and Nelson (1974) Contesk (1971) and Hause (1972) all show negative or very small relationships. One of Bowles and Nelson's conclusions reflects the area as a whole.

> The direct effect of childhood IQ upon income and occupation status is considerably less than on years of schooling; the total effect of early IQ upon income and occupational status operates in large part indirectly via the effect of childhood IQ upon years of schooling
> (1974, pg 44).

Thirdly, demonstration that IQ scores correlate with performance in high-status occupations has also consistently failed. MacKinnon (1962) correlated reliable ratings of creative accomplishment with IQ scores of mathematicians, creative writers, architects, research scientists and electrical engineers. The mathematicians showed a low correlation between test scores and rated achievement, while the other occupations showed essentially zero correlations. He also reported that when a group of outstanding architects were compared with undistinguished architects of the same age, there was no difference in the average IQ scores of the two groups.

A collection of IQ scores during World War II showed lawyers IQs ranged from 96 - 157, engineers from 100 - 151 and chemists 102 - 153. (Ratio summarized in

Berelson and Steiner 1964.) It would appear that any IQ over one hundred would be sufficient for these occupations. Nonetheless, seeing that good school performance is necessary to enter these professions and that IQ correlates well with scholastic achievement, people who may have made the grade in these professions with IQs lower than a hundred would have been screened out at school level.

The evidence suggests that the IQ scores are able to predict very little other than school performance.

1.3 Validity

Next, if intelligence tests are to be used as indicators of intelligence then they must fit the criteria for 'validity'. Validity is "what the test measures and how well it does so" (Anastasi 1982, pg 99). In order to do this the test must be validated by some criteria independent of those used in the test construction. The test construction criteria would be that;

(1) scores for each age will be distributed along a normal curve,

(2) the test scores should correlate with school performance and with scores on other tests which measure intelligence,

(3) the tests should involve items which are untaught

and involve "general intelligence."

The validity of an IQ test should satisfy the following criteria; content, criterion-related and construct validity. It shall now be shown that none of these criteria are truly independent of test construction. Validity can in fact be built into a test during construction e.g. through choice of test items, and thus they cannot be used to prove that the test is in fact a measure of 'general cognitive ability.'

1.3.1 Content Validity

This involves "an examination of the test content to determine whether it covers a representative sample of the behaviour domain to be measured" (Anastasi 1982, pg 100). In order to do this one must understand the ability in question and be able to analyse its components. The test must be able to "sample" the various features of that ability. But it is impossible to demonstrate an ability if one is not sure what the ability is!! (see pg 13 - 17) The test items were chosen by selecting items that discriminate children on the basis of school performance but which do not appear to be directly learned through school. Anastasi points out that IQ tests

> bear less intrinsic resemblance to the behaviour domain they are trying to sample than do achievement tests. Consequently the content of aptitude and personality tests can do little more than reveal the hypotheses that lead the test constructors to choose a certain type of content for measuring a specified trait (1982, pg 102 my italics).

It seems that content validity cannot help the claim that IQ tests measure intelligence.

1.3.2 Criterion Related Validity

This can be broken up into predictive and concurrent validity. Predictive validity means that the score can predict behaviour in a criterion situation. As has been seen, IQ is a fairly good predictor of scholastic performance and sometimes occupational status (though the latter is only through the fact that both occupational status and IQ correlate with education); however this is essentially meaningless. Though IQ may predict scholastic achievement it is just as likely that the test is measuring something other than intelligence.

Concurrent validity differs from predictive validity in that it is validated "either by the actual performance which the test is meant to measure, or by correlation of the scores with the scores of other tests meant to measure the same thing" (Lawler pg

59). To correlate test scores with other test scores is only to beg the question – do these other scores measure 'intelligence?' Other forms of concurrent validity would make use of teachers', psychologists' or trained observers' ratings, as well as 'contrasted groups.' Even if individuals agree in their ratings (be they teachers, psychologists or whoever) this means about as much as did the ratings on the Barr-Scale (see pg 22) and says nothing about 'intelligence.' The contrasted group method involves selecting "bright" and "dull" groups of children, and measuring individual items as well as the test as a whole to distinguish whether the test is being answered differently by the two groups. These groups are chosen by means of "the cumulative and uncontrolled selective influences of everyday life" (Anastasi 1982, pg 110). Thus in constructing concurrent validity, one is building predictive validity into the test. Predictive validity is then used to verify and give validity to the test!

