THE MEASURED INTELLIGENCE OF IMMIGRANT

CHILDREN FROM THE INDIAN

SUBCONTINENT

Resident in Hertfordshire

RAMACHANDRA SHARMA

Thesis submitted for the award of the Ph.D. Degree

from

THE UNIVERSITY OF LONDON

June, 1971

ABSTRACT

There are many methodological problems associated with cross-cultural studies and these have not always been given serious consideration either by psychologists or anthropologists. One of the methods has been that of comparing equivalent groups across cultural borders. This has often resulted in interpretations of the observed differences in genetic terms. Also, certain assumptions have often been made regarding the tools employed and the samples compared. Their role in dictating a certain type of interpretation has been ignored.

These and other related theoretical matters are discussed in the first few chapters with reference to the studies of the intelligence of American Indians, Negroes and Africans. The use of Western tests of intelligence in studying the changes in ability that result when children from the Commonwealth countries come into the United Kingdom is justified.

The present study deals with the measured intelligence of immigrant children from the Indian Subcontinent. Two groups of such children living and attending schools in Hertfordshire are tested for their ability and the difference assessed for significance in terms of the degree of exposure they had to the environment here. They are compared with a group of school children in India and another group, here, of English children.

Various hypotheses are postulated regarding the changes that could be expected in the ability scores of the immigrant children and results analysed in terms of these hypotheses. Some other aspects of the schooling of immigrant children are also considered in terms of the data provided by the study.

In the concluding chapter the main findings are summarised. Suggestions are made for other studies that could be undertaken with this and other immigrant groups. Consideration is also given to what can be done in the context of English schools to educate these immigrant children in an efficient manner.

ACKNOWLEDGMENT

CONTENTS

CHAPTER 1.

CROSS-CULTURAL STUDIES: SOME THEORETICAL CONSIDERATIONS

Relatively speaking, psychologists are newcomers into the field
of cross-cultural studies. The pioneers were anthropologists and
ethnographers who, in the 19th century, showed an active interest in
the way people, other than the ones in the West, behaved and organ-
ised their lives. In the first few years anthropologists depended
on information contained in various documents for their comparative
analyses. These comparisons were made from the armchair (Berry, 1969).
Even when the investigators ventured into the field, it was mainly to
give a descriptive account of the many readily observable phenomena
in the lives of the people. The phenomena thus described in detail
were things like customs, rituals, tribal organisation and kinship
patterns. As Berrien (1967) has pointed out these descriptive
accounts from the anthropologists served a very useful purpose. They
formed the setting for the psychologist to test the generality of the
hypotheses which he had formulated, necessarily, in the context of
his own culture.

"Cross-cultural research is like virtue - everyone is in favour
of it, but there are widely differing views as to what it is and what
it ought to be" (Frijda and Jahoda, 1966). Many studies which have
been loosely called cross-cultural are in fact cross-national. A com-
parison of a group of German University students with a group of English
or American University students for any psychological trait - is it
cross-cultural or cross-national ? It would be very difficult to claim,
let alone establish, that there are no differences at all in the way
German culture and, say, English culture have expressed themselves
through the institutions they have created and the patterns of behavi-
our they have encouraged. On the other hand, one recognises that
there are more similarities than differences between the German culture

and the English culture. There are certainly more similarities between the two than there are between the German and the Indian or the English and the Nigerian. It thus becomes a question of the degree of difference between the groups chosen for comparison.

What is the characteristic of a cross-cultural study ? "It is the nature of the cultural context, whether of the subjects them- selves or the circumstances in which they live, that gives cross- cultural psychology its place in the sun" (Price-Williams, 1969). In other words, there should be an attempt in the study to relate the observed human behaviour to any of the features in the cultural context which are known to influence the behaviour. A particular aspect of behaviour may have its roots in the geographical peculi- arities of the place. Or it may have its roots in the methods of production traditionally employed. The particular behaviour may be attributable to the child-rearing practices in the community or the degree of literacy or familiarity with print and pictures. "The mere fact a research is done in Mexico, Zambia, Thailand or whereever, does not in itself make the investigation amenable to a cross-cultural analysis" (Price-Williams, 1969). He goes on to say "Unless, though, a cultural variable is clearly put to the test in researches, the resulting experiment or observation does not qualify for cross-cultural (or intra-cultural) inclusion.... the distinguish- ing feature is a salient cultural factor which is thought to influence some psychological mechanism".

It is not surprising, perhaps, that whenever a comparative study has been undertaken between two cultures one of them has been a cul- ture from the West and the other a culture usually considered prelit- erate, primitive or underdeveloped. The reasons for such choice are obviously the availability of personnel and resources, not only in terms of funds but also in terms of the necessary tools. Most psycho- logical tests have had their origin in the West and have necessarily been employed in the study of non-Western peoples. And it is in the

West that the tradition of scientific investigation into ways of
living other than one's own have been firmly established. It is
not surprising then that anthropologists and psychologists mostly
came from the Western nations of the world. What is encouraging
these days is the emergence of a number of free nations in Africa,
Asia and Latin America and the establishment of universities
resulting in investigations undertaken without their having
originated in the West.

Attempts have been made in the past to differentiate between
the so called primitive society and a Western one in terms of
certain features of social organisation. We have, for example, Doob,
(1960) broadly classifying societies into civilised and less civilised.
The characteristic features of a less civilised society, according to
Doob's thinking, are   1. Its members tend to live in small communi-
ties.   2. The members in it have face-to-face contact.   3. Social
structures are rigidly prescribed and there is strong pressure towards
conformity.   4. It is basically static yielding only slowly to
change. The beliefs held in it are characterised by absolutism.
Generally it is held that the order of the world was fixed from the
very beginning and that customs are hallowed by the experience of
generations.   5. Life in such a society is relatively simple and
there is little compartmentalisation of spheres of life. Work, family,
religion and the upbringing of children are all of one piece.   6.
Life's activities are mainly centred round the basic biological needs
and   7. Life is lived primarily in the present. There is little
planning for the future and emphasis is on continuity with the past.
Others have noted that while the Western man is essentially inner-
directed a member of one of the less civilised societies is tradition-
directed. It has also been said that the Western man is active,
individualistic and future-oriented.

Like any classification that may attempt to sum up societies, this
one of Doob also has the quality of an over-simplification. It seems

to ignore the fact that there are very few societies which have
totally escaped the impact of Western technology and Western modes
of thinking. Changes that have affected some of the primitive
societies, particularly since the second world war, have been very
sudden. The introduction of formal schooling into most of these
preliterate cultures has been a traumatic experience. Starting from
the basic assumption that growth of mind is growth assisted from the
outside, Bruner (1965) has pointed out that one of the significant
differences between a Western society and a primitive one is in the
way skills are transmitted to the young. In an industrialised
society the transmission of skills takes place mostly in the school
while in a primitive society it takes place in the context of life's
activities. There is no distinction between what one knows and what
one does in such a setting while knowledge in a Western society is
usually imparted in a detached and abstracted manner.

The investigations carried out in the context of different
cultures have been wide-ranging and have encompassed almost all
aspects of human behaviour both as an individual and as a member of
a social organisation. While anthropologists have concentrated their
efforts on an understanding of the relationship between the individual
and the society of which he is a member, psychologists have taken up
for their investigations every aspect of behaviour ranging from mole-
cular ones like the phenomenon of optical illusion (Rivers, 1905) to
molar ones like personality itself (Whiting, 1953). It has not always
been sufficiently appreciated as (Holtzman, 1968) has pointed out,
that the more complex the behaviour the more important are the cultural
variables as determinants of the behaviour. Cultural variations do not
matter when we are dealing with reflexes. But it has been shown
(Segall, Campbell and Herskovits, 1963) that cultural variations have
a certain effect on one of the components of visual perception, namely,
optical illusion. The higher up we go in the study of human behaviour
more and more cultural factors begin to matter and it is necessary to
exercise caution before we argue out a causal relationship between the

observed behaviour and the cultural factors.

The history of cross-cultural investigations indicates that a mere descriptive account of the way life is organised in a certain community or the way an individual member of such a community behaves has not given satisfaction to either the anthropologist or the psychologist. The search has been for a causal explanation of what is observed. What ecological factors have been responsible for the organisation of a community in a particular fashion and for the organisation of skills in an individual member of a community ? What are the stimulating circumstances which condition the differences in behaviour observed between two groups of people who have grown up in entirely different cultures ? There was also the growing feeling among cross-cultural psychologists that all general statements made regarding human behaviour seemed to be based on the observations of how the average white North American adult male or female specimen of homosapiens behaved (Foley, 1935). Questions were beginning to be raised about the universality of the laws of human behaviour arrived at only on the basis of studies conducted in the West. What guarantee is there that the higher mental processes of every people are the same ? "The higher mental processes of one culture may be the relatively worthless stunts of another" (Anastasi and Foley, 1949).

There has been considerable discussion about aims appropriate to any cross-cultural investigation. The rightness of the methods employed and their adequacy can be assessed only in terms of the aims of an investigation. Whiting (1954) has given us a clear enough statement of what he considers to be the appropriate aim for a cross-cultural study. He believes that its primary aim should be to test the hypotheses concerning human behaviour drawn from the theory of general behaviour science. The hypotheses thus tested are derived from theories of cultural evolution or from theories concerned with the integration of cultures. Some may also have been derived from theories concerning the individual and the society of which he is a member. The assumptions on which Whiting

bases his approach are   1.   that the customs of a society are
comparable to the habits of an individual and hence principles
which govern habits should be applicable to customs.   2. Customs
can be compared from one society to another. He grants that each
society, like each individual, is unique but claims that attributes
of the whole society can be abstracted and compared.

There have been criticisms of Whiting's approach. Customs are
actions. There may be a set of actions common to two cultures but
it is quite possible that they may have different significances.
Goldschmidt (1966) and Frijda and Jahoda (1966), in discussing the
problems of equivalence, stress the need for equivalence of meaning
before identical sets of action are taken for comparison. For example,
attending church is an action. It may be a custom too. To interpret
the data on church attendance only as an expression of religious faith
and to use it as a measure of religiousness would be wrong. In the
two hypothetical societies we are considering the church may not mean
the same thing. Whiting has also been criticised for what looks to be
his simple linear moulding-into-shape model. There is also a suggest-
ion in his conceptualisation that society stays static and that there
is a sort of a deterministic relationship between the forces within it
and the personality that it moulds. In Whiting's thinking it looks as
if the scope of science can be equated with just the hypothetico-ded-
uctive method. Strodtbeck, (1964) also points out that Whiting seems
to assume the existence of general laws of human behaviour and that
the aim of cross-cultural studies is just to produce more and more
evidence for acceptance of these universal laws. Whiting, as Strodtbeck
points out, does not seem to be interested in using the context of
cross-cultural comparison for generating new hypotheses. Strodtbeck
sees the value of cross-cultural studies to be just in this, namely,
the examination of a number of cultural behavioural systems and the
study of relationships within a culture in order either to modify the
original hypotheses or even to generate new ones. He sees the value
of cross-cultural studies in the opportunity they afford for "shaking

hypotheses free from particular sets of cultural entanglements and for catching strategic variables in new ranges" (Devereux, Bronfenbrenner and Suci, 1962).

Even towards the beginning of this century people were aware of the dangers of making hasty interpretations of the differences observed between two groups of people. Even as long ago as 1904 Franz Boas was expressing concern about the bias that creeps into the interpretation of a culture different from that of the investigator. For example, he says "It is given to no one of us to free himself from the constraints which life has placed on him. We think, feel and act loyal to the tradition in which we live. The only way of freeing ourselves is submersion in a new life and comprehension of a mode of thinking, feeling and acting that has not grown from the same roots as our own civilisation but that has its source in another cultural formation". We have Malinowski taking the thinking a little further and maintaining that every culture should be understood in its own terms; every institution should be seen as a product of the culture within which it developed (see Goldschmidt, 1966). It was perhaps as a result of the influence of such thinking that the comparative method in cross-cultural studies lost its popularity for a while. It was supplanted by the historical method that was recommended by leading anthropologists of the day. It was only towards the second world war that it began to be understood that comparison between contrasted cultures was not such an absurd undertaking after all.

The comparability of cultures and the co-ordinates for comparison have troubled investigators from the very beginning of their cross-cultural interests. The way out of the difficulty was not in the act of giving up any such comparison but to work out ways of being able to compare contrasted cultures on acceptable co-ordinates. Kluckhohn (1953) held that genuine comparisons are possible if we isolate units of behaviour which are not culture-bound. He asked himself whether there are not fairly definite limits within which the variation from culture to culture

is constrained by pan-human regularities in biology, psychology and in
social interaction. These limits and the accompanying trends towards
similarities in content and form surely make for categories of culture
which are universal. "Biological, psychological and socio-situational
universals afford the possibility of comparison of cultures in terms
which are not ethnocentric". The identification of these universals
will be possible only when many a culture has been studied in terms of
the institutions created to tackle the basic needs.

Goldschmidt's resolution of the dilemma shifts its focus from
institutions to social problems and solutions worked out in response
to some recurrent human problems. He suggests that comparison of
functions is valid. For example, one could study the work-jobs
requisites to the fulfilment of the biologically based needs of people
in different cultures. One could also study the organisational devices
which become necessary in each culture for the preservation of collab-
orative action demanded by these work-jobs.

Berrien (1967) is considering the same problem of comparability
when he suggests a solution in terms of studying institutions which
have the same objectives in different cultural settings. He suggests,
for example, the study of organisations like community volunteer fire-
fighting companies or parent-teacher bodies. The assumption he makes
is that given comparable objectives the organisational structures and
methods of operation reflect the cultural values. The investigator
starts with contrasting groups known to be different in some group -
defining characteristic or characteristics on the assumption that the
populations exhibit in their behaviour the effects of their cultural
milieu which, like rain, affects all segments of the group as a whole.

One may question the validity of the basic assumptions of this
approach. The cultural milieu, like rain, does not affect the various
segments to the same extent. There are complex societies wherein the
differences between groups representing subcultures within the whole are

known to be much greater than the differences obtained across two whole cultures. There is also the logical consideration that generalising from sample to population is not valid unless the generalisations are checked in other equally specific and different conditions.

Berry, (1969) does not see a great deal of difference between the approaches of Goldschmidt and Kluckhohn or Berrien. The study of work-jobs requisites and the organisational devices can be concept-ualised in terms of Kluckhohn's pan-human regularities. It has also the advantage of not begging the question of universals and has defin-ite uses for the psychologists who are faced with having to resolve the dilemma. The problems faced by psychologists are not different from the ones faced by anthropologists. If we substitute behaviour for institution we see that the methodological problems continue to be the same. Aspects of behaviour become comparable when they are functionally equivalent or, in other words, where they are attempted solutions to recurrent problems. Once we know what behaviour embodies the attempted solution we can work out a comparable descriptive frame-work, valid for both settings, by an internal description of the behaviour in each setting. We could then attempt to construct and apply instruments which gauge such behaviour. Frijda and Jahoda, (1966) have stressed the importance of the adequacy and comparability of descriptive categories.

The theoretical problems bedevilling any cross-cultural investi-gation are to be seen clearly when we look at investigations of the two molar aspects of human behaviour, namely, personality and intelli-gence. There have been serious problems associated with the very definition and assessment of personality (Vernon, 1964). If some of these problems have not been solved satisfactorily when the study of personality has been undertaken intra-culturally, one can imagine the difficulties encountered when it is studied at the cross-cultural level. Berry is rightly critical of the many investigations into cross-cultural

intelligence. Most of these attempts have been made without having solved some of the basic theoretical problems. Over the last four decades the concept of intelligence has changed considerably. There was a time when most people believed in the concept of "fixed intelligence", even though Binet as far back as 1909 warned against the pessimism of some psychologists' thinking. ".... Some recent philosophers appear to have given their moral support to the deplorable verdict that the intelligence of an individual is a fixed quantity .... we must protest against this brutal pessimism." (quoted by Hunt, 1961). Some of the changes that have taken place in the concept of intelligence have been due to the growing appreciation of the role of the environment into the making of intelligence. We have, for example, Ferguson, (1956) trying to evolve a unified theory of intelligence and learning. He says "Cultural factors prescribe what shall be learned and at what age; consequently different cultural environments lead to the development of different patterns of ability. These abilities which are culturally valid, and correlate with numerous performances demanded by the culture, are those which show a marked increment with age". We have Greenfield and Bruner (1966) saying that "intelligence is to a great extent the internalisation of tools provided by a given culture". MacArthur (1968) is quoting almost verbatim from Ferguson, when he says that "Since cultural influences prescribe what should be learned and at what age, different cultural environments can lead to different patterns of abilities at different ages. The patterning of abilities varies a great deal from culture to culture and the degree, form and correlates of this variation can be a matter of empirical cross-cultural research". We have again Irvine (1969), saying that "A theory of intelligence conceived with cultural influences on learning as its core would be logically more coherent than others which do not recognise this centrality. Briefly, its main contention would be that the experiences which constitute the stuff of mental development diverge culturally through the process of their encoding in language, ecological differences in adaptation to environment, and the value systems upon which judgments of individual merit depend. It would stress

not the absoluteness of mental ability so much as relativity of
learning process and emphasis in different societies and subgroups".
After taking a look at the studies of intelligence in different cul-
tural settings Berry questions the validity and hence, the value, of
the contributions made. "If peoples with differing cultures and
ecologies tend to develop and maintain different sets of skills, then
the concept of intelligence, or its equivalent is bound to be defined
somewhat differently in each society". He points out that no compari-
sons are possible until each society's pattern of responses to ecological
and cultural demands have been thoroughly investigated. Only skills
developed in response to a shared problem may be validly compared. Such
tests of specific skills have, of course, their practical use in training
and personnel selection. They have little use in solving the theoreti-
cal problems underlying cross-cultural investigations. Even tests of
intelligence B sample just a fragment of what could be considered
intelligent behaviour while intelligence A has not been proved to be a
universal category.* The tests according to Berry have limited use in
working out a satisfactory theoretical framework for a study of cross-
cultural intelligence.

These problems are certainly not peculiar to the field of cross-
cultural studies. We have met them before, intraculturally, when
theories were being worked out at the same time as innumerable investi-
gations into how learning takes place. There should be no problem
associated with carrying out useful cross-cultural studies while making
attempts, at the same time, at working out a valid theoretical frame-
work.

The problem of sampling was touched upon briefly in considering
Berrien's ideas about what is the appropriate objective of a cross-
cultural study. The appropriateness or otherwise of the sample chosen
cannot be considered without reference to the objective held. If, for
example, one has undertaken a descriptive study representativeness
becomes a very important factor. When the aim is to give a causal

_____

* A—Innate Potentiality; B— Observed level of intelligent behaviour
(Hebb, 1949)

explanation of the behavioural phenomenon then representativeness is not such an important factor. The object is to explain the phenomenon in terms of the circumstances which stimulate it. In such under- takings the comparability of the two samples is most essential. The conventional division of studies into taxonomic and nomothetic is perhaps all right as far as it goes but is not valid, as Frijda and Jahoda (1966) point out, when complex relationships among the variables are the objects of description. When the object is not the mere study of variables as such but the cluster of relationships among them the distinction between the two types becomes blurred. Berrien, like Frijda and Jahoda, stresses the need for comparability of samples across cultures when one is undertaking a nomethetic type study. The samples should be equivalent on many a demographic variable. Even when such equivalence is achieved the final proof of the rightness of the causal explanation may require nationwide samples defined by a number of variables that represent each population considered separately.

The assumptions underlying the use of a particular instrument in cross-cultural comparisons again have a direct bearing on the inter- pretation of the observed differences. They have a particular relevance to the studies of the abilities of different cultural groups. If a particular psychological test is assumed to be culture-free then we are forced to explain the observed differences in terms of genetically determined or inherited factors. For example, Porteus, in using his Mazes test was making this specific assumption that his instrument was culture-free. In other words he was saying that the ability that was being measured was not affected either by the cultural or ecological factors and hence was forced to interpret the differences, say, between the American whites, and the Australian bushmen in terms of inherited intelligence. If he had not started with the assumption perhaps he would have sought explanations of the observed differences in terms entirely different from the ones he chose. We have Pintner (1931) making a similar assumption about the test of intelligence he devised. His conclusions about the difference between the American whites and

the Negroes are again couched in very similar words. "In the case of
the Negro and perhaps in the case of the Indian we have a race of
inferior intelligence as measured by our present intelligence tests
when compared with American whites." Pintner looked for explanations
of the observed differences in terms of the degree of white blood
entering the various mixtures of the two races and concluded "The
greater the amount of white blood.... the greater is the intelligence
of the resulting progeny, and this takes place because of the inherit-
ance of mental ability." We have here an instance wherein an assump-
tion was made to the effect that the instrument was culture-free and
so it was felt necessary to explain the differences not in terms of
environment but in terms of genetically determined factors.

The quest for a culture-free instrument for measuring intelligence
started when it was realised that verbal tests of intelligence favoured
certain cultural groups. It was argued that if the demand for verbal
reasoning present in some of these tests was removed, and verbal items
replaced by non-verbal items, then these tests would be fair to one and
all. In this connection we can think of the attempts made by Porteus
and Pintner to devise such culture-fair tests of intelligence. However,
it was soon realised that even these so-called "culture-fair" tests
were not totally free from the bias in favour of certain cultural groups.
There was also the realisation that different cultures demand of its
members different sets of skills. Cultural variations have their effect
made felt on the development of all skills including the non-verbal ones.
One need not go as far as Anastasi and Foley and say that "the higher
mental processes of one culture may be the relatively worthless stunts
in another" but still appreciate the point they were making. It was at
about this time that it was felt that it should be possible to carry out
an inventory of only those experiences common to all humanity and then
devise an instrument which could be applied anywhere under the sun. But
when one got down to the actual task of constructing an universally
valid test one discovered that the items included were of such an element-
ary nature as to be utterly useless as predictors of success. In short,

they had very little validity.

It has been generally accepted that the search for a culture-free or culture-fair test of intelligence is not sensible. As Wesman (1967) puts it, "A culture-free test would presumably probe learnings which had not been affected by environment - this is nonsense. A culture-fair test attempts to select those learnings which are common to several different cultures. In the search for experiences which are common to different cultures the vital matter of relevance of the learning for our purpose is ignored". Biesheuvel (1952), discussing the same issue has said that "The culture-free test is, in fact, a contradiction in terms as intelligence is itself a culturally determined phenomenon." Bruner (1966) has said the same thing when he remarks "culture-free means intelligence-free". Returning to a further discussion of the same issue, Biesheuvel (1969) has said "Culture-free tests do not exist, because the behavioural functions measured by test - other than those at a psycho-physiological or sensory level - are all culturally determined. Manner of thinking, for example, is strongly influenced by linguistic structure, by semantic categories, and by the way the world is perceived and interpreted. Merely changing a test from a verbal to a pictorial or diagrammatic form, assuming the latter to be equally familiar to different cultures, - which is by no means always the case - does not alter the difference in logical or conceptual approach which it will evoke".

The best known among the so-called culture-free tests of intelligence are Goodenough's Draw a Man test, Leiter's International Performance Scale, Cattell's Culture-free Test of Intelligence and Raven's Progressive Matrices. When Goodenough, in the twenties, came out with her ability test, she assumed that it was culture-free and hence made interpretations of differences between the various groups of people in terms which were no different from the ones employed by Porteus and Pintner. Over the years, however, she realised that performance on her test of intelligence was again a function of the many aspects of the previous experiences of the subjects. Writing in 1950 she has said that "The search for a culture-

free test, whether of intelligence, artistic ability, personal-social characteristic, or any other measurable trait is elusive and .... the naive assumption that the mere freedom from verbal requirements renders a test equally suitable for all groups is no longer tenable." She goes on to say that her earlier study reporting differences among the children of immigrants to the United States were certainly no exception to the general rule and adds,"the writer hereby apologises for it".

The use of Leiter's International Performance Scale and Cattell's Culture-free Test of Intelligence is equally questionable. Between the culture-loaded test and the so called culture-free test the difference is only one of degree. As has been pointed out by Anastasi (1958) and Biesheuvel (1949) the use of pictures and abstract material definitely favours members of a culture wherein there has been for a long number of years the use of such materials. There are societies, even to-day, where representative drawing may not be known or may be taboo and abstract material not related to any of the objects used in daily life may appear utterly devoid of any significance. In many representative drawings there are certain cues present which aid the recognition of the object represented and attending to these cues and drawing the inference about the object are skills either learned or not learned. There is also the problem of a testing situation being either similar to or different from the learning situation present within the culture. In a Western society the test situation is not different from the work-at-school situation while in a preliterate society where learning takes place mostly in the context of action in every day living, the test situation is something entirely alien.

Strodtbeck (1964), has pointed out that".... cross-cultural research must proceed without culture-free instruments if it is to proceed at all". If we accept this then we have to ask the question whether there is any value in using a test which is known to be culture-bound and performance on which is affected by the whole complex of

previous experiences of the subject within the culture. Provided we
take care in interpreting the results found by the use of such a
culture-bound test we can use it for cross-cultural comparisons. The
need for the awareness that a test of intelligence may be measuring
different things in different cultures is emphasised by Irvine (1966),
and Hudson, Roberts, Van Heerden, and Mbau (1962). Irvine has pointed
out that ".... amount of schooling and quality may have very little
affect on non-verbal tests like Progressive Matrices, Porteus Mazes
or Draw a Man in Western cultures but may have greater effects in
societies where intellectual stimulation by the home is lacking".
Hudson et al have pointed out that "When psychological tests are
constructed and administered in the culture in which they were
constructed there is a likelihood that the variance which the tests
measure in the candidate's performance is a variance due to individual
differences .... when such Western testing procedures are applied to an
alien .... group, it cannot be expected that the variance found will be
caused by individual differences. What the tests predict is not
individual difference in mental endowment, but acculturation difference."

A case can be and has been made out for the use of a test which
maximises cultural differences. When an instrument of this kind is
employed with two cultures which are, to start with, very different we
have a very much wider range for the variables which affect the develop-
ment of skills. There is hence the possibility of the relationship
between skills and their stimulating circumstances emerging very clearly.
If we come across certain deficiencies in the skills and if these can be
related causally to certain aspects of the environment then we have the
chance of being able to modify the environment and hence the development
of skills. The value of using tests which have originated in the West
is, ultimately, to be considered in the context of what our aims are.
Our aim should not be to grub around for ethnic differences but "to study
the effects of controllable environmental factors in developing various
types of ability within a particular culture or between contrasting
cultures" (Vernon 1965a). Vernon justifies the use of Western tests on

the grounds that most of the developing and underdeveloped nations
have accepted the affluence and the technological expertise of the
West as the goal towards which they ought to be working. If the
West has attained a status which is the dream of the underdeveloped
nations it is because of certain skills that people in the West
possess. The tests of ability which have been developed sample
behaviour for the possession of these skills. Before developing
nations can hope to progress they should look into the problem of
why their peoples are deficient in some of these skills and what
can be done in order to teach them. It is thoughts about the effect
of controllable environment that makes Vernon consider this to be
the major responsibility of applied psychology in the second half of
the twentieth century. (1965b)

Like Vernon, Ombredane (1957) and Biesheuvel (1958) are also
thinking about the modifiability of behaviour by changing the
environmental conditions. Talking about his own cross-cultural
investigations Ombredane says ".... as far as my own research is con-
cerned the practical purpose is simple. It is to estimate to what
extent black men, brought up in their own customary environment, are
capable of responding to the demands of work in a white environment,
and to see at what precise stage, they reach the level of white men
in the undertaking". Biesheuvel's aims are similar. One of the aims
he has in studying the test behaviour of Africans is to determine the
extent to which behaviour is modifiable. He asks himself questions
about the environmental factors that affect psychological development.
He would like to look into the order and the magnitude of the effects
of these factors and suggests undertaking longitudinal studies intra-
culturally in order to determine the limits of modifiability of
behaviour.

The use of Western tests has been particularly justified in
dealing with people who have left their own cultures and migrated into
others. When people come from countries in Asia or Africa into Great

Britain, Canada or the United States of America, they hope to compete
with the local people for education and later for jobs. Their chance
of success in this enterprise will depend upon their mastering the
skills which are valued by the host society. The tests of ability
employed in these societies have been found to be useful in discrimin-
ating between one individual and another as for their intelligent
behaviour. When we use a test of intelligence in a culture we are
making the assumption that certain skills, like methods of reasoning
and applying them to the solution of problems, are learnt more or less to
the same extent by all its members. But when we are thinking of people
who have come from a different culture we cannot make this assumption.
Miller, Galanter and Pribram (1960), have said that "Intelligence,....,
would appear to be a matter of the number of strategies for processing
information that have been differentiated and have achieved the mobility
which permits them to be available in a variety of situations". The
immigrant population will have to modify the strategies which they bring
with them and even have to learn new strategies in order to cope with
the demands made by the host culture.   The use of Western tests of
proven value can be justified if our aims are to explore the repertoire
of skills brought by these immigrants for the strengths and weaknesses
they exhibit. A longitudinal study undertaken with such an immigrant
group can reveal to us the changes that take place in their abilities
as a result of continuing exposure to a new culture.

Tests of intelligence have been used in the past on the various
immigrant groups that went into the United States of America. But
there was generally insufficient appreciation of the connection between
the assumptions made and the interpretation one is forced to offer at
the end of the investigation for the observed differences. For example,
the immigrants into the United States from some of the European count-
ries have been assumed to be representative of the general populations
of the countries they came from. On this assumption comments have been
made about the populations as a whole. Attention has already been
drawn to the need for caution in generalising from any sample to its

population. Greater care is obviously necessary when it deals with
groups coming from different cultures. A particular section of a
population in a country is more likely to venture into a new life
than another section. In the past it has been suggested that the
section that migrates into a place like the United States has a
greater motivation to succeed and has a certain vigour within the
members which enables them to face new challenges. While this may
or may not be true, it may also be maintained, and with equal justi-
fication, that those that experienced success and satisfaction in the
context of their own culture did not feel the need to migrate into
other countries. Rarely are all sections of the original population
represented among the immigrant groups. Again, different forces are
operative in different populations and as a result, more of the
skilled labour may emigrate from one culture while more of the
unskilled may emigrate from another. Hence it would certainly be
not logical to make a comparison of different immigrant groups with
the object of exploring the differences and similarities in the skills
they possess because the groups are not comparable. · It would be ⁓
equally illogical to assume that these immigrant groups represent the
original populations and make comments about the skills, characteristic
of the countries represented. For example, in the year 1967, a census
was taken of immigrant families from the Indian Sub-continent with
junior school-going children residing in Hertfordshire. It was found
that more than 60% of these families had come from the single province
of the Punjab in India. There were quite a few provinces in India
which were not represented at all. To assume that this immigrant
sample represents the entire population of India as a whole would be
wrong. Such an assumption would lead us to conclusions entirely
unjustified.

The need for comparability of samples in a comparative study across
cultures was mentioned earlier (Page 17).· The relationship between the
assumptions we make regarding the equivalence of samples and the con-
clusions drawn is as important as the one that exists between the

assumptions regarding the instruments and the conclusions. The method-
ological problems involved can be seen very clearly when we take a look
at the studies of Negro intelligence undertaken over the years in the
U.S.A.

Surveys of such studies and reviews thereof can be seen in Dreger
and Miller (1960, 1968) and Shuey (1966). The basic findings are well-
known. Negroes test about one standard deviation (or 15 points) lower
than whites on most tests of intelligence and this deficit is less
marked among preschool children than among adolescents and adults. We
have also the nationwide study of Coleman (1966) which considered
Negroes and American Indians in comparison with whites. This study
tried to equate samples included for comparison on assessments of a
dozen or so environmental variables and socio-economic indices such
as reading material in the house, presence of cultural amenities,
structural integrity of the home, foreign language in the home, preschool
education, parents' education and their educational aspiration for the
child, parents' interest in the child's school work, time spent on home
work, child's self-concept etc. These variables were chosen as they
were considered to be major sources of environmental influence in
determining individual and group differences in school performance.

Jensen (1969) has drawn heavily both from Shuey's survey of
studies of Negro intelligence and Coleman's study to substantiate his
claim that there is a genetic basis for the differences in ability
between Negroes and whites and Negroes and Indians. He argues that
explanations of these differences strictly in terms of differences in
environment are unjustified and offers as proof the findings that Indians
test about half a standard deviation higher than the Negroes even though
on every one of the environmental indices considered by Coleman they
measure lower than the Negroes. The difference in the ratings between
the two is of the same magnitude as the one between the whites and
Negroes.

We have here an instance of the assumption that a dozen or so

environmental variables can sum up a complex like environment adequately. There is also the assumption that the disadvantaged situations of Negroes and of Indians are comparable and are always expressed in the same form and in the same direction. Crow (1969) has pointed out that Coleman has not included in his environmental rating some variables associated with being black in a typically white environment. Hunt (1969) has drawn our attention to the fact that "....;...........;.... black people have had more than a century in slavery and then, since the war between the states, another century in both poverty and the bondage of 'folkways' ". In superficially comparing the Indians and the Negroes, Jensen, like Coleman, is ignoring the histories of these two disadvantaged peoples which are certainly not the same. There is almost no attention given to the special conditions of the Indians, their history, their current social organisation (Deutsch, 1969) and the fact that American Indians typically go to schools where whites are in the majority which is not the case for most of the schools attended by black children.

The methodological inadequacies of Coleman's study have been pointed out by many psychologists. In numerous categories there was a return of less than 50% on the questionnaire. The questionnaires were filled out by school administrators, teachers and others of varying levels of sophistication. In some cases the data were collected by untrained interviewers working with an unfamiliar questionnaire. They were expected to put searching questions in order to assess environment for variables like reading material, cultural amenities, preschool education and parents' aspirations etc. (Deutsch). Crow has drawn our attention to the fact that some big school systems did not participate and to the subjective element that crept into various administrators' judgment that black-white facilities were separate but equal. We cannot be expected to pay a great deal of attention to Jensen's conclusions based on an inadequate study like Coleman's.

As for Jensen using Shuey's survey of studies of Negro intelligence

and drawing conclusions thereon, one may point out that most of these studies have adopted the strategy of matching a group of whites with a group of Negroes. Shuey's conclusions, like Jensen's, are the consequence of the basic assumption that the groups compared are equivalent. The mere fact that a number of concordant investigations exist has been used by Shuey to support a genetic rather than an environmental explanation for the observed differences and has been rightly criticised by Dreger and Miller and by Vernon (1969). As for equating Negroes and whites on certain environmental variables, Dreger and Miller have pointed out that it is not enough if we consider things like social class and economic variables and that there is a caste as well as class difference and that Negroes, with earnings equal to or better than that of whites, will still be typically prevented from living the same kind of life. Discussing the difficulties in conducting a comparative study which involves the strategy of equating groups Brown (1944) has said "the problem of socio-economic status as it affects the Negro remains stubbornly insoluble so far as an accurate equating of groups is concerned as long as occupational opportunities are not the same for both whites and Negroes". Klineberg (1928) had already pointed out that there was "no justification for equating a Negro and a white lawyer or doctor. The gap between the two is enormous, and it can never be bridged by the Negro. He must work among his own people; he must get along without a great many of the social and educational opportunities which the white enjoy". Deutsch (1969) points out that it may take two or three generations of a real middle class status before a black man will be able to get the kind of socialisation advantages that most white people enjoy to-day. When one considers all these aspects and also takes into consideration the effects on motivation of the realisation of being a member of a minority group that has been given a second class status one cannot claim that we are dealing with two equivalent groups.

Even if we are prepared to forget that in most of these studies a child's environment (Environments are cumulative and until researches

can account for the complexity of environment, statements about
the proportional effects of heredity and environment are premature" -
Stinchcombe, 1969) is very narrowly defined, we still have problems
associated with the environmental variables generally considered.
The usual strategy of picking out some cut-off points on the contin-
uous variable of socio-economic status and classifying people above
a certain cut-off point as middle-class, upper class etc., is itself
questionable as the mean class position for middle class Negroes is
much lower than that of the whites. As Stinchcombe points out
"Rockefellers, Mellons and du Ponts are more under-represented among
Negroes than $ 20,000 a year men; $ 20,000 a year men are under-
represented than $10,000 a year men....." Again, there is the pro-
blem of equating parents for their éducational level. Ten years of
a school predominantly Negro are not the same in terms of the quality
of educational experience had as ten years in a better-staffed and
better-equipped school attended by whites.

Even when a Negro child attends a desegregated school we cannot
claim that his environment is the same as that of a white schoolmate
of his. The out-óf-school hours are still spent in an environment
that is poorer than that of his white friend. There is also the
problem that "When the Negro child broadens his environmental contacts
by going to school (and to and from school) he is made more aware of
his inferior caste status, and this has the same depressing effect
on his performance that his inferior caste status had all along"
Deutsch, 1965). The awareness, as a Negro child grows up, of there
being very few opportunities for vertical mobility has its effects on
the child's motivation to do well at school. He is likely to inhibit
his aspirations as they are likely to be construed as arrogant and
presumptuous. Inhibition of such behaviour may partly be the reason
why the intelligence of a Negro child shows a decrement as he grows
older. The situation can be summed up in the words of Bodmer and
Cavalli - Sforza (1970): "The very existence of a racial stratifi-
cation correlated with relative socio-economic deprivation makes this

comparison suspect....... No amount of money can buy a black person's way into a privileged upper-class white community, or buy off more than 200 years of accumulated racial prejudice on the part of the whites, or reconstitute the disrupted black family, in part culturally inherited from the days of slavery. It is impossible to accept the idea that matching for status provides an adequate, or even a substantial, control over the most important environmental differences between blacks and whites".

The methodological problems in equating groups chosen for comparison are the same whether we are comparing Negroes and whites or whether we are comparing groups of English and Indian children. What was said of the quality of experience available in a Negro school holds good for most of the schools in India to-day. Similarly, an unbridgeable gulf exists between the home of an Indian doctor or teacher and that of his British counterpart not only in terms of the physical comforts but also in terms of the opportunities provided to the young for developing various skills. Again the range in the life-styles of a professional man in India and an unskilled worker is much narrower than that to be seen between similar ones in England. That is why, perhaps, the distribution of intelligence among non-Western peoples (Negroes included) has not reflected reliably the hierarchical pattern of the various social classes.

Warnings about the dangers in making ill-considered interpretations of observed differences between ethnic groups have not been wanting. In 1928, Klineberg wrote "Many Anthropologists (notably Prof. Franz Boas and his former pupils) and Psychologists have pointed out that there is a whole complex of factors, independent of races, which may account for the observed differences, and that we have no right to accept the hypothesis of the innate superiority of any one race over any other until these factors have been included". Berrien (1967) has pointed out that "until we attain variables which are universally applicable, manage to minimise our own ethnocentricism and can count on readers having a similar universal set of anchor points, it is

necessary to recognise the cultural bias of interpretive statements".

It is not surprising, then, that people like Berry (1969) Biesheuval (1949) and Frijda & Jahoda (1966) have questioned the value of investigations into molar aspects of behaviour, like intelligence, undertaken cross-culturally. A consequence of the growing awareness of the complex role of the many, as yet dimly understood, cultural variables, in the formation of abilities has been the shift of emphasis from comparing cultural groups for intelligence into the patterning of primary abilities among non-Western peoples (Vernon, 1969). Another consequence has been to make a change in the strategy to assess the effects of a cultural environment on the abilities of its members. The characteristic feature of this strategy is to look into the effects of improvements in environment on the skills of a cultural group. In other words, a longitudinal study is undertaken, intra-culturally, to trace the changes that take place as a result of continuing exposure to a changed cultural environment. Such thinking is summed up by Biesheuval (1958) when he says that "The method of determining limits of modifiability (of behaviour) intraculturally by longitudinal studies is much sounder than the cross-cultural studies of the conventional type in which differences between matched groups are measured at some cross section of time, as it is quite impossible to equate all environmental influences or to match equally represent-ative samples".

CHAPTER 2.

CROSS-CULTURAL STUDIES - FACTORS THAT AFFECT PERFORMANCE

We have seen how and why the conventional approach, using the technique of control-group, is inadequate because of certain factors in the environment. These factors, among which are nutrition, child-rearing practices, parental intelligence and home environment, can be thought of as influencing the very development of intelligence in an individual. Biesheuvel (1949) calls such factors intrinsic and distinguishes them from some others which have no effect on the underlying ability but influence the level of performance within the test-situation. He calls these the extrinsic factors. They are, mostly, aspects of the actual test-situation like investigator - subject relationship, mode of test administration and response-sets evoked by test materials.

Vernon (1969) has pointed out that it would be a mistake to draw too sharp a line between extrinsic and intrinsic factors. If a certain test material evokes different associations in different cultures it will not only affect performance in the test situation but also will have had its effect on the development of the skill needed to solve the problem stated. For example, inhibitions may be set up in an Arab child against recognising objects represented pictorially as a result of the taboo associated with such represent-ation. Thus the distinction between extrinsic and intrinsic factors gets blurred.

