

# PSYCHOLOGICAL TEST SCORE DIFFERENCES AND THE 'CULTURE HYPOTHESIS'

BY FRANK C. MCGURK

Few writers today deny that there are measurable psychological test score differences among racial groups. Most of those presently writing on this subject insist that these differences are not biological differences; they are referred to as cultural differences, and this has given rise to the "culture hypothesis" as the explanation of racial differences. While the "culture hypothesis" has been expressed in various ways (e.g., Ashley-Montagu 1945, and Klineberg 1944) its essence is that what we call observable race differences are really social differences and not biological differences, and that these differences, since they are caused by differences in cultural advantages, will disappear when the differences in cultural advantages disappear.

The "culture hypothesis" has been invoked particularly in discussions of differences between Negro and white groups. While the advocates of the "culture hypothesis" have presented strong moral and ethical arguments against biological differences between Negroes and whites, they have failed to present any factual data in support of their hypothesis.

Ultimately, any hypothesis in science must be tested against the objective phenomena which it attempts to explain. This is the way of science. If the hypothesis is in accord with objective measurement or observation, it gains in stature; if the objective data are out of control with the hypothesis, the hypothesis must be rejected.

If the "culture hypothesis" has any meaning, it could be expected that, as cultural differences between Negroes and whites decreased, the difference between their mean psychological test scores would decrease. The objective measurement of a decrease in mean test score difference would, thus, support the hypothesis. It would not be necessary that the mean racial test score difference should disappear completely. The "culture hypothesis" would gain in stature if it could be shown empirically that even a small reduction in the mean test score difference between Negroes and whites accompanied a reduction in the cultural differences between these two racial groups.

Reduction in the cultural differences between Negroes and whites has occurred in the United States. This paper is interested in showing what measurable psychological test score differences have accompanied the reduction in the racial cultural differences. Does the "culture hypothesis" have any objective validity?

### **The World War I Period**

The most convenient place to begin the study of our problem is the World War I period. It was at this time that the first extensive psychological study was done; tests were administered to very large groups of Negro and white draftees who represented the entire country. The results of this study were carefully recorded and published by Yerkes (1921).

The World War I period was also a period of marked social and economic restriction for the Negro. He was limited in his choice of residence, and the choices he had were undesirable by present-day standards. Generally, the Negro was a rural dweller at this time. Schools available to him were under-equipped, understaffed, and often not accessible. In general, he was limited in his social participation, he was limited economically, and there is no question that the World War I period was, when compared with the present, one of great deprivation for him.

During this war period, the psychological test scores of the Negro recruits bore a clearly inferior relationship to the psychological test scores that equalled or exceeded the mean test score of the white recruits (Garrett, 1945). This is usually referred to as overlapping; it is said that 27% of the Negro recruits overlapped the mean of the white recruits. With this degree of overlapping, the Negro mean score is much below the white mean score. This concept of overlapping has nothing to do with range of scores (the difference between the highest and lowest score). The range is notoriously unstable—so much so that it is almost meaningless. Overlapping, as used here, is concerned only with the relationship between the bulk of Negro scores and the mean white score. Comparisons by the per cent of overlap is the simplest method of comparing scores from various psychological tests. Test performance can be compared by comparing measures of central tendency, but this requires elaborate statistical treatment and the product is no more useful than comparisons by means of overlapping.

The World War I period is, then, a basis for testing the "culture hypothesis." Here was a period in which 27% of Negro recruits equalled or exceeded the mean score of the white recruits when the cultural restrictions for the Negro were marked.

If the inferior test performance of the Negro is truly the result

of his cultural restriction, then it follows that, under the "cultural hypothesis," an improvement in the Negro's cultural status should be accompanied by an improvement in his test performance when compared with whites. Put otherwise, if the difference between Negro and white mean psychological test performance is the result of differences in cultural opportunities between Negroes and whites, a decrease in the difference in cultural opportunities must be accompanied by a decrease in the differences in mean test performance.