1.3.3 Construct Validity

> The construct validity of a test is the extent to which the test may be said to measure a theoretical construct or trait ..... Any data throwing light on the nature of the trait under consideration and the conditions affecting its development and manifestations are grist for this validity mill
> (Anastasi 1982, pg 114/5).

Age differentiation is one method of construct validity. Thus for intelligence tests to be valid, test scores should increase with age. However a look at test construction ensures that scores increase with age (see pg 30), thus not satisfying the criteria of validity independently of construction.

A second method of demonstrating construct validity is through factor analysis. Factor analysis breaks the test items down into small categories from a large sample of items. Each factor is then correlated with the overall test to give a "factorial validity" to that factor. If the subject score is the same score as the whole test, then that subject has a perfect factorial validity. A very low factorial validity would be cause to dismiss that factor from that test. The problem with this is again that instead of an outside and independent validity factor, the test itself is here regarded as the criterion of the validity of the factors that compose it. And besides, age differentiation procedure only demonstrates that one is measuring 'something' which increases with age, but doesn't tell one what that 'something' is.

In the light of this, it appears that IQ tests have not, and cannot, attain validity in that they cannot tell "what the test measures and how well it does so"

using the criteria demanded.

Finally, as IQ test scores approximate a 'normal distribution', test constructors have been able to show that scores remain stable and that different test results are comparable. However, a normal distribution means very little in the light of the fact that IQ tests a priori fit a normal curve and are designed to do so. Simon explains this process

> The test constructor sets out with a bank of, say, 100 questions. He aims to end up with 50. He gives all 100 to a large number of children, examines the results question by question, and then jettisons all those questions that throw out (or distort) the normal distribution curve. He finishes with the 50 best questions. These are then arranged in an order of difficulty, a time limit is set, and this ensures that he gets the result he set out to achieve.
> (Simon 1980, pg 23)

It should now be clear that 'intelligence' and the notion that intelligence tests measure 'intelligence' belongs to the realm of pseudoscience. Given this alone it is fair to question whether IQ test use should be allowed to continue. It is also reasonable to ask how, given the fact that 'intelligence' cannot be adequately defined or measured, the IQ test has attained the status that it has. This latter issue will be discussed in Chapter IV. But before that, it is necessary to look at a second matter of pseudoscience, the question of the heritability of IQ,

and see that though this issue is as inconclusive as those discussed in this chapter, most IQ practitioners are still not deterred in their use of the tests.

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CHAPTER II

THE HERITABILITY QUESTION

A large proportion of research in the area of IQ has been concerned with the measurement of variables which contribute to IQ score. On the broadest level this research focuses on what contribution genes have played compared to the contribution of the environment. The answer to this question has been seen as fundamental in determining various clinical, educational and political options. For example, whether educational intervention with low IQ scorers would be effective, whether any person would potentially cope with high level education, or whether class is a 'natural' stratification, have often relied on an answer to this question.

From research over the past three quarters of a century it appears that though different positions have been regarded more favourably than others at different times, psychologists are no nearer an answer to the question than they ever have been. It seems that the type of investigation needed to answer this puzzle is beyond the scope of positivist investigation. Or to put it another way, the question being asked is the wrong one! (Lawler 1977, Blum 1977)

To illustrate the 'cul de sac' position of the research, some of the more influential studies, together with criticism of them will now be outlined. This will be followed by a discussion of some environmental variables which have been shown to effect IQ scores.

Finally one study will be examined in more detail, giving in depth critiques from two opposing angles. This study and commentary shall fulfil two roles. Firstly it will act as a 'case study' to illustrate the confusion and uncertainty which arises when dealing with the heritability question. Secondly, the more important function will be to reflect the ideological nature of positivist research. It will point to the fact that no matter how objective the researcher wants to be, or claims to be, he will always find enough evidence to support his preconceived notions.