Vernon has suggested a way of classifying factors as extrinsic and intrinsic in terms of the effort needed to reduce or eliminate their effects. Minor modifications of the test situation may be enough to remove the effects of the extrinsic factors and help the subject produce his maximal performance, while the influence of the

intrinsic factors may be removed only by undertaking a programme
of education and training over an extended period of time. In
other words, radical changes in the cultural environment are
considered as being necessary to eradicate the effects of intrinsic
factors.

When we are comparing performances of two groups of people we
are assuming that each and every member of the two groups is produc-
ing his maximal performance. Such an assumption is justifiable only
when the two groups are drawn from the same cultural population.
The tasks set have the same relevance to members of both the groups
and the effect of the examiner on the subjects can be assumed to be
the same and so ruled out as a factor producing any variance. We
cannot make this assumption when we are dealing with different
cultural groups. For example, the effect of a white examiner on a
Negro adolescent cannot be the same as on a white American adolescent.
The Negro's attitude towards the specific test situation is part of a
general attitude towards white people as such. The history of Negro-
white relationship should be considered in assessing the effects of
an attitude crystallised over generations. It is not illogical to
suppose that such an attitude of frustration, hostility and cynicism
will have had its effect on the formation of the underlying ability
in addition to affecting the test performance. Discussing the effect
of a white examiner on black children Brazziel (1969) has asked "Their
(the white examiner's) voice, manner, gestures turn many kids off, and
they refuse to try. This phenomenon is growing in intensity and must
be dealt with. How are you going to have a valid test session with
kids who read in black papers and magazines that white researchers are
sending their kids to Harvard by over-studying the black communities
with federal grants ? Or with kids who received a leaflet from a
community group blasting tests as an "unfair tool of Colonialists who
control the black community ?" Even with very young Negro children
the presence of a white examiner is known to inhibit their verbal
response behaviour (Passamanick and Knoblock, 1955).

Even when there is no such obvious hostility or suspicion in
the mind of the subject it still stands to reason that an examiner
belonging to an ethnic group different from that of the subject
arouses expectations which have a bearing on the test performance.
A test situation is basically artificial having a certain ritualistic
aspect about it. There is role-playing on the part of the examiner
and such role-playing has come to be accepted as nothing uncommon in
the test-wise atmosphere of the West. Matters are entirely different
in a country like India where such a session with a strange adult is
something entirely unkown. Role-playing or making appropriate
responses to someone else's role-playing is not easy when you find
yourself in a totally strange situation. Matters are much worse
when the examiner turns out to be an Englishman speaking English.
Even to-day, as far as most Indians or Pakistanis are concerned,
an educated man is one who speaks English fluently and like (what
the Indian imagines to be) an Englishman. The immediate response to
a situation of this kind is to assume an attitude of deference. In
most of the societies which, till recently, were ruled by the British,
the white man is still the alien authority figure in whose presence
an attitude of deference is considered appropriate. Surely, such an
attitude has an inhibiting influence on the subject's test-behaviour.

The ethnic characteristics of the white examiner and the use of
English in a black or brown non-English speaking setting affects
negatively the identification of the subject with the test situation.
As such, it affects the quality of performance produced. Canady (1936)
studied the effect of "rapport" on the I.Q. by studying a situation in
which some Negro and some white children were given Stanford-Binet by
Negro and white examiners. Some of each group were tested by white
examiners first and some by Negro examiners first. It was found that
there was a mean rise of 6 points when the examiner was of the same
ethnic group as the subject. Anastasi and Cordova (1953) have also
pointed out how the language of instruction and the skin colour act as
reduced cues for group identification and affect the quality of

examiner-subject relationship. Katz (1967) has made some significant
contributions to the study of this problem. Arguing that the strength
of the impulse to strive for success is a joint function of the
person's motive to achieve and of the subjective probability of
success, he administered a digit-symbol task to some Negro male
freshmen telling them that their scores would be evaluated by compari-
son with those of freshmen in other predominantly white colleges. By
means of false feed-backs about their scores one third were led to
believe that they had little chance of catching up with the white norm,
one third an even chance and one third a better chance. Half of each
group was tested by a white examiner and half by a Negro examiner. He
found that in the low and intermediate probability conditions, perform-
ance was better with a Negro examiner . This gap was closed when the
stated probability was high. Negro students, who were poor achievers ,
were discouraged by the prospect of being evaluated by a white person.
Those with a history of high academic achievement seemed to accept the
same prospect as a challenge - regardless of the objective probability
of success. Katz interprets the results in terms of there being dif-
ferential needs for reinforcement from outside between Negroes and
whites. Such considerations are very relevant when children's standards
are basically reflective of what is expected of them. Like with Negroes,
such reflective achievement standards are characteristic of Indian
children too, where the pressure on an individual is always on living
up to others' expectations.

The language in which instructions are given even when the test
administered is non-verbal can affect performance in the same way as
the race of the examiner. The need for some verbal communication
between the subject and the examiner can never be completely removed
from any test-situation and if we succeed in the attempt we will only
make the situation so artificial as to make it utterly meaningless.
Mime has been tried in the past and was found wanting when instruct-
ions had to be given regarding a complex problem-solving task. The
problems of translating instructions from one language to another are

well-known. Certain words in some of the non-European languages
have different significances depending upon the context in which
they are used (Frijda and Jahoda, 1966). Using any such word
in the context of giving instructions may result in connotations
unintended and irrelevant to the problem posed.

The way out would be to make use of an interpreter drawn from
the group to which the subject belongs. This brings in its wake
its own problems and introduces variables which affect the results.
Such contaminated results cannot be used for making valid compari-
sons between cultural groups. There is also the problem that the
interpreter usually is a figure within the society who represents
authority. If we are dealing with workers in a factory the inter-
preter is, more often than not, a foreman. If it is a school situa-
tion the interpreter is likely to be one of the staff. In either
situation, his presence is likely to inhibit the behaviour of the
subject. There is also the likelihood of the subject being anxious
about the impression he is making on the interpreter. It has been
the experience of most investigators that interpreters rarely stick
to their brief. They may offer comments on the subject's perform-
ance quite unintentionally either through a word or gesture and then
make the results invalid for use in comparison.

A subject's motivation in a test situation is to a certain
extent dependent upon his finding the test relevant to his exper-
iences. Where the purpose of the exercise is not made relevant the
subject is likely to treat the whole thing as a joke and so produce
an indifferent performance. Relevance should be experienced not
only with regard to the test situation but also with regard to the
problems which are contained in the test. This problem of relevance
is very important when a test of verbal reasoning is being used across
cultures. There are always some items in a Western test of verbal
intelligence which are not appropriate, when used outside the West,
because of either their content or form. Substitution of culturally

relevant items which still demand the same reasoning as the original items is not easy. Pressey (1933) has described a situation in which an investigator was using the American version of the Binet scale with some disadvantaged children in the mountainous regions of Kentucky. In answer to the question "If you went to the store and bought 6 cents worth of candy and gave the clerk 10 cents what change would you receive?" a boy replied "I never had 10 cents and if I had I wouldn't spend it for candy, and anyway candy is what your mother makes". The examiner tried again. "If you had taken 10 cows to pasture for your father and six of them strayed away, how many would you have left to drive home?". The boy answered "We don't have 10 cows, but if we did and I lost 6, I wouldn't dare go home". The examiner made a final attempt. "If there were 10 children in a school and six of them were out with measles, how many would there be in the school ?". The answer came promptly. "None, because the rest would be afraid of catching it too." This incident highlights the problem of relevance that is so frequently come across in a cross-cultural context. All the equivalent situations the invest-igator thought of to find out whether the subject could take away 6 from 10 were useless as they were not meaningful in terms of his exper-iences.

In dealing with cultural groups very different from the one for which a verbal test was intended investigators have been forced to make a series of compromises. Often, objectively defined equivalence had to be given up for the sake of creating conditions for optimal performance and thus, as Frijda and Jahoda (1966) put it, "Comparability becomes a matter of intuitive judgment instead of objective standardisation."

The problem of relevance is to be considered even when the test employed is non-verbal. Substitution of culturally appropriate material has been done quite effectively, sometimes, as in Price-Williams' (1961) Study of the concepts of conservation of quantities among the Tiv of Central Nigeria. Earth and nuts were employed to illustrate contin-uous and discontinuous quantities and the task gained in relevance as

a result. The fact that this is not always possible can be seen in
Biesheuvel's (1949) description of how the non-European groups in
South Africa dealt with some of the non-verbal material. Cultural
translation was considered satisfactory when, in the comprehension
test, men operating pulleys were replaced by women drawing water
from a deep well or loads suspended from a beam resting on men's
shoulders replaced by bundles carried on the heads of native women.
Arguing along the same lines a classification test was organised in
terms of pictures of native huts, utensils and indigenous musical
instruments and an absurdities test in terms of a foal following a
cow or water in an irrigation furrow flowing uphill. These attempts
were based on the assumption that tests would be fair if objects
pictured were culturally meaningful. What was forgotten was that
pictorial representation itself might be totally unfamiliar to these
people and hence recognition of the objects represented might not
take place automatically.

Again Biesheuvel found that the native people made no construct-
ive use of a photographic model to realise it in three-dimensional
terms. Not being able to break down the photographic model imagin-
atively into its constituent parts, the subjects were not able to
use the details for assembling the parts. A similar problem arose
when tests used non-representational material. Drawings of abstract
designs conveyed nothing to the subjects. Part of the difficulty was
because these designs were seen on paper. Partly, it was because they
were faced with designs which, if noticed at all, were always parts of
an object on which they appeared as decorations. The purpose of
designs torn off the context of a recognizable object was not obvious
to the subjects and hence the task had little relevance.

It has been the experience of a number of cross-cultural psycho-
logists dealing with non-Western peoples that, often, they seem content
with solutions which have no relation to the task set. This has been
noticed with tasks using non-representational designs like Koh's blocks

and Raven's Matrices (Biesheuvel 1949, Wober 1967). As Vernon (1969) says "They just don't get the hang of what they are supposed to do". This may partly be due to failure in communication resulting in the subject setting himself a task entirely different from the one intended by the examiner. This type of difficulty is particularly noticeable when a task like realising a certain pattern with three-dimensional blocks is undertaken. In the subject's solution there is wrong orientation usually 45°, 90° or 180° away from the presentation direction. He either uses one hand only or works with blocks in pairs. When he tries one block and discards it, he then picks up an identical one and tries. It seems as if he has forgotten the basic instructions of the blocks being identical. Generally there seems to be scant attention paid to the spatial arrangement of blocks. The subject seems to depend upon a single global impression of the design without artic-ulation of the parts (Ombredane, 1951). Verbal indication that the solution is not the correct one seems to produce no improvement and the subject allows internal correctness to collapse.

There have been many psychologists (Ortar, 1960, Ombredane, 1951, Schwarz, 1963) who have pointed out that the results obtained from a single administration of a test on non-Western peoples is very chancy and so do not give a reliable estimate of the ability of an individual. Schwarz has suggested using tests of intelligence primarily as tests of educability. We have already looked at the aims that Ombredane has for his African investigations and so it is not surprising to find him in agreement with Schwarz about using the first test session as an occasion on which the acceptable mode of response is taught to the unsophisticated subject. Jahoda (1956) has done this too and found that there was a significant improvement in the scores of the subjects on Progressive Matrices. Faverge and Falmagne(1962) and Jensen (1969) also support the idea of testing subjects more than once and taking the score on the retest session as indicative of their ability. "Part of creating more optimal conditions in the case of disadvantaged children consists of giving at least two tests, the first only for practice and

for letting the child get to know the examiner. I would put very
little confidence in a single test score, especially if it is the
child's first test and more especially if the child is from a poor
background and of a different race from the examiner". (Jensen,
1969). Vernon (1969), reviewing improvements reported as a result
of such modification of testing procedure, has pointed out that the
size of the improvement is of the same order as the result of prac-
tice in Western children particularly when the non-Western subjects
have had some schooling.

Any such modification, however justifiable it may be in terms
of ensuring maximal performance from unsophisticated subjects,
should be discussed in relation to the objectives of the investig-
ation. If the purpose is, as Ombredane's is, to study the modifi-
ability of behaviour as a result of instruction or practice on a task,
a strong case could be made for such a procedure. Repeated admini-
stration of the same test would give the investigator a chance to
study the changes that take place in the strategies adopted by the
individual to tackle the problems. It also gives the examiner an
idea of how well the subject responds to instructions given. It can
be invaluable in assessing aspects of the individual which are
important for his success in learning, aspects like his perseverance
and his capacity for concentration of effort.

If, on the other hand, our purpose is not the diagnosis of the
needs of an individual but a cross-cultural comparison of groups
such a procedure is totally unjustified. It is interesting that
psychologists like Ombredane have always stated that their purpose
was not the investigation of cross-cultural differences but the study
of modifiability of behaviour and the study of how these people develop
skills needed for satisfactory performance on "the white man's" tasks.
When our purpose is to compare groups which are culturally different
in order to explain the differences observed, such radical modifications
of test administration introduce variables which make the comparison

invalid.   We are alternatively faced with a situation where in one group (the test-wise one of the West) may be producing their maximal performance while the other group is not as a result of the play of extrinsic factors.   This, again, makes comparisons meaningless.

In all test situations, whether group or individual, there is an element of competition which acts as a spur to the test-wise and thus ensures maximal performance from them.   This competition may be against others or against oneself as in problems demanding speedy performance.   In quite a few of the non-verbal tests of intelligence there is a time limit for successful completion of the task and there may be a system of bonus for speedier performance built into the test as in Wechsler's Intelligence Scale for Children.   Response to instructions such as "Do it as quickly as possible" varies from culture to culture depending upon the value placed on speed by the culture in question.   Generally, in the West, culture places a premium on speed, on getting things done in as short a time as possible.   Speed is considered a fundamental component of ability and it is believed that the abler child is the speedier child.   Among most of the non-Western peoples there is no such demand made and the subject in a test situation may be seen going about the task in an unhurried manner.   Klineberg (1928 and 1958) has described the test behaviour of the Yakima tribe of American Indians.   He was using performance tests and the scores obtained depended upon the speed with which the task was completed and the number of errors committed.   The Indians ignored the instruction regarding completing the task speedily and went about it in a careful and unhurried manner.   They were much slower than whites but made fewer errors, illustrating the emphasis their culture places on accuracy as against working at speed.   Again, as Lewis (1959) and Darcy (1963) have pointed out, a bilingual child, having to choose between two languages, may be slower in his thinking.   This is a factor that affects the test behaviour of recent immigrants into an English speaking country like England.   This is true even when the tests are non-verbal and is likely to have no effect on their performance only when English becomes the

language of their thinking.

Attitude towards a test situation is itself a product of culture as is illustrated by Mead's (1943) study in Samoa. When the Samoan children were given the Ball – and – Field problem and asked to trace a pathway along which they would go in order to find the ball lost in the field, they used the occasion to evolve pretty designs. They forgot that the task was to indicate the most efficient pathway and gave expression to the aesthetic interest aroused.

There are cultures which discourage the spirit of competition which is such a strong motivating influence in the West. Asch has described the behaviour of Hopi Indian children who, in a group-test situation, waited till all members of the group had solved the problem before indicating that they had done it. Among the Dakota Indians it is considered as ill-mannered to show that you know the answer to a question when others of your group may not (Klineberg, 1958). Again among the same people, there is the culture-dictated conviction that you should answer a question only when you are sure of the answer. It is easy to see what this unwillingness to guess does to one's score on a test like the Binet. Porteus (1931) gives us an account of the behaviour of the Australian aborigines in a test situation. When a subject was given the Maze test he was expected to trace the pathway till the exit was successfully reached. He was supposed to work at the problem without assistance from others. Instead, he would refer to the elders of the group as it was the custom among them to solve any problem on a collective basis. He was puzzled by the examiner's insistence that the problem should be solved without guidance from others. Such an attitude came in the way of completing the task speedily and scores suffered accordingly.

Such behaviour, as seen among the Indians or the Australian aborigines may not be seen as frequently now as they were some thirty or forty years ago. Formal schooling has reached most parts of the

world, schooling modelled on the type of schooling in the West. While this has minimised the influence of some of the attitudinal factors on test performance, it has certainly not eradicated them. One of the things that impressed the present writer in his testing of Indian children attending schools in India was the child's need to refer his attempt frequently to the examiner for expressions of approval. If no such expression was forthcoming there was always the chance the child would undo the whole thing - even when it was the right solution - and start again. This was mainly responsible for the phenomenon observed, namely, that a total of only 41 bonus points were scored on the items Block Design and Object Assembly by 58 children. This type of behaviour may be indicative of the children not having developed self-critical ability. It may also be the result of a fact of life in India and it is that, both at home and school, an Indian child is expected to accept the adults' evaluation of what he does as the only criterion by which he should judge himself. There is also the cultural factor of a premium placed on doing a thing neatly and accurately.

Doob (1960) has pointed out that schooling provides a child with experiences which are relevant to a test situation. In addition to the experiences that develop certain skills, there is the fact that a child learns things like following instructions and accepting the presence of strange adults and novel situations. This means that when we take individuals who have had schooling for purposes of comparison in a cross-cultural context, we are reducing the effects of some of the extrinsic factors which we considered. In other words, the test situations are nearer the possibility of obtaining maximal performances from different cultural groups. Even then, one is left with quite a few of the extrinsic and many of the intrinsic factors that come in the way of starting investigation with two equivalent groups.

Thus, investigations of the conventional variety making comparisons between what are assumed to be equivalent groups across cultures,

will not give answers to questions asked about the relative
importances of heredity and environment. Nor can they be expected
to provide answers to questions regarding the innate superiority
of one ethnic group of people over another as sufficient control
can never be exercised over either the intrinsic or the extrinsic
factors operative in the development of skills and their manifest-
ation in the test situation. Saying it is not intended to uphold
the view that heredity plays no part at all in explaining the fact
of psychological differences between people. It is well-known that
individuals and families are differently endowed. No psychologist,
not even an ardent environmentalist, should deny the fact of differ-
ential endowment. All that is being maintained is that there is no
scientifically acceptable way of establishing that races or ethnic
groups are differently endowed and that the strategy of using the
conventional comparative method is valid.

The problem of race differences (if there are any) remains
insoluble (Mann, 1940) and we better accept it. Not accepting it is
to ignore John Stuart Mill's opinion that "Of all the vulgar modes
of escaping from the consideration of the effect of social and moral
influences upon the human mind, the most vulgar is that of attribut-
ing the diversities of conduct and character to inherent natural
differences". Not accepting it is to give expression to prejudice
under the cover of a passion for truth. We should remember what
Kroeber (1921) said: "It is a difficult task to establish any race
as either superior or inferior, but relatively easy to prove that we
entertain a strong prejudice in favour of our own racial superiority".

CHAPTER 3

ABILITIES AND CHANGES IN ENVIRONMENT.

Skills which are culturally valid are the ones which show
continued development as an individual grows up. Hence they
show an increment with age. Because they are valid they are
the ones that have a chance of repeated practice and so develop
to an extent when they can be considered to have been overlearnt
and readily available for transfer. The role of culture in
reinforcing certain skills can also be seen in the way boys and
girls perform on tasks demanding these skills. Mention has been
made of the taboo that exists among the Arabs against pictorial
representation. Both boys and girls are, as a result, unfamiliar
with representational art as such. Dennis (1960) found that the
mean I.Q. of Bedouin Arab adults and children on Goodenough's
Draw a Man Test was as low as 53. In their drawings they frequently
omitted features like mouth and eyes and yet they had a sharp eye
for details in their desert environment.

We have here an instance wherein the development of a certain
skill in all the members of a cultural group was affected by a
cultural attitude. Dennis (1942) has given us an illustration of
how a certain culture may reinforce the development of a skill in
members of one sex and not the other. Among the Hopi Indians, for
example, decoration of pottery and painting of ceremonial objects
are essentially masculine occupations. The Hopi culture expects
boys to be competent in it and hence boys get more opportunities
than girls to master the skill to the point of overlearning.
Dennis found that the mean I.Q. of girls on the Draw a Man Test was
99.5 (S.D. = 18.9) while for the boys it was 116.6 (S.D. = 20.1).
His sample consisted of 77 boys and 75 girls aged 6-10. In addition
to the obvious superiority of boys over girls, it was also found that

the difference between boys and girls increased with age indicating the existence of environmental support for this skill in boys and not in girls. This result was confirmed by the study of Havinghurst, Gunther and Pratt in 1946 among whose sample were some of the Hopi children tested by Dennis earlier. The interpretation in cultural terms of other observed sex differences in skills has been supported by other investigators too.

A similar interpretation of the differences he found between boys and girls in Karnataka, South India, on an adaptation of Stanford-Binet has been given by Kamat (1939). Traditionally among Indians, learning in general and verbal learning in particular, is demanded more of boys than girls and education is considered as more essential for boys, the future breadwinners, and hence their better scores on a verbal test, according to Kamat. An instance of girls doing better on a particular test than boys as the result of culture reinforcing the skill in girls can be found in Irvine (1966). Among the African children he tested on Morrisby's Compound Series Test he found that girls did better than boys. The test is essentially one of bead stringing where beads differ in shape, size, colour and position and Irvine interprets the better performance of girls in terms of their having experience with the craft of bead-work. In other words, the existence of environmental support for the skill was there only for girls and hence they had overlearnt it and had it available for transfer in the test situation.

The relationship between a certain culture and the development of certain skills can again be seen in the study of Strauss (1954) of University students in Ceylon. While they scored higher than the American norm on the language part of the Californian Test of Mental Maturity, they scored lower on the non-language part. This differential performance held for 14 of the 16 subcultural groups that Strauss studied. Both in Ceylon and in India the value system of the upper class culture constantly reinforces verbal excellence and verbal

scholarship. Manipulative and manual tasks are traditionally looked down upon and the educational systems in Ceylon and India emphasise the value of feats of memory and of learning by precept and rote.

We can see the importance of environmental support for continued development of a certain set of skills when we think of cultures wherein the school happens to be the only environment supporting these skills. When this support is withdrawn the skills cease to grow and instead of the usual increment with age we can expect a decrement. This is what we see happening in Gordon's (1923) study of gipsy and canal-boat children. Their Binet I.Q. showed a decrement after the age of six when they stopped attending school. However, their performance ability continued to develop with age as could be expected of skills which continue to be supported by the culture. We have many instances of the influence of schooling on skills to be seen in cross-cultural studies of ability. For example, Bruner and Greenfield (1966) gave a Piaget-type conservation task to three groups of Wolof children. The first group was urban-educated; the second was bush-partly educated and the third was bush without any schooling. There was very little difference among the three groups when children aged 6-9 were considered. But it was found that those who had some schooling continued to progress while the unschooled made none beyond the age of 9. The fact that children without any schooling hit the ceiling of mental development much earlier than the ones with some schooling has also been demonstrated by Ombredane in 1951. Among his Africans he found, generally, a rise in performance on Raven's Coloured Progressive Matrices with age but there was no rise beyond 12 years in those who had no schooling.

The importance of schooling and of starting school early has been forcefully demonstrated by Ramphal (1962) in his study of Indian children living in Natal, South Africa. As a consequence of lack of classrooms and teachers, every year, nearly 10,000 of these children

are unable to start school at 6. Children, sometimes, have to wait
till they are 10 before starting. Ramphal studied 1700 Indian
children aged 8-18 found in different grades because of their having
started school at varying ages. The parents' socio-economic status
was measured by a Guttman-type scale and assessments were also made
of the extent of English spoken at home and out of school. Ramphal
used Progressive Matrices and the New South African Group Test which
has in it both verbal and non-verbal parts. The effect of schooling
alone was studied by holding age and socio-economic status constant
and consideration of maturation alone was possible by holding con-
stant schooling and socio-economic status.

Analysis of results for 200 13 year olds distributed over
grades 2-6 yielded a correlation of 0.51 between scores on Matrices
and the number of years of schooling. The correlation between
verbal score on S.A.G.T. and schooling was 0.68 while that between
non-verbal scores and schooling was 0.49. It was also found that
there was no relationship between the amount of English spoken out-
side school and at home and the pupils' performance on scholastic
tests of Vocabulary and Comprehension. Ramphal's study demonstrates
not only the importance of schooling for mental development but also
the effect of delayed schooling on the course of such development.
He has assessed the retardation effect of delayed schooling to be
of the order of 5 I.Q. points per year of delay.

Klingelhofer's study in 1967 of groups of Asians and Africans
in Tanzania using Progressive Matrices again makes the point that
earlier start of schooling among the urban Asians was partly respons-
ible for their superiority over the indigenous Africans.

McFie (1961) administered six of the Wechsler items including
Koh's Blocks together with the Weigl Sorting Test to boys in a   later
Technical Training School in Africa. When he retested them two years /
it was found that the largest increases were in scores on Koh's

Blocks and Memory for Designs. McFie interprets his findings in
terms of the experience the boys had during these two years in
studying physical objects, in accurate spatial orientation and in
working at speed. McFie's study indicates that the initial deficit
was more due to lack of experience in and opportunities for construct-
ional tasks during childhood than due to any perceptual deprivation
in infancy. It also demonstrates that the earlier deficits can be
made up by providing the right type of educational experiences in
later years.

There is general agreement about the idea of schooling aiding
mental development. We also have some evidence for holding the
belief that the more the schooling the better it is for developing
various skills. However, it is not easy to establish that one
system of education is better than another for developing them.
Vernon (1969) has pointed this out in his reviews of various studies
of the effects of schooling and maturation on intelligence test
scores. His own study of 1967 of secondary school boys of 14, who
had been tested three years earlier before entering different types
of secondary schools, points in the direction of better schools
being responsible for an increase in I.Q. and poorer schools result-
ing in a decrease. However, the results are not conclusive on account
of the possibility of better homes providing a more stimulating
environment and of boys from better homes entering better schools.

We should perhaps look for evidence of better schools aiding
mental development more than poorer schools not within the bounds
of a homogeneous culture but across cultures which have different
educational systems emphasising different value systems. A chance
for such a study is provided, for example, by the relatively large-
scale migration of school children from the West Indies and from
India and Pakistan into Britain during the 60's. We could take
children who have attended school, say, in India and who, on coming

to Britain, enter schools here. By undertaking a longitudinal study of such children over a few years after their having entered schools in Britain we should be able to see the effects of the change on their skills.

One cannot easily think of two educational systems more different than the Indian and the British ones. Even today, in India, we have young children at the primary and secondary stages learning in classes of 60-70. There are University Colleges where loud speakers are used to carry the voices of lecturers to students numbering anything up to 120 gathered in a lecture hall. These schools and colleges can afford very little scope for active partici-pation on the part of the pupils and teaching is, mostly, verbal transmission of facts from the teacher to the taught. Emphasis, necessarily, is on rote learning and success at examinations comes to the ones who can remember better. There is also, generally, the system of annual examinations in schools and children who fail to satisfy the teacher-examiners are expected to repeat the lessons for a further year or more. The result is that in most classes we come across pupils with a wide age range between the "dull" monitor and the "clever" young.

The British and the Indian schools differ also in the behaviour-pattern they expect of and encourage in a child. The large classes in Indian schools can operate only if there is little unnecessary noise and movement on the part of the children and so it is not surprising that we find rows and rows of children sitting docilely bending over their books. Emphasis, necessarily, is on discipline and on an unquestioning acceptance of the teacher's authority.

Any changes that are found to take place in the abilities of such immigrant children can be attributed, primarily, to the influence of the schools here as the changes that take place in their homes are only marginal and have little or no influence on the way the skills of

these children develop. It is well-known that most of the immigrant
families, particularly from India and Pakistan, do not change either
the way they live or the value system they believe in all that
readily. Equally well-known is the fact that most of the parents do
not bother to learn English even after years of stay here though they
would expect their children to learn English and do well at school.
Changes large enough to be significant in affecting the abilities of
these children can perhaps come to these homes only after a generation
or two.

There have been investigations into the effects of changes in the
total environment of immigrants which obviously included changes in
the school environment too. In 1924, Feingold showed that the mental
difference between a group of native white children and a group of
children of Polish and Italian draftees into the United States army
was only 9 months while the mental difference between the two groups
of fathers was nearly 2 years. Feingold interpreted the findings in
terms of the shared educational opportunities as having narrowed the
gap by more than half even after one generation. Arthur's study in
1926 of Finnish, Russian and South European children illustrates,
though indirectly, the changes that take place in the abilities of
children as a result of improved educational opportunities. Using
the Kuhlman-Binet scale he assessed the intelligence of 92 pairs of
siblings of European origin who had migrated into the United States.
The average I.Q. of the elder siblings was 93.05 while the average
I.Q. of the younger siblings was 99.14. The difference was signifi-
cant and held even when allowance was made for the extra years of
experience of English the younger children had. Arthur explained
the findings as proving that the younger children were of good mental
stuff, though a more satisfactory explanation would surely have been
in terms of the degree of acculturation achieved with passing years,
the stabilisation of the families at the highest level and the younger
children being closer to the American way of living.

The most extensive work in the study of the effects of changes

in environment has been done by Klineberg (1935). The hypothesis
of "Selective Migration" stated that Negroes in places like New
York, Los Angeles and Washington in the north obtained better scores
on intelligence tests, not because they had profited from the better
opportunities provided by the superior environment of the north, but
because they were naturally brighter to start with. The proof, it
was claimed, was in their decision to migrate and face the challenges
of a new life. Klineberg looked into the problem of why Negroes
migrated and found that the reasons offered included hopes of a better
education for the children, of better jobs for themselves and so a
better life. Negroes having such hopes could be the intelligent ones.
But there were many who had moved because they had friends or relatives
who lived in New York or Washington. In many cases it was because of
unemployment in the south and some had taken the decision because they
were in trouble with the law. Obviously there was a variety of reasons
and no single factor, like intelligence, could be regarded as exclusive-
ly responsible.

Klineberg studied the validity of the hypothesis of Selective
Migration from another angle. The school records of some 562 Negro
children who had transferred from southern schools to northern schools
were studied. Grades obtained by these children before migration
showed that the group was a typical cross-section of the school popula-
tion in the south. Mean grades between migrants and non-migrants did
not differ significantly.

When 3000 10-12 year old children who lived in the city of New
York were tested on a variety of individual and group tests of intelli-
gence, it was found that there was a significant correlation between
the length of stay in New York and the intelligence scores. The
subjects in different residence groups were equated for age and sex.
They were almost equal in socio-economic background and attended the
same schools. Some of the results obtained by Klineberg are tabulated
below:

National	Int.	Test
years	number	Mean Score
1-2	150	72
3-4	125	76
5-6	136	84
7-8	112	90
Over 8	157	94
Northern Born	1017	92

Stanford-Binet		
years	number	Mean I.Q.
less than 1	42	81.4
1-2	40	84.2
2-3	40	84.5
3-4	46	85.5
Over 4	47	87.4
New York born	99	87.3

Minnesota Paper Form Board		
years	number	Median Score
1-2	27	39
3-4	25	26.67
5-6	30	31.88
7-8	23	37.5
9-10	25	37.5
Over 10	41	37.5
New York born	223	41.61

Pintner - Paterson Test		
years	number	Mean Point Score
less than 2	20	142.5
2-5	20	139.8
Over 5	20	152.1
Northern born	50	164.1

As can be seen, there are large gains associated with increasing
length of residence in New York on the predominantly verbal National
Intelligence Test. Large differences are found on the Pintner-Paterson
Test only when extreme groups are considered. The results on the
Stanford-Binet and the Minnesota Paper Form Board tests are in the
expected direction though the differences are small.

Again, in his study of speed in performance by American Indians
and Negroes living in qualitatively different environments, Klineberg

(1928) demonstrated that members of the same ethnic group had responded differentially to the demands of the environments by altering their habits of work. Thus, as a group, New York Negroes were faster than Negroes in the rural surroundings of West Virginia and Indians attending the Haskell Institute of Kansas faster than Indians at the Yakima Reservation in Washington. Obviously, the differences were culturally determined.

Support for Klineberg's hypothesis, which states that when differences in the environments of various racial groups are reduced, the differences in their intelligent behaviours are also reduced has come from many quarters. Mention can be made of Long's study (1934) in Washington, D.C., Lee's replication of Klineberg's investigation in Philadelphia (1951) and of McCord's study (1958) in Massachusetts. In general, the results indicate that Negro children, born and bred in the relatively liberal environment of the cities in the north and attending desegregated schools, score higher on tests of intelligence than children in the relatively unstimulating parts of the south.

A similar change for the better has been recorded for the abilities of the American Indians too. Garth (1935) made a study of Indian children who were placed in white foster homes and cared for by white parents. The average I.Q. of these children was found to be 102 while the average for Indian children as such was 81. Garth wanted to rule out the factor of selection having operated in the form of foster parents choosing the brighter ones for fostering and so tested the siblings of the children. These had not been fostered and their average I.Q. was only 87.5. Not all the difference, however, can be attributed to a difference in environment, as it is well-known that the inherited capacity of siblings in a family is not identical.

A dramatic illustration of the effects of changes in environment has been given by Rohrer (1942). A piece of land was given by the American Government to the Osage Indians where, subsequently, oil was

discovered. As a result, the economic situation of the Indians improved considerably. They enjoyed a social and educational environment which was infinitely superior to that of most American Indian communities. Rohrer found that the Osage Indians obtained an average I.Q. of 104 on a non-language test and an average of 100 on a language one. The difference that usually exists between the performances of Indians and whites had disappeared completely when the environmental differences no longer operated.

Improvements in the ability scores of immigrant Oriental children who entered the stimulating environment of the Kibbutzim in Israel have been reported by Bloom (1969) and Feuerstein & Shalom (1967). The latter, working with retarded children, have found a significant improvement in their scores on Raven's Progressive Matrices, a fact of interest in view of the generally held beliefs about the culture-fairness of the test and Jensen's claim (1969) that there are "no studies that demonstrated gains in relatively non-cultural or non-verbal tests like Cattell's Culture Fair Tests and Raven's Progressive Matrices".

There have been a couple of interesting investigations in Britain in recent years involving immigrant children. In 1966, the Inner London Education Authority surveyed the educational attainments of immigrant children in 52 of its junior schools each one of which had more than 33 1/3% of its children classed as immigrants. The official Department of Education and Science definition of "immigrant" was used in this survey. As a result the survey-population consisted of :-
(a) children born outside British Isles who have come into this country with or to join parents, other relatives or guardians whose country of origin was also abroad; and
(b) children born in the United Kingdom to parents whose country of origin was abroad and whose parents, to the best of the head teacher's knowledge, have not been in this country more than about ten years.

Children from Northern Ireland and Eire were not classed as immigrants. The survey had in all 1038 immigrant children among the transfer group at 11 + . The children had attended English primary schools from a matter of months to six or seven years. The sample had a higher proportion of West Indian pupils than the Authority's primary schools in general (590). Indians, Pakistanis and Cypriots were represented in fairly typical proportions (Indian or Pakistani - 75; Cypriot - 299). The "other" immigrant group was a mixture of children mostly European, African or Guyanese in origin and was rather under-represented in comparison with the Authority's schools in general.

The results for these children on tests of Verbal Reasoning, English and Arithmetic were compared with the results for non-immigrant children. The survey found that the performance of the immigrant children, as judged by their being placed by the schools in Grades 1-7 for purposes of transfer, improved as the length of English education had increased. There was a definite, though moderate, relationship between the two. The improvement was most apparent in those children who had the advantage of a complete or almost complete primary education in the United Kingdom. Vernon (1969) has converted the Verbal Reasoning results into quotients relative to those of English children and estimated a median of roughly 82 for West Indians, 87 for Cypriots, Pakistanis and other immigrants. For all immigrants combined there was a rise from about 76 for those with two years or less schooling to 91 for those with six to seven years. In the absence of any evidence to claim that the immigrant families who came in 1959-1960 were superior to the ones who came more recently, Vernon attributes the improvement in the children's performance to better schooling, knowledge of Standard English and the rather better environmental conditions in London.

It is worthwhile to note that the report has devoted an entire

section to the language problem of the immigrant children and that there is no detailed discussion in it of other deficits that may be in these children. The report has not considered education in non-language abilities. McFie and Thompson (1970) have made a study of the test performance of West Indian children on Wechsler's Test of Intelligence for Children. Many psychologists have drawn attention to the fact that non-Western children perform particularly poorly on non-verbal tests. Vernon (1969) has summarised his findings on a group of Jamaican boys and pointed out the same. In their study McFie and Thompson looked at the test scores of 61 children of West Indian parents referred to a child guidance clinic on WISC and Schonnell's Graded Word Reading Test. The results were compared with those of an equal number of English controls who also attended the clinic. The West Indian group was divided into those who were born in the United Kingdom or who had arrived here before the age of 5 years and those who had arrived after the age of 5.

The results indicate a certain parallel between the profiles of the scores of the two groups. Though there is some difference on every item of WISC, always in favour of the English children, the differences are significant only on the item "Vocabulary" of the verbal part but on 4 of the 5 items of the performance part. The Mean Verbal I.Q. was lower than the Mean Performance I.Q. for both groups and both groups had low reading quotients. Arguing that the general pattern of scores found on arithmetic and reading tests was the same for both groups and that the pattern was one generally associated with maladjustment, McFie and Thompson attribute the observed differences to cultural factors. The results for the sub-groups also indicate that those who came early achieved significantly higher scores on Comprehension, Vocabulary and Object Assembly. The early arrivers did suggestively better on Picture Arrangement and Coding but not on Block Design.

Though the investigators are right in stressing the need West
Indian children have for educational experience with performance
material - a need as acute as that for experience with standard
English - the study raises many questions to which their Research
Notes do not provide answers. There is mention made of the groups
having been matched for age and sex but not for other factors like
the parents' socio-economic status, profession and educational level.
In assessing the better performance of the early arrivers these need
to be considered. Otherwise, their superior performance is likely to
be due to the group being better genetic material. The use of WISC
with as wide an age range as 5 to 15 is questionable and extrinsic
factors must have operated in the way these children were assessed.
The apparently paradoxical results on Object Assembly and Block
Design, both with a high loading of a spatial factor, need explanation
and the investigators have said they will be discussing it elsewhere.
We will have to wait till a detailed account of the investigation is
available before an evaluation of the study can be made.

We can conclude this chapter by recalling the significant aspects
of changes in abilities as a result of changes in the environment of a
group of people. We found that continued environmental support was
necessary if abilities had to develop with age and in most undeveloped
communities it was the school that offered such support. The importance
of schooling was also seen in the detrimental effect delay in schooling
has on abilities. Changes in the total environment were found to affect
the ability scores of both Negroes and American Indians and it was also
seen that the initial differences between various groups tended to grow
smaller when the environmental differences were reduced.

These considerations should lead us to consider the changes that
are likely to take place in the abilities of the various groups of
immigrant children who have come into the English schools in recent
years. With care being exercised over the various factors which affect
the matching of groups in cross-cultural studies and over the extrinsic

ones which affect actual performance, it should be possible to
isolate the effects of environmental changes for study. It should
also be possible to pinpoint the aspect or aspects of such environ-
mental changes to which can be attributed the observed changes in
abilities.

The present study is an attempt in that direction.

CHAPTER 4

THE PRESENT STUDY

PART 1 :   SOME HYPOTHESES

This is an investigation into the measured intelligence of
two groups of children from the Indian Subcontinent living in the
County of Hertfordshire. One group is of recent arrivals into
the United Kingdom and the other is of children who have had a
longer stay here. This group consisted of some born here of parents
who had immigrated a few years earlier.

We have looked at some of the studies into the effects of
environmental changes when a group moves from its traditional
environment into one relatively richer and more stimulating. They
have all reported a significant rise in the intelligence scores of
the migrating group. We can, therefore hypothesise that

1. WHEN A GROUP OF IMMIGRANT CHILDREN FROM THE INDIAN SUBCONTINENT,
WHO HAVE HAD A PERIOD OF STAY IN THE UNITED KINGDOM, ARE COMPARED
WITH A MATCHED GROUP OF CHILDREN IN INDIA, THE MEAN SCORE OF THE
IMMIGRANT GROUP ON ANY TEST OF INTELLIGENCE WILL BE SIGNIFICANTLY
HIGHER THAN THAT OF THE INDIAN GROUP,
and that
2. BETWEEN TWO MATCHED GROUPS OF IMMIGRANT CHILDREN FROM THE INDIAN
SUBCONTINENT, THE MEAN SCORE FOR THE GROUP WHO HAVE STAYED LONGER IN
THE UNITED KINGDOM WILL BE SIGNIFICANTLY HIGHER THAN THAT OF THE
OTHER GROUP.

If the difference is because of the greater exposure of one group
to the English environment, then it stands to reason to expect a rise

in the scores of the recent arrivals after a further period of stay here. We can therefore hypothesise that

3. WHEN A GROUP OF RECENT ARRIVALS FROM THE INDIAN SUBCONTINENT INTO THE UNITED KINGDOM ARE RETESTED FOR THEIR INTELLIGENCE AFTER A FURTHER PERIOD OF STAY HERE, THEIR MEAN RETEST SCORE WILL BE SIGNIFICANTLY HIGHER THAN THEIR MEAN TEST SCORE.