The cultural position of the Negro has certainly improved since 1918. This improvement has not been sudden, but has been in progress for at least two generations. The Negro has achieved more and more of the social and economic opportunities that were once reserved for the white man, and to say that the cultural status of the Negro has not improved markedly is to deny objective evidence.

What has happened to the relationship between the psychological test scores of Negroes and whites while this cultural change has been taking place? Has the Negro-white test score difference of the 1918 period reduced in magnitude while the Negro-white cultural differences were being reduced? Do the available data support the "cultural hypothesis"?

### **Between 1935 and 1950**

Between 1935 and 1950 inclusive, about 140 articles were published in the scientific literature of psychology which dealt with the question of Negro-white test score differences. Only 63 of the 140 articles presented statistical data, and in all 63 articles the mean test score of the Negro subjects was lower than the mean test score of the white subjects with whom they were compared. The other 76 articles were simply speculative comments about the problem, and almost totally lacking in data.

Of the 63 articles which presented data, only six submitted sufficient material to permit comparisons with the World War I period. These six articles are important; they covered a wide range of years, a variety of age groups, different grade groups, and different psychological tests. Because they were spaced over a range of years, they covered a variety of cultural opportunities. Also, they were written by six different investigators.

Tanser (1939) is responsible for the earliest of these studies, which was done on a group of Canadian Negroes and whites. Three standard psychological tests were administered to Negro and white school children enrolled in grades 1 through 8. All of the Negro children were described as descendants of slaves who had escaped

from the South prior to, and during, the Civil War. According to the author, social and economic opportunities had always been equal for all Negroes and whites in this area, except for a few minor outbursts of oppression directed towards the Negroes.

Tanser reports that the mean test scores of the Negro children were markedly below the white mean at every age and every grade. Overlapping for the total group (all children of all ages and grades) was between 13% and 20%, depending on which psychological test was used. In no case did overlap exceed 20%. Thus this study, done some 21 years after the World War I period, indicated that the gap between Negroes and whites had not been lessened: it had been increased. In Tanser's study, the Negroes made a much poorer showing, relative to whites, than Negroes did in the World War I study. The cultural advantages of Canadian life did not increase the relative standing of the Negro children to white children, and this study offers no support for the "cultural hypothesis."

The second study appeared when Bruce (1940) published her doctoral dissertation. In Bruce's study, three psychological tests were administered to 9- and 10-year-old Negro and white children from an impoverished rural area in Virginia. All children attended segregated rural schools. By administering a socio-economic scale, and pairing children according to score on this scale, the author developed two groups of subjects, one Negro and one white, both of which groups were equivalent for socio-economic factors contained in the scale. All socio-economic scores were very low.

As did Tanser, Bruce found that Negro overlapping varied with the psychological test under consideration, but it never fell below 15% and never exceeded 20%. Even in these deprived cultural conditions, Bruce's subjects performed almost identically with Tanser's subjects, although the difference in cultural status between Tanser's subjects and Bruce's subjects appears to have been marked. Bruce's findings indicate that equal socio-economic opportunity, even as low as it was, did not change the psychological test score relationship between Negroes and whites which was shown in World War I. Such evidence does not support the "culture hypothesis."

Shuey (1942) reported the third study. One psychological test, constructed especially for college subjects, was administered to a very highly selected group of students in a New York City college. The subjects ranged in age from 18 years to 35 years, and came from various sections of the country. Negro and white subjects were paired so that, in the opinion of the author, each member of a pair was equivalent in social and economic background. Thus the Negro and white subjects were of the same average age, the same educational background, and generally the same cultural status.

In Shuey's study, Negro overlapping of the white mean was

approximately 18%. For such a highly selected group of Negroes, this was surprisingly low overlapping, and is quite consistent with Tanser's and Bruce's findings even though the subjects in the latter two studies were considerably lower in cultural status. Moreover, Shuey's findings are markedly below World War I findings and are no indication whatsoever that equal cultural status equalizes or will equalize the Negro's test performance in relation to the white's.

The fourth study was reported in 1944 (Brown, 1944). An individually-administered psychological test was given to Negro and white kindergarten children in Minneapolis. Brown reports that the average age of each racial group was identical, so we can assume that they were five-year-olds. Unfortunately, Brown made no attempt to equate his racial groups for cultural factors except that all children attended non-segregated schools, and this was assumed to be an equating factor.