Thus this chapter has two functions. Firstly to illustrate that the positivist question of "how much of what?" in relation to IQ is leading nowhere, and secondly the positivist notion of objectivity of the researcher both in terms of the research itself and in terms of the use made of it, is false.

2.1 Genes vs Environment

The idea that intelligence is determined more by genetic makeup than by environment has been noted periodically through history since Spencer, Galton and Pearson advocated this in the late nineteenth Century. However, the issue sprung into academic and public prominence in 1969 when Arthur Jensen brought out an article in the Harvard Educational Review entitled "How much can we boost IQ and Scholastic Achievement?" (Jensen, 1969) In this paper he concluded that the genetic heritability of human IQ for a population of whites was approximately .80. He took this to mean that about 80 percent of all differences in human IQ is attributable to a genetic mechanism, thus allowing about 20 percent to be attributable to such factors as social environment, education, gene-environment interactions and everything else. Since this article Jensen has refined his argument (Jensen 1980) but has maintained his suggestion of 80 heritability. Eysenck (1971, 1973), Herrnstein (1973) and Shockley (1971, 1972), amongst others, have supported Jensen's conclusions, while others have taken a more moderate stand. Eckland (1967) argued the heritability figure to be around .50, Jencks (1972) at about .45. (while .35 went to environment and .20 to the covariance of genes and environment) and Scarr-Salapatek (1971, 1976, 1978, 1981) between .40 and .70. At the other

extreme Kamin (1974) has argued for zero heritability. Still others (Lawler [1978], Blum [1978] and Taylor [1980]) have argued that it is simply not possible to work out the figure.

The "heritability coefficient" which was borrowed from animal and plant breeders "represents that portion of the individual differences (the variance) in the phenotypic variable that is attributable to unspecified genetic factors" (Taylor 1980, pg 13). Calculations of heritability have primarily rested on four kinds of evidence.

(1) Studies of separated monozygotic twins.
(2) Studies of adopted children.
(3) Studies of kinship correlations.
(4) Breeding of laboratory rats.

There have been four major studies involving separated monozygotic twins. By Burt (1966), Shields (1962). Newman et al (1937) and Juel-Nielson (1965). The findings of these studies show a high correlation ranging from .86 (Burt) to .62 (Juel-Nielson) between monozygotic twins reared apart. Conclusions with regard to genetically determined variation are drawn from this. Kamin (1974, 1981) has criticized these studies. His main objections are that separated twins' environments are almost never random, as

Adoption agencies usually follow a policy of placing twins in similar kinds of homes. Many of the pairs have been raised by relatives. Some twins were not separated till six years old. In the Shields study it seems probable that experimentor bias unconsciously inflated the twins' correlations. He also hypothesized that much of the similarity may be due to the fact that all the twins (in at least two of the studies) were of the same age group and test scoring procedures tend to favour people at certain ages and discriminate against those in others.

Probably the most important of the studies, and one whose data was used by many other researchers, was the one by Burt (1966). This study has drawn scathing criticism. Kamin writes:

> We must recognize that Burt's data base, by his deliberate choice, was of a very unorthodox type. The 'empirical' correlations were based on Burt's 'adjusted assessments.' The purpose of adjusting raw test scores was to remove most of the 'disturbing effects of environment.' The Burt data were thus subjected to a deliberate and systematic bias, justified by Burt's faith that he could intuitively detect the genotypic value behind the raw test score (1974, pg 97).

Added to this, Burt's alleged research collaborators may indeed never have existed, and one becomes suspicious of deliberate fraud.

The second major type of study has been research of adoptive children. Studies have shown that the correlation between adopted child and adoptive parent was invariably much lower than that normally observed between biological parent and child. [Freeman et al [1928], Burks [1928], Leahy [1935], Skodak and Skeels [1949], Munsinger [1975] and Scarr [1976, 1977]]. This has been used to show that biological parent-child pairs share not only a common environment, but also, and more importantly, common genes.