It has been argued earlier that, when a group of children come into the United Kingdom from India, the changes in the environment that are most significant for the development of their skills are the ones at school. It was also argued that changes in the home environment of these immigrant children are minimal. If this argument is valid, then birth here and the preschool years spent in the relatively unstimulating environment of an immigrant home should not prove to be significant factors. We can, therefore, postulate a hypothesis for children born here that takes into account not their stay here but the years of English school experience they had. The hypothesis would state that

4. PROVIDED TWO MATCHED GROUPS OF IMMIGRANT CHILDREN FROM THE INDIAN SUBCONTINENT ARE ALSO MATCHED FOR THEIR YEARS IN ENGLISH SCHOOLS, THERE IS LIKELY TO BE NO SIGNIFICANT DIFFERENCE BETWEEN THE MEAN SCORE FOR A GROUP BORN HERE AND THAT FOR A GROUP ARRIVING LATER.

In discussing the differences between the educational systems of Britain and India mention was made of the emphasis laid on rote learning and the verbal learning of facts in Indian schools. Strauss has also drawn our attention to the value system in Ceylonese culture which stresses verbal learning and scholarship, with the result that children grow up with little experience in manipulative tasks. Thus, we have a situation in all the countries of the Indian Subcontinent which works against the continued development in children of skills which are sampled in the usual non-verbal tests of intelligence. We

can expect children both in rural and urban schools to be handicapped
to an equal extent as far as these skills are concerned. Thus we can
hypothesise that

5. AMONG INDIAN CHILDREN, THERE IS LIKELY TO BE NO SIGNIFICANT
DIFFERENCE BETWEEN THE MEAN SCORES FOR MATCHED GROUPS IN URBAN AND
RURAL SCHOOLS ON A NON-VERBAL TEST OF INTELLIGENCE.

If this is valid for children in Indian schools,we can extend
it to include the immigrant children in the United Kingdom who are
known to have come from urban or rural schools. A consequent
hypothesis would read

6. BETWEEN TWO MATCHED GROUPS OF IMMIGRANT CHILDREN FROM THE INDIAN
SUBCONTINENT, MATCHED ALSO FOR THEIR YEARS IN ENGLISH SCHOOLS, THE
MEAN SCORE FOR THE GROUP FROM THE RURAL AREAS IN INDIA IS NOT LIKELY
TO BE SIGNIFICANTLY DIFFERENT FROM THAT FOR THE GROUP FROM THE URBAN
AREAS.

Kamat's study of 1939 with an adaptation of Stanford-Binet on a
group of Indian children revealed a significant difference between
the intelligence scores for boys and girls. He gave a cultural
interpretation of the findings in terms of the value placed on the
education of boys, which is exclusively verbal in character, as has
been pointed out. Neither the school nor the family considers the
acquisition of non-verbal skills as an integral part of the education
of children and so we can expect both boys and girls to be equally
deprived as far as experiences pertaining to these skills are concerned.
We could, therefore, state that

7. AMONG SCHOOL CHILDREN IN INDIA, THERE IS LIKELY TO BE NO SIGNIFICANT
DIFFERENCE BETWEEN THE MEAN SCORES FOR MATCHED GROUPSOF BOYS AND GIRLS
ON A NON-VERBAL TEST OF INTELLIGENCE.

In thinking about extending this consideration to include immigrant children, we could expect a sex difference to emerge as their stay in the United Kingdom lengthens. This expectation is not based on the experiences the children have either at home or in the schools. The home and school environments being the same for both boys and girls, they could be counted out as significant influences on any differences that we predict. Such prediction is based on an aspect of Indian culture which, it is submitted, operates among the immigrant families. It is to do with what is considered as acceptable behaviour from children during the out-of-school hours. The Indian tradition – both for Hindus and Moslems – is much harsher on girls than on boys and strict codes of conduct are laid down for the behaviour of girls. It is essentially a man's world in the Indian homes and girls are expected to help their mothers in household chores even when they are young. Taking care of the younger siblings is a cultural norm for girls of school age. There is little time for mixing with others outside the home, for exploratory activities of any kind and for learning about the world. A watchful eye is kept on the movement of a girl when she is outside her home and parental control exercised over the company she would like to keep. Certain activities, which most English girls would naturally engage in, are considered tom-boyish and hence discouraged. Frequent reminders of what is appropriate for her sex and what is undesirable are the order of the day at home. There are, of course, exceptions to these general considerations and they are to be found in some Indian families who, even back at home, were accustomed to living a Western type of life.

Even among these families, there is a great difference between the freedom enjoyed by boys and girls. Little restriction is placed on the activities of boys outside the school and active encouragement is given to going out and mixing with other boys. The parents' thoughts about the future of boys include active consideration of what is now necessary for them in order to succeed later in life. Their

thoughts about the girls' future, in most cases, are conditioned by
what is thought to be essential for every girl, namely, marriage.
Educating a girl is a move on the part of parents to make her more
desirable as a bride-to-be and very few would consider educating
girls for possible careers. Among the Indian immigrants there are
quite a few girls who have left school but who are not working
because the parents do not approve of girls going out to work.

One could expect the effects of these differential attitudes
towards boys and girls on the part of parents to register only slowly.
Boys among the recent arrivals are as world-shy as the Indian girls
are, partly because of language difficulties experienced at this stage
and partly because of the strangeness of things around. As their stay
lengthens, such inhibitions are shed and the world of boys expands
while that of the girls continues to be constrained. Reinforcement
of the skills learnt in schools is, as a result, more likely in the
outside world for boys than for girls and so we can expect a differ-
ence to be seen among boys and girls who have stayed in the United
Kingdom for a relatively long time.

We can, therefore, hypothesise that

8. AMONG RECENT ARRIVALS INTO THE UNITED KINGDOM FROM THE INDIAN
SUBCONTINENT, THERE IS LIKELY TO BE NO SIGNIFICANT DIFFERENCE
BETWEEN THE MEAN SCORES FOR MATCHED GROUPS OF BOYS AND GIRLS ON A
NON-VERBAL TEST OF INTELLIGENCE

and that

9. AMONG EARLIER ARRIVALS INTO THE UNITED KINGDOM FROM THE INDIAN
SUBCONTINENT, THERE IS LIKELY TO BE A SIGNIFICANT DIFFERENCE BETWEEN
THE MEAN SCORES FOR MATCHED GROUPS OF BOYS AND GIRLS ON A NON-VERBAL
TEST OF INTELLIGENCE.

Attitudes, originating in a culture, take a long time before

changing. The immigrant parents here could be expected to hold on to their beliefs and value systems for quite a while even when they are constantly exposed to a contrasting set of beliefs and values. We can even expect them to cherish their heritage more zealously while abroad than while at home. Any changes that affect these should be sought for in the second and third generation immigrants and not in the first.

Mention has been made of the higher expectation that Indian parents generally have of boys than of girls regarding their attainment at school and we could expect this attitude to persist even after their immigration into the United Kingdom. Children in Indian families become aware, early in their lives, that their parents value more the success of boys at school. This would affect the motivational level of boys and girls differentially and could partly account for the divergence in their abilities as they grow older. If this line of thinking is valid, its consequence should be seen in the approximations of the scores of immigrant boys and girls to those of a control group of English boys and girls.

The hypothesis for the whole group would be that

10. WHEN A GROUP OF IMMIGRANT CHILDREN FROM THE INDIAN SUBCONTINENT IS COMPARED WITH A MATCHED GROUP OF ENGLISH CHILDREN, THE NUMBER OF YEARS IN ENGLISH SCHOOLS BEING THE SAME FOR BOTH, THE SCORES FOR THE IMMIGRANT GROUP SHOULD APPROXIMATE TO THAT OF THE ENGLISH GROUP.

The hypothesis for the sexes, taken separately, would be that

11. THERE IS A CLOSER APPROXIMATION TO THE SCORES OF THE CONTROL GROUP OF ENGLISH CHILDREN AMONG THE IMMIGRANT BOYS THAN AMONG THE IMMIGRANT GIRLS.

Mention has been made of the influence a culture has on the habits of work its members develop and of the little emphasis that is in Indian culture on working at speed. When an Indian child comes into the United Kingdom he is entering a world wherein working at speed is rewarded. An immigrant child could be expected to respond to this demand of the new culture and alter his mode of work. Wechsler's concept of intelligence includes speed as an integral factor and some of the performance items in his test award bonus points when a problem is successfully solved in a short time. We can, by using timed tasks, look into whether these children have altered their original habits of work. It should also be possible to find out whether all of the improvement in their test scores could be attributed to their learning to work at speed or whether we can claim that a basic change for the better has taken place in their non-verbal abilities. The hypotheses, based on such considerations would state that

12. A GROUP OF IMMIGRANT CHILDREN FROM THE INDIAN SUBCONTINENT, WHO HAVE ATTENDED ENGLISH SCHOOLS FOR A PERIOD, WILL SCORE HIGHER THAN A COMPARABLE GROUP IN INDIA ON ANY MEASURE OF SPEED.

and that

13. IN THE RETEST SCORES OF IMMIGRANT CHILDREN AFTER A FURTHER PERIOD OF STAY HERE, THERE WILL BE A MEASURE OF IMPROVEMENT OVER AND ABOVE THAT WHICH CAN BE ATTRIBUTED TO THEIR HAVING LEARNT TO WORK AT SPEED

Before looking at the details of the study in terms of the sample, design, tests employed and their administration, it is perhaps worthwhile to recall that the first few hypotheses were based on the fact of immigration of these children from India to the United Kingdom. The others were based on a consideration of the special circumstances of Indian schooling and the special aspects of Indian culture.

CHAPTER 4

THE PRESENT STUDY

PART 2: SAMPLE, DESIGN AND TESTS.

In view of the influence of an investigator's ethnic membership
on the identification-process between him and the subject (discussed
in Chapter 2), it is necessary to provide some details of the present
investigator's background.

He is of Indian origin, a Hindu by birth, and comes from the
State of Mysore, South India. The regional Indian language in Mysore
is Kannada, spoken to-day by nearly 30 million people. He is a
qualified Educational Psychologist working for the Hertfordshire
County Council. His teaching experience includes 12 years in Mysore,
3 in Ethiopia and 3 in London. In addition to knowing Kannada he is
reasonably fluent in Hindi, the National Language, and learnt enough
Punjabi to give instructions on the tests of intelligence used in the
study.

SAMPLE.

In common with other parts of the country, during the 60's the
County of Hertfordshire also experienced the coming into schools of
growing numbers of immigrant pupils. As elsewhere, the main concen-
tration is in the primary schools though there are considerable
variations between different areas of the County. Most immigrant
children are in schools in the North Hertfordshire, East Hertfordshire,
South West Hertfordshire and St. Albans Divisions and more particularly
in Hitchin, Letchworth, Hoddesdon, Waltham Cross, Watford and St.
Albans. Over one third are Italian in origin, over one quarter West

Indian and just under one fifth Indian and Pakistani.

The number of immigrant children in Hertfordshire related to
the total school rolls is small (2%) especially when compared with
numbers in more urban areas of the country. There is something of
a pattern in the way groups of immigrants have chosen certain parts
of the county to settle. For example, 58% of all immigrant children,
Italian in origin, live in East Hertfordshire, comprising 85% of the
immigrant school population in that area. Similarly, 29% of all West
Indian children live in St. Albans where they constitute 53% of the
immigrant school population. Most Moslems, mainly from Pakistan, are
to be seen in the South West areas of the county and most Sikhs in
North Hertfordshire. The percentage of immigrant pupils in a school
ranged from 0 to 32.4. During 1967-1968 there were nearly 3000
immigrant children in Hertfordshire schools of which about 600 came
from India and Pakistan. Of these about 250, aged 8-12, were in
junior schools.

A modified version of the Department of Education and Science
definition of an "immigrant" child is used in this study. It includes
a) children born outside British Isles who have come into this country
with or to join parents, other relatives or guardians whose country of
origin was also abroad; and
b) children born in the United Kingdom to parents whose country of
origin was abroad.

It should be noted that the stipulation regarding the parents'
stay here found in the original definition has been omitted.

Almost all the junior schools in the country were contacted and
information sought on the age, sex, address and the time of arrival
into the United Kingdom of every child of Indian origin. Information
about the time of arrival could not always be obtained accurately from
the schools as some families had initially settled elsewhere and then
moved into the county without having let the previous schools know of

the area they were moving into. Perhaps, another reason was that the Hertfordshire schools tried to find out this information only in those cases where the child's inadequacy in English was most obvious. We may recall that the I.L.E.A. report depended upon the information provided by the Head to assess for how long the individual immigrant child had been in England. For this study, it was decided not to rely completely on what the Head knew or inferred. A visit to the child's home was decided upon not only to get reliable information on the time of arrival of the child into this country but also on other aspects of the child's background.

Letters were written to each of the parents of nearly 175 children aged between 8 and 12, to say that the investigator and his wife (who knows more Indian languages than the investigator and whose presence, the investigator feels sure, guaranteed better acceptance of the visit and the investigation as a whole) would like to visit the family regarding the child's education. An interval of about 7 days between the mailing of the letter and the visit was the usual practice and this gave the parents a chance to refuse to see the investigator. Indeed, there were some such refusals, though not many. In all about 145 were visited, mostly during the weekends. During these visits the child in question was seen and talked to so that there would be recognition in the test situation later. The visits were so planned that testing the child was possible within a fortnight of the home visit.

The Plowden Report (1967) has spoken of the "Culture Shock" experienced by immigrant children on arrival into a world so different from the one they have known before. Any testing done on a child who has just set foot in the United Kingdom is bound to be invalid on account of the bewilderment he is experiencing. It was therefore decided that no child who has not had a period to adjust himself to the new environment would be included for study. The period allowed, quite arbitrarily, was 12 months from the date of his arrival.

A questionnaire was prepared on which information regarding the child's family background could be recorded (Appendix 3). The interviews were informal and conversation ranged over very many things, not all of them strictly germane to the investigation. Quite a few parents made use of the visit to ask questions regarding the schools the children attended and the Philosophy of Education behind the educational system here. Mostly, these were recent arrivals into the United Kingdom.

The information sought by the investigator during these interviews was on 1. the part of India or Pakistan they came from; was it a village or a town 2. the regional language 3. the educational level of the father 4. the job held in India 5. the job here 6. the religion and the practice at home 7. the motivation behind their migration 8. the time of arrival 9. the number of moves since arrival 10. the number of schools attended by the child 11. the friends the child plays with 12. the attitude of the parents towards his mixing with English children 13. the language used at home 14. the number of children; are they all here and 15. whether the family has any plans to go back.

These interviews were extremely useful in getting the factual type information. They were less helpful in putting people into categories based either on the reasons for their migration or on their plans for the future. It was difficult to sort out people according to their practice or neglect of their faith as no measure was possible. Again, regarding their attitude towards their children mixing with English children, not one of them said that he did not want his children to mix, though one felt that some at least were giving what they thought were acceptable answers.

The reasons offered for coming here were very similar to the ones offered by the parents of the subjects in Klineberg's study (1935) except in that no one had left India because of difficulty with the law.

Most expressed a general desire to return to India, eventually.
Some said their decision would depend upon how life worked out here
for the immigrants. The facts that could possibly be employed in
statistical analyses related to the place of origin, the time of
arrival, fathers' education and profession, the number of moves,
friends, language used at home and the number of children in the
family. Other bits of information helped in a clearer understanding
of the background of the groups included in this study.

Some general observations could be made on the pattern of
immigration to be found among the distinguishable groups. Among
Pakistanis, whether they arrived during the 60's or earlier, the
fathers arrived first and got their children, mostly boys, to join
them later, sometimes years later. There were quite a few Pakistani
families where no women were to be seen. This aspect of the immigrant
Moslem household has been noted before (Deakin, 1969). Among the
Indians, there was a difference to be seen between those who came
before 1962 and those who arrived later. Among the ones that came
before the anticipation of stricter control over immigration was in
the air, almost all came as whole families. Among those who came in
the early 60's the pattern was for the father to come in (before it
was too late) and get his family to join him as soon as possible.
When the scare was over we see again the coming in of whole families,
among those coming in 1965 and 1966. The pattern of immigration to
be found among the Asians in Hertfordshire is on the whole very
similar to the one found in the country as a whole.

The way the families lived, as far as one could assess on the
basis of a visit lasting half an hour, definitely depended upon the
way they lived in their own places. Those of good education who held
prestigous jobs back home were the ones who maintained a reasonable
standard of living here. Obviously the majority of these were able to
get jobs which were a continuation of what they had been doing and

hence there was no break in the status they defined for themselves. These were people who felt that their skills were appreciated and used here and the satisfaction they experienced was to be seen in the way they lived, the way they received the visitors and the relaxed manner they had in giving information. There was a minority among them, former teachers and civil servants who had not been able to get similar jobs and had to take anything that came their way, mostly unskilled work in factories. They complained bitterly about their lot and felt let down. Either they talked in terms of wanting to go back or in terms of their children realising dreams which they had failed to realise.

Among the ones with little or no education matters were entirely different. These were mostly people who were poor farmers, unskilled labourers, petty shopkeepers or ex-army men. Almost all the farmers had come from the Punjab or Kashmir and among the Sikhs, the land tends to become fragmented as there is no system of primogeniture and so divided among the sons. While the educated among the immigrants tend to have a single family unit under a roof, among the uneducated there is the practice of subletting rooms to other families giving them the use of the kitchen and the bathroom. There were instances wherein the same address provided by the Head referred to more than two or three separate families. Interviewing these families was not always easy and more often than not one had to look at documents to get the childrens' dates of birth or of their arrival. In these homes there is very little English used.

Most in the group were doing a manual or unskilled job here. There was little bitterness among them about the conditions here and they showed almost no curiosity about either the investigation or their children's school apart from expressing a desire that their children should do well at school. Perhaps, as a result of not appreciating the real purpose behind the visit, some were anxious.

Two groups of children from among those for whom information was collected figure in this study. One of the groups is of children who had arrived relatively recently, between 12-30 months before testing. The other group is of children who had had at least 5 years of stay in the United Kingdom.

Details about these children, 43 in each group, can be seen in Appendix 1.

A summary of the main aspects of the sample is given on the next page :

	Recent Arrivals	Earlier Arrivals (including some born here)
Number of children	43	43
a) Boys	27	24
b) Girls	16	19
c) Born here	-	16
Age (Average)	10 yrs 0 m	10 yr 1 m
Fathers' jobs in India		
a) Farming	11	9
b) Clerical	9	7
c) Teaching	5	5
d) Shopkeeping	6	3
e) Unskilled	5	5
f) Army or Police	6	-
g) Skilled	-	14
h) Transport	1	-
Fathers' Education (Average)	8 yr 10 m	11 yr 0m
Number of Children (Average)	4.2	3.84
Place of Origin		
a) Village	17	18
b) Town or City	26	25
Language		
a) Punjabi	29	24
b) Others	14	19
Stay in England (Average)	19.3 m	7 yr 8 m
Attendance in English schools (Average)	19.0 m	4 yr 7 m
Language spoken at home		
a) English only	1	20
b) Indian language only	23	9
c) Both	19	14
Friends		
a) English mainly	16	30
b) Indian mainly	14	7
c) Both	13	6

Even a cursory look at the details indicates that these are by no means equivalent groups. While the composition of the groups is near identical as far as age, sex distribution and original languages are concerned, the earlier arrivals as a group are better material than the recent ones. Their families are smaller (3.84 children as against 4.2), the fathers had more schooling (11 years as against 8yr 10m), there is more English spoken at home (there are 20 families wherein English is the only language of communication as against a single one among the recent arrivals) and more of the children play mainly with English children in the neighbourhood (30 against 16). Among the fathers of this group there are 14 who did skilled work while at home and most of them hold skilled jobs even here. These are the factors in the family background that are traditionally associated with childrens' intelligence and so we cannot claim equivalence for these two groups of immigrants.

DESIGN

The ideal design of a study into the changes in ability as a result of continued exposure to a changed environment would be a longitudinal one involving a single group of children. This approach has been recommended by psychologists like Biesheuvel (1949). This is not always practicable, particularly with immigrants coming into a country like the United Kingdom. No single investigator could undertake a project of this kind. Moreover the increased mobility among immigrants as they learn more about the country and the job opportunities in various parts would create problems of a methodological kind. Children would transfer from one Local Education Authority to another and this would introduce new variables which would have to be considered. While children are attending schools in a single county one can make certain assumptions about the county's policies which would not be valid when transfers take place across county borders.

In view of the qualitative differences between the two groups
of immigrant children, it was decided to compare each group with
a control group of children separately. The control group for the
recent arrivals would be a group of Indian or Pakistani children
attending schools in India or Pakistan matched for age, sex, father's
education and profession. The control group for the earlier arrivals
would be a group of English children in Hertfordshire schools matched
again, for the variables mentioned above. The performance of these
two control groups would represent the starting point and the destin-
ation of a journey undertaken by a group of immigrant Indian children
coming to and settling down in the United Kingdom.

The summary of the main aspects of the immigrant groups reveals
that a certain number of children could be abstracted from the total
43 in each group who could be matched with comparable children from
the other group. A similar number should be available from each of
the two control groups thus yielding four groups of children who are
matched for all the significant variables. The only variable that
differentiates one group from another would be the degree of exposure
to an English environment. The group in India would have no exposure
to the English environment, the recent arrivals would have some, the
early arrivals much more and the upper limit of such exposure would
be represented by the average age of the English group. In other
words, the immigrants could be imagined as being at two different
points on a continuum stretching from 0 to the average age of the
English group.

In addition to comparing these 4 groups while they are static
at certain points, it was decided to assess the change in the
abilities of a certain number of recent arrivals after further
exposure to the environment. The change in their performance could
be seen as the consequence of the group moving from A to B, towards
the point represented by the early arrivals. This test- retest
strategy would take the study a step closer to the ideal of a

longitudinal study.

The control groups

Among the 43 recent arrivals, 30 came from India,11 from
Pakistan and 2 from Kashmir. Looking for the control group of
children had to be confined to India in view of the investigator's
Indian citizenship. Visiting schools either in Pakistan or in the
disputed area of Kashmir was not possible.

The investigator spent some 4 months in India during 1969.
Discussions were held at the Central Institute of Education, New
Delhi and at the National Council of Educational Research and
Training about the study and about looking for children to form
the control group. In the light of these discussions it was
decided that there should be within the control group a represent-
ation of Punjabi speaking children equal to that within the immi-
grant group (26/43). As for the remaining, it was felt safe to
assume that all the Indian languages are nearly of the same quality
and were at a similar stage of development. There was no evidence
to claim that one language aided concept formation any more than
another. As long as the remaining members of the control group did
not belong to a single linguistic group and there was a handful of
other languages represented, it was felt that the results would not
be contaminated in any way.

Two focal points were chosen for the search; one was Chandigarh,
a town built during the 1950's in the Punjab Province, famous for
Le Corbousier's association with its planning. With its new schools
and the amenities it provides for the people, it reminds one of the
new towns in Hertfordshire. The people are mainly Punjabi speaking
and the Punjabi children needed for the study came from the school
population of Chandigarh and the half a dozen villages that encircle
the town.

The other focal point was Mandya in the State of Mysore, South India. It is a District town, very much like any County town here, a mixture of things rural and things urban. The regional language is Kannada though among its population one can find other language groups. There is a considerable community of Moslems who have been there since the days of Hyder and Tippu, Moslem rulers of Mysore in the 18th Century.

Information about the background of the children was taken from the school records. In recent years, there has been considerable improvement in the way the records are maintained and so one can rely on the details provided regarding fathers' schooling and profession. Information regarding the size of the family was obtained from the children.

The same procedure was adopted in selecting children for the other control group of English children to be compared with the early arrivals among the immigrant Indian children. Information came from the school records.

A point should be made about the procedure decided upon in matching children for their fathers' professions. The basis was the jobs the immigrant fathers held while in India or Pakistan. Appendix 1 contains details of jobs held by these people while in India and here. Most had to change their profession on migration and so their present jobs here would not indicate the cultural traditions that could be normally associated with them. The procedure adopted can certainly be defended on the grounds that immigrant families tend to hang on to the traditions they bring with them in view of the break experienced when circumstances force them into taking new jobs. It will be years before there is any change in their style of life as a result of this change. Minor adjustments have been made in matching for the professions of the fathers among English children. Farm hands here are considered equivalent to farmers in India and shop-assistants here matched with shop-keepers in India.

Appendix 1 gives the background details for every child in either group. 58 were seen in India and 66 English children were seen here. The summary of the details for 43 in each of the groups, chosen for detailed analyses, is given below :

	Control group in India	Control group of English children
Number of children	43	43
a) boys	27	24
b) girls	16	19
Age (Average)	10 yr 2 m	10 yr 7 m
Fathers' jobs		
a) Farming	11	9
b) Clerical	9	7
c) Teaching	5	5
d) Shopkeeping	6	3
e) Unskilled	5	5
f) Army or Police	6	-
g) Skilled	-	14
h) Transport	1	-
Fathers' Education (Average)	9 yr 0 m	10 yr 7 m
Number of children (Average)	4.5	3.2
Place of origin		
a) Village	17	9
b) Town	26	34
Attendance in English schools (Average)	-	5 yr 6 m

This summary when compared with the previous one for the experimental groups reveals close correspondence between the experimental groups and the respective control groups.

Thus, basically, the design can be thought of as two separate comparisons between two matched pairs of groups of children with the possibility of comparison for some in all the four groups. It, also

provides for the follow-up of one of the middle groups as it moves to a point close to that of the other, making further comparison possible.

TESTS   Choosing tests, which can be administered to a group of children coming from a different culture and in whom the acculturation process in a changed setting is as yet incomplete, is a difficult thing. In Chapter 1, we looked at the problems associated with this choice and it was argued that there is some justification in using the Western-type tests of intelligence. It was also pointed out that no test is culture-free, not even the ones using abstract and non-verbal material, and so we have to make do with culture-bound tests, knowing full well they are not fair to an immigrant child.

When a Head asks an Educational Psychologist to assess the potential educability of an immigrant child who has entered his school with little or no standard English, no clear-cut answer can be given by the psychologist, as he perhaps can about an English child. The reasons are obvious. Schooling being basically verbal and numerical it would be desirable to administer tests that sample the child's verbal and arithmetical reasoning. This is not possible when we are dealing with a group of children speaking different languages who might or might not have had any English taught while at school in their own countries. It has generally been realised that between verbal and non-verbal tests, verbal ones give a better prediction of what a child can do later at school, than non-verbal ones. Talking of the degree of freedom from cultural associations of various types of tests, Ortar (1963) has said that the most culture-bound are pictures and models, as in the item Object Assembly in W.I.S.C. Next come items using abstract materials (Cubes, Formboards, etc.) The least culture-bound, according to Ortar, is number material as long as all the groups one is dealing with have had some schooling. Vernon (1968, 1969) too has pointed out that sampling educational skills is sensible when we are thinking of making educational predictions.

Most would agree with Ortar and Vernon. However, even though we were

dealing with children who had stayed here for at least 12 months, verbal tests were considered not satisfactory. The performances of the recent arrivals would depend upon the mastery over English they had achieved since arrival. This, in turn would depend upon whether they had some experience of English in their schools in India. It would also depend upon the help they were given by the schools they entered and upon whether the teachers concerned had any ideas about teaching English as a second language. The support the home gave would also be a factor. There is another reason which would have made results from the use of verbal tests invalid for comparison; a child's English may be good enough for communication on ordinary matters but he may still be handicapped when taking a verbal test; he may lack the vocabulary, verbal fluency, range and facility in handling verbal relations.

Thus, it was almost inevitable that non-verbal tests were chosen. Vernon (1969) has said that a case may be made out for a limited and cautious use of performance tests and has suggested avoiding tests which use pictures. For immigrant children aged 8-13, he recommends the use of Matrices, W.I.S.C. Kohs, Porteus Mazes, Design Reproduction and Draw-a-Man Test. These were some of the tests in the battery he used in various parts of Africa and with Eskimos. If we are making a diagnostic assessment of an individual child, we could make use of such a variety of tests and even then the interpretations of these results will be a matter of clinical judgment. As the object of the present investigation was not diagnosis of the needs of any individual child, it was decided to use the more wellknown from among the non-verbal tests of intelligence.

The tests used were Wechsler's Intelligence Scale for Children and Raven's Coloured Progressive Matrices(1956). The only subtest from the verbal part which was administered was Digit Span while all the subtests from the Performance part were used. Digit Span was included because of the universal character of tasks involving immediate memory and the ease with which instructions can be given. It can be claimed to be fairly culture-free (Eysenck,1967) and it was thought that it would be interesting

to see how Indian children in whose background there is great emphasis on feats of memory would perform on it. No assumption is made about the various subtests in the performance part of W.I.S.C. regarding their culture-fairness or otherwise. The fact that using W.I.S.C. would give separate measures for the various subtests and still would give a global measure for I.Q. was a strong argument in favour of its use. The other factors were things like the relative ease with which instructions can be given, the possibility of checking whether instructions were understood or not by looking at the performance on a subtest and the general attractiveness of the tasks. Another factor was the system of awarding bonus points for successful completion of a task that is present in three of the five subtests. This, it was felt, could be used as a measure of speed to study the changes that one could predict in the immigrant children's habits of work in a problem solving situation.

Raven's Coloured Progressive Matrices Test has figured prominently in cross-cultural studies in intelligence. In some form or the other, Matrices have been used by Ombredane, Vernon, Irvine and others in their studies of peoples in Africa. They have been used in India too and figure in The First Mental Measurement Handbook for India (1966). Designed as a measure of "g" the items chiefly require the eduction of relations among abstract elements. Many psychologists, particularly British ones, regard the test as a pure and the best available measure of "g". Claims have been made that it is relatively culture-free and that performance on it is not affected by schooling though, in recent years, doubts have been expressed by some investigators working with different cultural groups in different parts of the world. (Burke, 1958). Some have even questioned whether it can be considered to be a test of intelligence at all or whether it should be considered as a measure of a specific skill (Higgins and Sivers, 1958; Irvine, 1969). Using it with the Indian sample, both in India and here, would give us a measure of the effects of changes in environment on the scores of children. It was thought useful to assess its culture-fairness by studying the performance of different groups of Indian children exposed to English schooling in different degrees.

A further measure was recorded for every child seen here and that
was the Head Teacher's assessment of the ability of a child. Since 1969
quite a few Divisions in the County of Hertfordshire have evolved a system
of Comprehensive Schooling at the secondary level. Not all the Divisions
have done it and so one can still find Grammar Schools taking children
"selected" for their type of instruction. There has not been, in Hertford-
shire, for a number of years a scheme by which all children transferring
to secondary schools sit the 11+ examination. Selection has been based on
the junior school's assessment of a child's ability to profit by the type
of education provided by a certain secondary school. It was thought useful
to get the junior Heads' assessments of the abilities of the immigrant
children in particular and compare them with their assessments of the
abilities of English children. It was argued that a certain cultural fac-
tor would influence the assessment though it was not easy to predict the
direction in which this influence worked. Again, one could expect the
Heads' assessments to be based on their day-to-day knowledge of the pro-
gress of the immigrant children. They would reflect, indirectly, the pro-
gress of the children in school attainment and could be expected to be a
better criterion than the results on non-verbal tests of intelligence.
(Vernon, 1968).

The Head was asked to give a figure for the child's I.Q. based on the
concept of 100 representing the average. Some Heads preferred to state
their assessments in ranges, 100-105 etc., and in these cases the middle
point of the range was taken as the child's I.Q. as assessed. One Head
refused to assess children's ability, saying it was pointless. Another
had just then taken charge of the school and the teacher of the children
concerned was new. Thus, there are no teacher's assessments for 6 of the
86 immigrant children.

Again, it was not possible to get teachers' assessments for the
children seen in India. The investigator found it difficult to convey to
the Primary School teachers in India either the concept of 100 representing
the average or that of ability not always being the same as examination
performance. Again, the control group of Indian children came from places

as far apart as Mysore and the Punjab and so the idea of getting
teacher's assessments was dropped.

TESTING

Every one of the 210 children, seen here and in India, was tested
individually and in school. To the extent it was possible, the same
friendly chat preceded the actual testing. Each testing session lasted
nearly 45 minutes.

The language of instruction for both the immigrant groups was
English as it was for the control group of English children. The
investigator was sure in every case, even with the recent arrivals,
that the instructions were fully understood. However this was his
subjective impression and it was decided to verify it by taking a
small group of Punjabi-speaking children and test them a second time
with instructions given in Punjabi. This group of 9 children were all
recent arrivals and lived close to one another in a town though they
were divided between 3 schools in the area. On the occasion of the
retest, a Punjabi-speaking teacher who taught a junior school in a
neighbouring County but who lived in the area was present in case the
Punjabi instructions given were not clear. The children knew him and
the investigator feels that his presence did not affect the results.

There was a difference between the Test-Retest scores. But the
difference was no bigger than what is normally found in test-retest
studies (6.1 points in Performance I.Q. - W.I.S.C.) even with English
children. The details of the scores are given in Appendix 2.

If the children, on being tested with English instructions, had
not understood the task set one has reason to expect an improvement
much larger than was found on the occasion of the retest, when
Punjabi instructions were given. So, it was taken that the gains were

attributable to the effect of practice and the testing of other recent arrivals was carried on as before, with instructions given in English.

In India, the instructions were given in the languages, Punjabi and Kannada. Among the children seen in and around Mandya, there were children whose home-language was something other than Kannada. But every one of them had always learned at school in Kannada and so there was no doubt about the children having understood the instructions. Numbers in the Digit Span were given in the local languages.

There was not even a single child who failed to start on any of the items again indicating that there was no difficulty regarding instructions.

A final word about the testing conditions in India; there were quite a few interruptions in most sessions and when a third person was present (as in the Punjabi schools, where an English-knowing teacher was present to help out if the investigator ran into trouble) the children did show an awareness of his or her presence. As for the general level of noise, it was always there in one form or another. Knowing India and Indian schools, however, the investigator feels that the Indian children worked as well as they could with a couple of unfamiliar tests and that their performance was not affected in any significant way by these extrinsic factors.

CHAPTER 5

ANALYSIS OF THE DATA

Note on selection of children for comparison

58 children were seen in India from whom 43 were selected for comparison with recent arrivals. Selection was based on age, sex, father's profession, educational level and the child's language at home.

When a number of children satisfied the criteria for inclusion, their W.I.S.C. I.Q.'s were used as a basis. If one had to be chosen out of six children, the one with the highest I.Q. was included. If two were needed the two with the highest I.Q.'s were included.

The same procedure was adopted in selecting 43 out of the 66 English children.

Note on Matrices I.Q. (given to children under 11-years only)

I.Q.'s are derived by a translation of the percentile ranks by means of the tables of the normal curve into Sigma Values which are then expressed in terms of a distribution with Mean 100 and S.D. 15. (Gwynne Jones, 1956).

When a child's age fell between two ages in Raven's table (1956), a method of approximation was employed. When it was exactly between two ages the approximation was towards the lower age.

Thus the Matrices I.Q.'s are not claimed to be exact.

Changes in the Measured Intelligence of Immigrant Children

Three hypotheses of a general character were stated (Page 59) regarding the changes that could be expected in the measured intelligence of immigrant children from India. They were based on the basic consideration that these children had left one cultural environment for another which was relatively richer and more stimulating in terms of certain skills which it valued.

It is proposed to look at the data provided by the study first of all from the viewpoint of these general hypotheses.

The first one stated that

"When a group of immigrant children from the Indian Subcontinent, who have had a period of stay in the United Kingdom, are compared with a matched group of children in India, the mean score of the immigrant group on any test of intelligence will be significantly higher that of the Indian group"

The validity of this hypothesis is tested by a comparison of the scores of a group of recent arrivals with those of a matched group of children in India. The raw scores obtained by children in the two groups are in Table 2 - Appendix 1.