Although Brown reported no overlapping data, it was computed that about 31% of the Negro children equaled or exceeded the mean white score. While this is better Negro performance than in the previously reported studies, it is no better than the performance recorded by the culturally deprived Negroes of the World War I period. Thus, whatever cultural benefits accrued to the Minneapolis Negro children in 1944, they were not sufficient to change their standing, relative to the white Minneapolis children, when the World War I data are the basis of comparison.

While the fifth study was primarily directed in another direction, interesting psychological data was computed from it (Rhoads, *et al.*, 1945). The subjects were all males, Negro and white, under four years of age, and residents of Philadelphia. An individually-administered psychological test was given to all children when three years old. All children in the study had birth-weights of five pounds or over. Each child had been examined physically in a hospital clinic once a month from birth until one year of age; thereafter every two months until the end of the study. Children of unco-operative parents were dropped from the study before the child was two years old. In addition to the clinical examinations, home visits were made every two weeks by a nurse or social worker in order to keep the experimental conditions as operative as possible. Socio-economic factors were considered to be low, but generally equal for both Negro and white subjects.

Although the psychologist who did the testing reported that the Negro and white mean test scores were not significantly different, this was found to be not the case. The Negro children were significantly lower than the white children. Only 30% of the Negro scores overlapped the white mean score. Since these findings are identical with Brown's study described above, the

same comments could be repeated. For this paper, it is important to note that whatever cultural differences existed between these Philadelphia three-year-olds in 1945 and the World War I adults and adolescents did not change the relationship between Negro and white test scores.

The last study, the sixth, was done by the present writer (McGurk, 1951). A special test was constructed, half the questions of which were rated as depending heavily on cultural background (the cultural questions) while the other half were rated as depending little on cultural background (the non-cultural questions). Each set of questions yielded a score—either a culture score or a non-culture score. Total score was the sum of the cultural and non-cultural scores. These questions were administered to high school seniors in various areas of Pennsylvania and New Jersey. The mean age for each racial group was 18 years. Negroes and whites were paired so that the members of each pair—one Negro and one white—were identical or equivalent for 14 socio-economic factors.

In spite of the socio-economic equivalence, Negro overlapping, for total score, was only 28%—a figure almost identical with that reported for the World War I data. There is no question about the cultural superiority of the Negroes in 1951 over the Negroes in 1918, yet this did not improve the Negro's test performance at all.

Thus, in the 16 years between 1935 and 1950, a period of unquestioned cultural advancement for the Negro (compared with World War I period) there can be found no factual evidence to support the claim that equalizing the cultural opportunities of the two races results in equalizing their psychological test scores, or even reducing the racial test score difference. On the basis of the only studies available for this comparison, it must be concluded that the "culture hypothesis" must be rejected.

### **Some Further Analysis**

The above findings seemed such a clear rejection of the "culture hypothesis" that the writer decided to analyse further the data obtained in the 1951 study (McGurk, 1953a). The social scientists were still persistently announcing (but not supporting) the "culture hypothesis" as the explanation for the poor Negro test performance. Specifically, the writer wished to answer this question: If the cultural opportunities were such important factors in causing racial test score differences, what would be found if we compared the difference between Negro and white subjects of very high socio-economic status, on the one hand, with the difference between Negro and white subjects of very low socio-economic status on the other hand? Under the "culture hypothesis" the racial test score

difference should decrease with an increase in socio-economic status; that is, the racial test score difference between the subjects of very high socio-economic status should have been smaller than the racial test score difference between the subjects of very low socio-economic status.

In order to follow the procedure that was used in answering the above question, it is essential to understand the composition of the socio-economic groups described in the 1951 study (McGurk, 1951). In that study, a white subject was paired with a Negro subject when the white subject was identical or equivalent to the Negro subject in terms of 14 social and economic factors. There were no white subjects higher in socio-economic status than the highest Negro subject, and there were no Negro subjects lower in socio-economic status than the lowest white subject. Each Negro subject was permanently paired with a white subject so that both subjects were equal or equivalent in terms of each of the 14 socio-economic factors.