These studies too, have been censured. In the studies mentioned prior to 1976 so called 'central groups' were not matched as stated. Further, Kamin (1974) points out that there has been a selective reporting of studies in favour of those producing high heritability results. He (ibid) also showed that 'models' were constructed after the data were observed, by inserting rather arbitrary values into the equations so as to produce figures clearly resembling the observed ones. The "case-study" to be discussed later will examine much more closely an 'adoption study' - by Scarr and Weinberg (1976).

Kinship correlations form the third type of study. This involves estimating the degree of resemblance in the IQ scores of different sorts of relatives. For

xample, the similarity of monozygotic twins' scores is compared with the similarity of fraternal or dyzygotic twins' scores. The predominant researchers and writers in this field have been Erlenmeyer-Kimling and Jarvik (1963) (who reviewed 52 studies prior to 1963), Eaves (1975, 1977) and Rao, Morton and Yee (1976, 1978).

Kamin (1981) says that the following invalid assumptions are built into the studies. Firstly the experiences of a pair of MZ twins are no more similar than those of a pair of ordinary siblings and secondly, adopted children are placed into families randomly drawn from the general population and exibiting the full range of environmental variation. A compounding problem is that it is still unclear what the IQ correlation between parent and child is. The pre 1963 studies put the median at .5Ø (range .2Ø to about .8Ø) while post 1963 studies put the value at .33. (range .Ø8 to .41). Most studies have tended to lump all the previous studies together and use that figure. Until the 'true' value of parent/child correlation is known, the method of estimating heritability from kinship correlation is mainly guessing.

The fourth method of studying heritability has been that of breeding laboratory rats. In laboratory

xperiments it was found that rats could be bred to ake more or fewer errors in running a T-shaped maze. his finding was thought of as proof that intelligence as at least partly inherited. But later Birch (in ead et at 1968) reported that in mazes with better ighting, the "bright" rats did worse than the "dull" ats. It then seems probable that it was differences in sensitivity to nonvisual cues rather than "intelligence" that was being genetically shaped. This does, of course, not bring into question "heritability", but rather the "heritability of intelligence." This reflects back on the problems of defining and measuring intelligence in the first place. Besides this, human-animal analogies are suspect.

2.2 Race and IQ

Jensen in his Harvard Review article (1969) not only suggested that heritability for IQ in the white population was .80, but noted that blacks and whites differed in IQ on average by roughly 15 points. From this he deducted that genetic factors were strongly implicated in the average Negro-white intelligence difference. He has basically maintained this view into the 1980's (Jensen 1980) though the IQ point difference has now shifted from 15 to 10 or 11 points. He surmises that as certain apparent and presumably

netically based physiological differences appear tween races (skin pigmentation, facial aracteristics etc.) there is "no reason to suppose at the brain should be exempt" from such fferences, and there is "little question that racial fferences in genetically conditioned behavioural aracteristics, such as mental abilities, should exist, just as physical differences" (Jensen 1969, pg 80). [Research examining racial genetic differences is summed up in Loehlin et al (1975)].

Jensen has presumed that because he found individual differences in IQ in a specific population at a specific time were due to genetic difference, that he could similarly conclude that differences between races were due to genetic factors. However the fact that IQ is claimed to be highly heritable within the white and probably within the black population, does not by itself constitute formal proof that the difference between the two populations is genetic either in whole or in part. Scarr-Salapatek points out that:

> there is no reason to assume that behaviours measured in one population will show the same proportion of genetic and environmental variance when measured in a second population whose distribution of genetic or environmental characteristics, or both, differ in any way from those of the first population (1971, pg 1235).

Thoday remarks that "there is no validity for equating within-group heritabilities and between-group heritabilities" (1969, pg 17). This is not to say that we can deny the participation of a hereditary component in between-group comparisons. We do not have evidence to exclude it on the one hand, nor to assume its magnitude on the other.

But the problem begins even before this, with the question of 'race' itself. The concept 'race' is necessarily defined within a cultural sociological, political framework rather than a scientific one. Attempts to define race in terms of skin pigmentation and blood samples have failed. (Montague 1975) And as Dunn and Dobzhansky said "nothing can be more certain than that pure races in man never existed and cannot exist" (1952, pg 232). Nonetheless, if there ever was a pure race, today the possibility that a racially distinct group of people that has not been interbred exists, appears remote. For example from estimations by Glass and Li (1953), and Roberts (1955) it seems that interbreeding has resulted in American blacks being as far removed from the pure Negroid type as from a pure Caucasian type. Thus 'racial' comparisons lack scientific credence.