1.   SAMPLE – SUMMARY

	RECENT ARRIVALS	CHILDREN IN INDIA
Number of children	43	43
Boys	27	27
Girls	16	16
Age (average)	10 yr 0 m	10 yr 2 m
Fathers' Education (average)	8 yr 10 m	8 yr 11 m
Profession		
Farmers	11	11
Teachers	5	5
Clerical	9	9
Police or Army	6	6
Shopkeepers	6	6
Unskilled	5	5
Transport	1	1
Punjabi speaking children	29	28
Children speaking other languages	14	15
Stay in England (average)	19.3 m	

SCORES

Tests		Recent Arrivals	Children in India
Digit Span	Range	4-15	5-12
	Mean	7.93	7.42
	S D	2.30	2.04
Picture Completion	Range	5-13	2-13
	Mean	9.02	7.63
	S D	1.79	2.39
Picture Arrangement	Range	3-13	1-8
	Mean	6.72	5.12
	S D	1.80	1.29
Block Design	Range	4-12	4-11
	Mean	8.30	7.35
	S D	2.00	2.09
Object Assembly	Range	3-11	1-12
	Mean	6.81	5.51
	S D	1.92	2.36
Coding	Range	4-13	2-11
	Mean	7.74	6.90
	S D	2.44	2.58
W.I.S.C. I.Q. (n = 43)	Range	62-99	53-94
	Mean	84.23	75.7
	S D	9.63	9.76
Matrices I.Q. (n = 23)	Range	72-112	71-105
	Mean	83.74	81.11
	S D	10.85	8.36

RECENT ARRIVALS and CHILDREN IN INDIA

DIGIT SPAN

A - Recent Arrivals

B - Children in India

PICTURE COMPLETION

A - Recent Arrivals
B - Children in India

f

scaled score

PICTURE ARRANGEMENT

A - Recent Arrivals
B - Children in India

-B

-A

f

scaled score

BLOCK DESIGN

A - Recent Arrivals
B - Children in India

scaled score
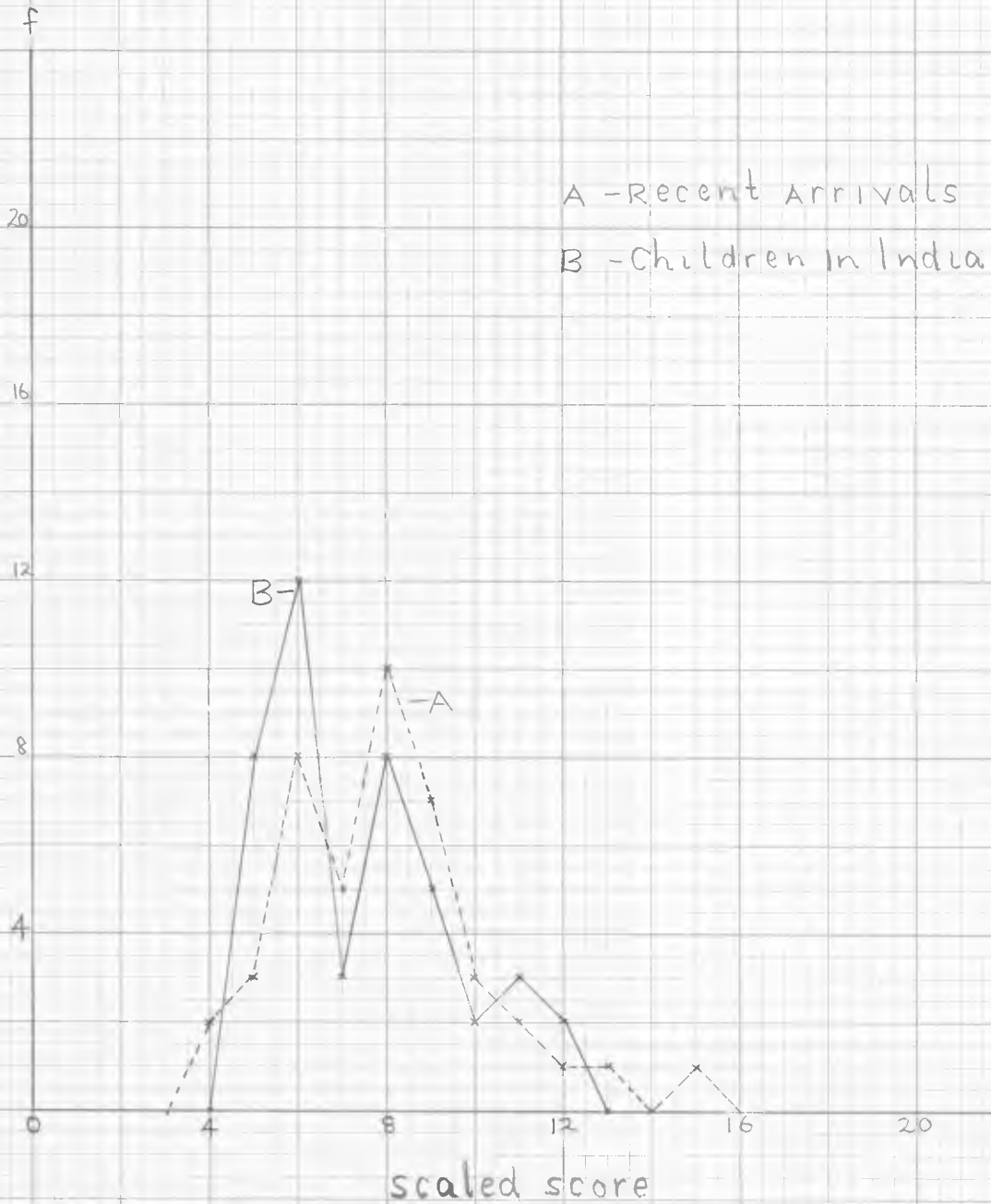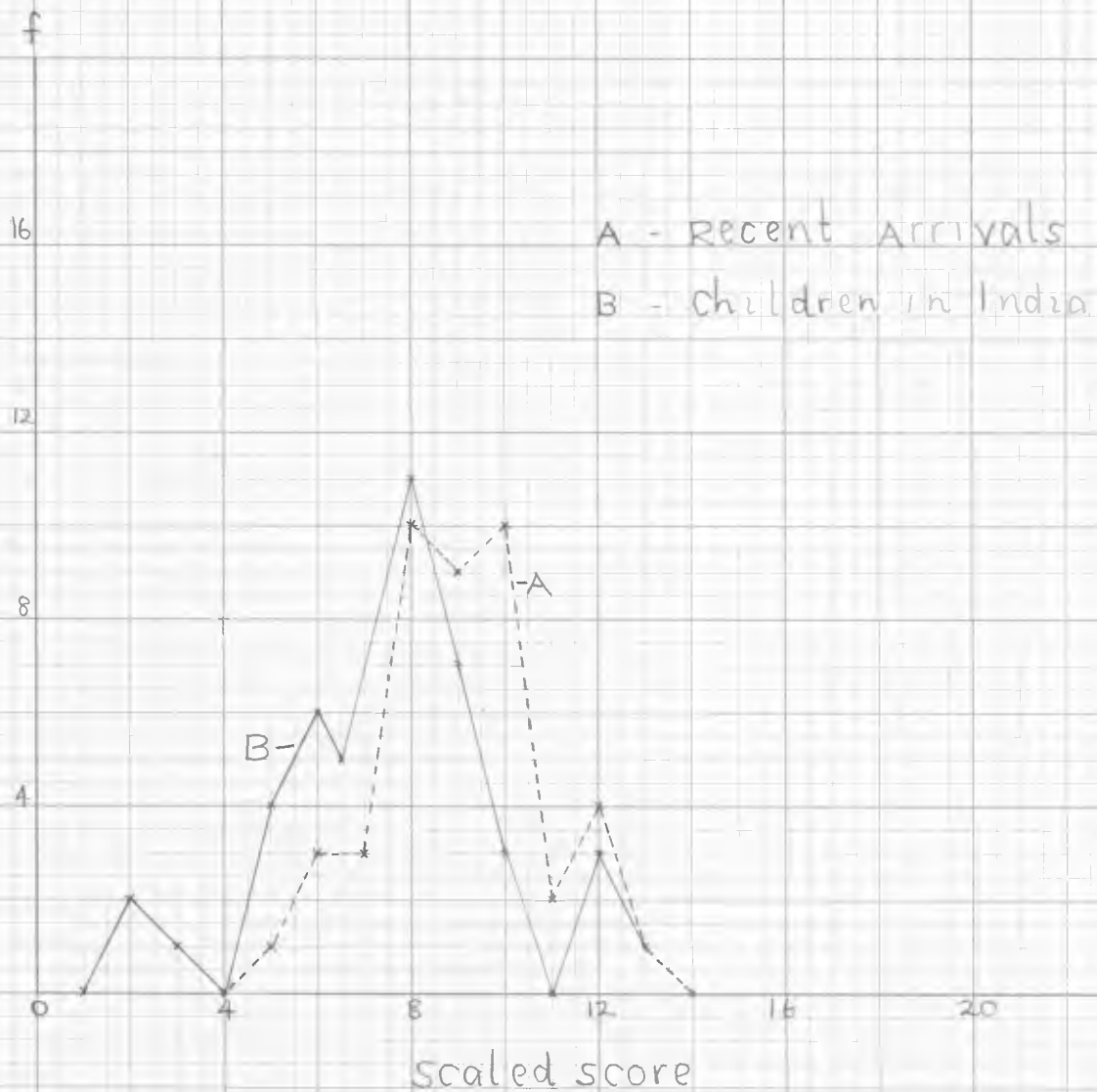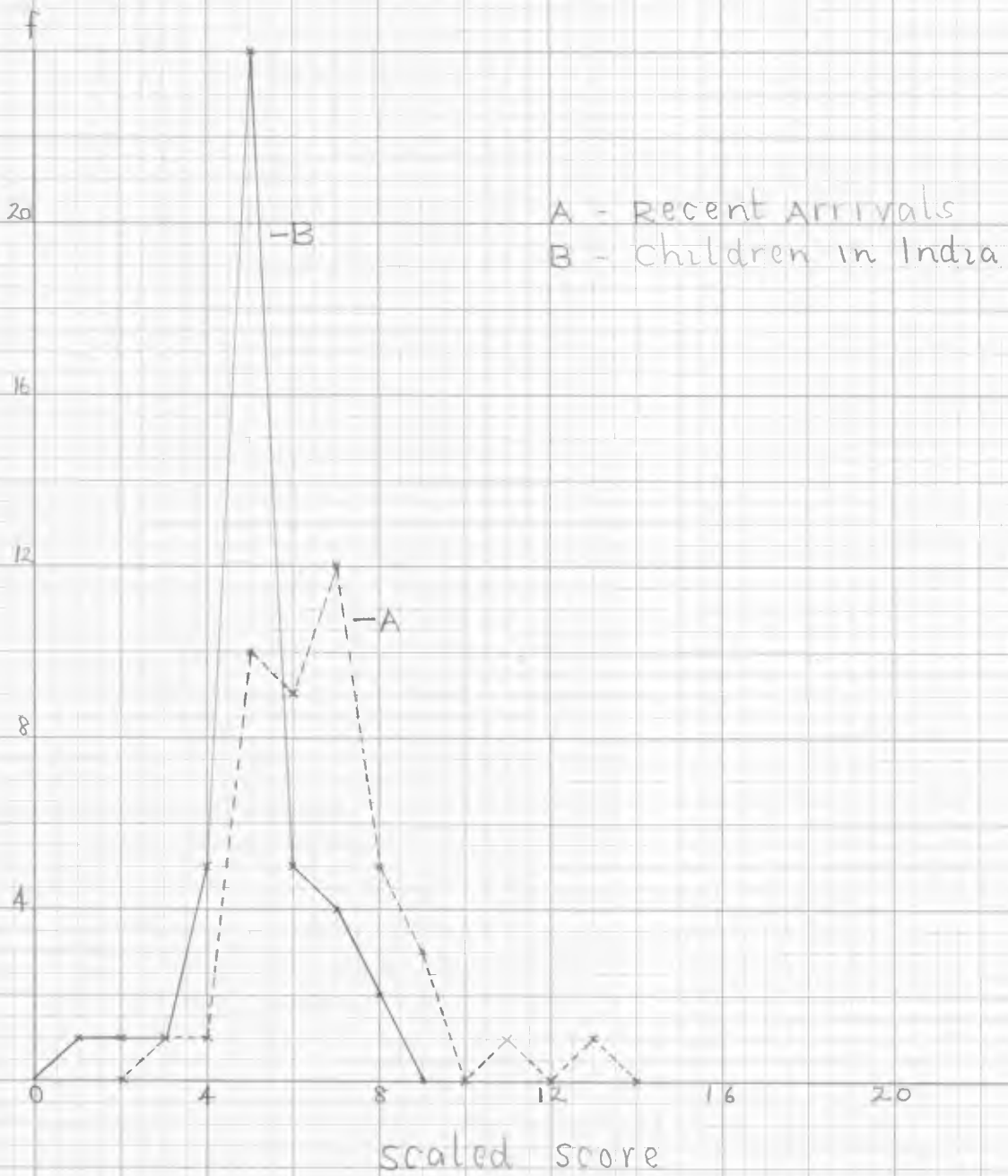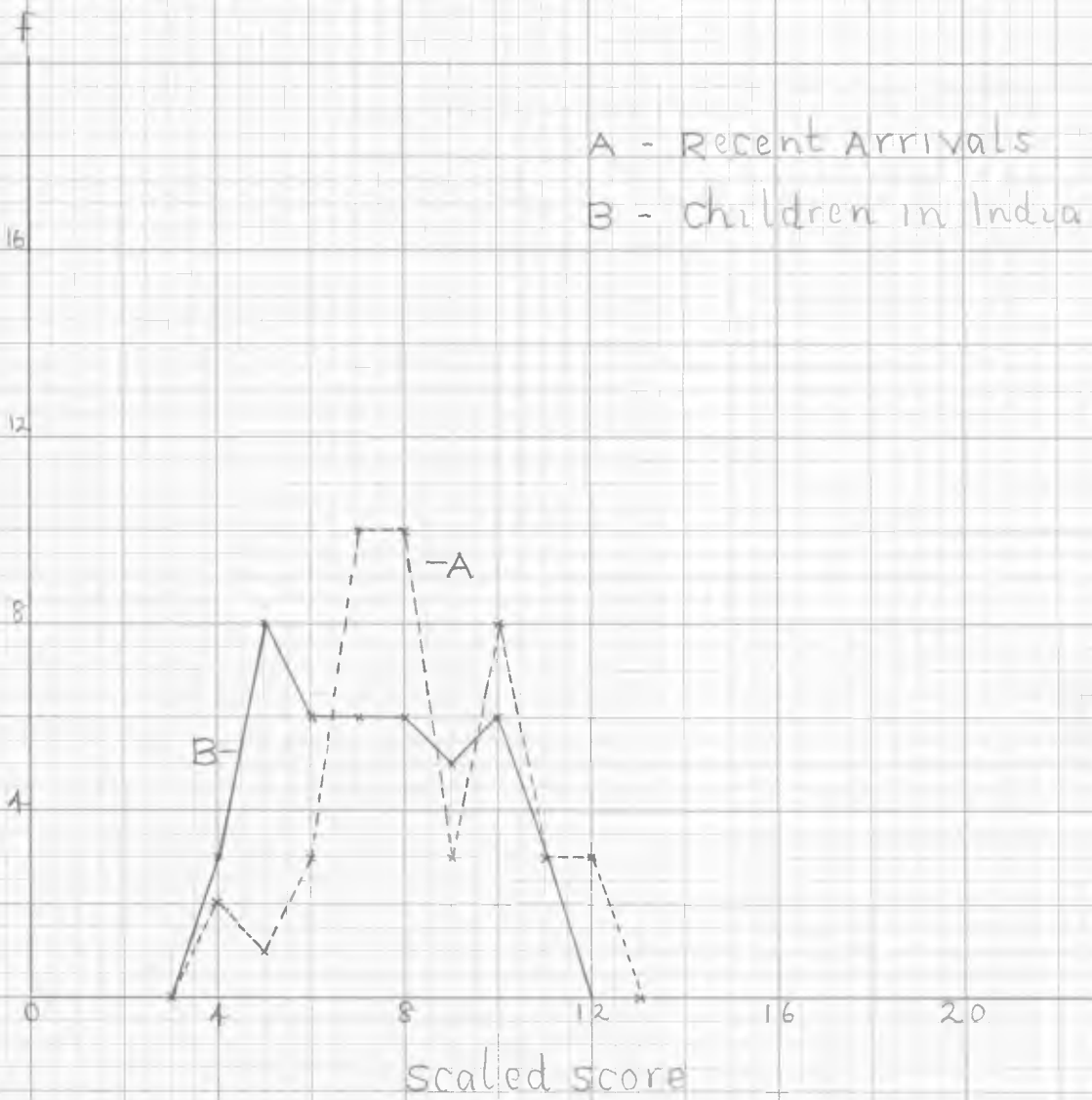
OBJECT ASSEMBLY

A - Recent Arrivals
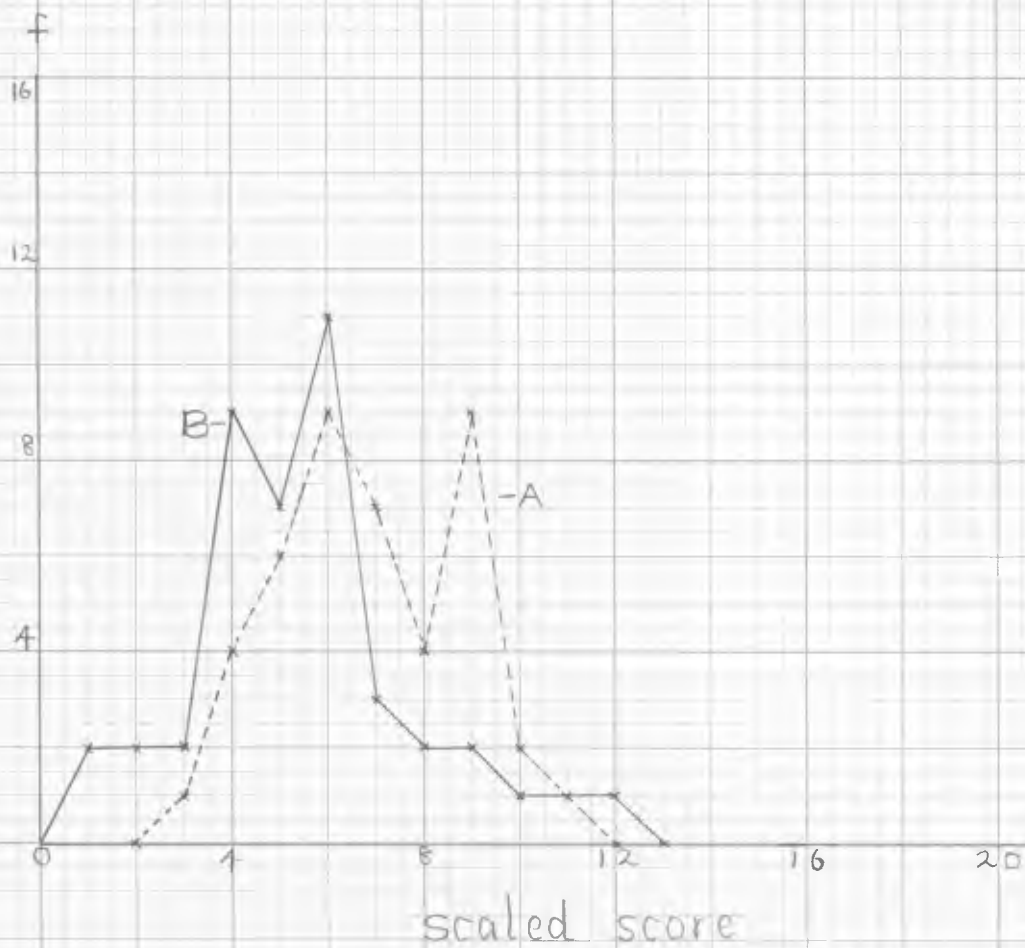
B - Children in India

CODING

A – Recent Arrivals

B – children in India

f

16

12

8

B–

–A

4

0   4   8   12   16   20

Scaled score
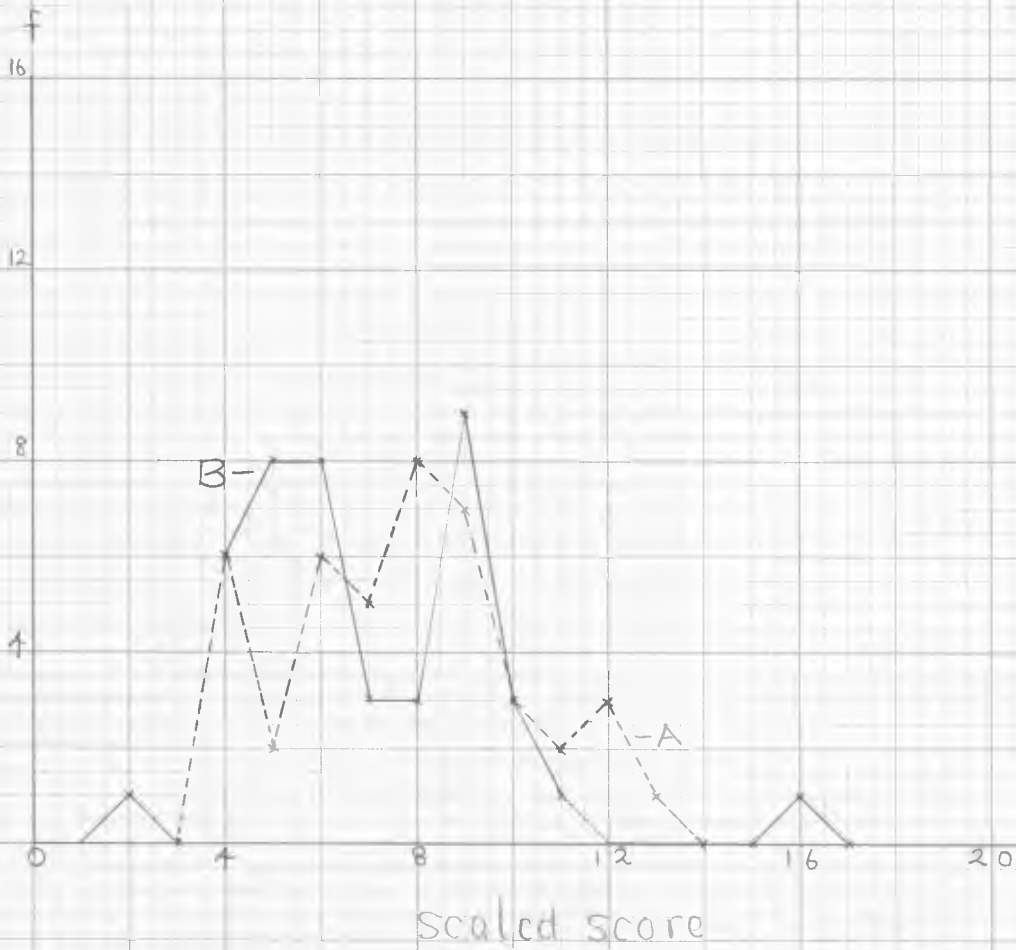
FREQUENCY POLYGONS

W.I.S.C. and Matrices

Recent Arrivals and Children in India

	W. I. S. C.				M A T R I C E S			
Classes	Recent Arrivals		Children in India		Recent Arrivals		Children in India	
	n	% f	n	% f	n	% f	n	% f
115-120					–			
110-114					1	4.4		
105-109					–	–	1	4.4
100-104	–				2	8.7	–	–
95-99	6	13.9	–		1	4.4	–	–
90-94	8	18.6	5	11.6	2	8.7	3	13.1
85-89	8	18.6	4	9.3	5	21.7	2	8.7
80-84	6	13.9	5	11.6	1	4.4	6	26.1
75-79	8	18.6	10	23.2	5	21.7	6	26.1
70-74	3	7.0	7	16.3	6	26.1	5	21.7
65-69	3	7.0	7	16.3	–			
60-64	1	2.3	2	4.7				
55-59	–		2	4.7				
50-54			1	2.3				
45-49			–					
N =	43		43		23		23	

WECHSLER IQ

A - Recent Arrivals
B - Children in India

MATRICES IQ

A - Recent Arrivals
B - Children in India
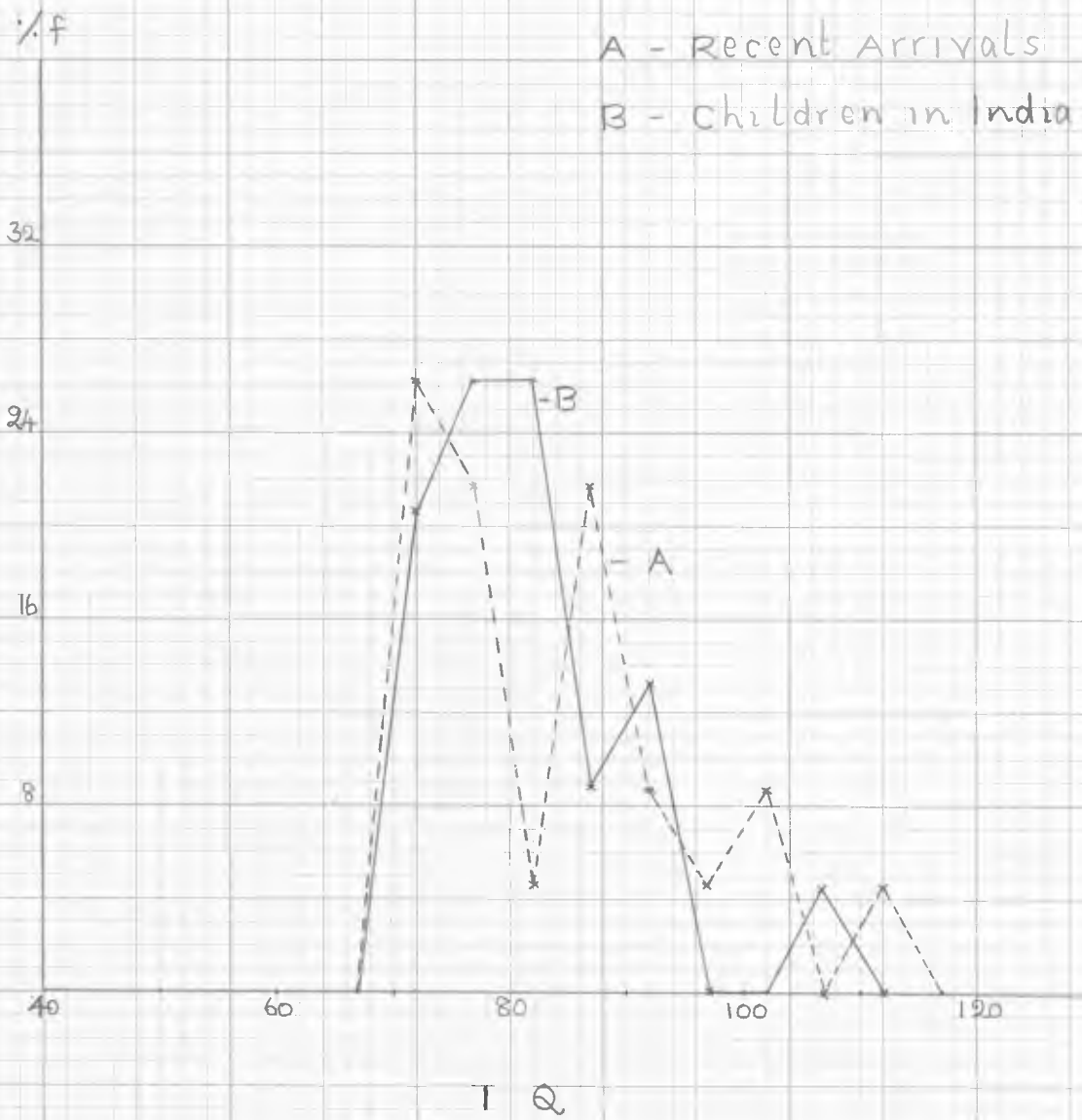
RECENT ARRIVALS AND CHILDREN IN INDIA

DIFFERENCE BETWEEN THE MEANS

Children matched for age, sex, fathers' education and profession

Number in each group for measures 1 - 7   = 43

Number for measure 8   =   23

Scores are mean scores

	Measures	Recent Arrivals	Children in India	Standard Error	t-value	Level of Significance
1	D.S.	7.93	7.42	0.476	1.071	N.S.
2	P.C.	9.02	7.63	0.460	3.016	0.005
3	P.A.	6.72	5.12	0.333	4.81	0.0005
4	B.D.	8.30	7.35	0.445	2.134	0.025
5	O.A.	6.81	5.51	0.573	2.27	0.025
6	Coding	7.74	6.90	0.531	1.58	N.S.
7	WISC IQ	84.23	75.7	2.14	3.99	0.0005
8	Mat.IQ	83.74	81.11	2.907	Less than 1	N.S.

The level of significance at which the mean scores of the two groups differ is given on the previous page. We find no significant difference on the mean Matrices I.Q.'s but find a very, very significant difference (0.0005 level) on the W.I.S.C. I.Q.'s. Considering that most of the children both in India and here did very poorly on the Matrices and the fact that the test is not very discriminatory at the lower end we would be justified in claiming that even as short an exposure as that of 19 months has made a significant difference in the measured intelligence of the immigrant children. The possibility is also there that the Matrices test is more a test of the perceptual skill as are Block Design and Object Assembly of the spatial and like them resistant to any quick improvement. It is interesting that the differences between the means on these subtests are significant at a relatively low level (0.025). Nor is it surprising that a high level significance is to be seen in the differences between the mean on Picture Completion and Picture Arrangement as both deal with objects and situations which are particular to the culture here.

Two of the subtests have shown no significant difference and they are Digit Span and Coding. One demands immediate memory at which children in India are not bad and the other some speed of execution and some memory too. It is suggested that the fact of no difference on Coding is because of the children not having come to appreciate the importance of speedy performance as yet.

The second hypothesis has, implicit in it, the gist of the **first and** it states that

"Between two matched groups of immigrant children from the Indian Subcontinent, the mean score for the group who have stayed longer in the United Kingdom will be significantly higher than that of the other group"

The scores of the 25 recent arrivals are taken from Table 2 and the scores of the 25 early arrivals from Table 5, both in Appendix 1.

2.   EARLY ARRIVALS AND RECENT ARRIVALS
COMPARISON

SAMPLE - SUMMARY

	EARLY ARRIVALS	RECENT ARRIVALS
Number of children	25	25
Boys	13	13
Girls	12	12
Age (average)	9 yr 10 m	9 yr 11 m
Fathers! Education (average)	9 yr 7 m	8 yr 9 m
Profession		
Farmers	8	8
Teachers	4	4
Clerical	5	5
Shopkeepers	3	3
Unskilled	4	4
Transport	1	1
Punjabi speaking children	17	18
Stay in England (average)	7 yr 1 m	1 yr 9 m
Attendance in English schools	4 yr 8 m	1 yr 9 m

SCORES - SUMMARY

Tests		Early Arrivals	Recent Arrivals
	Range	5-16	5-15
Digit Span	Mean	10.68	8.2
	S D	2.89	2.17
	Range	6-18	5-13
Picture Completion	Mean	11.08	9.12
	S.D.	2.74	1.91
	Range	5-13	4-13
Picture Arrangement	Mean	8.52	7.12
	S D	2.02	1.95
	Range	5-16	6-12
Block Design	Mean	10.96	8.96
	S D	2.22	1.78
	Range	6-17	4-11
Object Assembly	Mean	9.68	7.64
	S D	2.45	1.79
	Range	4-15	4-13
Coding	Mean	9.64	8.36
	S D	2.65	2.42
	Range	78-128	67-99
W.I.S.C. I.Q.	Mean	99.96	87.96
(n = 25)	S D	11.95	9.17
	Range	86-124	72-112
Matrices I.Q.	Mean	104.55	86.35
(n = 20)	S D	8.27	11.55

FREQUENCY   POLYGONS

W.I.S.C. and Matrices

Early Arrivals and Recent Arrivals

Classes	W. I. S. C. Early Arrivals		Recent Arrivals		MATRICES Early Arrivals		Recent Arrivals	
	n	% f	n	% f	n	% f	n	% f
130–134	–							
125–129	1	4.0			–			
120–124	1	4.0			1	5.0		
115–119	2	8.0			2	10.0	–	–
110–114	1	4.0			2	10.0	1	5.0
105–109	1	4.0			7	35.0		
100–104	3	12.0		–	3	15.0	2	10.0
95–99	7	28.0	6	24.0	3	15.0	3	15.0
90–94	7	28.0	7	28.0	1	5.0	2	10.0
85–89	–		5	20.0	1	5.0	3	15.0
80–84	1	4.0	1	4.0		–	1	5.0
75–79	1	4.0	3	12.0			5	25.0
70–74	–		2	8.0			3	15.0
65–69			1	4.0			–	
60–64			–	–				
N =	25		25		20		20	

WECHSLER IQ

A - Early Arrivals
B - Recent Arrivals
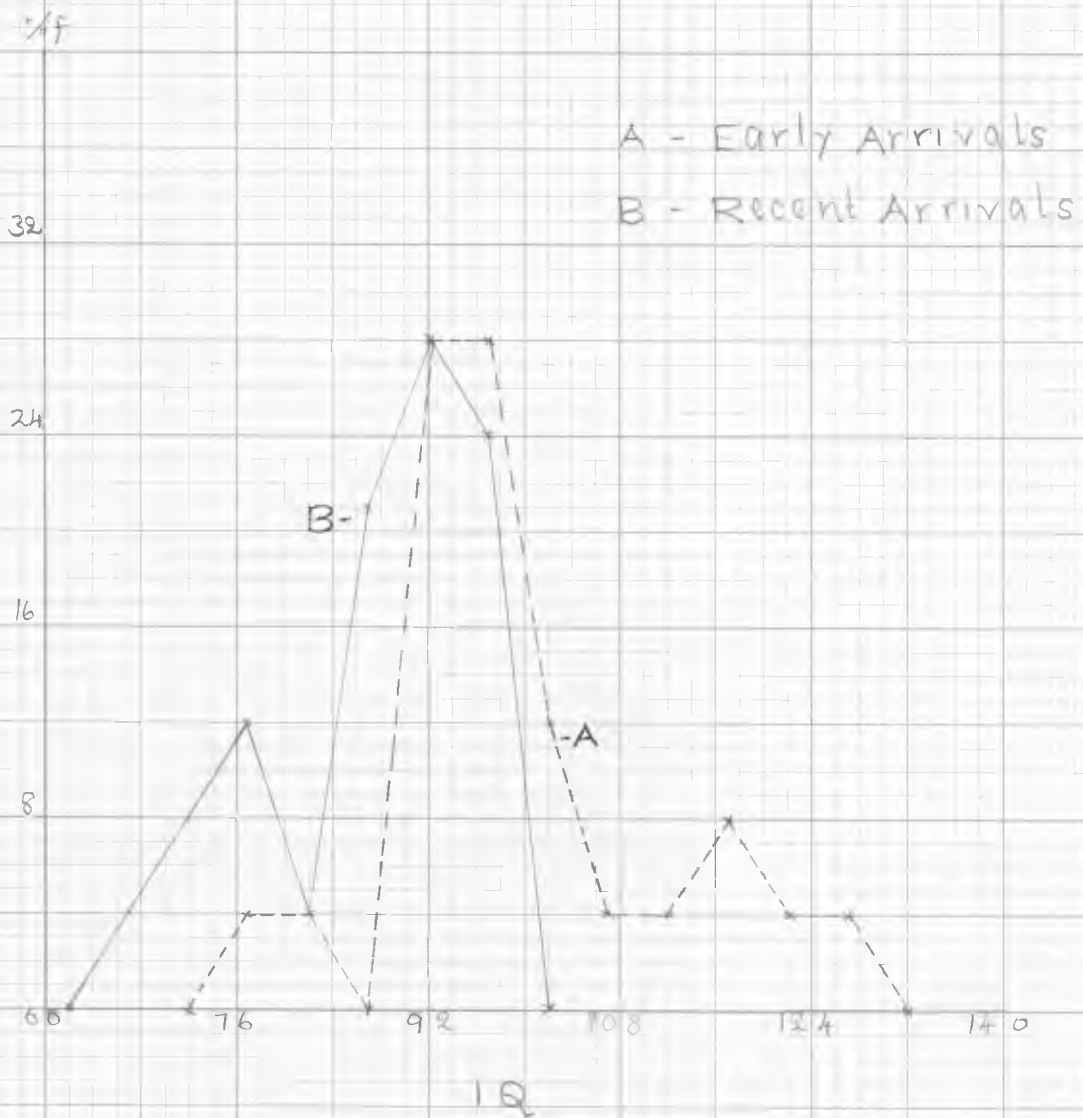
MATRICES IQ

A- Early Arrivals
B- Recent Arrivals
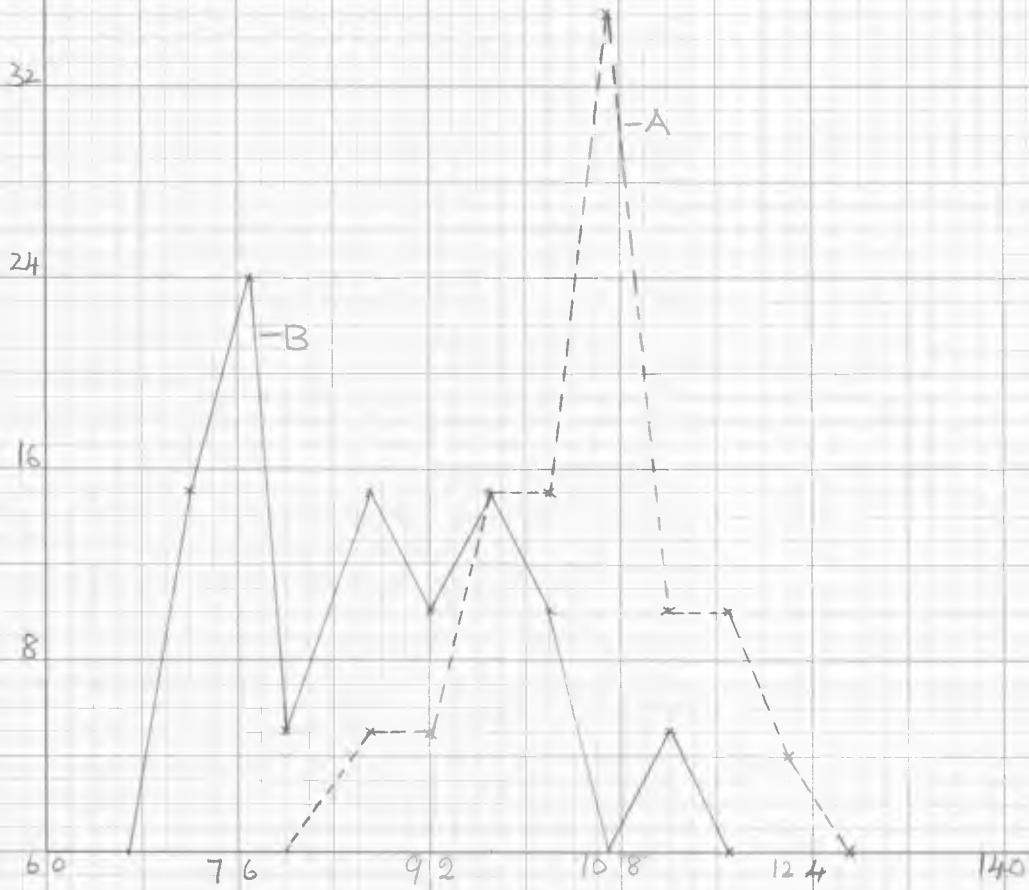
IQ

EARLY ARRIVALS AND RECENT ARRIVALS

DIFFERENCE BETWEEN THE MEANS

Children matched for age, sex, fathers' education and profession

Number in each group for measures 1 - 7 = 25

Number for measure 8 = 20

Scores are mean scores

	Measures	Early Arrivals	Recent Arrivals	Standard Error	t-value	Level of Significance	
1.	D.S.	10.68	8.2	0.739	3.35	Sig	0.005
2.	P.C.	11.00	9.12	0.677	2.77	Sig	0.005
3.	P.A.	8.52	7.12	0.629	2.23	Sig	0.025
4.	B.D.	10.96	8.96	0.584	3.444	Sig	0.005
5.	O.A.	9.68	7.64	0.62	3.29	Sig	0.005
6.	Coding	9.64	8.36	0.732	1.749	Sig	0.05
7.	WISC IQ (n=25)	99.96	87.96	3.318	3.85	Sig	0.0005
8.	Matrices (n=20)	104.55	86.35	2.759	6.6	Sig	0.0005

The first thing we notice is that there is now a very significant difference between the means on Matrices I.Q. as there is on W.I.S.C. (0.0005 level). We also notice that there is a significant difference on Block Design and Object Assembly (0.005 level). If we remember that in the comparison of recent arrivals with the children in India there was no or little difference on both these and Matrices we are strengthened in our grouping them as tests which demand spatial and perceptual skills, skills which children from India particularly lack.

It is also interesting to note that Digit Span shows now a significant difference. The explanation should be in terms of the nature of the material used. To children in India numbers do not carry the same significance as here, where telephones play an important part in everyday life and where even roads are known by numbers. It is safe to assume that by the time immigrant children have spent a couple of years here they come to appreciate the importance of remembering numbers and hence their improved ability at the task. A similar explanation is in order regarding the slightly significant difference on Coding. Children have come to appreciate the need for speed. More supportive evidence is to be seen later.

It need not be stressed that a comparison of the early arrivals with children in India would reveal a very significant difference on every one of the measures.

The process of improving the various skills is not an endless process. Some light is thrown on the matter of when children hit the ceiling when we consider the performance of the early arrivals with that of the recent arrivals on retest. Leading to this, hypothesis 3 stated that

"When a group of recent arrivals from the Indian Subcontinent into the United Kingdom are retested for their intelligence after a further period of stay here, their mean retest score will be significantly higher than their mean test score" Test-Retest scores are in Table 7 Appendix 1.

FREQUENCY POLYGON
TEST – RETEST
W.I.S.C. I.Q's OF RECENT ARRIVALS

Classes	TEST		RETEST	
	no	% f	no	% f
115–119			–	
110–114			1	4.3
105–109			4	17.4
100–104	–		4	17.4
95–99	3	13.0	4	17.4
90–94	6	26.1	1	4.3
85–89	6	26.1	4	17.4
80–84	–		2	8.7
75–79	4	17.4	2	8.7
70–74	2	8.7	1	4.3
65–69	1	4.3	–	
60–64	1	4.3		
55–59	–			
	23		23	

WECHSLER IQ

%f

A - Test

B - Retest

32

24

— A

16

8

— B

50   66   82   98   114   130

IQ
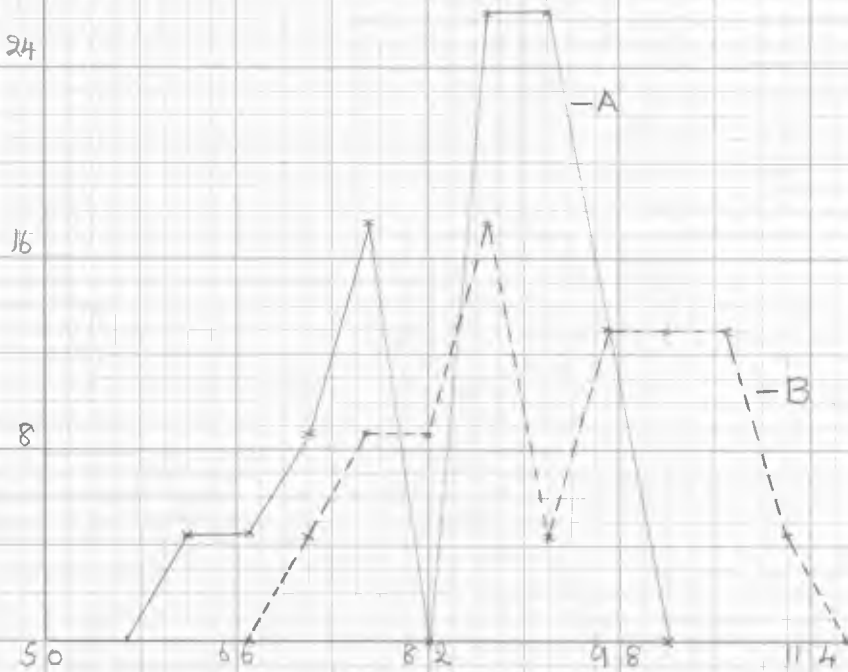
RECENT ARRIVALS

TEST – RETEST SCORES : Recent Arrivals

SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEANS
(The number for comparison of Matrices was very small)

Sandler's $A = \dfrac{\text{The sum of the squares of the differences}}{\text{The square of the sum of the differences}}$

Measures		Test	Retest	A-value	Level of Significance
D.S.	Range	4–12	4–15		
	Mean	7.43	8.61	0.117	0.005
	S.D.	2.241	2.56		
P.C.	Range	5–12	6–13		
	Mean	8.74	9.91	0.237	0.025
	S.D.	1.84	2.68		
P.A.	Range	3–11	5–16		
	Mean	6.43	8.61	0.08	0.0005
	S.D.	1.81	3.07		
B.D.	Range	4–12	6–13		
	Mean	8.30	9.83	0.0727	0.0005
	S.D.	1.92	1.79		
O.A.	Range	4–10	5–16		
	Mean	7.17	9.04	0.082	0.0005
	S.D.	2.61	2.63		
C.	Range	4–13	3–14		
	Mean	8.17	8.65	0.76	Not significant
	S.D.	2.72	2.97		
WISC IQ	Range	62–99	72–113	0.062	0.0005
	Mean	84.52	94.56		
	S.D.	10.32	10.8		

We find a very significant difference on 5 of the 6 items in
W.I.S.C. and on W.I.S.C. I.Q. (0.005 and higher). On Picture Arrange-
ment there is a significant difference though not at this high level.
Obviously, the progress on this particular skill has slowed down after
the initial and large gain made on coming here. It would also be right
to remember that there is a verbal content involved in performance on
this subtest and that most of the homes of the recent arrivals have
little or no English.

By now the immigrant children have come to appreciate the import-
ance of attending to numbers and hence the significant difference on
Digit Span. After having been slow to develop their spatial and percep-
tual skills they have made tremendous progress during these 23 months
since the test.