An extremely high socio-economic group was selected by picking out of the entire group of Negro subjects that 25% whose socio-economic factors were the highest. This was called the High Negro Group. In picking these Negro subjects, the white subjects who had been permanently paired with them were also picked. This latter group was called the High White Group. There were, then, two groups of subjects, each equivalent in socio-economic status but differing in race.

An extremely low socio-economic group of Negroes was selected by picking from the entire Negro group that 25% of Negro subjects whose socio-economic factors were lowest. These became the Low Negro Group. The white subjects who had been paired with these Negro subjects became the Low White Group. Again, there are two groups of subjects, one Negro and one white, both equivalent in socio-economic status.

In terms of mean test score, the High Negro Group was significantly lower than the High White Group, but when the mean scores of the two low groups were compared, the Low Negro Group was not significantly different from the Low White Group (McGurk, 1953a). The overlapping data indicated the same relationship: only 18% of the High Negro Group overlapped the mean of the High White Group, but 41% of the Low Negro Group overlapped the mean of the Low White Group (McGurk, 1951).

Thus, in the comparison of the difference between Negroes and whites of high socio-economic status with the difference between Negroes and whites of low socio-economic status, the racial test score difference does not decrease with an increase in socio-economic status. The difference between the racial groups

was zero when socio-economic status was very low. When socio-economic status was very high, however, the difference between the racial groups was statistically significant, and in favor of the whites. These data indicate that an increase in the socio-economic status of the Negroes *increases* the racial difference—they do not indicate any support for the assumption, under the “culture hypothesis,” that an increase in the socio-economic status of the Negro decreases the racial test score difference.

Other aspects of this study (McGurk, 1958a) lead to the rejection of the “culture hypothesis.” Negroes, highly selected for socio-economic status in 1951, make a poorer show relative to whites of similar socio-economic status (Negro overlap was 18%) than the Negroes of the culturally restricted World War I period did relative to the whites of the same time period (Negro overlap was 29%). If the “culture hypothesis” were true, such a finding would be impossible.

Moreover, when both racial groups were very low in socio-economic status, the Negro mean score was not statistically different from the white mean score—a finding reflected in the overlapping data. This suggests that the only validity possessed by the “culture hypothesis” is when both racial groups are culturally deprived.

From the finding of this study (McGurk, 1953a) the “culture hypothesis” could be restated thus: Racial differences in mean psychological test score will disappear when cultural opportunities between the races are equal but extremely low; as cultural opportunities increase for each racial group, mean psychological test score differences increase.

This denial of the “culture hypothesis” raised still another question. It has been stated as proof of the validity of the “culture hypothesis” that Negro test score inferiority results from the culturally loaded questions used in most psychological tests, and the inference is that the low cultural status of the Negro was the cause of the Negro’s test score inferiority (Klineberg, 1944). Klineberg’s assumptions can be verified by comparing the Negro test performance (relative to the white test performance) on both the cultural questions and the non-cultural questions. According to Klineberg’s assumption, Negro test performance should be more approximate to white test performance on the non-cultural questions than on the cultural questions.

It must be recalled that the test used in the earlier study contained an equal number of cultural and non-cultural questions. In selecting questions for the test, a cultural question was paired with a non-cultural question when each was of the same approximate empirical difficulty (McGurk, 1951).

Consider first the racial difference with the cultural questions

between members of the high socio-economic groups. The mean culture score of the High White Group was significantly greater than the mean culture score of the High Negro Group (McGurk, 1953a). Negro overlapping of the white mean cultural score, for these two High Groups, was 34% (McGurk, 1951).