The phylogenetic argument, that different 'races' have developed genetically differently is disputed by

Montague (1975). He points out that the brain has undergone considerable evolutionary change, but the pressures of natural selection have not acted directly on the brain, but indirectly through its functions. What has been under selective pressure is not the brain as an organ, but "the skill in using it and its competence in responding as a culturally adaptive organ" (1975, pg 9). Much earlier (in 1952) Montague also pointed out that if brain size correlates with intelligence, and that as a consequence, the white man (whose brain is 50 cubic cm. larger than that of the black man) is more intelligent, then logic would require that the Neanderthal man (whose brain was 75 cubic cm. larger than that of the modern white man) be considered mentally superior to him (1952, pg 60 - 61).

Furthermore, if studies involving comparisons between 'races' are to reflect genetic differences, then all cultural, environmental, socio-psychological variables would have to be controlled. This is not possible (at least) at present nor in the forseeable future. In South Africa, given the racial laws (no voting rights for blacks, group areas restrictions, pass laws etc.) such comparisons are absurd. But even elsewhere in the world, a history of slavery and the general differences of "Being Black in the World" (Manganyi 1973) preclude a study presuming environmental

quality. The reinforcement received by Jensen, Eysenck, Herrnstein etc. for the genetic dominance theory from the presumed failure of such programs as Operation Head Start are counteracted by the environmentalist view that this program (and similar ones) were dehumanizing in that they postulated the "good" as the "white, middle-class way!" Clark and Plotkin claim that these programs have produced "a built-in rationalization for the educator who fails to teach minority children effectively." (1972, pg 47) Moreover, more recent studies challenge Jensen's idea that "Operation Head Start" was a failure.

Furthermore, early indications of the "Milwaukee Project" show that huge increases in IQ can take place within a more stimulating environment (Garber and Heber, 1977). In this project forty babies of mothers with WAIS Full Scale IQs of 75 or less, and thus likely to grow up retarded, were divided randomly into an experimental and a control group. The children of the experimental group were given a stimulation program where they were given intensive intellectual and emotional input for seven hours a day, five days a week, with properly trained teachers. The program began with infants between three and six months old and lasted until aged six years. The intellectual curriculum concentrated on language and problem solving skills (which were age-appropriate). Besides

work with the children themselves, the mothers, and some fathers, were given training in the basic 'three Rs', home economics, child care, and some vocational training. Though the results of this program cannot be fully assessed until the children reach adolescence or adulthood, evaluation has shown that at around eight years old the mean IQ (WISC) of the experimental group was thirty points higher than the control group - 110 vis 80 IQ score! A much greater difference between two groups than the fifteen IQ points which Jensen found.

2.3 SOME ENVIRONMENTAL FACTORS KNOWN TO EFFECT IQ SCORE

The effect of environmental rather than genetic variables on IQ scores was brought into prominence by Klineberg as early as 1935 (Klineberg 1935). He postulated that no valid interpretation of test results cross-racialy could be made without accounting for motivation, examiner race, test content, speed, socio-economic status, amount of schooling and language as possible influences on test performance. A sample of environmental influences, will now be discussed.

2.3.1 Nutrition

There is fair evidence to suggest that malnutrition in prenatal and early life, if sufficiently severe, can have adverse affects on brain and cognitive development. The International Conference on Malnutrition, Learning and Behaviour (1969) came to the conclusion that "it seems likely that millions of young children in developing countries are experiencing some degree of retardation in learning because of inadequate nutrition." (In Samuda 1975) Turton (paper delivered to OASSSA conference 1984) asserted that in South Africa, and specifically in the "homelands", the overcrowding of the lands, with the resultant erosion, and poverty not allowing for modern farming methods (such as deep ploughing and fertilization) has resulted in the soil being depleted of its minerals. This has led to vitamin deficient crops, which in turn leads to illnesses such as Kwashiokor, as well as learning problems.