It is interesting to compare the retest I.Q.'s of the recent
arrivals with those of the early arrivals. We should remember however,
that the average stay of the early arrivals in the United Kingdom is
nearly 7 years while that of the recent arrivals by the time of the
retest is only $3\frac{1}{2}$ years.

Comparing the I.Q.'s of the two groups should reveal to us aspects
of the environment here which matter as far as the development of skills
in immigrant children is concerned.

RETEST I.Q.'S (OF RECENT ARRIVALS) AND I.Q.'S OF EARLY ARRIVALS

SAMPLES COMPARED

	Children retested	Early arrivals
Number	23	23
Fathers' Education	8 yr 6 m	9 yr 10 m
Profession		
Farmers	8	8
Teachers	3	3
Clerical Workers	4	4
Shopkeepers	3	3
Unskilled	4	4
Transport	1	1
Attendance in English schools	3 yr 6 m	4 yr 8 m
Stay in the United Kingdom	3 yr 6 m	7 yr 1 m

W. I. S. C. I.Q'S

Table 5a.

Scores are taken from Tables 5 and 7 - Appendix 1

Sl. No.	Recent Arrivals (retest)	Early Arrivals
1	107	93
2	79	90
3	89	94
4	85	99
5	87	92
6	83	85
7	113	96
8	79	118
9	104	118
10	101	92
11	106	124
12	97	104
13	93	104
14	107	96
15	99	96
16	83	79
17	100	103
18	89	78
19	99	93
20	72	90
21	101	94
22	96	99
23	106	99
Total	2175	2236
Mean	94.56	97.22
Difference bet. Means	2.66	
Standard Error	3.282	
t-value	0.81	Not significant

W. I. S. C. I.Q'S

The fact that there is no difference between the Mean of the
Retest I.Q.'s of recent arrivals and that of the early arrivals is
of some importance. The early arrivals have had a stay of 7 years
while the recent arrivals have stayed only for half the time,yet
there is no significant difference between the means.

This definitely suggests that any postulation of a linear
relationship between I.Q.'s and the length of stay in the United
Kingdom as such is an oversimplification when we are dealing with
immigrant children. The results make sense when we attend to the
lengths of English schooling the two groups of children had. By
the time of retest the recent arrivals have attended English schools
for 3 years and 6 months as against 4 years and 8 months for the
early arrivals. ████ ████████ ██ █████ ▮ ███ █████ ███ ████████
██ ███████ ██ ██ █████ ████ ██ ████████ ██ ████ ██████ ████
███

It is therefore claimed that what matters so far as the immi-
grant children's level of measured intelligence is concerned is not
the length of stay in the United Kingdom as such but the amount of
schooling had.

The design of the study allows further tests of the validity of
the claim made. Hypothesis 4 deals with the very point that is being
made here when it says that

"Provided two matched groups of immigrant children from the
Indian Subcontinent are also matched for their years in English schools,
there is likely to be no significant difference between the mean score
for a group born here and that for a group arriving later"

We can look at the evidence for the validity of this hypothesis.
Scores are taken from Table 5 - Appendix 1.

CHILDREN BORN IN U.K. AND EARLY ARRIVALS

Table 5b gives the scores of children born here and of those among the early arrivals with whom they are compared. Matching for father's profession and education has been possible only approximately. Two children of shopkeepers and one of an unskilled worker are considered equivalent to three children of farmers and so included. Similarly a teacher's child has been included where no child of a skilled worker was available. The primary consideration being the equivalence of the groups as for attendance in English schools made it necessary to make these minor adjustments in matching.

SUMMARY

	Children born here	Early Arrivals
Number of children	16	16
Boys	8	10
Girls	8	6
Average Age	9 yr 5 m	9 yr 9 m
Fathers' Education	10 yr 7 m	10 yr 2 m
Professions		
Farming	6	3
Teaching	-	1
Clerical	2	2
Skilled	8	7
Shopkeeping	-	2
Unskilled	-	1
Attendance in U.K. schools (average)	4 yr 5 m	4 yr 6 m

Table 5 b

SCORES (Taken from Table 5 — Appendix 1)

	CHILDREN BORN HERE								CHILDREN BORN HERE AND EARLY ARRIVALS / EARLY ARRIVALS							
1	15	9	5	12	9	10	93	103	8	9	7	11	7	9	90	100
2	13	6	6	10	7	8	82	105	9	10	9	9	9	9	94	106
3	7	12	11	11	7	8	99	105	8	10	11	10	14	14	118	107
4	8	14	7	12	4	7	92	119	7	10	7	9	9	10	93	100
5	8	10	5	12	6	6	85	77	7	11	10	12	10	7	103	113
6	10	10	7	6	6	10	96	110	13	8	10	10	10	11	99	105
7	12	14	7	12	9	11	104	110	14	10	12	12	10	11	124	105
8	14	13	8	8	8	8	96	81	7	6	10	10	10	5	85	94
9	11	9	11	10	11	11	99	78	12	14	8	15	10	10	97	—
10	12	11	6	10	10	10	97	76	15	11	6	8	9	9	84	107
11	12	11	7	11	11	17	110	124	12	13	15	14	9	14	118	106
12	10	11	12	13	12	12	113	107	15	9	7	16	11	15	111	107
13	9	12	13	17	14	14	128	—	8	10	7	6	10	9	84	90
14	13	12	8	8	11	11	100	103	11	11	9	8	8	11	96	84
15	13	14	11	9	5	5	103	105	8	10	8	9	6	6	89	96
16	5	11	7	9	8	8	92	96	7	7	8	7	12	8	89	107
Total	172	179	131	176	152	152	1589	1499	161	164	150	163	165	151	1590	1433
$\bar{X}=$	10.75	11.19	8.19	11.0	9.50	9.50	99.31	99.93	10.06	10.25	9.38	10.19	10.31	9.44	99.38	102.36
S.D.	2.68	2.36	2.47	1.70	2.42	3.22	10.77	14.76	2.68	1.66	2.38	2.85	2.50	2.46	10.54	10.72

DIFFERENCE BETWEEN THE MEANS

CHILDREN BORN IN U.K. AND EARLY ARRIVALS

Measures	Children Born Here	Early Arrivals	Standard Error	t-value	Level of Significance
D.S.	10.75	10.06	1.23	0.56	Not Sig.
P.C.	11.19	10.25	0.98	0.96	Not Sig.
P.A.	8.19	9.38	0.86	1.38	Not Sig.
B.D.	11.00	10.19	0.86	0.94	Not Sig.
O.A.	9.50	10.31	0.89	0.91	Not Sig.
Coding	9.50	9.44	0.944	0.06	Not Sig.
WISC IQ	99.31	99.38	3.903	0.02	Not Sig.
Matrices IQ (n=13)	101.92	103.77	4.919	0.38	Not Sig.

The results are very interesting. We see no significant differ-
ence between the means either on the two I.Q.'s or on any of the six
subtests of W.I.S.C. It would be right to claim that those that were
born here have not derived any measurable advantage over the other group
from the preschool years spent in this country. Both groups have made
similar progress even though one arrived in the country some years after
birth. In other words the crucial factor is the school environment
which is the same for both groups and hence equal ability on these tests
of intelligence.

The enormous significance of the English school for an immigrant
child has come out very clearly in these two comparisons. We have a
chance to return to this theme later when we compare immigrant children
with a matched group of English children.

Significance of the Indian Background

Do immigrant children, at the time of entry into English schools
on arrival into the United Kingdom, differ in their abilities ? How
much attention is paid to whether the background of the child, while in
India, was urban or rural ? Do girls show greater deficiency than boys
in some of the skills sampled by these tests ?

Earlier on (page 60) it was argued that rural-urban differences
did not matter and Hypothesis 5 was postulated. It read,

"Among Indian children, there is likely to be no significant differ-
ence between the mean scores for matched groups in urban and rural
schools on a non-verbal test of intelligence" ; an extension of this was
stated as Hypothesis 6 which stated that

"Between two matched groups of immigrant children from the Indian
Subcontinent, matched also for their years in English schools, the mean
score for the group from the rural areas in India is not likely to be
significantly different from that for the group from the urban areas"

URBAN AND RURAL SCHOOL CHILDREN IN INDIA.

Table 5c gives the I.Q's of 19 school children from the villages in
India and of a group of urban school children. Even if the groups
are considered equivalent in terms of the fathers' professions
(assuming that Police Constables, Shopkeepers and Unskilled Workers
are of the same socio-economic level as farmers) they are not matched
for the fathers' educational level as the following sample summary
indicates:

SUMMARY - SAMPLE

	Rural	Urban
Number of children	19	19
Boys	13	11
Girls	6	8
Age (average)	9 yr 8 m	10 yr 9 m
Fathers' Education	6 yr 6 m	9 yr 3 m
Profession		
Farmers	10	1
Clerical	4	4
Shopkeepers	1	1
Unskilled	2	4
Transport	2	-
Police		9

URBAN AND RURAL SCHOOL CHILDREN IN INDIA

SCORES

(Taken from Table 1 – Appendix 1)

Table 5c

	RURAL CHILDREN IN INDIA		URBAN CHILDREN IN INDIA	
Sl.No.	W.I.S.C.	Matrices	W.I.S.C.	Matrices
1	68	75	62	71
2	74	81	69	75
3	64	–	69	–
4	74	73	80	–
5	67	76	68	73
6	74	75	92	–
7	53	–	71	76
8	83	102	87	90
9	58	71	79	79
10	75	84	86	–
11	71	84	85	105
12	78	81	71	–
13	90	94	64	67
14	79	79	83	–
15	74	75	76	75
16	65	84	90	103
17	57	84	68	–
18	79	86	94	–
19	86	–	80	–
Total:	1359	1304	1474	824
Mean	71.53	81.5	77.58	82.40
S.D.	9.04	7.78	9.58	11.86
		S.E	t-value	
Dif. bet. means on WISC		3.32	1.804	NS
on matrices		3.98	0.23	NS

CHILDREN FROM RURAL AND URBAN AREAS IN INDIA
AMONG THE RECENT ARRIVALS

Matching based on the same assumptions as were made for the Rural and Urban children in India.

SAMPLE - SUMMARY

	Children from rural areas in India	Children from urban areas in India
Number of children	19	19
Boys	14	10
Girls	5	9
Age (average)	9 yr 11 m	9 yr 11 m
Fathers' Education	8 yr 7 m	9 yr 9 m
Profession		
Farmers	6	2
Teachers	2	2
Clerical	4	4
Police	3	3
Shopkeepers	1	5
Unskilled	3	3
Stay in U.K. schools	19.9m	19.9m

CHILDREN FROM RURAL AND URBAN AREAS IN INDIA
AMONG THE RECENT ARRIVALS

No such comparison is possible for children among the early arrivals. Only three out of 43 had attended schools in India by the time they left India.

SCORES

Table 5d.   (Scores taken from Table 2, Appendix 1)

Sl.	Children from rural areas in India		Children from Urban areas in India	
	W. I. S. C.	Matrices	W.I.S.C.	Matrices
1	99	87	74	90
2	93	112	76	-
3	71	73	89	81
4	87	72	79	-
5	97	95	94	93
6	91	86	90	100
7	79	76	92	-
8	96	88	82	-
9	99	96	86	86
10	99	96	69	87
11	87	73	78	75
12	99	102	92	76
13	79	73	76	-
14	80	100	67	75
15	82	75	83	76
16	83	75	79	73
17	83	-	92	-
18	75	76	85	75
19	89	100	89	81
Total	1668	1555	1572	1068
Mean	87.79	86.39	82.74	82.15
S.D.	8.95	12.31	7.86	8.17

DIFFERENCE BETWEEN THE MEANS

	Children from rural areas	Children from urban areas	Standard error	t-value	Level of Signfnce
W.I.S.C.	87.79	82.74	2.827	1.78	Not. Sig.
Mat. I.Q.	86.39	82.15	4.036	1.05	Not. Sig.

We see no significant difference between the mean I.Qs of rural and urban children either in India or among the recent arrivals. It means that both groups of children suffer from similar handicaps in relation to these skills. It also means that both are capable of a similar type of progress once they start in English schools which train children in these skills and which provide situations in which these skills are learnt.

A similar analysis can be carried out with reference to boys and girls from India. It was argued that there would be no difference between boys and girls either among children in India or among the recent arrivals (pages 61-63). Hypotheses 7 and 8 stated that

"Among school children in India, there is likely to be no significant difference between the mean scores for matched groups of boys and girls on a non-verbal test of intelligence" and that

"Among recent arrivals into the United Kingdom from the Indian Subcontinent, there is likely to be no significant difference between the mean scores for matched groups of boys and girls on a non-verbal test of intelligence"

BOYS AND GIRLS AMONG SCHOOL CHILDREN
IN INDIA.

SAMPLE — SUMMARY

	Girls	Boys
No. of Children	23	23
Age (average)	10 yr 5 m	10 yr 0m
Father's Education	9 yr 5 m	9 yr 0m
Profession		
Farmers	5	5
Teachers	3	3
Clerical	5	5
Police	4	4
Shopkeepers	2	2
Unskilled	4	4

BOYS AND GIRLS IN INDIA

Table 5e.

Scores are taken from Table 1 – Appendix 1

| | GIRLS | | BOYS | |
	W.I.S.C.	Matrices	W.I.S.C.	Matrices
1	68	75	74	75
2	74	81	53	–
3	64	–	83	102
4	74	73	62	71
5	67	76	75	84
6	75	–	87	76
7	87	–	76	87
8	74	–	72	79
9	71	84	78	81
10	69	–	90	94
11	72	73	75	90
12	78	75	79	79
13	68	73	92	90
14	92	–	85	105
15	71	76	71	–
16	87	90	64	77
17	79	79	83	–
18	68	–	80	–
19	68	71	83	76
20	78	73	94	–
21	76	75	57	84
22	90	103	79	86
23	68	–	76	–
Total:	1718	1177	1768	1436
Mean	74.7	78.47	76.82	84.47
S.D.	7.61	7.22	10.69	9.20

Contd.

DIFFERENCE BETWEEN THE MEANS

	Girls	Boys	Standard Error	t-value	Level of Significance
W.I.S.C.	74.7	76.82	2.775	0.76	Not Sig.
Matrices	78.47	84.47	3.206	1.87	Not Sig.

(Note: The numbers for Matrices are very small)

BOYS AND GIRLS AMONG THE RECENT ARRIVALS

SAMPLE – SUMMARY

	Girls	Boys
Number of children	16	16
Age (average)	9 yr 1 m	9 yr 10 m
Fathers' Education	9 yr 5 m	9 yr 0 m
Stay in U.K.	18 m	20 m
Profession		
Farmers	5	5
Teachers	2	2
Clerical	3	3
Police	3	3
Shopkeepers	1	1
Unskilled	2	1
Transport	–	1

BOYS AND GIRLS AMONG THE RECENT ARRIVALS

Table 5f

(Scores are taken from Table 2 - Appendix 1)

Sl.No.	GIRLS		BOYS	
	W. I. S. C.	Matrices	W. I. S. C.	Matrices
1	99	87	62	–
2	74	90	97	95
3	67	79	91	86
4	71	73	85	78
5	87	72	79	76
6	94	73	89	81
7	89	81	99	96
8	99	96	87	73
9	79	–	99	102
10	94	93	90	100
11	80	100	69	87
12	82	–	82	75
13	86	86	83	75
14	78	75	92	76
15	79	73	85	75
16	92	–	93	112
Total:	1350	1078	1382	1287
Mean	84.37	82.92	86.37	85.80
S.D.	9.46	9.48	9.82	11.87

DIFFERENCE BETWEEN THE MEANS

Measures	Girls	Boys	Standard Error	t-value	Level of Sig.
W.I.S.C.	84.37	86.67	3.52	0.57	Not Sig.
Matrices	82.92	85.80	4.35	0.66	Not Sig.

Both comparisons show no significant difference between the mean I.Qs. of boys and girls. In spite of the emphasis placed by parents on the education of boys in India and in spite of the relatively greater freedom allowed for boys during the out-of-school hours, boys are as lacking as girls are so far as these skills are concerned. This is so because the out-of-school environment is not supportive to nurturing these skills and so the fact of greater freedom enjoyed by boys is of no consequence.

It has already been pointed out that during the first few years after coming here the environment of boys is not qualitatively different from that of girls and hence no difference could be expected (Page 63). As years pass by, matters change and the difference between the enriched environment of immigrant boys and the limited environment of girls begins to tell. Hypothesis 9 was based on such considerations and it read

"Among earlier arrivals into the United Kingdom from the Indian Subcontinent, there is likely to be a significant difference between the mean scores for matched groups of boys and girls on a non-verbal test of intelligence"

We can now look at the evidence provided by the study:

BOYS AND GIRLS AMONG THE EARLY ARRIVALS

(Details taken from Table 6 - Appendix 1)

Teachers, clerks and skilled workers are assumed to be of the same socio-economic status.

Two girls of farmers who had no schooling have been excluded. Including them would have made the groups non-equivalent as regards fathers' education.

SAMPLE - SUMMARY

	Girls	Boys
No. of children	17	17
Age (average)	10 yr 0 m	10 yr 0 m
Father's Education	11 yr 9 m	11 yr 9 m
Profession		
Farmers	3	3
Teachers	3	2
Skilled	4	8
Clerical	5	2
Unskilled	1	1
Shopkeepers	1	1
Stay in U.K. schools	4 yr 9 m	4 yr 11 m

BOYS AND GIRLS AMONG THE EARLY ARRIVALS

(Scores are taken from Table 5 - Appendix 1)

Table 5g.

Sl.No.	GIRLS W.I.S.C.	GIRLS Matrices	BOYS W.I.S.C.	BOYS Matrices
1	93	103	85	77
2	90	100	96	110
3	94	106	118	107
4	118	116	124	124
5	92	96	108	103
6	89	107	85	94
7	90	84	96	96
8	104	110	96	107
9	96	81	118	106
10	104	86	111	107
11	92	102	128	-
12	99	78	110	124
13	89	-	115	-
14	97	76	113	107
15	103	124	97	84
16	79	-	93	100
17	78	-	90	95
Total:	1607	1369	1783	1541
Mean	94.53	97.77	104.88	102.73
S.D.	9.28	14.28	14.64	12.44

DIFFERENCE BETWEEN THE MEANS

Measures	Girls	Boys	Standard error	t-value	Level of Significance
W.I.S.C.	94.53	104.88	4.416	2.34	0.05
Matrices	97.77	102.73	5.00	0.972	Not significant

We find that there is a difference between the mean W.I.S.C. I.Q's of boys and girls significant only at the 5% level. The difference between the mean Matrices I.Q. is not significant though the mean I.Q. for boys is nearly 5 points higher than that for girls. At best the evidence can be considered as marginally supporting the hypothesis.

It is possible that, after all, the out-of-school out-of-home environment of the immigrant Indian boys is not qualitatively as different from that of girls as was supposed. Mention has been made of the anxiety and the sense of insecurity generally experienced by quite a few of the parents interviewed. This might have come in the way of parents giving their junior school age boys as much freedom as was assumed.

<div align="center">COMPARISON WITH ENGLISH CHILDREN</div>

Hypothesis 10 stated that

"When a group of immigrant children from the Indian Subcontinent is compared with a matched group of English children the number of years in English schools being the same for both, the scores for the immigrant group should approximate to that of the English group".

In the following pages an analysis of the evidence is undertaken in the light of this hypothesis.

EARLY ARRIVALS AND ENGLISH CHILDREN

(Scores are in Table 5 in Appendix 1)

SAMPLE— SUMMARY

	Early Arrivals	English children
Number of Children	43	43
Boys	24	24
Girls	19	19
Age (average)	10 yr 1 m	10 yr 7 m
Father's Education	11 yr 0 m	10 yr 7 m
Profession		
Farmers	9	9
Teachers	5	5
Clerical	7	7
Unskilled	5	5
Skilled	14	14
Shopkeepers	3	3
Number of children per family	3.84	3.20
Attendance in U.K. schools (average)	4 yr 7 m	5 yr 7 m

EARLY ARRIVALS AND ENGLISH CHILDREN

SUMMARY - SCORES

Measures		Early Arrivals	English Children
	Range	5-16	5-16
Digit	Mean	10.32	10.63
Span	S.D.	2.94	2.62
	Range	6-18	4-18
Picture	Mean	10.81	10.67
Completion	S.D.	2.46	2.97
	Range	5-14	5-17
Picture	Mean	8.88	10.30
Arrangement	S.D.	2.35	2.51
	Range	5-16	5-19
Block	Mean	10.42	11.93
Design	S.D.	2.49	2.51
	Range	6-17	4-18
Object	Mean	9.74	12.04
Assembly	S.D.	2.47	3.34
	Range	4-17	7-14
Coding	Mean	9.37	10.53
	S.D.	2.74	1.69
	Range	78-128	86-131
WISC	Mean	99.05	107.88
	S.D.	11.52	9.82
Matrices	Range	77-124	90-145
	Mean	104.42	109.74
n= 19	S.D.	9.85	15.39

DIGIT SPAN

A- English Children

B- Early Arrivals

Scaled Score
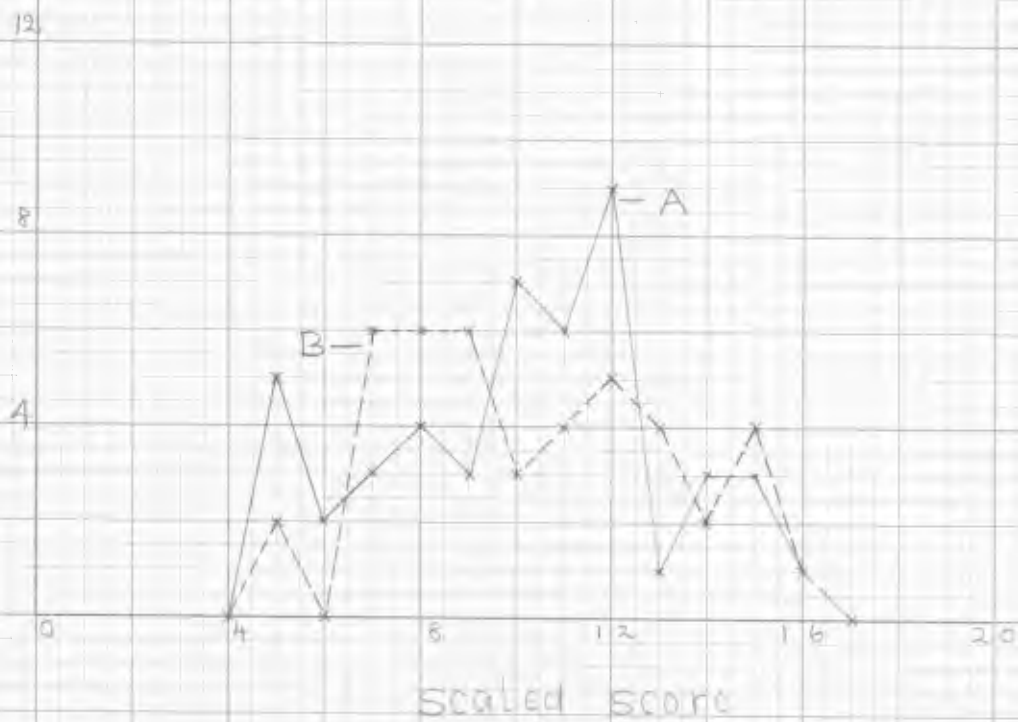
PICTURE COMPLETION

A - English Children

B - Early Arrivals

Scaled Score
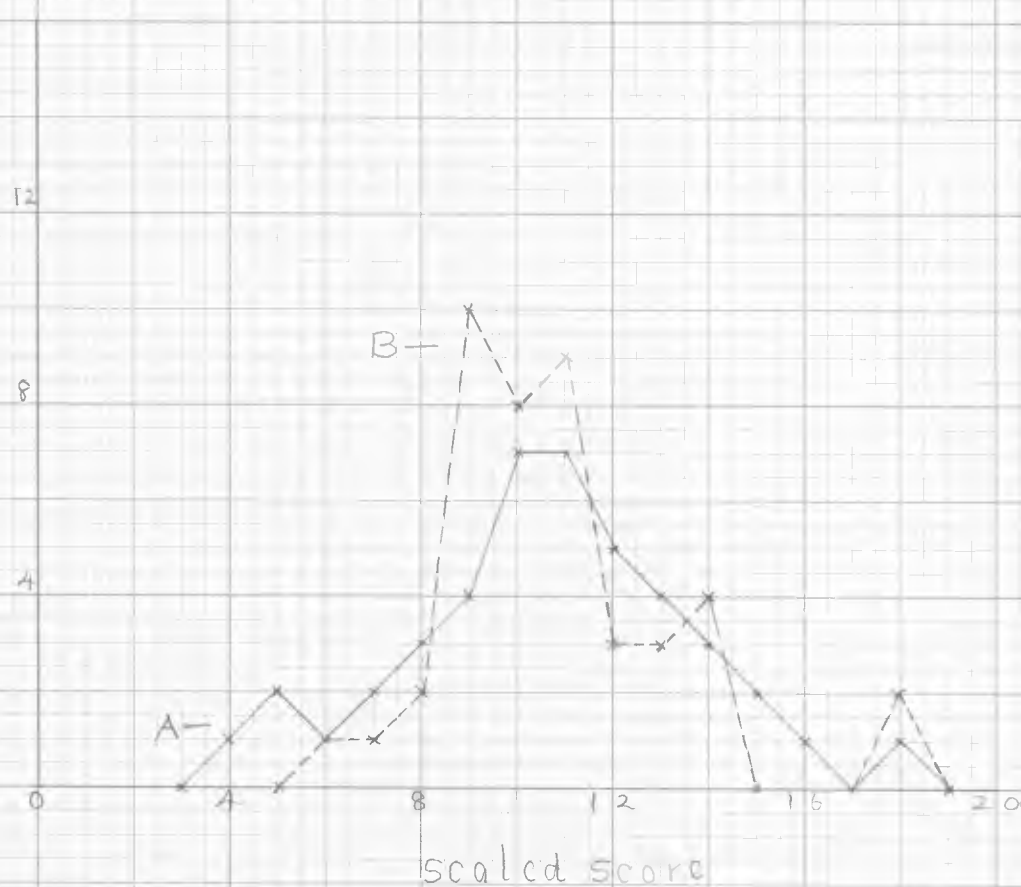
PICTURE ARRANGEMENT

A- English Children
B- Early Arrivals

scaled score
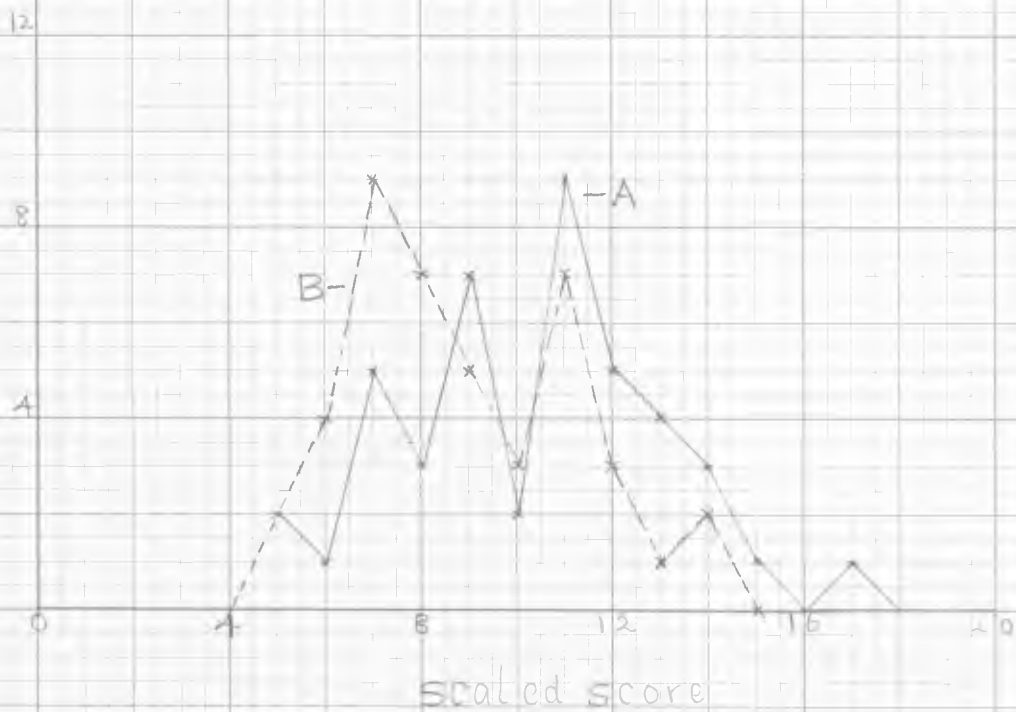
BLOCK DESIGN

A- English children
B- Early Arrivals
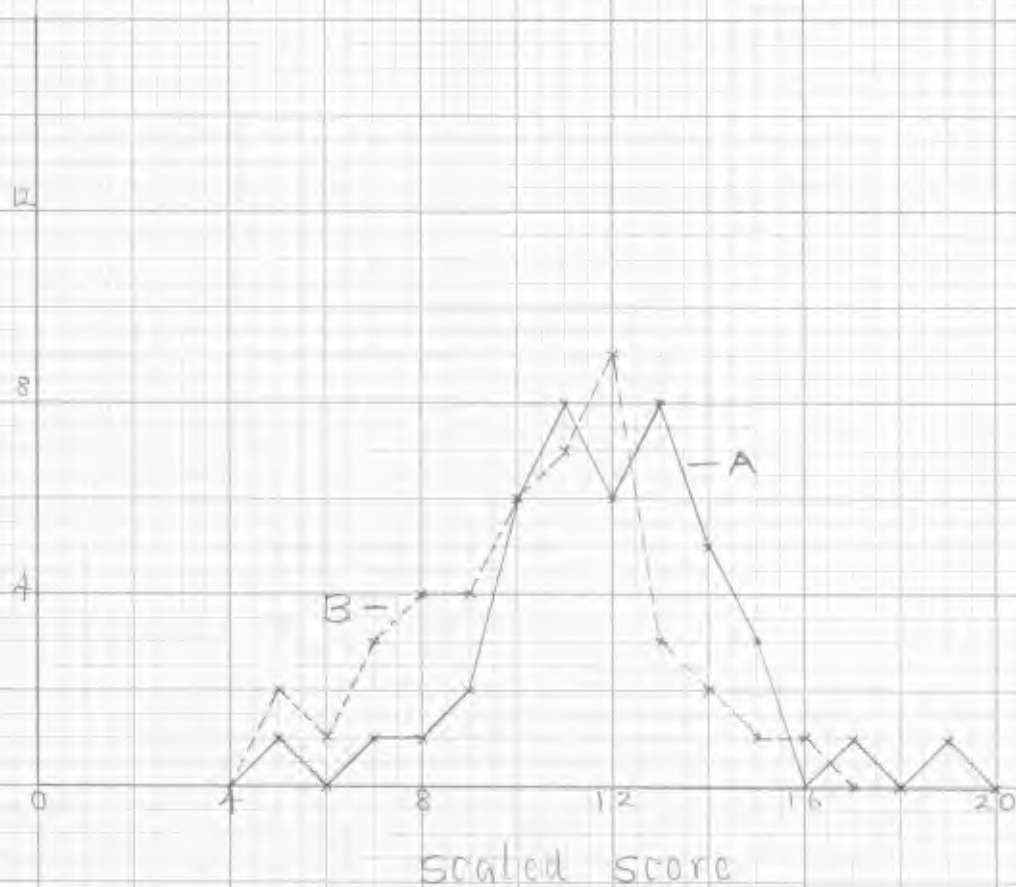
OBJECT ASSEMBLY

A- English children
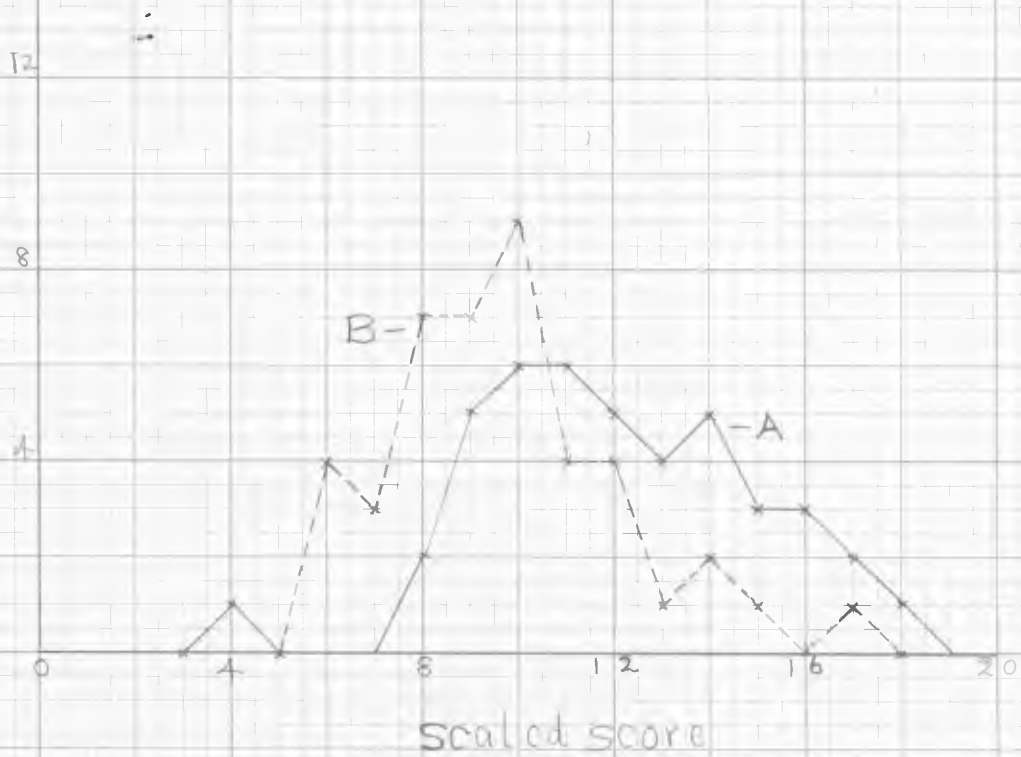
B- Early Arrivals

CODING

A- English Children
B- Early Arrivals
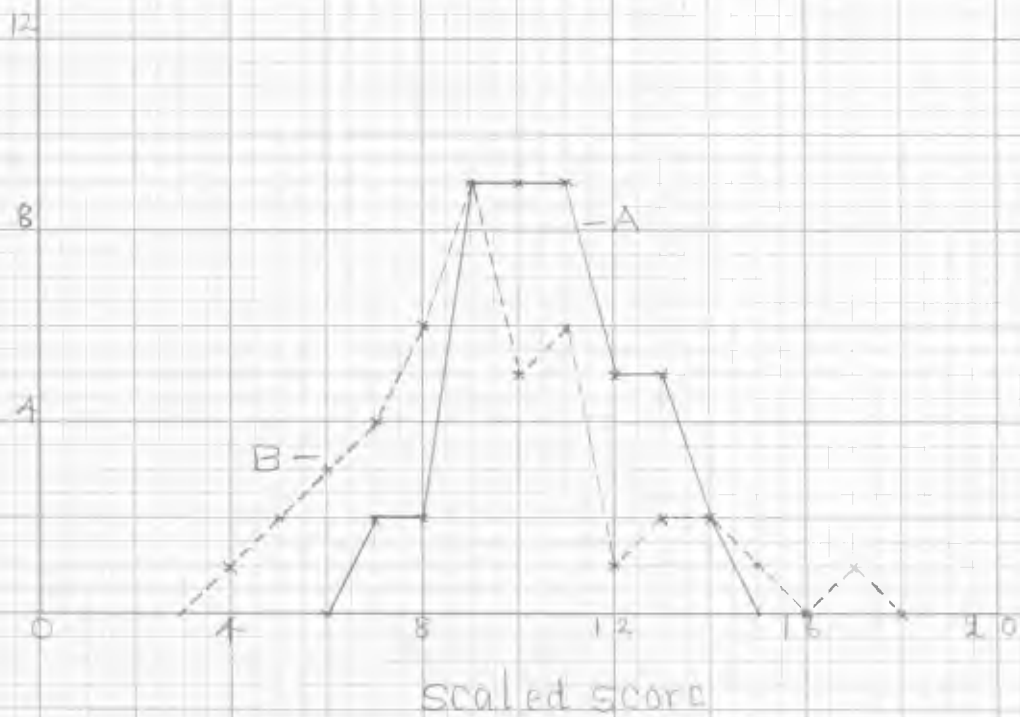
EARLY ARRIVALS AND ENGLISH CHILDREN
FREQUENCY POLYGONS ·
W.I.S.C. AND MATRICES.

