Curti regarded the Goodenough Draw-a-Man Test as being "culture free," this assumption has subsequently been shown to be illusory (5). Inasmuch as white children usually enjoy greater cultural advantages, one would expect them to profit most from cultural bias. Perhaps this feature of the dependent variable accounted for some of the variance of the scores in intelligence between the color groups. However, when social-class factors were controlled, the three color groups within each SES stratum were probably exposed to roughly similar cultural environments. Thus, it is likely that within each socioeconomic stratum the cultural influence of the Draw-a-Man Test had exactly the same effect upon each color grouping, and it is unlikely that this limitation of the test seriously affected the findings of this study.

The social-class ratings of the present study seem to reflect accurately the composition of social living in Jamaica, for in reality Negroes are virtually nonexistent in the highest SES stratum, whereas whites are not commonly found in the lowest. Henriques (7) has observed that high-level government, orthodox religion, and education are associated with white superiority. In contrast, common-law marriages prevail among members of the lower classes, and illegitimacy reaches the towering figure of 70 per cent of all live births among Negro lower-class Jamaicans (14). However, the broad Jamaican middle-class, comprised of both Negroes and Whites, mitigates the austere, iron caste system that exists at both of these extremes.

E. Summary

This investigation demonstrates that environmental conditions must be carefully equated in order to factor out their masking effect upon the relationships between measures of color and intelligence. As Klineberg (10) observes, it is exceedingly difficult to prove the absence of something; however, the present study at least lends support to those who contend that the notion of white intellectual superiority is patently erroneous. We can only conclude, as Klineberg does, that there is still "no scientifically acceptable
evidence for the view that ethnic groups differ in innate abilities” (10, p. 202).

**REFERENCES**


*Department of Educational Psychology*

*University of Wisconsin*

*Madison 6, Wisconsin*