Controlled nutrition studies on humans are very difficult to implement. However Harrell et al (1955) showed that enriched diets of mothers during pregnancy and lactation produced higher IQs in their offspring than in a control group. Gussow (1974) criticized this study, saying that the 'outcome variable' - the

Intellectual status of the child was too far removed from its 'input variable' - nutritional status of the mother, to be conclusive evidence.

Rat studies have shown more conclusive evidence. Low-protein and vitamin B-deficient diets affected learning abilities not only in the rats themselves. They were also affected if the mother was malnourished and even further back if the 'grandmother' rats were malnourished (with mother's diet being normal) (Biesheuvel 1972). Though it is dangerous practice to equate conclusions drawn from rat studies to humans, Biesheuvel may well be correct when he asserts that similar effects on the more complex brain of man could be even more enduring.

But whether or not malnutrition affects intelligence per se, it would be fair to assert that hunger affects scores in IQ tests. Samuda emphasizes that fact that

> the apparent apathy, lethargy, lack of initiative and interest, traditionally attributed to laziness, indolence, and other so-called ethnic traits, represent, in fact, the way in which the weak body protects itself; by reducing its expenditure of energy, it decreases its productivity
> (1975, pg 72).

2.3.2 Motivation

Built into the IQ test is the assumption that each

individual will try to do as well as she/he can. Thus to do well on a IQ test one must be 'motivated'. It would seem that not all people or groups of people would be equally motivated to do well on IQ tests. Levidow says that "the sole purpose of the test answers is for them to be judged against a pre-defined standard for comparison with other individual answers" (1979, pg 16). It has been shown that the ethic of competition is not held cross-culturally. For example Danziyer (1956) and Freeman (unpublished honours dissertation, 1980) found that black school children had a much greater community orientation than did white school children, thus (consciously or unconsciously) to do well on an IQ test would mean doing well to the detriment of someone else - a situation they may want to avoid.

Motivation may also be impaired by the fact that the attainment of occupational goals, other than on the lowest rung, would be so remote that to try hard would be futile. This would be especially appropriate to South Africa. Atkinson (in Samuda, 1975) has shown that an individual performs at his maximum when he perceives that his probability of success is slightly better than even. The chances of success for an overwhelming majority of black South Africans are 'slightly worse than even!!'

.3.3 Test-Environment

The test environment is usually anxiety provoking for the candidate. Anxiety will interfere with test performance. Factors which have been recognized to heighten test anxiety are a strong achievement need, fear of punishment, deflated self-concept and inferiority feelings, negatively reinforcing experiences with school examinations and tests, hostile test-centre environments, and unfamiliarity with testing procedures and test-taking skills (Samuda 1975, pg 89). Hawkes and Furst (1971) noted that minority group members were likely to exhibit these characteristics, hence reducing test performance. Further the race of the examiner has been shown to effect test scores. Bodmer and Sforza (1972) report that the IQs of blacks tested by blacks was 2 to 3 points higher than when tested by whites. Watson (in Samuda 1975) points out that being tested by someone of a different race can prove a threat or a stress and that therefore a 'stress theory' rather than a theory of genetic difference is supported. Furthermore, one's general emotional state will effect IQ scores. (Sattler, 1981)

2.3.4 The Tests Themselves

The fact that IQ tests were criticized as having a

cultural bias prompted test designers around the 1930's and 40's to devise tests where cultural factors would be controlled. The researchers tried to keep cultural variables from permeating the tests by selecting only experiences, knowledge and skills common to all cultures. Cattell's "Culture-Free Intelligence Test", the Raven's Progressive Matrices and the Draw-a-Person Test are the three "culture-fair" tests which have been mostly widely accepted and used. An examination of the latter two will take place in Chapter VI. Suffice to say at present that the evidence betrays the notion that <u>any</u> IQ test is really "culture-free" or "culture-fair."