Classes	W.I.S.C.				MATRICES			
	Early arrivals		English Chdn		Early arrivals		English Chdn	
	n	%f	n	%f	n	%f	n	%f
150-154							-	
145-149							1	5.3
140-144							-	
135-139			-				-	
130-134	-		1	2.3			2	10.5
125-129	1	2.3	2	4.7			2	10.5
120-124	1	2.3	5	11.6	1	5.3	-	
115-119	4	9.4	1	2.3	1	5.3	-	
110-114	3	7.0	5	11.6	2	10.5	3	15.8
105-109	1	2.3	13	30.3	8	42.0	2	10.5
100-104	6	13.9	10	23.2	4	21.0	5	26.3
95-99	9	21.0	4	9.3	1	5.3	2	10.5
90-94	11	25.6	1	2.3	1	5.3	2	10.5
85-89	4	9.3	1	2.3	-		-	-
80-84	1	2.3	-		-			
75-79	2	4.7			1	5.3		
70-74	-				-			
	43		43		19		19	

WECHSLER IQ

A - English Children
B - Early Arrivals
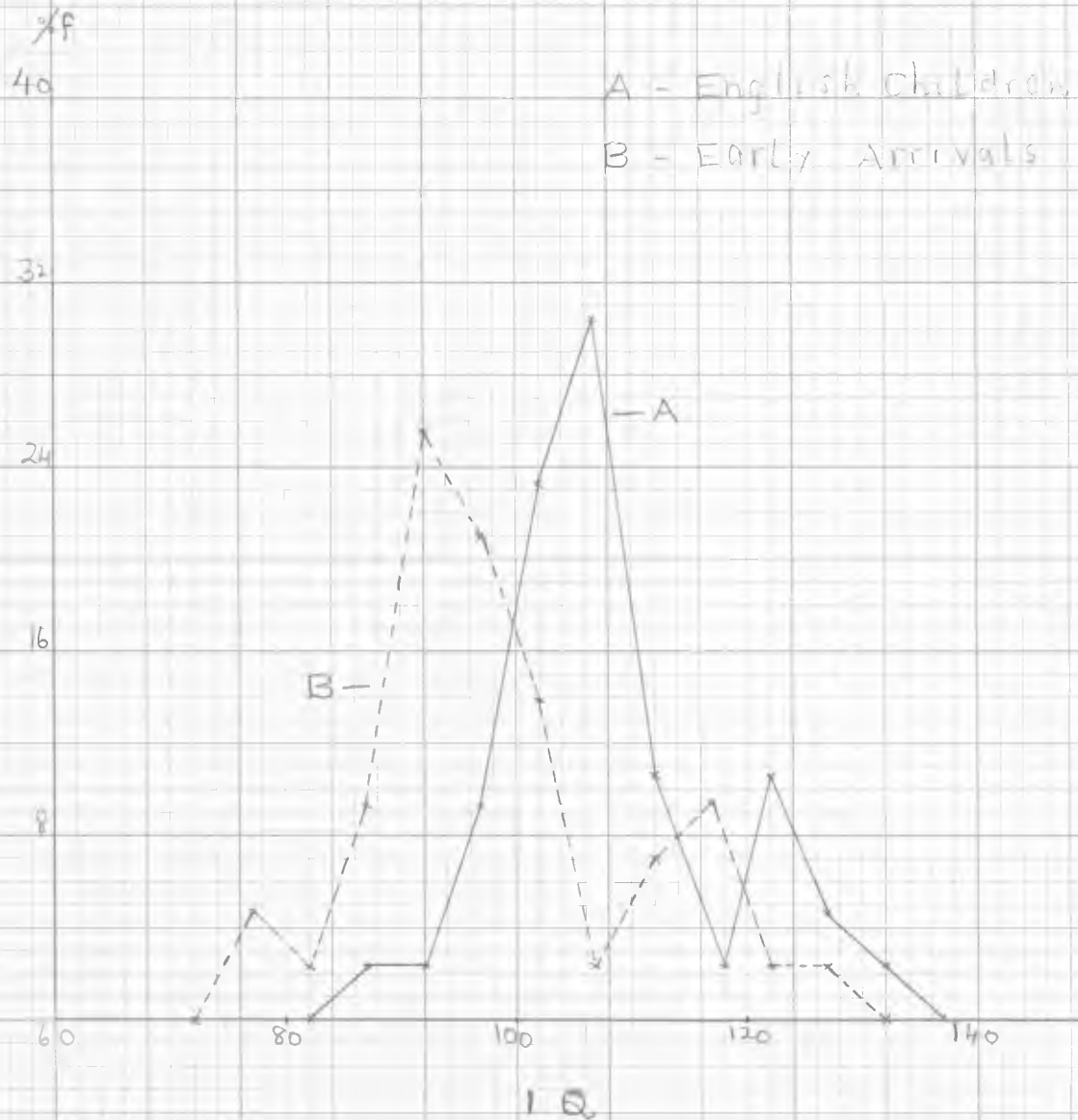
MATRICES IQ

A- English children
B- Early Arrivals
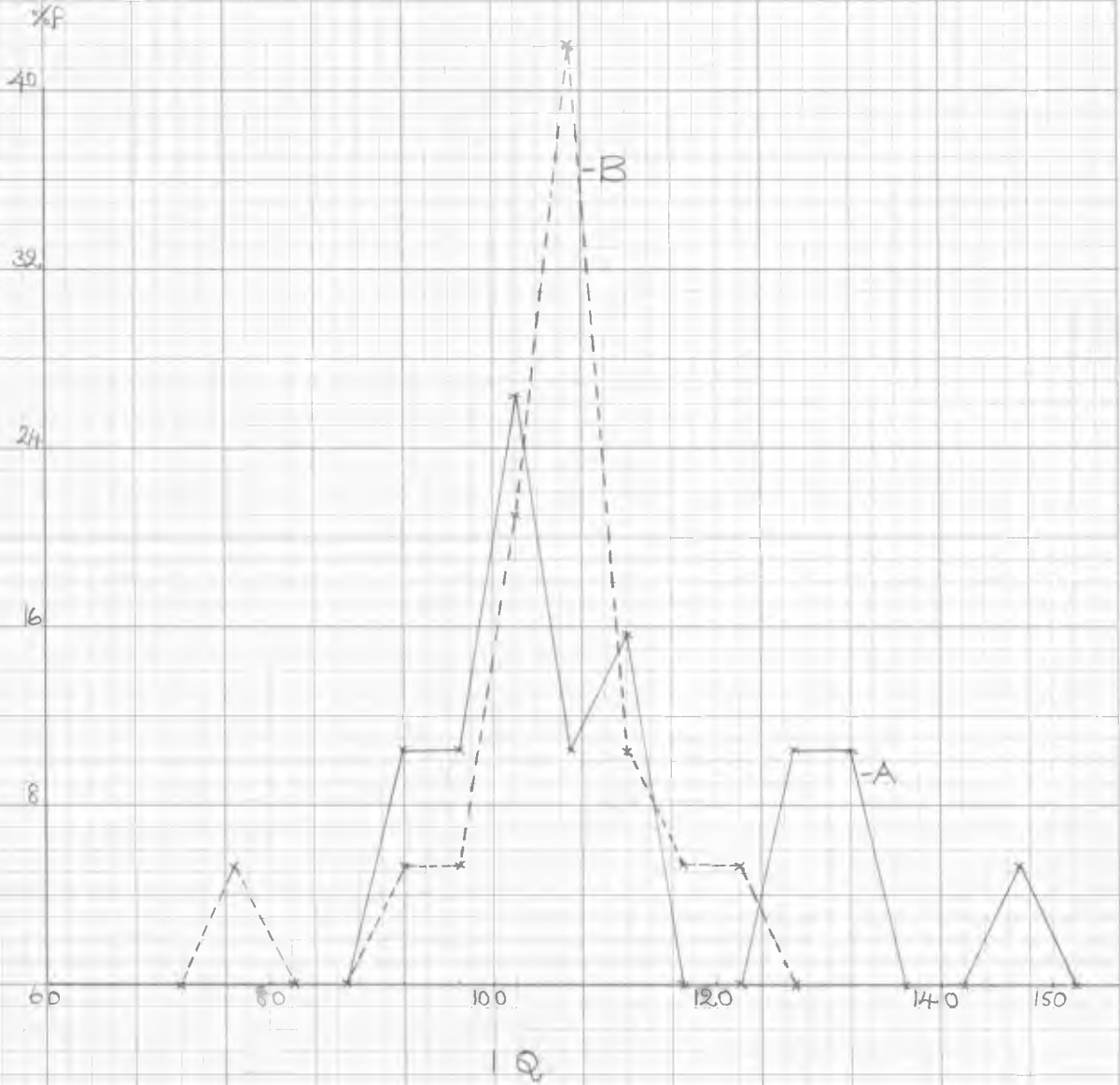
EARLY ARRIVALS AND ENGLISH CHILDREN

DIFFERENCE BETWEEN THE MEANS

Measures	Early Arrivals	English Children	Standard Error	t-value	Level of Significance
1. D.S.	10.32	10.63	0.606	0.51	Not Sig.
2. P,C.	10.81	10.67	0.590	0.24	Not Sig.
3. P.A.	8.88	10.30	0.551	2.577	0.02
4. B.D.	10.42	11.93	0.545	2.770	0.01
5. O.A.	9.74	12.04	0.696	3.304	0.01
6. Coding	9.37	10.53	0.493	2.353	0.02
7. WISC	99.05	107.88	3.547	2.207	0.05
8. Matrices	104.42	109.74	4.233	1.257	Not Sig.

n=19

The results definitely indicate a close correspondence between the scores of the immigrant group and the group of English children. Out of the 6 subtests of W.I.S.C. there is significant difference 1% level) on two only — Block Design and Object Assembly. It is to be remembered that both these are strong on the spatial factor. A difference of 2% level significance on Picture Arrangement is to be expected in view of the language content of this subtest and in view of the fact that the majority of homes among the early arrivals (23 out of 43) either use no English at all or use little English.

There is no difference of any significance on Digit Span, Picture Completion and Matrices and on Coding the difference is only significant at the 2% level. This may be the result of children not having as yet sufficiently appreciated the premium placed on speed of performance, partly because the home continues to operate as it did in India and places greater emphasis on neatness and accuracy than on speed.

The difference of 5% level significance on W.I.S.C. I.Q. is attributable to the environmental differences that persist between the two groups. It has already been pointed out that total equivalence is an ideal when comparison involves groups across cultural barriers. In spite of matching the groups for various socio-economic variables a qualitative difference is still there and partly accounts for the marginal difference we see.

A methodological factor has also played a certain part in enhancing the difference. It was decided, we may remember, that when one had to be chosen out of the many for inclusion into either control group the one with the highest W.I.S.C. I.Q. was chosen. The range between the best and the worst among children in India was narrow while it was considerable for the English children. This has definitely resulted in raising the Mean I.Q. of the English group and hence the

5% level significant difference.

It was never suggested that there would be no difference at all. Closeness was all that was claimed and we are justified in maintaining that the validity of the hypothesis has been established.

We can now look at the breakdown of the results above in terms of boys and girls and assess the merits of Hypothesis 11 which stated that

"There is a closer approximation to the scores on the control group of English children among the immigrant boys than among the immigrant girls"

EARLY ARRIVALS AND ENGLISH CHILDREN
BOYS AND GIRLS COMPARED SEPARATELY

(Scores are taken from Table 5 in Appendix 1.

Numbers are small for comparing the groups on Matrices)

Measures		Early Arrivals	English Chdn	Standard Error	t-value	Level of Significance
D.S.	Boys	10.67	10.0	0.786	less than 1	—
	Girls	9.89	11.42	0.743	2.059	0.05
P.C.	Boys	11.08	11.08	0.738	—	—
	Girls	10.47	10.21	0.952	less than 1	—
P.A.	Boys	9.25	10.79	0.780	1.974	—
	Girls	8.42	9.68	0.74	1.703	—
B.D.	Boys	11.46	12.46	0.667	1.49	—
	Girls	9.10	11.21	0.793	2.660	0.02
O.A.	Boys	10.62	12.83	0.789	2.80	0.01
	Girls	8.84	11.0	0.705	3.063	0.01
C.	Boys	9.75	10.66	0.793	1.147	—
	Girls	8.89	10.32	0.517	2.765	0.01
WISC	Boys	102.96	111.54	3.112	2.552	0.02
	Girls	94.1	103.26	3.456	2.650	0.02

Of the 7 measures the number on which there is no significant difference between the 2 groups of boys is 5. On the subtest Object Assembly there is a significant difference (1% level) and on W.I.S.C. I.Q. there is a difference significant at the 2% level. As for girls, there is no significant difference on only 2 measures, significant difference (1% level) on Object Assembly and Coding and difference significant at a lower level on Digit Span, Block Design and W.I.S.C. I.Q.

The results are definitely in favour of boys among the immigrants. If we think of the performance of the English children as the goal towards which the immigrant children were working, the immigrant boys are definitely nearer the goal than girls. Incidentally, this supports an earlier claim that a certain gulf opens up between immigrant boys and girls as the years pass.

HABITS OF WORK.

It was argued that working at speed was a habit learnt in response to cultural demands and two hypotheses were postulated regarding the changes that could be predicted as a result of immigrant children finding themselves in an environment where speedy performance of a task is valued. Hypothesis 12 stated that

"A group of immigrant children from the Indian Subcontinent have attended English schools for a period, will score higher than a comparable group in India on any measure of speed".

It was argued that not all the rise in I.Q. should be attributed to children having learnt to work at speed and Hypothesis 13 was stated to read

"In the retest scores of immigrant children after a further period of stay here, there will be a measure of improvement over and above that which can be attributed to their having learnt to work at speed".

MEASURES OF SPEED

Mention has been made of the possibility of using the award of bonus points in Wechsler as a measure of speed. The number of children within each group scoring bonus points on the items Picture Arrangement, Block Design and Object Assembly, the total number points on each item and the mean number of points are given below:

Group	n	No.of chdn scoring bonus pts.	%	Total pts on P.A.	Total pts on B.D.	Total Pts on O.A.	Total	Mean
Chdn in India	58	19	32.8	5	20	21	46	0.79
Recent Arrivals	43	24	55.8	40	16	20	76	1.76
Early Arrivals	43	41	95.3	123	75	65	263	6.11
English Chdn	66	63	95.45	225	232	187	644	9.76

A similar table can be drawn up for the 23 children among recent arrivals who were retested after a further period of stay in English schools.

	Stay in Eng. schools	n	No.of chdn scoring bonus pts	%	P.A.	B.D.	O.A.	Total	Mean
Test	20.3 m	23	12	52.2	20	9	13	42	1.83
Retest	42 m	23	21	91.3	78	56	47	181	7.8

The fact of a significant rise in the number of bonus points scored as a group's period of stay in English schools increases is brought out clearly by these two tables. The changes that have taken place in the habit of working at speed can be seen by the following table wherein, for each child, the bonus points on test and retest occasions are indicated:

Table 5h

Sl.No.	Test			Retest		
	P.A.	B.D.	O.A.	P.A.	B.D.	O.A.
1	2	-	-	3	2	3
2	1	1	-	1	1	-
3	-	-	1	6	4	2
4	2	2	-	7	4	2
5	-	-	-	2	3	1
6	-	2	-	2	1	1
7	-	-	-	-	-	-
8	-	2	2	1	4	2
9	-	-	-	2	5	1
10	2	1	1	6	4	2
11	-	1	1	-	7	1
12	-	-	-	1	-	-
13	-	-	-	1	-	-
14	4	-	3	3	3	6
15	6	-	3	13	6	4
16	-	-	-	3	-	3
17	-	-	-	1	-	1
18	-	-	-	-	-	-
19	-	-	-	1	3	3
20	-	-	-	-	-	1
21	2	-	1	7	7	5
22	1	-	1	15	2	2
23	-	-	-	3	4	7

It would be interesting to look closer into the differences we found between the test and retest scores of some of the recent arrivals. We found a significant difference between the means of test and retest scores on all the items except coding. Could we attribute the difference to newly learnt habits of working on problems at speed ?

In the following table are the scaled scores of the same children on the occasions of test and retest, without bonus points, on the three items where such bonus points are awarded for speedy solution. In other

words the minimum of 4 points has been given for a correct solution within the period alloted, irrespective of whether the problem was solved in 10 seconds or 3 minutes, where 3 minutes is the maximum time allowed.

TEST - RETEST COMPARISON (Without Bonus Points)

Table 5i

Sl.No.	TEST			RETEST		
	P.A.	B.D.	O.A.	P.A.	B.D.	O.A.
1	7	7	8	8	10	8
2	5	4	2	5	8	4
3	6	7	5	5	6	8
4	8	7	8	11	8	5
5	8	10	10	8	12	9
6	5	7	7	5	9	5
7	6	10	9	8	11	8
8	5	8	7	6	9	7
9	6	10	6	10	9	5
10	8	10	6	11	6	8
11	6	10	8	8	9	9
12	6	8	7	5	10	7
13	4	6	6	7	9	9
14	7	8	8	7	10	9
15	6	8	5	8	11	10
16	3	7	7	5	9	7
17	8	9	9	9	11	10
18	5	12	9	5	11	8
19	5	9	6	7	9	8
20	6	6	7	5	7	7
21	8	8	8	10	10	7
22	5	7	4	8	9	6
23	6	11	9	6	11	7
Total	139	189	161	167	214	171

DIFFERENCE BETWEEN THE MEANS

	P.A.	B.D.	O.A.
Sandler's A	0.103	0.110	2.25
Level of Significance	0.0005	0.0005	N.S.

It is clear from the foregoing comparisons that immigrant Indian children learn to work at speed once they find themselves here. We find a direct relationship between the Mean number of bonus points and the length of stay here (Page 146). We also notice that they still have not caught up with their English counterparts as is indicated by the fact that the mean for early arrivals was 6.11 while for the English children it was 9.76. The results of this analysis tie up with the earlier finding of a significant difference at the 2% level between the means of early arrivals and English children on the subtest Coding.

A qualitative improvement has indeed taken place in the thinking of immigrant children as is indicated by the very significant differences between Test and Retest Means on Picture Arrangement and Block Design. There is no significant difference on Object Assembly. We may remember at this point that this is the one subtest where there was a significant difference (1% level) between the mean scores of early arrivals and English children. The difference held both for boys and girls. The explanation is in the fact of immigrant homes being generally devoid of toy material like the jigsaw puzzles and of traditions like buying presents on birthdays and at Christmas. As a result the children generally adopt the strategy of trial and error and lose valuable time in solving the problems.

SOME OTHER ANALYSES

Up to now we have looked at the results from the viewpoint of the hypotheses that were postulated regarding the changes in the measured intelligence of immigrant children from the Indian Subcontinent. There are some other aspects of the problem of how immigrant children respond to the demands of a changed environment on which the study throws some incidental light. It is proposed to discuss these aspects now.

The first of them is that of comparing the 4 groups of children included in this study and assess the variance among them for its significance. There are 25 children in each group whose background in terms of the socio-economic variables is nearly the same. How close they are in terms of these variables is indicated by the sample-summary on the next page. The only dimension on which the 4 groups differ from one another is the degree of exposure they had to the English environment.

An analysis of variance of the scores of the 4 groups should help us assess the importance of this factor in producing the variance.

Scores are taken from Tables 2 and 5 - Appendix 1

ANALYSIS OF VARIANCE

SAMPLE – SUMMARY

	Children in India	Recent Arrivals	Early Arrivals	English Children
Number of children	25	25	25	25
Boys	13	13	13	13
Girls	12	12	12	12
Age (average)	10yr 1 m	9yr 11 m	9 yr 10 m	10yr 2 m
Fathers' Education	8yr 7 m	8yr 9 m	9 yr 7 m	10yr 4 m
Profession				
Farmers	8	8	8	8
Teachers	4	4	4	4
Clerical	5	5	5	5
Unskilled	4	4	4	4
Shopkeepers	3	3	3	3
Transport	1	1	1	1
Number from Villages	13	15	14	9
from Towns	12	10	11	16
Number of Children in the family	4.7	4.0	4.0	3.2
Stay in U.K.	–	1 yr 9m	7 yr 1 m	10yr 2 m
Stay in U.K. schools	–	1 yr 9m	4 yr 8 m	5 yr 2m

SCORES - SUMMARY

Measure	Chdn in India		Recent Arrivals		Early Arrivals		English Children	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
D. S.	6.96	1.99	8.2	2.17	10.68	2.89	10.56	2.33
P. C.	7.56	2.25	9.12	1.91	11.08	2.74	11.36	2.89
P. A.	5.28	1.11	7.12	1.95	8.52	2.02	10.60	3.03
B. D.	7.48	2.01	8.96	1.78	10.96	2.22	12.04	2.32
O. A.	5.60	2.21	7.64	1.79	9.68	2.45	12.32	2.80
Coding	6.96	2.51	8.36	2.42	9.64	2.65	10.76	1.79
WISC IQ	76.24	9.10	87.96	9.17	99.96	11.95	109.76	11.80
Matrices IQ	81.55	8.53	84.11	9.36	106.11	6.11	110.67	17.69

↓

(n = 9)

FREQUENCY POLYGON

W. I . S. C.

Classes	Children in India n	%f	Recent Arrivals n	%f	Early Arrivals n	%f	English Children n	%f
135–139							–	
130–134					–		1	4.0
125–129					1	4.0	2	8.0
120–124					1	4.0	3	12.0
115–119					2	8.0	1	4.0
110–114					1	4.0	3	12.0
105–109					1	4.0	9	36.0
100–104			–		3	12.0	3	12.0
95–99	–		6	24.0	6	24.0	2	8.0
90–94	3	12.0	7	28.0	8	32.0	2	–
85–89	2	8.0	5	20.0	–	–	1	4.0
80–84	3	12.0	1	4.0	1	4.0		
75–79	6	24.0	3	12.0	1	4.0		
70–74	3	12.0	2	8.0				
65–69	6	24.0	1	4.0				
60–64	1	4.0						
55–59	1	4.0						
50–54	–							

WECHSLER
IQ

A- Children in India ——
B- Recent Arrivals ————
C- Early Arrivals +-o-+o+o—
D- English Children xxxxxxx

IQ
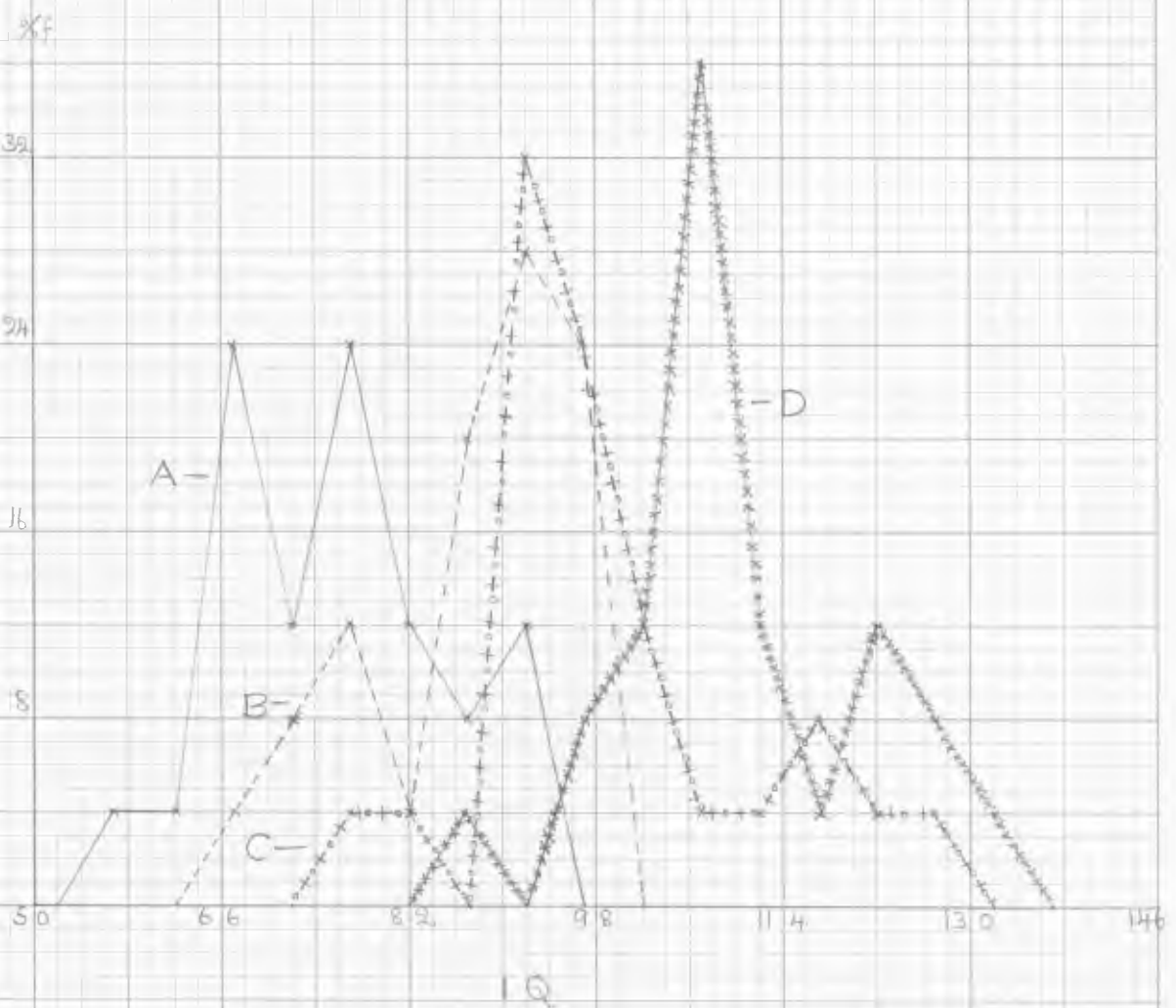
ANALYSES OF VARIANCE : SUMMARY

DIGIT SPAN

Source of Variation	df	Sums of squares	Mean Square	F	Level of Significance
Between-groups	3	251	83.66	13.37	0.01
Within-groups	96	600	6.25		
Total	99	851			

PICTURE COMPLETION

Source of Variation	df	Sums of squares	Mean Square	F	Level of Significance
Between-groups	3	353	117.66	20.69	0.01
Within-groups	96	500	5.208		
Total	99	853			

PICTURE ARRANGEMENT

Source of Variation	df	Sums of squares	Mean Square	F	Level of Significance
Between-groups	3	379	126.33	26.5	0.01
Within-groups	96	458	4.77		
Total	99	838			

BLOCK DESIGN

Source of Variation	df	Sums of squares	Mean Square	F	Level of Significance
Between-groups	3	311.2	103.7	20.50	0.01
Within-groups	96	438.8	4.57		
Total	99	750.0			

OBJECT ASSEMBLY

Source of Variation	df	Sums of squares	Mean Square	F	Level of Significance
Between-groups	3	622	207.33	36.55	0.01
Within-groups	96	545	5.676		
Total	99	1167			

CODING

Source of Variation	df	Sum of Squares	Mean Square	F	Level of Significance
Between-groups	3	202	67.33	11.57	0.01
Within-groups	96	558	5.818		
Total	99	760			

W. I. S. C.

n=25

Source of Variation	df	Sum of Squares	Mean Square	F	Level of Significance
Between-groups	3	15780	5260	44.6	0.01
Within-groups	96	11316	117.87		
Total	99	27096			

MATRICES

n=9

Source of Variation	df	Sum of Squares	Mean Square	F	Level of Significance
Between-groups	3	4248	1416	9.61	0.01
Within-groups	32	4712	147.24		
Total	35	8960			

The results indicate very definitely that the 4 groups of children cannot be considered to be samples drawn from the same population. It is of significance that the F - ratio is significant at the 1% level on every one of the measures considered.

It is appropriate to recall that the 4 groups of children were equivalent in terms of the various socio-economic variables. The only feature that distinguished one from another was the length of stay in this country.

Thus the variance among the groups can be directly attributed to this factor. Again, in some of the other analyses, we have already seen that the one functional element in the environment which is of significance is the English school and the learning experiences it provides.

SCHOOLS WITH A DEGREE OF CONCENTRATION OF IMMIGRANTS

We have looked at the evidence within the study which proves that the English school is of great significance in helping immigrant children to operate "intelligently".

In recent years one of the issues regarding immigrant children coming into English schools has been the concentration of such children in certain areas and certain schools. Some Educational Authorities have dealt with the problem by deciding on distributing immigrant children among the many schools in their area so that there is no undue concentration of such children in any one school. Such measures have been based on the consideration that the presence of a large number of immigrant children - particularly the non-English-speaking ones - makes demands on resources which no one school will be able to meet.

The present investigation was not designed to tackle this question and so does not claim to provide evidence either for, or against the practice of distributing immigrant children. However, some light is thrown on what a school, with a relatively large number of immigrant children, offers to them by way of opportunities to learn skills they are deficient in.

Mention has been made of the fact that the percentage of immigrant children in Hertfordshire schools, ranges from 0 to 32.4 (Page 67). On inspection of the schools that were used in this study it was found that 12 of the schools had more than 10% immigrant pupils on their rolls. A dividing line drawn arbitrarily at 10% gave two sets of schools for comparison - those with a degree of concentration of immigrant children and those with only a few of those children.

It should be pointed out that the figure 10% refers to all the immigrant children, not just the ones from India.

Table 5j

WISC IQ's

RECENT ARRIVALS		EARLY ARRIVALS	
from schools with more than 10%	from school with less than 10%	from schools with more than 10%	from schools with less than 10%
97	67	99	96
89	74	82	92
74	80	90	100
92	94	93	103
92	87	103	128
76	93	94	96
76	79	99	104
85	89	89	111
83	85	85	97
82	82	96	104
83	83	99	103
91	69	92	118
79	67	99	124
75	99	103	92
79	82	93	89
99	90	79	94
89	92	118	96
99	96		110
79	79		113
94	86		91
62			118
87			85
97			78
n=23	n=20	n=17	90
Tot.1959	1683	1613	96
Mean 85.17	Mean 84.15	Mean 94.88	115
			n=26
			Tot.2643
			Mean 101.65

DIFFERENCE BETWEEN THE MEANS

	From schools with more than 10% immigrants	From schools with less than 10% immigrants	Standard error	t-value	Signce.
Recent arrivals	85.04	84.05	3.056	0.324	NS
Early arrivals	94.88	101.65	3.546	1.909	NS

CHILDREN IN THE GROUPS CLASSIFIED ACCORDING TO THE FATHERS' PROFESSIONS

Profession	Recent Arrivals		Early Arrivals	
	schools with more than 10% immigrants	schools with less than 10% immigrants	schools with more than 10% immigrants	schools with less than 10% immigrants
Farmers	6	5	6	3
Teachers	2	3	1	4
Clerical	6	3	-	7
Shopkeepers	2	4	3	-
Unskilled	5	-	3	2
Transport	-	1	-	-
Skilled	-	-	4	6
Police	2	4		

No significant difference exists between the two groups of
children compared and this was true for both the recent and the
early arrivals. Children from India seem to progress equally
well in both types of schools. A closer look at the backgrounds
of these children reveals an interesting sociological phenomenon.
More of the fathers with good education and prestigous jobs move
into areas where there are relatively fewer immigrants to be found.
This perhaps explains the finding that the average I.Q. of children
in schools with only a few immigrant children is 101.65 while it is
94.88 for children in schools with a degree of concentration.
However, one should note that the difference between the means is
not significant.

It looks as if Indian children on coming here do well and
develop their skills whatever be the number of immigrants in the
schools they enter. This is perhaps because of the gulf that
separates any English school from even the very best of the State-
run schools in India.

TEACHERS' ASSESSMENT OF INTELLIGENCE

When a teacher assesses the intelligence of a child he is
making a statement about the child's potential as he sees it - a
joint product of nature and nurture or Intelligence B. When it is an
immigrant child the teacher is making the inference on less inform-
ation than he has for an English child. Intelligence in the West
refers mainly to grasping relationships and symbolic thinking and
these are the criteria on which the teacher is basing his assessment
of the intelligence of an immigrant child.

The absence of some of the information a teacher uses in assess-
ing an English child is not necessarily a handicap when it is an
immigrant child. On the other hand it may result in a more realistic
assessment of the true potential. For example, some bits of

information like dress, appearance and the quality of English used
may not strictly be relevant to the business on hand. They are
more likely to make the teacher put a child into some social class
or the other and hence colour his assessment. The stereotypes of
the various social classes which all of us carry are hard to shed.

A teacher faced with a group of immigrant children is without
these aids. More often than not he is unfamiliar with the discrim-
inating aspects of the general cultural background of such children.
They dress alike and look alike and speak a brand of English which
he has taught. As a result he is likely to base his judgment purely
on the powers of grasping relationships and of symbolic thinking the
children have exhibited during their stay in the school.

The correlations between the teachers' assessments and the
intelligence scores of the groups of children are given overleaf. We
may remember that teachers' assessments of children in India were not
taken for reasons specified on Page 82.

CORRELATIONS

	W.I.S.C.	Matrices	Teachers' Assessment
W.I.S.C.			
Children in India		(n=42) 0.721	
Recent Arrivals		(n=35) 0.54	(n=38) 0.06
Early Arrivals		(n=38) 0.658	(n=41) 0.667
English children		(n=37) 0.703	(n=66) 0.564
Matrices			
Children in India	(n=42) 0.721		
Recent Arrivals	(n=35) 0.54		(n=30) 0.192
Early Arrivals	(n=38) 0.658		(n=36) 0.406
English children	(n=37) 0.703		(n=37) 0.135
Teachers' Assessment			
Children in India			
Recent Arrivals	(n=38) 0.06	(n=30) 0.192	
Early Arrivals	(n=41) 0.667	(n=36) 0.406	
English children	(n=66) 0.564	(n=37) 0.135	

The results are interesting. There is a high enough correlation between the two tests of intelligence for all the groups. The lowest is of the order 0.54 for recent arrivals and the highest 0.721 for children in India.

Taking the W.I.S.C. scores and the teachers' assessments we find that the lowest correlation coefficient is for recent arrivals, 0.06. It is not surprising that the figure is as low as this when we remember that the teacher's assessment represents the potential while the W.I.S.C. I.Q. represents just a stage in a process which has only begun. With the early arrivals there is a correlation of 0.667 and any explanation of this should consider that the process of development is near completion by this time if not ended and hence closer to the potential. A similar pattern is seen when we consider the Matrices I.Q. and teachers' assessments.

A closer look at the results reveals that the highest correlation is for the early arrivals and not for the English children as could be expected from the fact that both the assessor and the assessed are members of a cultural group. We find a satisfactory explanation for it when we look at the Mean Teachers' Assessment for children of English Farmhands, Unskilled Workers and Shop Assistants. It was 98.0 while the actual Mean W.I.S.C. I.Q. was 102.45. If this merely represented a tendency on the teachers' part to be cautious it should have been seen with reference to children of Teachers, Skilled Workers and Clerical Workers. What we actually find is a Mean Assessment score of 106.4 while the Mean W.I.S.C. I.Q. was only 103.92 !

THE PROGRESS OF INDIAN BOYS AND GIRLS

There were three hypotheses which considered boys and girls for their performance on the two tests employed in this study. The first two stated that there would be no significant difference between boys and girls either among the children in India or among the recent arrivals. We found support for these two hypotheses but found only tentative support for the third one which claimed that there would be a significant difference between the two among the early arrivals. We also saw that Indian girls have lagged behind when compared with English girls while Indian boys have more or less caught up with their counterparts; (Page 145).

We could repeat the comparisons made earlier treating boys and girls separately and see if a pattern emerges regarding the progress made. The three comparisons that are possible are between the recent arrivals and children in India, between the Test and Retest scores of the recent arrivals and between the early and the recent arrivals.

The numbers, when boys and girls are taken separately, become small and so the conclusions we can come to can at best be considered as tentative.

The following pages give the results of such an analysis:

RECENT ARRIVALS AND CHILDREN IN INDIA

BOYS AND GIRLS COMPARED SEPARATELY

Measures	Recent Arrivals	Children in India	Standard Error	t-value	Level of Significance
1 D.S.					
n=27 Boys	8.03	7.85	0.665	0.27	N.S.
n=16 Girls	7.75	6.69	0.533	1.99	0.05
2 P.C. Boys	8.87	7.44	0.677	2.11	0.025
Girls	9.11	7.74	0.622	2.20	0.025
3 P.A. Boys	7.11	5.04	0.495	4.18	0.0005
Girls	6.06	5.25	0.388	2.087	0.025
4 B.D. Boys	8.07	7.52	0.56	0.98	N.S.
Girls	8.69	7.06	0.736	2.214	0.025
5 O.A. Boys	7.04	5.93	0.62	1.79	0.05
Girls	6.44	4.87	0.707	2.22	0.025
6 Coding					
Boys	7.22	6.47	0.604	1.24	N.S.
Girls	8.62	7.69	1.034	0.9	N.S.
7 WISC IQ					
Boys	84.16	75.81	3.435	2.48	0.01
Girls	84.37	75.50	3.0	2.957	0.005
8 Mat. IQ					
n=16 Boys	84.5	82.7			N.S.
n=7 Girls	82.85	74.43	3.648	2.308	0.025

TEST – RETEST COMPARISON

BOYS AND GIRLS TAKEN SEPARATELY

(Scores are taken from Table 7 – Appendix 1)

Measures		Mean: Retest	Mean: Test	A-value	Level of Significance
D.S.	Boys	9.09	7.0	0.121	0.0005
	Girls	8.17	7.85	1.25	N.S.
P.C.	Boys	10.0	9.0	0.752	N.S.
	Girls	9.83	8.25	0.152	0.005
P.A.	Boys	9.54	6.82	0.147	0.005
	Girls	7.67	6.08	0.174	0.005
B.D.	Boys	9.64	7.91	0.229	0.025
	Girls	10.17	8.5	0.105	0.0005
O.A.	Boys	9.09	7.36	0.224	0.025
	Girls	9.08	7.00	0.161	0.005
Coding	Boys	8.09	7.09	0.471	N.S.
	Girls	9.17	9.17	0.889	N.S.
WISC	Boys	94.91	83.73	0.122	0.0005
	Girls	94.25	85.25	0.151	0.005

EARLY ARRIVALS AND RECENT ARRIVALS

BOYS AND GIRLS COMPARED SEPARATELY

Measures	Early Arrivals	Recent Arrivals	Standard Error	t-value	Level of Significance
1. B.S. Boys	11.50	9.25	0.965	2.228	0.025
Girls	10.75	7.83	1.914	2.445	0.025
2. P.C. Boys	11.07	9.69	0.85	1.623	–
Girls	11.08	8.5	1.094	2.358	0.025
3. P.A. Boys	9.0	8.07	0.747	1.245	–
Girls	8.0	6.08	0.773	2.484	0.025
4. B.D. Boys	11.54	9.38	1.046	2.065	0.025
Girls	10.33	8.50	0.945	1.937	0.05
5. O.A. Boys	10.31	8.23	0.975	2.133	0.025
Girls	9.0	7.0	0.651	3.072	0.005
6. Coding Boys	10.00	7.61	0.916	2.609	0.01
Girls	9.25	9.17	1.145	0.07	–
7. WISC Boys	102.92	90.46	4.817	2.586	0.01
Girls	96.75	85.25	4.807	2.392	0.025
8. Matrices					
(n=10) Boys	105.7	90.8	4.591	3.245	0.005
(n=10) Girls	103.4	81.9	3.879	5.80	0.0005

Of the three comparisons the most relevant is the comparison
between the test and retest scores of boys and girls among the recent
arrivals, the reason being that this is the one comparison wherein we
are dealing with the same children. The mean W.I.S.C. I.Q.'s of boys
are different at a higher level of significance than for girls which is in
line with the trend predicted in hypothesis 9. Starting from a lower
point (a mean of 83.73 as against 85.25) at the time of test boys have
passed girls and the gulf if likely to widen in the next few years as
was seen earlier and as can be seen again on page 168. We find the
mean I.Q. for boys among the early arrivals to be 102.92 while it is
96.75 for girls. We are justified in expecting boys among the recent
arrivals to forge ahead to the level achieved by the early arrivals
during the next year or so, this being the difference in the length
of their schooling at the time of the retest (Page 111).

Comparison between boys and girls among the recent arrivals with
their counterparts in India reveals that there is a difference between
the means for girls at a higher level of significance on 5 of the
measures. This is in keeping with what one could predict on the basis
of the cultural peculiarities of the Indian tradition. Both at school
and at home in India girls lead a more sheltered life than boys. We
have already seen that the greater freedom enjoyed by boys did not
make a difference in their favour as far as the skills needed to do
well on these tests were concerned. However, when both boys and girls
find themselves in the English school situation, one could expect the
girls to progress faster in response to the more stimulating environ-
ment of the school. This seems to be the case as is indicated by the
results.

After this initial spurt they slow down and later boys pass the
girls and hence the beginnings of a significant difference between
their intelligence scores as we have already seen.

As has been pointed out before the numbers involved in these comparisons are very small and hence there is need for firmer evidence before any definite statements can be made about the differential progress of immigrant Indian boys and girls.

CHAPTER 6

SUMMARY AND CONCLUSIONS

There are many methodological problems associated with cross-cultural studies of human behaviour. In the early days of cross-cultural investigations neither anthropologists nor psychologists paid enough attention to the problems inherent in the usual method of comparing different cultural groups at a certain point in time. Assumptions were freely made about the equivalence of samples compared and about the tools employed with the result that the observed differences tended to be interpreted in genetic terms.

The role of the cultural environment of an individual in shaping his intelligent behaviour came to be appreciated and dissatisfaction was felt about the oversimplification of the earlier interpretations. For a while cross-cultural investigations of the traditional type lost their popularity. There was a shift of emphasis as a result and considerable work was done in the field of studying the behaviour of non-Western peoples and relating it to the cultural and ecological factors within the environment. Interest came to be centred round the modifiability of human behaviour in response to changes in the traditional environment.

Attempts were made to construct culture-free tools and given up when it was realised that intelligence was unthinkable when torn off its cultural context. It was realised that cross-cultural studies, if they had to be undertaken at all, had to depend upon the culture-bound tools which were known to be of proven value within an individual culture. The value of using such tests to explore the patterning of abilities in a non-Western people and relating the strengths and weaknesses shown to factors within the cultural milieu was restated. Light was thrown on the changes that should take place within the environment of such people before they could progress towards their

goal of achieving a technological society like in the West (Chapter 1).

Just as there are cultural factors determining which skills are learnt there are cultural considerations affecting the actual performance of an individual in a test situation. These are what are known as extrinsic factors and they include the subject-examiner relationship, habits of work acquired by the individual, relevance of the task and material and the mode of test administration. An awareness of the role of these should once again inhibit one's eagerness to interpret the observed differences in oversimplified terms (Chapter 2).

People from relatively under-developed places have often migrated to countries like the United States, Canada and the United Kingdom with the hope of bettering themselves. Psychologists have studied these groups of people for the changes in their abilities that result in response to the demands of the new environment. Their measured intelligence has shown an increase proportional to the degree of experience of the new environment. They also alter their traditional habits of work and acquire fresh ones in answer to the new demands.

During the 60's there has been a great influx of immigrants into the United Kingdom from the Commonwealth countries. People have come in great numbers from the West Indies and countries in Asia like India and Pakistan. Children have entered schools here and found themselves in a totally new situation. The way they adapt themselves to an alien environment and the changes in their abilities that result from their experience in English schools are proper subjects for investigation. The use of the standard Western tests of intelligence with such immigrant groups is particularly justified as one has to know what skills these children are deficient in before remedial measures can be taken to help them (Chapter 3).

The Investigator being of Indian origin, his interest was in the way children from the Indian Subcontinent cope with the environment here.

Two groups of such children were selected for study from the junior schools in Hertfordshire. The first one had come here recently and by the time of the investigation had had a stay of between 12-30 months. The second one had had a stay here for more than 5 years and included some who were born here of immigrant parents who had themselves come a few years earlier.

Various hypotheses were stated regarding the changes that could be predicted in their measured intelligence. Some were of a general kind based on the findings from studies of Negro children migrating from the South into the cities in the North of the United States. Others were based on a consideration of the special features that characterise the Indian culture and the circumstances in Indian schools. Hypotheses about children from the rural and urban schools in India, boys and girls and their approximation to their English counterparts were stated. Arguments were forwarded to establish that the degree of exposure to the environment here as such did not matter and that what matters was the type of experience had of the English school. Hypotheses were stated that could, if proved valid, conclusively establish the significance of the English school environment in the lives of the immigrant children (Chapter 4 - Part 1).

From among the children from the Indian Subcontinent in the junior schools of Hertfordshire selection was made for the groups of recent and early arrivals. Those that had not stayed here for at least 12 months were left out on the grounds that they would not have as yet got over the trauma of finding themselves in a new and confusing environment. Those that had spent more than 5 years were the early arrivals and those that had been here between 12 and 30 months were the recent ones. The parents were interviewed at home by the investigator and his wife and necessary sociological-type information obtained of the background of every child.

These two groups of immigrant children were conceived of as representing two stages between children in India at one end and English children here at the other. Control groups of Indian children in Indian schools and of English children in Hertfordshire schools were selected on the basis of the sociological factors known about the immigrant groups. The recent arrivals were equated with children in India and the early arrivals with English children.