The mean non-culture score of the High White Group was also significantly greater than the mean non-culture score of the High Negro Group (McGurk, 1953a), but the Negro overlapping of the mean white non-culture score was only 25% (McGurk, 1951). This does not support Klineberg's assumption; on the basis of the overlapping data, Negroes performed better (relative to the whites) on the culturally loaded questions than on the less culturally loaded (non-cultural) questions. The racial difference would have been *less* had only *cultural* questions been used. On the basis of their mean scores, however, there was no statistically significant difference between the Negro-white performance on the cultural questions and the Negro-white performance on the non-cultural questions (McGurk, 1953a). Thus, in relation to whites, Negroes perform as well (or as poorly) on cultural questions as they do on non-cultural questions. Clearly, cultural questions do not penalize the Negro of high socio-economic status.

When the low socio-economic groups were compared, similar findings appeared. For the cultural questions, the mean of the Low Negro Group was actually *higher* than the mean of the Low White Group, but the difference was not statistically significant (McGurk, 1953a). Negro overlapping of the white mean culture score was 53% (McGurk, 1951), as was expected from the mean differences. But when performance on the non-cultural questions was compared, the white mean score was significantly higher than the Negro mean (McGurk, 1953a), and Negro overlap was 36% (McGurk, 1951). The Negro-white difference on the cultural questions is significantly *lower*, statistically, than the Negro-white difference on the non-cultural questions for these two Low Groups.

Thus, Klineberg's attempted validation of the "culture hypothesis" by his insistence that culturally loaded test material penalizes the Negro must be rejected.

A further attempt to validate the "culture hypothesis" is equally forceless. It has been maintained that increased length of residence in the culturally stimulating environment of New York City causes an increase in the psychological test scores of Negroes, and that this increase is more apparent in the Negro performance on linguistic tests than on performance tests (Klineberg, 1944). This has been interpreted to mean that, with improved cultural status, improvement occurs in Negro performance on culturally loaded test material.

Analysis of the earlier study (McGurk, 1951) does not support Klineberg's (1944) findings. The difference between the mean cultural scores of the High Negro Group and the Low Negro group was *smaller* than the difference between the mean non-cultural scores of these two groups although the difference between the two differences was not significant (McGurk, 1953b). The difference in mean cultural score between the High and Low Negro Groups was significant; however, the difference in mean non-culture score between these two Groups was not significant (McGurk, 1951). On the cultural questions, about 39% of the Low Negro Group overlapped the mean score of the High Negro Group, and on the non-cultural questions, 36% of the Low Negro Group overlapped the mean score of the High Negro Group (McGurk, 1951).

While it may be true that a sample of Negro children who had lived in New York City for ten or more years achieved higher scores on *some* psychological tests than samples of other Negro children who had lived in New York City for shorter periods of time, it is by no means acceptable evidence that the cultural climate of New York City is responsible for the differences in test score. Nor is it acceptable evidence that the cultural climate of New York City increased performance on less culturally loaded test questions. The data presented here are contrary to this assumption as well as they are contrary to the entire "culture hypothesis."

### Summary

The values that are attached to the moral and ethical arguments advanced in support of the "culture hypothesis" should not be confused with scientific evidence that this hypothesis possesses validity. Ethical and moral values are important according to the degree by which they are accepted and believed; scientific validation, however, is a matter of objective demonstration and should not be confused with beliefs or moral acceptance.

The available objective evidence does not support the "culture hypothesis" as an explanation for Negro-white differences in psychological test performance. In spite of this, there are many among the social scientists who persist in citing the "culture hypothesis" as if it were an objectively demonstrated fact.

This places these social scientists in a unique position among scientists; they are in the position of having accepted a hypothesis for which there is not the slightest shred of supporting evidence. Moreover, aside from their speculative argumentation, these social scientists are making no attempt to gather the required evidence.

In science, it is not the usual practice persistently to advance

an explanation for observed phenomena without making some effort to obtain empirical support for this explanation. In other sciences, to do such a thing would mean the inevitable loss of status for the scientist attempting it. Among some branches of the social sciences, to insist on validating hypothesis results in loss of status, and in this the social sciences are also unique.

This paper does not contend that the "culture hypothesis" is incorrect. It contends that this hypothesis possesses absolutely no factual validity. It further contends that the "culture hypothesis," as an explanation for Negro-white psychological test score differences is contradicted by the available objective evidence. And further, this paper contends that social science, in making no serious attempt to validate the "culture hypothesis," is violating the basic rule of science.