2.4 <u>The Confusion Illustrated - A Case Study</u>

In the quest to shed light on the genetic/environment problem, Scarr and Weinberg (in 1976) carried out a study titled "IQ Test Performance of Black Children adopted by White Families." (Scarr and Weinberg 1976) These researchers found that the results of this study produced a finding of 'moderate heritability' - or that genes were responsible for IQ differences to a 'moderate' degree. This study, as have most studies around the heritability issue, has drawn criticism from both 'hereditarians' and 'environmentalists.' The results have been re-analyzed and 'shown as proof'

from both sides of the argument. Jensen, for instance, found the data suggested high heritability while Kamin says that the data is confluent to zero heritability. This 1976 study shall now be outlined and the results and conclusions of the three, Scarr and Weinberg, Jensen, and Kamin, put forward. Finally some conclusion for this thesis will be drawn.

2.4.1 The Study - Scarr and Weinberg

In order to separate genetic factors from rearing conditions so as to measure the effects of each, Scarr and Weinberg studied 130 black and interracial children adopted by advantaged white families. The design was proposed as an analogue to the cross-fostering design common to animal behaviour genetics research.

The study has its roots in the findings of other research that white adoptees fostered into upper-middle class white families score above average on IQ tests, but not as highly as the biological offspring of the same and similar families (e.g. Burks 1928, Leahy 1935, Skodak and Skeels 1949). The question in this study was how well do IQ scores of black children reared by white families compare to white adoptees and the biological children of these parents?

There were 101 families involved with 321 children four years of age and older. There were 145 biological children (81 male, 64 female), and 176 adopted children (101 male, 75 female) of whom 130 were socially classified as black and 25 as white. The rest included Asian, North American Indian, and Latin American Indian children.

Data for the study was collected from Adoption Records, School Achievement and Aptitude Tests, interviews with the members of the adoptive families and IQ assessments using age appropriate IQ tests (WAIS, WISC, Stanford-Binet).

The adoptive families all filled the classification of "highly educated" - exceeding the adopted childrens' natural parents educational level by 4 - 5 years. The black mothers were found to have one year less formal education than the black female mean in their age group, while the fathers of early-adopted black children had slightly more than the average education.

Forty four of the adopted children were placed in their adoptive homes by two months of age. The remainder had had one to six previous adoptive or institutional placements. Black children were seen in general to have had better placements than the

Indian/Asian adoptees. Eighteen of the adopted children had previously lived for periods with their biological parents. Seven of the Asian/Indian adoptees for an average period of 85 months, three of the white children for an average of 28 months and eight of the black children on an average of 36 months.

One hundred and eleven, including ninety nine black and interracial adoptees, were placed in the adoptive homes during their first year of life. The mean placement age was 22 months, but the median placement age was six months. Asian and Indian children were placed significantly later than either white or black children. The black adoptees were younger than the other groups and had consequently lived with the adoptive parents for fewer years.

Results of the study show that the adoptive mothers had mean IQs of 118 (range 96 - 143) and fathers 121 (range 93 - 140). The scores of the natural children averaged 116 (sd. 14.0). The mean IQ scores of the adopted children fell into the average range. Thus the adoptive children did not perform as well as either the adoptive parents or their biological children. Though the Asian/Indian adopted children scored at the population mean, the scores of the black and white adopted children were significantly above

The mean of the general population. The average score for children adopted in their first year of life was 111, while the later adoptees scored a mean of 97,5. Children with two biologicaly black parents achieved a mean IQ of 96,8 while those children with only one black parent scored and average of 109 IQ points. However, children with two black parents were significantly older at the time of adoption and had experienced a greater number of readoptive placements. Their parents had had an average of a year less education than the black/white group, and there were significant differences between the adoptive families of black/black and black/white children in fathers' education and mothers' IQ.

Selective placement by the adoptive agencies confuses the sources of variance. Natural mothers' education correlated between .22 and .26 with their natural childrens' IQs. Rather than estimate point values for the genetic and environmental contributions to IQ variations, Scarr and Weinberg used regression analysis. When social variables were entered first, they accounted for 31% of the total variance in the IQ scores of black adopted children. Biological variables added 4% without and 11% with fathers' education. When biological variables were entered into the regression analysis first, biological mothers' education and race accounted for 20% of the