The investigator spent some 4 months in India selecting cases to form the Indian control group. In all 210 children were tested individually with W.I.S.C. and Raven's Coloured Progressive Matrices. As far as possible, the test conditions remained the same for one and all though, in India, instructions were given to the children in the regional language. Both the recent and the early arrivals were given instructions in English.

In addition to the scores on 6 subtests of W.I.S.C. and Matrices teachers' assessment was sought for the immigrant and the English children.

The design of the study allowed for analysis of variance among the 4 groups of children. 25 children in each of the groups had the same background and so could be compared. 23 out of the 25 children among the recent arrivals were retested after a further period of stay here and the significance of the Test-Retest differences assessed (Chapter 4 – Part 2).

MAIN FINDINGS FROM THE ANALYSIS OF DATA

Traditionally, Indian culture has set greater store by the education of boys than of girls. Parents go to great lengths and willingly undertake great sacrifice to secure a high enough standard of education for boys. Boys and girls within the Indian family are

made aware of this even when they are young. Kamat (1939) explained the significant difference he found between the I.Q.'s of boys and girls on a version of Stanford-Binet in terms of the culture aiding greater progress in boys.

We should however remember that Indian culture has also traditionally stressed the value of verbal scholarship and verbal learning. In the crowded class rooms of the Indian schools learning becomes synonymous with learning of facts verbally communicated by the teacher to the taught. There is very little active participation of the children in the act of learning through experience and so great significance comes to be attached to the ability to remember verbal material. Grasping of relationships and manipulation of symbols take a subsidiary place in the business of learning.

The result is a total neglect of other skills like the spatial and perceptual ones. While boys may be better than girls at verbal learning and score better on verbal tests of intelligence, they are as deprived as girls are of experience with spatial and perceptual material. Neither school nor home pays any attention to children practising these skills and so they remain stunted because of lack of support from the environment. That is why children in India, boys and girls alike, rural and urban children alike, do so badly on tests of intelligence which are non-verbal.

When such children come into this country and enter schools here there is a significant change in the school environment though mostly the immigrant homes continue to be as unstimulating as they were in India. The fact of the homes being more or less the same is brought out very definitely by the finding that those that came at school-going age do as well as those that were born here and so spent the pre-school years in this country. What has brought this about is the fact that both groups attended English schools for the same number of years and hence made similar progress. (Page 116).

The importance of the English school comes out in more than one comparison undertaken. Even as short a period of 19 months has made an enormous difference for the immigrant children as can be seen in the comparison between the recent arrivals and a matched group of children in India. (Page 98). With more experience of the English they make more progress. There is clear evidence for this in the comparison undertaken between the Test and the Retest scores of some of the recent arrivals (Page 109).

The improvement in the measured intelligence of the immigrant children is not a function of their stay in this country but of their experience of English schools. This is made clear by the fact that there is no significant difference between the Retest scores of the recent arrivals and those of the early ones though the latter have stayed in this country for twice as long as the former. (7 yr 1 m as against 3 yr 6 m). Obviously what has mattered is the near-equal length of English schooling for both the groups (Pages 111-2).

Immigrant children seem to make similar progress as a result of their being in English schools irrespective of whether there is a concentration of immigrants in these schools or not. Because of the fact that only a couple of Hertfordshire schools have a concentration of immigrants comparable to that of so many areas in the country, the evidence here cannot be considered as conclusive. Also, there is the problem of what a large number of immigrants in a school does to the progress of the native English children. This study was not designed to tackle this problem, which can be the object of a separate project in itself, and so has no thoughts on it.

If we consider the 4 groups of children as equivalent we find that there is significant variance among them. (Pages 156-157). The only dimension along which they vary is in the length of their stay here.

It is therefore reasonable to explain the variance seen in terms of this dimension. Further we have seen that the one aspect of the English environment which really matters is the school and so the variance among the groups can be safely attributed to the varying lengths of English schooling had by the groups.

The fact that the early arrivals are very close to the English children (Page 142) is worth some attention. This supports, once again, the earlier findings about the importance of the English school in shaping the intelligence of the immigrant children. Taken with the findings of the educational progress of immigrant children in the London schools (I.L.E.A. Report No. 959) it means that there is almost no difference at all between the over-all progress made by English and immigrant children at the end of an equal number of years in English schools.

What little difference is seen in this study between the early arrivals and the English children (Page 142) is adequately explained in terms of the environmental differences that inevitably exist between the settled English and the immigrant community which feels insecure about the future. We also find that the English children, as a group, have had an extra year's schooling over the early arrivals and the remains of a difference we see can be interpreted in strict environmental terms.

We have also seen a change in the habits of work of the immigrant children as they continue to operate in the English environment (Page 147). They have learnt the value of working speedily at problems. In learning this they have responded to the demands inherent in the new environment. A basic change in their ability to grasp relationships and think symbolically has taken place as was proved by the fact that not all the improvement in their scores could be explained away in terms of their having learnt to work at speed. (Page 150).

Both boys and girls from India make considerable progress when they start attending English schools. The progress of the girls is marked to start with but slows down after the initial spurt. Boys pass them soon and catch up with their English counterpart while girls somewhat lag behind the English girls. (Page 145).

We can look at how the various groups perform on the various measures. There were 8 of them, including the two I.Q.'s and we could look at each of them and assess the significance of the changes in the scaled scores of the various groups of children. We could also look at any differences that characterise the development of skills in Indian boys and girls, skills tapped by the various measures.

DIGIT SPAN

One could have expected that there would be no significant
difference among the groups on this measure. The Analysis of
Variance on Page 156, however, proves that there is a significant
difference. The means for the 4 groups are 6.96, 8.2, 10.68 and
10.56.

We notice that the comparison of recent arrivals with Indian
children did not bring out any difference. Nor did the comparison
between the early arrivals and the English children (Pages 98 and
142). But there is a significant difference between the early
arrivals and the recent arrivals (0.005 level) and the Test and
Retest scores of the recent arrivals (Pages 105 and 109).

It looks as if after staying here for a period of time
immigrant children develop their immediate memory for material like
a series of digits with something like a spurt. Explanation of this
phenomenon should consider the importance of numbers this culture
has as against what it is in India. Telephones play a part, in one's
daily life, of great significance and the immigrant child comes to
realise the importance of remembering certain numbers. Most communi-
cations from a school invariably give the telephone number of the
school. Roads have numbers and generally the culture here makes
very much more use of numbers than the Indian one does. The results
we obtained make sense if we interpret them in terms of immigrant
children responding to the demands they experience as coming from the
world around. We may also note that boys from among the immigrants
have caught up with their English counterparts while Indian girls
are still lagging behind the English girls (Page 145). This is not
surprising in view of the relatively greater freedom of movement out-
side the home that immigrant boys enjoy.

It is quite possible that the groups would have shown no difference if the material employed in testing memory was not a series of digits but verbal with a discernible meaning in it.

PICTURE COMPLETION

The skill involved in doing this test is of carrying a mental image of a familiar object and of being able to notice the absence of a significant detail in the pictorial representation of the object. It can generally be said that most of the objects are familiar to Indian children and so this particular test is reasonably culture-fair.

A few children in India tended to say that the body was missing when presented with item 4, which has the picture of a girl's face without a mouth. When it was stressed that the face was what they should look at they invariably got the point.

Both boys and girls progress equally satisfactorily and develop their skill of observation in a like manner. There is no difference between the scores of either the Indian boys or girls when compared with those of their English counterparts. (P.45)

PICTURE ARRANGEMENT

There is good reason to agree with Ortar (1963) that this is one of the most culture-bound items. Both boys and girls in India did extremely poorly on this as is shown by the Mean for the group being only 5.12. Part of the difficulty lies in the unfamiliarity of the objects pictorially represented (for example the weighing scale) and of some of the situations. Few children in India are

familiar with the Fire Engine and so are not able to make sense of
the event represented in "Fire". The representation in "Burglar"
is highly stylised and the Farmer does not look anything like an
Indian farmer as Indian children know him.

The skill involved is of understanding the content in the
pictures and of arranging them in a sequential order so as to make
an event. Some thinking through words is necessary for succeeding
on the task involved.

The Means for the three groups of Indian boys rise steadily
(5.04 for boys in India, 7.11 for boys recent arrivals and 9.0 for
boys among the early arrivals) as could be expected with increasing
familiarity on their part with the way of pictorial representation
in this culture and the situation portrayed. A similar increase is
noticeable for Indian girls (5.25, 6.06 and 8.0) though the rate at
which they develop this skill is slower than that for boys. We see
a similar difference between boys and girls in their Mean scores on
Test and Retest (Page 168).

Once again this is to be interpreted in terms of the greater
opportunities immigrant boys have for knowing about the world.
Living under greater restraints, girls lack the scope that boys have
of improving their awareness of life around.

BLOCK DESIGN

It is interesting to note that this is one of the two items on
which a significant difference is to be found between the early
arrivals and the English children. The other one is Object Assembly.
Both involve a spatial factor.

Indian children progress on this item like they have done on the other items as is indicated by the rise in the Mean Scaled Scores for the various groups (7.35, 8.30 and 10.42) of Indian children. Both boys and girls show a similar improvement with boys progressing faster as is indicated by the fact that they have caught up with the English boys while Indian girls have not (Page 145). Again, this seems to confirm the validity of the claim that immigrant boys enjoy a greater measure of freedom than immigrant girls which enables them to have more experience of situations which demand these skills and hence their faster rate of progress.

OBJECT ASSEMBLY.

Though both Block Design and Object Assembly involve a spatial factor there is a certain difference between the two. Block Design involves an ability to translate an abstract design from a two-dimensional representation on to three-dimensional blocks. Object Assembly involves the inference of the finished product from the sections of the object presented initially.

Again, Ortar's strictures about models were proved justified. Children in India had very much more difficulty with this item than with Block Design. Mostly it arose from an utter failure to infer the object particularly the last two where no aid is given. The method adopted by the children was characterised either by aimless attempts to fit pieces which would not fit or by failing to recognise what the pieces stood for. For example, quite a few children seemed to think that the mouth was the eyebrow and the chin an ear. Often it looked as if the children did not know where to start.

We see the difficulty the children experienced in the Mean scaled score they got, 5.51. The progress the children make on coming here parallels the progress they make on other items, boys making faster

progress than girls. It is worth noting that both boys and girls have failed to catch up with their English counterparts.

It looks as if lack of sufficient experience with material like jig-saw puzzles in early life has handicapped these children. Opportunities provided for practising these skills in English schools have certainly helped these children to improve as is indicated by the significant difference we find between the Means of Test and Retest scores (Page 109). The results indicate that with organised help specifically addressed in this direction, the immigrant children can be helped to reach the level of their English counterparts.

CODING

The Means for the three Indian groups on this item are 6.9, 7.4 and 9.37. The difference between the Mean for early and recent arrivals is significant only at the 5% level (Page 105) and again the difference between the early arrivals and the English children is significant not a high level (Page 142).

Speed plays an important part in the scores the children get and again Indian boys seem to have responded better than Indian girls to the cultural demands here regarding working at speed. We notice that there is no significant difference between the Mean scores of boys among the early arrivals and the English boys (Page 145), while the difference between girls is significant at a high level (0.01).

W.I.S.C. AND MATRICES

Reasons for choosing these two tests for this particular study were discussed in Chapter 4 (Page 80). While there is no claim made for W.I.S.C. for its culture-fairness many psychologists have looked

upon the Matrices as a relatively culture-free test. Mention was
made of the fact that there is some evidence to prove that schooling
does affect the progress children make on Matrices (Page 46).

The present study indicates that the quality of educational
experience children get is perhaps as important as whether children
have had some schooling or not. We may notice that the immigrant
children's scores on Matrices increase considerably as their stay in
English schools lengthens. There is a very significant difference
between the Mean I.Q.'s of the early and the recent arrivals (Page 105),
with both boys and girls making similar progress. It is true that
there is no indication of a difference either between the recent
arrivals and the Indian children or between the early arrivals and
the English children. But this was true of Digit Span and almost so
of Coding. We may conclude on the basis of the results that there
is no reason to ascribe to the Matrices any more culture-fairness
than can be to some of the items in W.I.S.C.

To sum up, we find that the most culture-bound items are
Picture Arrangement and Object Assembly. Coding, Picture Completion,
Digit Span, Block Design and Matrices seem not to be affected to the
same extent as the other two by cultural factors. Matrices are very
definitely affected by the quality of experience a child gets at
school and so perhaps is not as pure a measure of "g" as some British
Psychologists have claimed.

ASSESSMENT FOR SPECIAL SCHOOL PLACEMENT

Recently the problem of assessing immigrant children for place-
ment in schools for Educationally Subnormal Children has been aired
in the National Press (The Guardian, March 3, 1971; March 16, 1971
and New Statesman, March 19, 1971. In a recent report the Race
Relations Board stated that certain authorities were classifying a

disproportionate number of immigrants as E.S.N. For example, in I.L.E.A. the proportion of immigrants in day E.S.N. schools was 33.61 per cent even though the proportion of immigrants among the school population in the area was only 16.97 per cent. Of the immigrant pupils in the E.S.N. schools 82 per cent were West Indian children.

Dr. Judith Haynes has in her research with Indian children in Ealing has addressed herself specifically to the problem of "Educational Assessment of Immigrant Pupils". Her book under that name has been published quite recently by the National Foundation of Educational Research. Talking in a recent press conference Dr. Haynes has said that she has been able to devise tests for Punjabi speaking children which are better predictors of the children's performance than orthodox intelligence tests or teachers' expectations.

There seems to be no doubt that more immigrant children have entered schools for E.S.N. children than can be justified on the grounds of their needing such education. Some authorities defended this type of placement as is obvious in the statement from a report (I.L.E.A., 657) that "special schools for E.S.N. children must continue to provide for immigrant children, even those of relatively high I.Q., until more suitable alternative provision can be made". This line of thinking is reasonable provided active interest in the progress of children so placed is maintained and frequent reviews are possible and methodically under-taken. Most Educational Psychologists in most authorities are so over-worked that this type of review is not possible even if a child placed in a special school is not necessarily forgotten. Most Psychologists, one hopes, would grant that reviews of children in special schools are undertaken by them at the request of the Head Teacher and that in most cases there is great reliance on what the Head says about how well the child is doing.

Thus it is possible that quite a few children placed in special schools would continue to stay in them even though they may be fit to

be in normal schools. This is proved by the fact that in I.L.E.A. only
7% of the children initially placed in special schools transferred to
ordinary schools. If the immigrant parents do not demand for a reconsid-
eration of the child's placement and if there is no obvious evidence of
his having been wrongly placed, it is likely he will be there for the
rest of his school life. Many of the immigrant parents know very little
about the rights they have or of the various types of schools in an area
with the result that no pressure is exercised by them for frequent
reviews of the progress of children. We also know that children respond
to the expectations of those around them by living up to them. This can
affect the performance of immigrant children in a way not seen in English
children placed in special schools. It is that the immigrant parents and
the children themselves may accept the standards of a special school as
the thing to aim at and that they may lose the motivation to aim higher
because everyone is happy.

Thus, placing immigrant children initially in special schools before
they have had any experience of and chance in an ordinary school is
morally and educationally indefensible. Every child coming here should
go into a normal school for a period of time before anyone takes a dec-
ision about his placement in an E.S.N. school. The position should be
what is taken in law, namely, that one is innocent unless proved guilty.

When should an immigrant child be presented for an assessment ?
How soon after his arrival here ? It is perhaps difficult to give a
clear cut answer to the question. However, the present study throws
some light on this issue. We can imagine the 58 children seen in India
as arriving here and being presented to Educational Psychologists for
assessment. If one takes placement decisions purely on the I.Q.'s
obtained and considers children scoring below 70 as needing to go to
E.S.N. schools, then there would be 19 out of 58 needing such placement
(Table 1 - Appendix 1). We must accept that the number would have been
larger than 19 if the Psychologist were English and if the instructions

were all in English. The Matrices I.Q.'s would have been of little
help as they are also/low and a large number of children score below
the 5th percentile. They are also not able to discriminate between
child and child at the lower end of the scale.

One can be pretty sure that no Educational Psychologist takes
decisions regarding placement in E.S.N. schools in this manner. Most
make allowances for the fact that these children have recently arrived
from a different culture and for the tests being culture-bound. When
they do it, they are straying away from the ideal of objective measure-
ments of ability and are using information outside the test as such.
Even then, the children are at a disadvantage if they are faced with
such a situation as a Test with an adult of a different ethnic group
talking a language that the child does not comprehend. We can there-
fore say that the time for assessment is certainly not as soon as the
child arrives.

Let us now look at the I.Q.'s of the recent arrivals who were
tested after an average stay of 19m. There are 4 out of 43 who score
below 70. Should these children have gone into E.S.N. schools ? We
may incidentally note that the teacher's assessment for three of the
four children were 95, 90 and 100 (Appendix 1). Two of these children
have on retest scored 89 and 83, their original scores being 67 and 62
respectively, an increase of 22 and 21 points over a period of another
24m. Placing these children in special schools would have been certainly
wrong.

We may, therefore, conclude that taking decisions regarding
special school placement on the basis of W.I.S.C. I.Q.'s as soon as a
child arrives from abroad is utterly wrong and that it is only slightly
less wrong even after a year and more. The investigator would like to
submit that assessments should never be done, as a matter of course, as
soon as an immigrant child arrives. A psychologist should wait for a

request to come from the teacher and even then make sure that the
child has had a stay of at least a year in a normal school before
the request was made. He should resist pressures that are likely
from various quarters and maintain that he would not see a child
from the viewpoint of special scale placement within a year of his
arrival.

He could, of course, see the child with a view to advising the
teacher regarding the lacks a child exhibits and the measures that
can be taken to help him in developing skills that he may need.
There are various ways in which an immigrant child can be helped.
Authorities can be advised by psychologists regarding the special
provisions they should make within the normal school context which
will help the children learn not only English (which they so obviously
lack) but also other skills which they need to learn (whose absence or
inadequate development may not be so obvious).

Placing immigrant children in special schools because special
provisions are not made by authorities to help them while in normal
schools is wrong and would mean going against the spirit of the Educ-
ation Act which holds that every child should have the education he
needs.

CONCLUSION

The present study has looked at two groups of immigrant children
from the Indian Subcontinent. Their performance on W.I.S.C. and
Raven's Coloured Progressive Matrices are compared with those of
children in India and of English children. On every one of the
measures taken there is evidence to prove that Indian children contin-
ue to improve their scores as they stay on here. Evidence was produced

to establish that the most important factor responsible for this improvement is the educational experience the children get in the schools here. Both boys and girls show this type of improvement over a period of time though boys progress faster than girls and catch up with their English counterparts on most of the skills. Both boys and girls lag behind on skills involving spatial relation-ships.

Interpretations of the differences between groups of Indian children, between boys and girls and between Indian and English children have been given in cultural and environmental terms. No differences were seen which could not be adequately explained in these terms.

To sum up, children from the Indian Subcontinent when they come here either lack certain skills or have been able to develop them up to a certain level only. These are skills that are valued here but not in the Indian culture and hence their stunted development. They start to grow again in the enriched environment of the English schools and reach a stage not below that of native born English children.

This improvement is the result of the opportunities being there in English schools for practising certain skills. As far as the investigator knows, no conscious attempt is made by any school to teach these skills like it does to teach English. It seems possible that children from India would develop to the point reached by English children, as far as these skills are concerned, much sooner if attempts are made to aid such development. It is even possible that these childrens progress in learning English will be faster if they were to master some of these skills within a short time of their arrival. Most teachers wanting to teach English make use of aids, pictures and models. If children have difficulty in making some sense out of these pictures and models, then what was intended as an aid to the child's

understanding turns out to be nothing but one foreign language through which another language is taught.

What comes out very clearly is that most of these children lack certain learning experiences, which one takes for granted, every English child has gone through. These are experiences which most children get at home, in nursery schools or at least in their infant schools. Quite a few of the immigrant children lack these basic experiences and so are deficient in certain manipulative and percept- ual skills. It seems reasonable to suppose that these should be provi- ded at the same time as experience in spoken and written English.

The process of growth which this study has drawn attention to in children from India is certainly not endless. There is some indi- cation to the effect that these immigrant children have hit the ceiling by the time they have spent some 4 years in English schools. With active instruction given in these skills we can hope to shorten the time taken by these children to achieve full growth. Special attempts should be made to encourage girls to develop these skills as there is not much of a scope for them outside the school.

SOME SUGGESTIONS FOR FURTHER RESEARCH

The ideal of a longitudinal research with a group of immigrant children has been mentioned earlier. This would perhaps not be possible for any single worker to undertake. An organised body like the Community Relations Commission could finance a project like this at which a number of psychologists, preferably belonging to different ethnic groups, could work. This would give us information about most of the immigrant groups and would enable a definitive policy to be worked out. In the final analysis, such an undertaking would make more economic sense than many of the research projects undertaken by individual investigators.

The problems associated with placing immigrant children have already been discussed. Two groups of children, one placed in special schools on arrival and the other in normal schools could be studied over a period of a couple of years. With matched groups to start with it should be possible to assess the effects of the two environments on the progress of immigrant children.

The problem of children in schools with a degree of concentration of immigrants was briefly touched on in this study. As was made clear, the problem in Hertfordshire is not as serious as that in some authorities. There is no answer in this study to the question of what the presence of nearly 50% or more non-English speaking immigrant children does either to them or to the rest. This could be studied by comparing the progress achieved by two matched groups of immigrant children in schools with and without this type of concentration.

The present study took children in junior schools. None of the recent arrivals was older than 11 at the time of coming here. These children have problems as a result of being transplanted from one cultural soil to another. But they cannot be the same as those of boys and girls of 13 and 14. There are some special aspects associated with pubertal children coming here and finding a place for themselves in the company of English teenagers. Are they better off in a special school than in an ordinary secondary school with its emphasis on subject teaching and specialisation ? This problem needs a thorough investigation.

A difficult area for research, but necessary, is that of contact with parents. Quite a few of the parents interviewed for this study had very little contact with their children's schools and knew little

about their educational practices. One could see that they were
expecting of the children a show of interest in learning which they
could understand but which the children could not produce. One such
was the parents' conviction that a school could be considered as good
only if it gave homework. If children should not feel lost between
the home and the school it is necessary to establish living contact
between the two. This is best done by having Education Welfare
Officers in those areas where immigrants settle, these people again
coming from different ethnic groups. The effect of communicating
successfully with the home may as well take the form of parents
providing learning experiences at home which may result in the children
learning skills faster than when the business of teaching is left
entirely to the school. This could be studied with some benefit to one
and all.

Most children from the Indian Subcontinent live and work in a
bilingual world. The measure used for assessing the degree of English
at home was not reliable and so did not produce the expected results.
It is worthwhile working out a more reliable measure and studying the
effects of differing degrees of bilingualism both on verbal and non-
verbal learning.

There are many other problems, some of a sociological kind, which
are of importance to the progress these immigrant children make in
schools. The possibility of being able to look into these and other
problems will, ultimately, depend upon the urgency felt by the Author-
ities, the resources made available and the willing co-operation of the
many groups of immigrants in the United Kingdom.

APPENDIXES

Appendix 1

Appendix 2

Testing with Instructions in Punjabi

Appendix 3

Questionnaire used in interviewing Parents.

APPENDIX - 1

SAMPLE IN INDIA

(Ones marked + are compared with recent arrivals; ones marked * figure in the Analysis of Variance - Chapter 5)

Table 1.

SAMPLE   SCORES

Sl. No.	Age (years and months)	Sex	Village or Town	F's education	Profession	Language at home	No. of Children	D.S.	P.C.	P.A.	B.D.	O.A.	C	WISC IQ	Raw Scores on C.P.M.	Matrices IQ (converted)
*+ 1	9-9	F	V	0	F	P	6	6	6	5	7	3	6	68	15	75
*+ 2	8-9	F	V	0	F	P	5	6	7	6	7	5	6	74	15	81
*+ 3	12-0	F	V	10	F	P	5	5	6	5	5	4	4	64	-	-
*+ 4	10-4	F	V	10	F	P	4	8	7	5	8	5	6	74	14	73
*+ 5	9-8	F	V	6	F	P	6	6	8	6	5	1	6	67	16	76
*+ 6	9-10	M	V	10	F	P	5	6	8	5	6	7	5	74	16	75
+ 7	11-3	M	V	8	F	P	7	7	5	1	4	2	4	53	-	-
*+ 8	9-0	M	V	0	F	P	6	8	12	5	9	6	6	83	23	102
+ 9	10-3	M	T	0	F	K	7	11	5	4	7	2	5	62	11	71
+10	10-4	M	V	0	F	K	8	8	2	2	5	7	4	58	11	71
*+11	9-1	M	V	6	F	P	4	6	8	5	7	7	5	75	17	84
*+12	11-1	F	T	14	T	P	3	5	8	5	4	6	9	75	-	-
*+13	11-9	F	T	12	T	P	5	9	7	5	8	5	16	87	-	-
14	11-8	F	T	10	T	P	6	5	8	5	7	6	5	74	-	-
*+15	8-9	M	T	14	T	P	5	11	8	8	10	6	9	87	14	76
+16	10-4	M	T	14	T	K	4	11	9	7	6	6	5	76	22	87
17	10-2	M	T	14	T	K	4	11	7	5	8	3	7	72	19	79
18	9-9	M	T	14	T	K	6	10	8	5	8	1	6	69	15	76
*+19	10-3	M	T	14	T	K	2	12	6	6	7	6	9	78	18	77
20	9-0	F	V	14	C	P	3	6	6	4	5	5	9	71	17	84
*+21	11-10	F	T	10	C	P	5	9	9	4	5	4	6	69	-	-

SAMPLE   SCORES

	Sl.No.	Age (years and months)	Sex	Village or town	F's educ.	Profession	Language at Home	No. of Children	D.S.	P.C.	P.A.	B.D.	O.A.	C	WISC IQ	Raw Scores on C.P.M.	Matrices I.Q.
	22	10-4	F	T	14	C	K	2	9	8	5	6	3	8	72	13	73
*+	23	10-4	F	T	14	C	P	6	8	6	5	9	6	8	78	15	75
*+	24	10-4	F	T	14	C	TL	4	5	8	5	6	4	4	68	13	73
	25	9-7	M	T	10	C	P	5	8	4	5	8	3	8	69	14	75
+	26	8-11	M	V	14	C	P	4	7	7	6	8	4	9	78	16	81
*+	27	8-4	M	V	10	C	K	5	6	13	8	8	8	5	90	18	94
+	28	10-1	M	T	14	C	K	3	8	9	5	5	4	9	75	22	90
*+	29	10-7	M	V	14	C	P	3	9	10	5	6	6	8	79	19	79
+	30	11-8	M	T	10	C	P	2	9	9	7	5	4	11	80	–	–
	31	10-7	M	T	10	C	K	6	6	8	5	8	2	3	68	14	73
+	32	9-1	M	T	14	C	P	2	10	10	5	10	11	8	92	19	90
+	33	11-3	F	T	10	P	P	4	7	9	5	10	10	10	92	–	–
+	34	9-10	F	T	10	P	P	4	6	6	5	6	5	7	71	17	76
+	35	9-8	F	T	10	P	P	5	8	12	7	10	3	9	87	18	90
	36	10-9	F	T	10	P	K	6	5	6	5	8	6	10	79	19	79
	37	12-0	M	T	10	P	P	1	5	12	4	9	8	7	86	–	–
+	38	9-4	M	T	10	P	TG	3	12	8	5	11	5	10	85	26	105
+	39	11-5	M	T	10	P	P	3	5	10	5	5	4	5	71	–	–
	40	10-7	M	T	10	P	P	5	11	3	5	6	6	4	64	18	77
+	41	11-8	M	T	10	P	P	5	9	12	4	9	8	5	83	–	–
*+	42	11-3	F	T	10	M	K	3	5	6	4	4	6	7	68	–	–
	43	9-7	F	T	10	M	TL	6	10	4	5	8	2	8	68	10	71
*+	44	11-6	M	T	6	M	P	1	10	8	5	8	6	9	80	–	–
*+	45	9-10	M	T	10	M	M	9	6	8	5	10	9	6	83	17	76
	46	9-8	M	T	10	M	TG	4	5	4	4	6	4	5	62	13	73
+	47	10-9	M	T	10	M	K	4	8	7	5	9	4	4	71	20	81
+	48	9-4	M	V	6	M	K	6	6	5	5	6	9	6	74	15	75

		SAMPLE										SCORES					
	Sl. No.	Age (years and months)	Sex	Village or Town	F's Educ.	Profession	Language at Home	No. of Children	D.S.	P.C.	P.A.	B.D.	O.A.	C	W.I.S.C. I.Q	Raw Score on C.P.M.	Matrices I.Q.
+	49	10-4	M	T	10	M	TL	3	5	9	5	5	4	2	65	13	73
	50	8-11	F	T	10	U	K	4	11	7	8	7	5	7	78	12	73
+	51	9-7	F	T	10	U	P	3	8	5	5	8	5	10	76	15	75
*+	52	10-5	F	T	10	U	TG	7	6	9	7	11	6	9	90	27	103
	53	11-1	F	T	10	U	P	4	5	3	5	5	5	9	68	-	-
*+	54	9-1	M	V	0	U	P	4	5	2	3	10	5	5	65	17	84
*+	55	11-5	M	T	10	U	K	5	5	8	6	11	12	9	94	-	-
*+	56	9-2	M	V	0	U	P	4	6	3	4	7	1	4	57	17	84
*+	57	8-1	M	V	10	DR	P	5	6	8	5	9	6	7	79	15	86
	58	11-1	M	V	10	DR	P	5	7	9	5	7	8	4	76	-	-

CHILDREN IN INDIA

SAMPLE – SUMMARY

Number of Children   58
    a) Boys   35
    b) Girls   23
Age (average)   10 yr 3 m
School Attended – a) Town   39
                b) Village 19
Fathers' Education (average   9 yr 6 m
Profession- a)Farming (F)   11
         b)Teaching (T)   8
         c)Clerical (C)   13
         d)Police (P)   9
         e)Shopkeeping (M)   8
         f)Unskilled
              Labour (U)   7
         g)Transport (DR)   2
Language at Home
         a)Punjabi (P)   35
         b)Kannada (K)   16
         c)Tamil (TL)   3
         d)Telugu (TG)   3
         é)Malayalam (M)   1
Number of Children (average) 4.5
       per family

SCORES

	D.S	P.C	P.A	B.D	O.A	C	WISC IQ	MATRICES IQ
Range	5-12	2.13	1-8	4-11	1-12	2-16	53-94	71-105
Mean	7.47	7.33	5.09	7.28	5.24	6.84	74.55	80.26
Median Score	6	8	5	8	6	9	68	73
S.D.	2.14	2.46	1.19	1.88	2.33	2.45	10.08	8.62

PERCENTAGE FREQUENCIES FOR W.I.S.C. AND MATRICES
CHILDREN IN INDIA

Classes	W.I.S.C.		Matrices	
	no	%f	no	%f
110-114	-	-	-	-
105-109	-	-	1	2.4
100-104	-	-	2	4.8
95-99	-	-	-	
90-94	5	8.6	4	9.5
85-89	5	8.6	2	4.8
80-84	5	8.6	7	16.7
75-79	13	22.4	16	38.1
70-74	11	18.9	10	23.8
65-69	12	20.7	-	-
60-64	4	6.9	-	-
55-59	2	3.4	-	-
50-54	1	1.7	-	-
45-49	-	-	-	-
Total	58		42	

INDIAN SAMPLE

SCORES

Ones marked + are retested after a further stay. Retest scores are in Table 1

Ones marked * are used in Analysis of Variance

The serial numbers for the recent arrivals correspond to the ones used in Table 3 in Appendix 1

Table 2.

	Sl.No.	CHILDREN IN INDIA										RECENT ARRIVALS								
		D.S.	P.C.	P.A.	B.D.	O.A.	C	W.I.S.C I.Q.	Mat. I.Q.		D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C I.Q.	Mat. I.Q.	Tchr's Assess.
*	1	6	6	5	7	3	6	68	75	+*	8	10	7	11	9	12	99	87	95
*	2	6	7	6	7	5	6	74	81	+*	5	5	6	8	7	5	74	90	95
*	3	5	6	5	4	4	4	64	—	+*	6	6	6	6	4	4	67	79	—
*	4	8	7	5	8	5	4	74	73	+*	8	8	6	6	6	5	71	73	—
*	5	6	8	6	6	1	6	67	76	+*	9	10	5	7	4	12	87	72	102
*	6	6	8	5	6	7	5	74	75	+	4	6	5	4	4	4	62	—	95
	7	6	5	1	4	2	4	53	—	+*	11	11	11	8	9	9	97	95	90
*	8	8	12	5	9	6	6	83	102	+	4	12	3	7	9	4	76	—	100
	9 11	8	5	4	7	2	5	62	71	*	8	10	13	7	7	6	91	86	98
	10	8	2	2	5	7	4	58	71		8	10	7	9	6	7	85	78	96
*	11	6	8	5	7	7	5	75	84		6	10	7	5	5	7	79	76	—
*	12	5	5	5	4	6	9	75	—	+*	8	9	8	8	8	11	94	73	105
*	13	9	7	5	8	5	16	87	—	+*	11	11	6	8	9	12	89	81	100
*	14	11	8	8	10	6	9	87	76	+	6	11	9	7	8	10	89	81	95
	15	11	9	7	6	5													

Cont'd.

Sl.No.	D.S.	P.C.	P.A.	B.D.	O.A.	C	W.I.S.C I.Q.	Mat. I.Q.		D.S.	P.C.	P.A.	B.D.	O.A.	C	W.I.S.C I.Q.	Mat. I.Q.	Tchr's Assess.
*16	12	6	6	7	6	9	78	77	*	9	13	9	10	9	8	99	96	95
*17	9	9	4	5	4	6	69	75	**	8	12	5	12	9	11	99	100	96
*18	8	9	5	9	6	8	78	75	**	7	6	9	9	6	9	79	–	96
*19	5	8	6	8	6	4	68	73	+*	8	9	7	10	9	9	94	93	120
20	7	7	6	8	4	9	78	81	+	5	6	9	7	8	10	87	73	90
*21	6	13	8	8	8	5	90	94	*	6	12	7	12	11	7	99	102	95
22	8	9	5	5	4	9	75	90		7	9	5	7	7	4	74	73	120
*23	9	10	5	6	6	8	79	79		9	8	6	8	6	8	79	73	102
24	9	9	7	5	4	11	80	–		13	10	8	8	7	9	90	100	120
25	10	10	5	10	11	8	92	90		15	7	8	10	9	10	92	–	110
26	7	9	5	10	10	10	92	–	*	7	8	6	12	4	6	80	100	112
27	6	6	5	6	5	7	71	76		9	10	5	10	6	6	82	–	117
28	8	12	7	10	3	9	87	90		8	12	6	8	6	8	86	86	120
29	12	8	5	11	5	10	85	105		6	7	5	6	6	4	69	87	100
30	5	10	5	5	4	5	71	–		9	8	7	8	5	9	82	75	110
31	9	12	4	9	8	5	83	–		8	9	7	8	7	9	83	75	115
*32	9	6	4	4	6	7	68	–	+*	6	8	6	6	7	7	78	75	90
*33	10	8	5	8	6	9	80	–	+*	6	10	6	11	9	8	92	76	95
*34	6	8	5	10	9	6	83	76	+	12	7	5	8	7	6	76	–	100
35	8	7	5	9	4	4	71	81		9	8	6	4	4	4	67	75	90

Cont'd

Sl.No.	D.S.	P.C.	P.A.	B,D.	O.A.	C	W.I.S.C. I.Q.	Mat. I.Q.	D.S.	P.C.	P.A.	B.D.	O.A.	C	W.I.S.C I.Q.	Mat. I.Q.	Tchr's Assess.
36	6	5	5	6	9	6	74	75	*	10	8	7	7	8	8	83	-	121
37	5	9	5	5	4	2	65	73		8	9	7	9	5	8	83	76	-
38	8	5	5	8	5	10	76	75		6	10	7	7	3	8	79	73	95
* 39	6	9	7	11	6	9	90	103	+*	10	8	7	10	6	13	92	-	108
* 40	5	2	3	10	5	5	65	84	+*	5	8	6	7	5	6	75	76	92
* 41	5	8	6	11	12	9	94	-	+*	7	9	8	10	6	6	85	75	110
* 42	6	3	4	7	1	4	57	84	+*	7	9	7	10	8	8	89	100	-
* 43	6	8	5	9	6	7	79	86	+*	10	10	8	10	10	7	93	112	97
Total:	319	328	220	316	236	297	3255		341	388	289	357	293	333	3622		

Table 3

RECENT ARRIVALS

	Sl.No.	Age years and months	Sex	Country	Village or town	Religion	Language at home	Father's stay in U.K.	Child's stay in U.K. in months	Father's Education	Father's profession in India	Father's job here	No. of moves	No. of children	Degree of English	Friends
*	1	9-3	f	I	v	S	P	6yr	21	9	F	U	1	3	Ind	Ind
*	2	8-7	f	I	t	S	P	3yr	14	0	F	U	1	6	Ind	Ind
*	3	10-10	f	I	t	S	P	12m	12	11	F	U	1	3	Ind	Ind
*	4	9@10	f	I	v	S	P	16m	16	11	F	U	1	3	Ind	Ind
*	5	8-9	f	I	v	S	P	16m	16	7	F	U	1	4	Both	Both
	6	11-1	m	I	v	S	P	16m	16	11	F	U	1	4	Ind	Both
*	7	10-10	m	I	v	S	P	5yr	24	5	F	U	1	4	Ind	Both
	8	11-3	m	I	t	S	P	6yr	27	9	F	U	1	3	Ind	Ind
*	9	10-9	m	P	v	M	U	22m	22	0	F	U	1	6	Ind	Eng
*	10	10-6	m	P	v	M	P	23m	23	0	F	U	1	4	Ind	Both
	11	11-0	m	I	v	S	P	26m	26	8	F	U	1	3	Ind	Ind
*	12	10-2	f	I	v	S	P	14m	14	10	F	U	2	3	Ind	Both
*	13	8-7	f	I	t	s	P	5yr	21	10	F	U	2	3	Ind	Both
	14	9-9	m	I	t	S	P	28m	28	14	F	U	3	5	Both	Both
*	15	10-7	m	I	v	H	G	8yr	20	14	U	U	2	3	Both	Eng

Sl.No.	Age years and months	Sex	Country	Village or town	Religion	Language at Home	Father's stay in U.K.	Child's stay in U.K. in months	Father's Education	Father's profession in India	Father's job here	No. of moves	No. of children	Degree of English	Friends
16	8-11	m	I	v	H	G	8yr	20	14	T	U	2	3	Both	Eng
17	9-8	f	I	v	S	P	7yr	23	14	C	U	1	5	Ind	Ind
18	11-8	f	P	t	H	P	5yr	15	6	C	U	1	6	Ind	Ind
19	9-0	f	I	t	C	E	25m	25	14	C	Man	1	3	Eng	Eng
20	9-8	m	I	v	H	P	16m	16	10	C	U	1	6	Ind	Ind
21	9-0	m	I	v	S	P	7yr	17	14	C	U	1	5	Both	Both
22	11-0	m	I	v	S	G	7yr	18	14	C	TA	2	2	Ind	Both
23	10-7	m	I	v	M	G	7yr	29	10	C	U	1	3	Ind	Ind
24	9-9	m	I	t	H	G	17m	17	12	C	U	1	6	Both	Eng
25	11-8	f	P	t	H	G	17m	17	12	C	Acc	1	6	Both	Eng
26	8-6	f	P	v	M	P	3yr	20	7	P	Acc	1	4	Ind	Eng
27	11-3	f	K	t	M	U	8yr	12	10	P	U	1	8	Both	Ind
28	9-3	f	K	t	M	U	8yr	12	10	P	U	1	8	Both	Ind
29	10-11	m	P	v	M	P	6yr	20	6	P	U	1	3	Both	Both
30	8-10	m	I	v	S	P	6yr	12	10	P	U	1	7	Both	Both
31	10-2	m	I	v	S	P	6yr	12	10	P	U	1	7	Both	Both
32	9-11	f	P	t	M	U	5yr	27	12	M	U	2	4	Both	Both
33	9-1	m	I	t	S	P	7yr	18	12	M	U	2	5	Ind	Eng
34	11-4	m	P	t	M	U	5yr	27	12	M	U	2	4	Both	Eng

Sl. No.	Age years and months	Sex	Country	Village or town	Religion	Language at Home	Father's stay in U.K.	Child's stay in U.K. in months	Father's Education	Father's profession in India	Father's job here	No. of moves	No. of children	Degree of English	Friends
35	8-8	m	P	t	M	U	5yr	27	12	M	U	2	4	Both	Eng
36 *	11-2	m	I	v	M	Pu	19m	19	6	M	U	1	3	Ind	Eng
37	9-2	m	P	t	M	H	7yr	15	14	M	Br.Rail	1	2	Both	Eng
38	9-0	f	I	t	H	H	5yr	24	11	U	U	1	5	Both	Both
39 *	11-6	f	I	t	M	P	16m	16	9	U	U	1	1	Both	Ind
40 *	10-6	m	I	v	S	P	17m	17	0	U	U	2	2	Ind	Eng
41 *	8-4	m	P	t	M	Pers	22m	22	10	U	U	1	3	Ind	Eng
42 *	10-0	m	P	v	M	P	27m	27	0	U	U	1	5	Ind	Both
43 *	9-8	m	I	v	M	P	19m	19	10	DR	U	1	4	Ind	Eng

RECENT ARRIVALS

SAMPLE – SUMMARY

Country

India	(I)	30
Pakistan	(P)	11
Kashmir	(K)	2

Religion

Hindu (H)	7
Sikh (S)	19
Moslem (M)	16
Christian (C)	1

	Hindu	Moslem	Sikh	Christian
Children coming with parents	3	7	8	1
Children joining parents	4	9	11	0

Fathers changing jobs on migration	33
Fathers holding similar jobs	10

Language at home

Punjabi (P)	28
Gujerati (G)	5
Urdu (U)	6
Persian (Pers)	1
Pusthu (Pu)	1
Hindi (H)	1
English (E)	1

Professions

	In India	Here
Farming	11	-
Teaching	5	1
Clerical	9	2
Police	6	-
Shopkeeping	6	-
Unskilled	5	40
Transport	1	-

Table 4.