#### REFERENCES

- Ashley-Montagu, M. F. *Man's most dangerous myth: the fallacy of race*. New York: Columbia University Press, 1945.
- Brown, F. An experimental and critical study of the intelligence of Negro and white kindergarten children. *J. genet. Psychol.*, 1944, 65, 161-175.
- Bruce, M. Factors affecting intelligence test performance of whites and Negroes in the rural south. *Arch. Psychol., N.Y.*, No. 252, 1940.
- Garrett, H. E. "Facts" and "interpretations" regarding race differences. *Science*, 1945, 101, 404-405.
- Klineberg, O. Tests of Negro intelligence. In Otto Klineberg, (Ed.). *Characteristics of the American Negro*. New York: Harper Bros., 1944.
- McGurk, F. C. J. *Comparison of the performance of Negro and white high school seniors on cultural and non-cultural psychological test questions*. Washington, D. C.: Catholic University Press, 1951. (Microcard.)
- McGurk, F. C. J. On white and Negro test performance and socio-economic factors. *J. abnorm. soc. Psychol.*, 1953, 48, 448-450. (a).
- McGurk, F. C. J. Socio-economic status and culturally weighted test scores of Negro subjects. *J. appl. Psychol.*, 1953, 37, 276-277. (b).
- Rhoads, T. F., and others. Studies on the growth and development of male children receiving evaporated milk. II. Physical growth, dentition, and intelligence of white and Negro children through the first four years as influenced by vitamin supplements. *J. Pediatrics*, 1945, 26, 415-454.
- Shuey, A. M. A comparison of Negro and white college students by means of the ACPE. *J. Psychol.*, 1942, 14, 35-52.
- Tanser, H. A. *Kent County Negroes*. Chatham, Ontario: The Sheppherd Publishing Co., 1939.
- Yerkes, R. M. Psychological examining in the U.S. Army. *Mem. Natl. Acad. Sci.*, Vol. 15, 1921.

# THE MURIA GONDS OF BASTAR

BY R. RUGGLES GATES

The Central Provinces of India contain a welter of racial types, differing in status, from aboriginal food-gathering tribes in the forests to the highest civilized cultures. The Gonds are by far the largest aboriginal tribe in India, numbering 3,063,753 in the Census of 1931. They occupy large areas in the Deccan and represent an aboriginal type found mostly in the Central Provinces and Berar (the Gondwana of Moghul times). According to the excellent account of Fürer-Haimendorf (1945), although they were the ruling race, with Rajahs of status equal to that of many Hindu Princes, they lacked unity and leadership. As a result, they collapsed before the onslaughts of Moghul and Maratha armies, yet a feudal system persisted and a few Gond Rajahs functioned until recently.

There was a Gond Dynasty in the 15th century near the Narbada river and Jubbulpore, which ended in A.D. 1780. Another Gond Dynasty of Chanda ruled most of the Adilabad district in Northern Hyderabad, and Gond Rajahs survived until recently in the Chhattisgarh States. The mass of the Gond population remain however as peasant and forest people, still at the primitive level of other aborigines, scattered tribal groups differing greatly both racially and culturally. Some extended into the Madras Presidency where they speak Gondi, a Dravidian language, and some of different tribal origin adopted this language. It is believed that a large scale Dravidianization of the aboriginal tribes preceded their Aryanization.

The Gonds thus contain various elements at different levels of cultivation. Probably Bastar, where my observations were made, was invaded by Gonds with a superior culture. The Muria Gonds probably had originally a different language. Bastar is the home of the Murias, Hill Marias and Bisonhorn Marias. They differ from the Gonds in the Central Provinces but represent the ancient aboriginal Indians, who have been undergoing ceaseless changes and migrations for ages. When the Rajput clans were driven from the fertile plains by the Moslem invasion they made closer contacts with primitive tribes in the Vindhya Hills. This led to tribal disintegration, some aboriginal tribes disappearing while others formed Hinduized castes.

According to another statement, the Central Provinces have