ENGLISH CHILDREN

(Ones marked + are compared with Early Arrivals, ones marked * figure in the Analysis of Variance)

Marks	Sl.No.	Age in years and months	Sex	village or town	Father's education	Profession	No. of children	Digit Span	Picture Completion	Picture Arrangement	Block Design	Object Assembly	Coding	W.I.S.C. I.Q.	Matrices score	Matrices I.Q.	Teacher's assessment
	1	9-1	f	v	9	F	1	10	10	6	10	9	12	96	17	84	97
+	2	8-10	f	v	9	F	2	9	11	10	7	11	10	99	20	93	106
*+	3	9-5	m	v	9	F	4	6	11	11	7	18	7	106	23	96	90
++	4	8-2	m	v	10	F	4	11	11	17	13	13	10	120	27	128	113
+	5	9-3	f	v	9	F	3	10	9	7	10	7	11	92	23	102	102
*+	6	8-4	f	v	9	F	2	13	11	11	12	10	10	106	22	106	100
	7	8-6	f	v	10	F	1	11	10	8	10	13	8	99	20	100	87
	8	9-3	m	v	10	F	3	8	13	7	7	7	8	90	18	87	92
	9	9-6	m	v	9	F	4	10	12	6	10	11	9	97	31	119	98
*+	10	8-5	f	v	10	F	2	9	11	14	13	14	9	115	18	93	98
*+	11	8-6	m	v	10	F	5	7	15	11	13	14	7	114	31	133	95
	12	9-4	f	v	10	F	2	6	10	10	6	9	11	94	18	81	96
	13	10-10	f	v	9	F	3	6	10	9	8	10	10	96	23	87	97

SAMPLE — SCORES

SAMPLE   SCORES

	14	15	16	17	18	19	20	21	22	23	24	25	26	27
(marker)	*+	**	+	*+	+		+	+		*+	*+	*+	*+	*+
Sl. No.	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Age in years and months	8-6	9-8	8-2	9-7	9-3	11-3	10-5	11-7	11-3	11-10	9-3	10-3	10-6	10-6
Sex	f	f	f	m	f	m	f	m	f	m	f	f	m	m
Village or town	v	v	t	v	v	t	t	t	t	t	t	v	t	v
Father's education	10	10	10	10	12	12	15	12	15	15	12	9	9	10
Profession	F	F	F	F	F	P	P	P	P	P	P	U	U	U
No. of children	4	2	2	5	5	3	5	2	2	4	4	4	4	4
Digit Span	11	8	6	12	8	15	14	14	12	10	8	11	8	8
Picture Completion	11	14	13	15	8	12	13	12	8	16	10	11	9	13
Picture Arrangement	9	9	8	13	7	7	10	9	8	11	7	5	5	9
Block Design	10	9	13	11	13	11	17	12	12	15	14	8	13	14
Object Assembly	11	11	14	17	7	12	14	10	11	17	9	10	12	10
Coding	13	12	8	10	10	8	11	9	10	13	14	9	11	11
W.I.S.C. I.Q	106	107	108	122	93	100	121	103	99	131	106	86	100	110
Matrices score	20	23	19	29	25	—	33			—	26	24	26	24
Matrices I.Q.	100	96	102	112	107	—	124			—	110	100	100	90
Teacher's assessment	105	110	90	113	98	119	115	103	112	131	115	95	90	93

SAMPLE

SCORES

	28	29	30	31	32	33	34	35	36	37	38	39	40	41
	*+			*+	+	*+	*+	*+	*+		*+		+	+
Sl. No.	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Age in years and months	10-3	11-2	11-8	11-2	11-1	11-6	11-7	11-0	11-10	11-5	11-10	11-9	11-9	11-9
Sex	m	m	f	f	f	f	f	f	m	m	m	f	m	f
Village or town	t	t	t	t	t	t	t	t	t	t	t	t	t	t
Father's education	10	9	10	10	12	10	12	10	10	10	10	10	10	12
Profession	U	U	C	C	C	C	C	C	C	C	C	C	Sk	Sk
No. of children	7	3	2	4	2	2	1	2	5	2	2	1	3	2
Digit Span	14	9	10	12	15	12	12	12	7	12	15	9	10	12
Picture Completion	9	7	7	7	8	5	10	7	10	9	14	9	6	12
Picture Arrangement	9	5	4	12	10	14	7	8	14	6	7	8	13	12
Block Design	12	5	12	11	11	15	11	10	15	7	10	7	14	9
Object Assembly	10	6	9	9	9	11	15	12	16	10	9	8	8	15
Coding	13	5	8	9	9	10	12	10	13	7	11	8	11	9
W.I.S.C. I.Q.	104	69	86	97	97	107	107	96	125	85	101	86	103	110
Matrices score	24	–	–	–	–	–	–	–	–	–	–	–	–	–
Matrices I.Q.	100	–	–	90	–	–	–	–	–	–	–	–	–	–
Teacher's assessment	100	75	75	95	95	117	103	118	108	98	120	92	118	100

SCORES

Sl. No.	Age in years and months	Sex	Village or town	Father's education	Profession	No. of children	Digit Span	Picture Completion	Picture Arrangement	Block Design	Object Assembly	Coding	W.I.S.C. I.Q.	Matrices Score	Matrices I.Q.	Teacher's assessment
42 +	11-8	f	t	12	Sk	2	10	10	9	11	9	9	98	–	–	96
43	11-1	m	t	10	Sk		16	10	11	13	15	11	114	–	–	120
44 +	11-5	f	t	10	Sk	1	12	5	12	10	14	10	101	–	–	104
45 +	11-9	f	t	12	Sk	5	10	8	7	14	11	12	102	–	–	106
46 +	11-3	f	t	10	Sk	2	10	9	6	12	13	10	100	–	–	95
47 +	11-0	m	t	12	Sk	2	5	10	8	13	14	9	106	32	112	115
48	10-11	m	t	10	Sk	2	15	11	8	15	14	10	111	30	106	118
49 +	11-5	m	t	12	Sk	3	9	4	11	12	16	14	124	–	–	115
50 +	11-4	m	t	12	Sk	1	12	8	9	12	12	9	100	–	–	108
51 *+	11-1	m	t	10	Sk	5	10	12	15	12	8	5	108	–	–	105
52	11-8	m	t	10	Sk	3	9	14	7	9	12	9	96	–	–	102
53	10-0	f	t	10	Sk	2	12	9	5	12	11	8	93	26	103	100
54	10-3	f	t	10	Sk	4	10	9	4	9	8	8	83	17	76	85
55	10-2	m	t	10	Sk	2	12	7	9	12	10	10	97	31	119	116

SAMPLES — SCORES

	56	57	58	59	60	61	62	63	64	65	66
	*+	*+	+	+	+	*+	*+				
Sl.No.	56	57	58	59	60	61	62	63	64	65	66
Age in years and months	10-9	10-1	10-5	9-2	11-10	10-9	11-10	10-7	10-0	9-10	10-7
Sex	m	m	m	f	m	f	m	m	m	f	m
Village or town	t	t	t	t	t	t	t	t	t	t	t
Father's Education	10	10	12	10	10	9	10	12	10	9	10
Profession	Sk	Sk	Sk	M	F	DR	M	M	M	DR	DR
No. of children	9	4	2	4	3	4	2	2	1	3	5
Digit Span	11	11	11	10	7	14	12	9	9	13	8
Picture Completion	11	10	13	14	12	18	13	10	9	15	9
Picture Arrangement	13	11	12	13	11	11	12	8	10	12	7
Block Design	14	11	10	19	5	17	11	10	10	13	8
Object Assembly	16	11	11	10	4	13	12	8	13	14	6
Coding	12	12	10	11	11	11	11	8	13	9	9
W.I.S.C. I.Q.	122	107	108	124	90	128	113	92	107	118	85
Matrices score	32	33	26	32	—	36	—	30	27	30	20
Matrices I.Q.	123	125	100	130	—	145	—	116	107	116	81
Teacher's assessment	97	95	115	100	97	120	110	92	113	95	85

ENGLISH CHILDREN
SAMPLE - SUMMARY

Number of Children	66
a) boys	34
b) girls	32
Age (average)	10yr 5m
School attended	
a) town	48
b) village	18
Fathers' Education (average)	10yr 5m
Professions	
a) Farming (F)	17
b) Teaching (T)	8
c) Clerical (6)	10
d) Skilled (Sk)	19
e) Unskilled (U)	5
f) Transport (DR)	3
g) Shopkeeping (M)	4
Number of children per family	
(average	3.0

SCORES

	D.S.	P.C.	P.A.	B.D.	O.A.	C.	WISC IQ	Matrices IQ
Range	5–16	4–18	4–17	5–19	4–18	5–14	69–131	76–145
Mean	10.44	10.44	9.30	11.38	11.26	9.96	103.27	105.5
Median	12	10	7	10/12	11	10	106/107	100
S.D.	2.77	2.72	2.83	2.58	2.62	1.87	12.45	15.67
							n=66	n=38

PERCENTAGE FREQUENCIES FOR W.I.S.C. AND MATRICES

Classes	W. I. S. C.		Matrices	
	no	%f	no	%f
150–154			–	
145–149			1	2.6
14o–144			–	
135–139	–		–	
130–134	1	1.5	2	5.3
125–129	2	3.0	2	5.3
120–124	6	9.1	2	5.3
115–119	2	3.0	4	10.5
110–114	6	9.1	3	7.9
105–109	13	19.7	4	10.5
1o0–104	10	15.1	9	23.7
95–99	12	18.2	2	5.3
90–94	7	10.6	3	7.9
85–89	5	7.6	2	5.3
80–84	1	1.5	3	7.9
75–79	–		1	2.6
70–74	–		–	
65–69	1	1.5		
60–64	–			

ENGLISH CHILDREN

A- WISC
B- Matrices

A-
A-B

IQ

SCORES

Ones marked * figure in the Analysis of Variance

Ones marked + are born in U.K.

The serial numbers for the early arrivals correspond to the ones used in Table 6 Appendix 1

Table 5.

		EARLY ARRIVALS										ENGLISH CHILDREN								
	Sl.No.	D.S.	P.C.	P.A.	B.D.	O.A.	C	W.I.S.C I.Q.	Mat. I.Q.	Tchr's Assess.	D.S.	P.C.	P.A.	B.D.	O.A.	C	W.I.S.C I.Q.	Mat. I.Q.	Tchr's Assess.
+*	1	15	9	5	12	9	10	93	103	110	* 13	11	11	12	10	13	106	100	100
+*	2	13	6	6	10	7	8	82	105	95	* 9	11	14	13	14	9	115	93	98
*	3	8	9	7	11	7	9	90	100	100	* 11	11	9	10	11	13	106	100	105
*	4	9	10	9	9	9	9	94	106		* 8	14	9	9	11	12	107	96	110
+*	5	7	12	11	9	8	7	99	105	115	* 14	18	11	17	13	11	128	145	120
+*	6	8	14	7	12	7	4	92	119	96	* 6	11	11	7	18	7	106	96	90
+	7	8	10	5	12	6	6	85	77	77	* 11	11	17	13	13	10	120	128	113
+*	8	10	10	7	10	10	6	96	110		* 7	15	11	13	14	7	114	133	95
*	9	8	11	10	14	14	10	118	107	125	6	13	8	13	14	8	108	102	90
*	10	15	18	11	11	12	11	118	116	139	15	12	7	11	12	8	100	-	119
+*	11	5	11	7	9	9	8	92	96	93	* 14	12	9	12	10	9	103	96	103
	12	8	11	8	8	9	6	89	107	102	* 8	10	7	14	9	14	106	110	115
*	13	16	18	11	12	12	13	124	124	132	* 12	15	13	11	17	10	122	112	113

Cont'd.

	Sl.No.	D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C. I.Q.	Mat. I.Q.	Tchr's. Assess.
*	14	9	9	9	11	13	13	108	103	135
	15	8	10	10	11	10	10	90	84	102
+*	16	12	14	7	12	9	8	104	81	106
+*	17	14	13	7	7	6	11	96	110	112
*	18	9	14	8	12	10	8	104	86	97
	19	9	13	12	10	9	9	92	102	103
*	20	11	9	9	7	10	9	96	96	95
*	21	11	11	8	9	8	11	94	107	95
+	22	11	9	11	10	8	11	99	78	125
	23	7	7	8	7	12	8	89	-	112
+	24	12	11	6	11	10	10	97	76	97
	25	14	10	11	10	10	11	103	124	103
	26	7	8	6	10	10	5	85	94	90
+	27	12	11	7	11	11	17	110	124	140
	28	12	14	14	8	15	10	115	-	105
+	29	10	14	12	13	11	12	113	107	112
	30	15	11	14	6	8	9	97	84	89
	31	12	13	12	15	14	9	118	106	98
*	32	15	9	7	16	11	15	111	107	118

	D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C. I.Q.	Mat. I.Q.	Tchr's. Assess.
*	10	16	11	15	17	13	131	-	131
*	12	7	12	11	9	9	97	-	95
	15	8	10	11	9	9	97	-	95
*	12	7	7	15	11	10	107	-	103
*	15	10	14	15	15	12	96	-	117
*	12	5	7	11	11	10	107	-	118
	12	7	8	10	12	13	125	-	108
*	7	10	14	10	9	11	101	-	120
	15	14	7	9	15	9	110	-	100
	12	12	12	11	9	9	98	-	96
	10	10	12	10	14	10	101	-	104
	12	5	7	14	11	12	102	-	106
	10	6	13	14	8	11	103	-	118
	16	10	11	13	15	11	114	-	120
	10	9	6	12	13	10	100	-	95
	5	10	8	13	14	9	106	112	115
	9	4	11	12	16	14	124	-	115
	12	8	9	12	12	9	100	-	108
*	10	12	15	12	12	8	108	-	105

Mark	Sl.No.	D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C. I.Q.	Mat. I.Q.	Tchr's. Assess.
+*	33	9	12	13	14	17	14	128	—	114
+*	34	13	12	8	8	11	11	100	103	100
+	35	13	14	11	13	11	5	103	105	102
	36	5	8	8	5	6	8	79	—	105
	37	7	10	7	9	10	9	93	100	100
	38	7	11	10	12	12	7	103	113	95
	39	7	9	6	5	8	6	78	—	98
*	40	11	9	9	12	6	7	90	95	95
*	41	9	9	9	12	8	8	94	93	115
*	42	13	10	8	12	10	9	99	105	100
*	43	10	9	10	13	10	7	99	105	95

Mark	Sl.No.	D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C. I.Q.	Mat. I.Q.	Tchr's Assess.
*	33	11	11	13	14	16	12	122	123	97
*	34	11	10	11	11	11	12	107	125	95
	35	11	13	12	10	11	10	108	100	115
	36	7	12	11	5	4	11	90	—	97
	37	10	14	13	19	10	11	124	130	100
	38	9	9	10	10	13	13	107	107	113
*	39	11	11	5	8	10	9	86	100	95
*	40	8	9	5	13	12	11	100	100	90
*	41	8	13	9	14	10	11	110	90	93
*	42	14	9	9	12	10	13	104	100	100
*	43	12	13	12	11	12	11	113	—	110

Table 6.

(ones marked * are compared with recent arrivals; they are also in the Analysis of Variance. Ones marked + were born in U.K.)

EARLY ARRIVALS

	Sl. No	Age (year and month)	Sex	Country	Village or town	Religion	Language	Father's stay in U.K.	Child's stay in U.K.	Father's Education	Father's Prof. in India	Father's Prof. here	No. of moves	Degree of English	No. of children	Friends	Child's att. in U.K. schools
+*	1	10-4	f	I	v	S	P	13yr	10-4	10	F	U	1	Both	2	Ind	5yr 4m
+*	2	8-6	f	I	v	S	P	9yr	8-6	0	F	U	1	Ind	7	Ind	3yr 6m
*	3	10-9	f	I	v	S	P	5yr	5-0	10	F	U	1	Ind	3	Ind	4yr 9m
*	4	10-4	f	I	v	S	P	11yr	9-0	0	F	U	2	Both	3	Both	5yr
+*	5	8-1	f	I	v	S	P	15yr	8-1	0	F	U	1	Ind	4	Ind	3yr
+*	6	10-0	m	I	v	S	P	12yr	10-0	11	F	U	1	Both	4	Ind	5yr
+	7	10-0	m	I	v	S	P	15yr	10-0	11	F	U	1	Both	3	Eng	5yr
+*	8	10-0	m	I	v	S	P	13yr	10-0	12	F	U	2	Both	7	Eng	5yr
*	9	9-2	m	I	v	S	P	7yr	7-0	0	F	U	1	Ind	2	Eng	4yr 2m
*	10	10-11	f	I	t	H	K	7yr	7-0	14	T	T	3	Eng	3	Eng	5yr 11m
+*	11	9-7	f	I	v	H	G	15yr	9-7	11	T	Sk	3	Both	4	Both	4yr 7m
*	12	10-3	f	I	v	H	P	5yr 2m	5-2	14	T	U	2	Both	5	Eng	5yr 2m
*	13	9-9	m	I	t	H	K	7yr	7-0	14	T	T	1	Eng	3	Eng	4yr 9m
*	14	10-5	m	I	t	S	P	10yr	9-0	14	T	Sk	1	Both	2	Eng	5yr 5m

	Sl.No.	Age (years and months)	Sex	Country	Village or town	Religion	Language	Father's stay in U.K.	Child's stay in U.K.	Father's Education	Father's prof. in India	Father's prof. here	No. of moves	Degree of English	No. of children	Friends	Child's att. in U.K. schools
	15	9-0	f	I	t	C	E	8yr	8-0	14	C	C	1	Eng	8	Eng	4yr
*+	16	9-5	f	I	t	C	E	14yr	9-5	14	C	C	2	Eng	4	Eng	4yr 5m
*+	17	8-2	f	I	t	C	B	10yr	8-2	14	C	Acc	1	Eng	4	Eng	3yr 2m
*	18	10-7	f	I	t	H	B	10yr	10-0	14	C	Acc	2	Eng	4	Eng	5yr 7m
	19	11-0	m	I	t	C	E	5yr	5-0	14	C	T	1	Eng	3	Eng	5yr
*	20	8-10	f	I	t	C	H	6yr	6-0	14	C	U	1	Eng	3	Eng	3yr 10m
+	21	10-3	f	I	t	C	E	6yr	6-0	12	C	U	1	Eng	3	Eng	3yr 3m
+	22	8-0	f	I	t	H	H	10yr	8-0	14	Sk	Sk	1	Eng	2	Eng	5yr
	23	11-5	f	I	v	S	P	7yr	5-0	10	Sk	Sk	1	Both	4	Eng	5yr
+	24	9-4	f	P	t	C	E	15yr	9-4	13	Sk	Sk	1	Eng	4	Ind	4yr 4m
	25	8-7	f	I	t	C	E	6yr	6-0	12	Sk	U	1	Eng	4	Ind	3yr 7m
	26	8-9	m	I	v	S	P	7yr	5-0	10	Sk	Sk	1	Both	4	Eng	3yr 9m
+	27	10-7	m	I	t	H	P	11yr	10-7	14	Sk	Sk	4	Eng	2	Eng	5yr 7m
	28	11-3	m	I	t	C	E	6yr	6-0	12	Sk	U	1	Eng	4	Eng	6yr
+	29	9-6	m	I	t	C	E	15yr	9-6	14	Sk	Sk	1	Eng	3	Eng	4yr 6m
	30	10-7	m	I	t	C	E	9yr 4m	9-4	14	Sk	Sk	1	Eng	5	Eng	5yr 7m
	31	10-5	m	I	t	C	E	8yr 9m	8-9	14	Sk	Sk	1	Eng	5	Eng	5yr 5m

	32	33	34	35	36	37	38	39	40	41	42	43
Marker	*	*+	*+					*	*	*	*	*
Sl. No.	32	33	34	35	36	37	38	39	40	41	42	43
Age (years and months)	9-5	11-4	8-9	9-1	11-2	8-6	8-8	11-2	10-5	10-11	9-9	9-2
Sex	m	m	m	m	f	m	m	m	f	m	m	m
Country	I	C	I	I	I	I	I	I	I	I	I	I
Village or Town	t	t	t	t	v	t	v	v	v	v	t	t
Religion	H	H	C	H	S	S	S	S	S	S	S	S
Language	B	TL	H	H	C	P	P	P	P	P	P	P
Father's stay in U.K.	6yr 9m	12yr	9yr	15yr	9yr	6yr	9yr	5yr	7yr	8yr	10yr	8yr
Child's stay in U.K.	6-9	11-4	8-9	9-1	6-0	6-0	6-0	5-0	7-0	5-1	5-0	8-0
Father's education	13	14	13	14	10	12	10	12	10	10	5	11
Father's prof. in India	Sk	Sk	Sk	Sk	M	M	M	U	U	U	U	DR
Father's prof. here	Sk	Sk	Sk	Sk	Sk	U	Sk	Sk	U	U	U	U
No. of moves	2	1	1	1	1	1		5	1	1	1	3
Degree of English	Eng	Eng	Both	Eng	Both	Ind	Both	Ind	Both	Ind	Ind	Ind
No. of children	3	3	2	5	6	4	6	4	4	5	3	3
Friends	Eng	Eng	Both	Eng	Both	Eng	Both	Eng	Ind	Both	Ind	Eng
Child's att. in U.K. schools	4yr 5m	6yr 4m	3yr 9m	4yr	6yr	3yr 6m	3yr 8m	5yr	5yr 5m	5yr 1m	4yr 9m	4yr 2m

EARLY ARRIVALS
SAMPLE - SUMMARY

Country

India	(I)	41
Pakistan	(P)	1
Ceylon	(C)	1

Religion

Hindu	(H)	11
Sikh	(S)	20
Christian	(C)	12

Children joining parents	8
Children born here	16
Children coming with parents	19

Fathers changing jobs on migration	21
Fathers holding similar jobs	22

Language at home

Punjabi	(P)	23
English	(E)	9
Hindi	(H)	4
Gujerathi	(G)	1
Bengali	(B)	3
Kannada	(K)	2
Tamil	(TL)	1

Professions

	In India	Here
Farming	9	—
Teaching	5	3
Clerical	7	4
Skilled	14	17
Unskilled	4	19
Shopkeeping	3	—
Transport	1	—

RECENT ARRIVALS

TEST - RETEST COMPARISON

Average stay at the time of retest - 42 months

Average stay in English schools at the time of test - 20.3 months

Test scores are taken from Table 2, marked +

Table 7.

Sl.No.	Stay in UK in mths	TEST								Stay in UK in mths	RETEST							
		D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C. I.Q.	Mat. I.Q.		D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C. I.Q.	Mat. I.Q.
1	21	8	10	7	11	9	12	99	87	49	9	10	9	12	10	14	107	-
2	14	5	5	6	8	7	5	74	90	41	4	9	5	10	8	3	79	76
3	12	6	6	4	6	6	4	67	79	38	7	7	7	9	11	6	89	-
4	16	8	8	5	7	4	5	71	73	38	7	10	8	9	6	6	85	-
5	16	9	10	5	7	7	12	87	72	36	8	13	5	9	5	9	87	76
6	24	4	6	5	4	4	4	62	-	50	7	11	7	8	6	6	83	-
7	27	11	11	11	8	9	9	97	95	49	13	11	14	12	10	12	113	-
8	21	4	12	3	7	7	4	76	-	41	7	8	5	9	8	5	79	-
9	14	8	9	8	8	9	11	94	73	41	8	8	9	10	14	12	104	-
10	21	8	11	6	8	5	12	89	81	41	11	10	9	11	10	11	101	76
11	28	6	8	9	7	8	10	89	81	48	9	9	16	9	6	14	106	-
12	23	8	12	5	12	9	11	99	96	51	7	9	5	13	11	10	97	-

Sl.No	Stay in UK in mths	D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C. I.Q.	Mat. I.Q.
13	15	7	6	5	9	6	9	79	–
14	25	8	9	9	10	9	10	94	93
15	16	5	9	9	10	8	9	87	73
16	27	6	8	6	6	7	7	78	75
17	18	6	10	7	11	9	8	92	76
18	27	12	7	5	8	7	6	76	–
19	16	10	8	6	10	6	13	92	–
20	17	5	8	6	7	5	6	75	76
21	22	7	9	8	10	6	6	85	75
22	27	7	9	7	10	8	8	89	100
23	19	10	10	8	10	10	7	93	112

Stay in UK in mths	D.S.	P.C.	P.A.	B.D.	O.A.	C.	W.I.S.C. I.Q.	Mat. I.Q.
41	7	9	8	10	10	8	93	–
42	9	11	11	12	11	10	107	114
38	5	12	9	11	9	8	99	–
46	9	10	5	7	7	9	83	–
37	8	11	9	12	9	9	100	106
46	15	13	7	9	7	6	89	–
36	12	10	11	10	6	12	99	–
37	5	6	5	7	8	4	72	–
41	8	12	14	6	9	10	101	–
45	9	8	11	9	12	7	96	79
35	14	9	9	12	16	8	106	–

APPENDIX 2

TESTING WITH INSTRUCTIONS IN PUNJABI

9 of the children from among the recent arrivals were tested on two occasions. On the first occasion instructions were given in English and on the second in Punjabi.

The scores for the children are given below.

Instructions in English								Time Int.	Instructions in Punjabi							
DS	PC	PA	BD	OA	C	WISC	Mat		DS	PC	PA	BD	OA	C	WISC	Mat
6	6	4	6	6	4	67	79	9m	5	7	5	7	6	5	72	–
8	8	5	7	4	5	71	73	5m	8	11	5	7	10	4	82	71
11	11	11	8	9	9	97	95	5m	10	9	11	9	10	10	99	–
4	12	3	7	7	4	76	–	3m	4	10	5	7	8	3	76	–
11	11	6	8	5	12	89	81	3m	9	10	7	11	7	13	97	75
6	8	9	7	8	10	89	81	3m	8	9	11	8	9	11	97	93
5	9	7	7	8	10	87	73	5m	8	10	7	9	10	9	93	75
6	12	7	12	11	7	99	102	5m	6	10	11	13	10	8	103	104
6	10	6	11	9	8	92	76	2m	7	12	10	12	8	10	103	80

SIGNIFICANCE OF THE DIFFERENCE

Measure	D.S.	P.C,	P.A.	B.D.	O.A.	C.	Wisc.	Mat.
Sandler's A	5.0	27.0	0.214	0.180	0.404	0.75	0.149	1.33
Significance	N.S.	N.S.	0.02	0.01	N.S.	N.S.	0.01	N.S.

APPENDIX 3

QUESTIONNAIRE

1. What part of India do they come from ? Village or Town ?

2. What was the regional language ?

3. How many years of full-time education did the father have ?

4. Was English the medium of instruction at any stage ?

5. What job did the father hold in India ?

6. What is his present job ?

7. Religion

8. Do they practise it ?

9. Why did they decide to come to England ?

10. When did they come ?

11. How many places have they been living in before settling down in _____ ?

12. How many schools has the child attended ?

13. Who are the child's particular friends ?

                    a) English

                    b) Indian

14. Attitude towards their child mixing with English children

                    a) We encourage it

                    b) His choice of friends is his business

                    c) We do not want him to

15. What is the language used at home ?

16. How many children

17. Are all of them here ?

18. Do they want to go back to India ?

BIBLIOGRAPHY

ANASTASI, A. and FOLEY, J.P. (1949), Differential Psychology .
    Macmillan, New York.

ANASTASI, A. and CORDOVA, F.A. (1953), Some effects of bilingualism
    upon the intelligence test performance of Puerto Rican Children
    in New York City. Journal of Educational Psychology, Vol. 44. 1-19

ANASTASI, A. (1958), Differential Psychology. MacMillan, New York

ARTHUR, G. (1926), The Relation of I.Q. to position in Family.
    Journal of Educational Psychology, 17, 541 - 550.

BERRIEN, F.K. (1967), Methodological and related problems in cross-
    cultural research. International Journal of Psychology, Vol. 2,
    33-43

BERRY, J.W. (1969), On cross-cultural comparability. International
    Journal of Psychology, Vol. 4, 119-128

BIESHEUVEL, S. (1949), Psychological tests and their application to
    non-European peoples. in Jeffrey (ed): The Yearbook of Education,
    87-126. Evan Bros., London

BIESHEUVEL, S. (1952), The study of African ability. African Studies,
    11. 45-58, 105-117

BIESHEUVEL, S. (1958), Objectives and methods of African psychological
    research. Journal of Social Psychology, Vol 47, 161-168

BIESHEUVEL, S. (1969), Methods for measuring Psychological performance. IBP Handbook, No. 10, Blackwell Scientific Publications, Oxford and Edinburgh

BINET, A. (1909) : See Hunt (1961)

BLOOM, B.S. (1969), Letter to the editor. Harvard Educational Review, 39, 419-421

BOAS, F. (1904) : see Segall, Campbell, Herskovits (1966)

BODMER, W.F. and CAVALLI - Sforza, L.L. (1970), Intelligence and Race. Scientific American, Vol. 223, No. 4, 19-30

BRAZZIEL, W.F. (1969), A letter from the South. Harvard Educational Review, Vol. 39, No. 2, 348-356

BROWN, F. (1944), An experimental and critical study of the intelligence of Negro and White Kindergarten Children. Journal of Genetic Psychology. Vol. 65, 161-175

BRUNER, J.S. (1965), The growth of mind. American Psychologist, 20, 1007-1017

BRUNER, J.S. (1966), see Greenfield and Bruner.

BURKE, H.R. (1958), R.P.M: A review of and Critical Evaluation. Journal of Genetic Psychology, 93, 199-228

CANADY,H.G.(1936), The effect of 'rapport' on the I.Q: A new approach to the problem of racial psychology. Journal of Negro Education, Vol. 5. 209-219

COLEMAN, J.S. (1966), et al, Equality of educational opportunity. U.S.
Dept. of Health, Education and Welfare. Government Printing
Office, Washington

CROW, J.F. (1969), Genetic Theories and Influences. Harvard Educat-
ional Review, Vol. 39, No. 2, 301 - 309

DARCY, N.T. (1963), Bilingualism and the measurement of intelligence:
review of a decade of research. Journal of Genetic Psychology,
Vol. 103, 259 - 282

DEAKIN, N. (1969), Colour Citizenship and British Society. Panther
Modern Society

DENNIS, W. (1942), The performance of Hopi Indian Children on the
Goodenough Draw-a-man Test. Journal of Comparative Psychology,
34, 341-348

DENNIS, W. (1960), The human figure drawings of Bedouins. Journal of
Social Psychology, 52, 209-219

DEUTSCH, M. (1965), The role of social class on language development
and cognition. American Journal of Orthopsychiatry, Vol. 35, 78-88

DEUTSCH, M. (1969), Happenings on the Way back to the Forum: Social
Science, I.Q. and Race Differences Revisited. Harvard Educational
Review, Vol 39, No. 3, 523-557

DEVEREUX, E.C., BRONFENBRENNER, U., SUCI, G.H., (1962), Patterns of
parent behaviour in the U.S.A. and the Federal Republic of Germany:
a cross-national comparison. International Social Science Journal,
Vol. 14, 488-506

DOOB (1960), Becoming More Civilised. Yale University Press: New Haven

DREGER, R.M. and MILLER, K.S. (1960), Comparative psychological studies
of Negroes and Whites in the United States: 1959-1965. Psycholog-
ical Bulletin, Vol. 57, 361-402

DREGER, R.M. and MILLER, K.S. (1968), Comparative psychological studies
of Negroes and Whites in the United States: 1959-1965. Psycholog-
ical Bulletin, (Monograph Supplement 70. No. 3, Part 2)

EYSENCK, H.J. (1967), Intelligence Assessment: A theoretical and
Experimental Approach. British Journal of Educational Psychology,
37, 81-98

FAVERGE, J.M. and FALMAGNE, J.C. (1962), On the interpretation of data in
intercultural psychology. Psychologica Africana. Vol. 9, 22-36

FEINGOLD, G.A. (1924), Intelligence of the first generation of Immigrant
groups. Journal of Educational Psychology, 15, 65-82

FERGUSON, G.A. (1956), On transfer and the abilities of man. Canadian
Journal of Psychology, Vol. 10, 121-131

FEUERSTEIN, R. and SHALOM, H. (1967), Problems of assessment and
evaluation of the mentally retarded and culturally deprived child
and adolescent. The learning potential assessment device. Paper
presented at the First Congress of the International Association
for the Scientific Study of Mental Deficiency, Montpellier, France,
Symposium No. 8.

FOLEY, J.P. (1935), The comparative approach to psychological phenomena.
Psychological Review, 42, 480 - 490

FRIJDA, N. and JAHODA, G. (1966), On the scope and methods of cross-cultural research. International Journal of Psychology, Vol. 1, 110-27

GARTH, T.R. (1935), A study of the foster Indian child in the White home. Psychological Bulletin. Vol. 32, 708-709

GOLDSCHMIDT, W.R. (1966), Comparative Functionalism : An essay in anthropological theory, University of California Press, Berkeley

GOODENOUGH, F.L. and HARRIS, D.B. (1950), Studies in the psychology of Children's Drawings: II 1928-1949. Psychological Bulletin 47, 369-433

GORDON, H. (1923), Mental and Scholastic Tests among Retarded Children. London: H.M.S.O., Board of Education Pamphlet, 44

GREENFIELD, P.M. and BRUNER, J.S. (1966), Culture and Cognitive Growth. International Journal of Psychology, Vol. 1. No. 2, 89-107

HAVINGHURST, R.J. GUNTHER, M.K. and PRATT, I.E. (1946), Environment and the Draw-a-man Test: the performance of Indian children. Journal of Abnormal and Social Psychology, 41, 50-63

HAYNES, J.M. (1971), Educational Assessment of Immigrant Pupils. National Foundation of Educational Research, London

HEBB, D.O. (1949), The Organisation of Behaviour. John Wiley & Sons, New York

HIGGINS, C. and SIVERS, C.H. (1958), A comparison of Stanford-Binet and Coloured Raven's Progressive Matrices I.Qs. for children with low socio-economic status. Journal of Consulting Psychology, 22. 465-468

HOLTZMAN, W.H. (1968), Cross-cultural studies in Psychology. _Inter_ - _national Journal of Psychology_, Vol. 3, No. 2, 83-91

HUDSON, A.O.H., ROBERTS, C.D., VAN HEERDEN and MBAU, G.G. (1962), The usefulness of performance tests for the selection and classi- fication of Bantu Industrial Workers. _Psychologica Africana_, Vol. 9, 189-203

HUNT, J.McV. (1961), _Intelligence and Experience_. Ronald Press, New York.

HUNT, J.McV. (1969), Has Compensatory Education Failed ? Has it been Attempted ? , _Harvard Educational Review_, Vol. 39, No. 2, 278-300

INNER LONDON EDUCATION AUTHORITY (1967), I.L.E.A., 657 (The Guardian March 3rd, 1971).

INNER LONDON EDUCATION AUTHORITY (1966), _The Education of Immigrant Pupils in Primary Schools._ I.L.E.A. Report 959, London

IRVINE, S.H. (1966), Towards a rationale for testing attainments and abilities in Africa. _British Journal of Educational Psychology_, 36, 24-32

IRVINE, S.H. (1969), Factor analysis of African abilities. _Psychological Bulletin_, Vol. 71, 20-32

JAHODA, G. (1956), Assessment of abstract behaviour in a non-western culture. _Journal of Abnormal and Social Psychology_, Vol. 53, 237-243

JENSEN, A.R. (1969), How much can we boost I.Q. and scholastic achieve- ment ? _Harvard Educational Review._ Vol. 39, No. 1, 1-123

JONES, H.G. (1956), Comments on "The Validity and Interchangeability of Terman-Merrill and Matrices Test Data", British Journal of Educational Psychology, Vol. 26, Page 141

KAMAT, V.V. (1939), Sex Differences Among Indian Children. British Journal of Educational Psychology, 9, 251-256

KATZ, I. (1967), Some motivational determinants of racial difference in Intellectual achievement. International Journal of Psychology, Vol. 2., No. 1, 1-12

KLINEBERG, O. (1928), An experimental study of speed and other factors in 'racial' differences. Arch. Psy. No. 93

KLINEBERG, O. (1935), Negro Intelligence and Selective Migration. Columbia Uni. Press, New York

KLINEBERG, O. (1958), Race and Psychology. U.N.E.S.C.O. Paris

KLINGELHOFER, E.L. (1967), Performance of Tanzania Secondary school pupils on Raven's Standard Progressive Matrices Test. Journal of Social Psychology, 72, 205-215

KLUCKHOHN, C. (1953), Universal categories of culture. In Kroeber, A.L. (ed), Anthropology Today, Uni. Chicago Press, Chicago

KROEBER, A.L. (1923), Anthropology. Harcourt Brace, New York.

LEE, E.S. (1951), Negro Intelligence and Selective Migration: a Philadelphia test of the Klineberg Hypothesis. American Social Review, 56, 227-233

LEWIS, D.G. (1959), Bilingualism and non-verbal intelligence: a further study of test results. British Journal of Educational Psychology, Vol. 29, 17-22

LONG, H.H. (1934), The intelligence of coloured elementary pupils in Washington. Journal of Negro Education, 34, 205-222

MACARTHUR, R.S. (1968), Some differential abilities of Northern Canadian native youth. International Journal of Psychology, Vol. 3. No 1. 43-51

MALINOWSKI, B. : see Goldschmidt (1966).

MANN, C.W. (1940), Mental measurements in primitive communities. Psychological Bulletin, Vol. 37, 366-395

McCORD, W.M. and DEMEARTH, N.J. (1958), Negro versus White intelligence: A continuing controversy. Harvard Educational Review, 28, 120-135

McFIE, J. (1961), The effect of education on African performance on a group of intelligence tests. British Journal of Educational Psychology, 31, 3, 232-40

McFIE, J. and THOMPSON, J.A. (1970), Intellectual Abilities of Immigrant Children. Research Notes British Journal of Educational Psychology, 40, 348-351

MEAD, M. (1943), Coming-of-age in Samoa. Penguin Books Ltd. London.

MILL, J.S. See Klineberg, 1958.

MILLER, D.R., GALANTER, E., and PRIBRAM, K.H. (1960), Plan and the Structure of Behaviour. Holt, Rinehart and Winston, New York.

OMBREDANE, A. (1951), Principes pour une étude psychologique des noirs du Congo Belge. L'Année Psychologique, 50, 521-547

OMBREDANE, A. (1957), Etude du problème psychologique posé par les Noirs Congolais. Review de l'Université de Bruxelles.

ORTAR, C.R. (1960), Improving test validity by coaching. Educational Research, Vol. 2,3, 137-142

ORTAR, C.R. (1963), Is a verbal test cross-cultural ? Scripta Hierosolymitana (Publications of the Hebrew University), 13, 219-235

PASSAMANICK, B. and KNOBLOCK, H. (1955), Early language behaviour in Negro children and the testing of intelligence. Journal of Abnormal and Social Psychology, Vol. 50, 401-402

PINTNER (1931), Intelligence Testing: Methods and Results. Henry Holt, New York.

PLOWDEN REPORT (1957), Children and Their Primary Schools. Her Majesty's Stationery Office, Vol. 1.

PORTEUS, S.D. (1931), The Psychology of a Primitive People. Longmans, New York.

PRESSEY, S.L. and ROBINSON, F.P. (1933), Psychology and the New Education. Harper and Bros. New York

PRICE-WILLIAMS, D.R. (1961), A study concerning concepts of conservation of quantities among primitive children. Acta Psychologica, Vol. 18, 297-305

PRICE-WILLIAMS, D.R. (1969), in the introduction to Cross-cultural
        studies. Penguin Modern Psychology Readings

RAMPHAL, C. (1962), A study of Three Current Problems of Indian
        Education. University of Natal: Ph.D. Thesis (unpublished)

RIVERS, W.H.R. (1905), Observations on the senses of the Todas.
        British Journal of Psychology, Vol. 1, 321-96

ROHRER, J.H. (1942), The test intelligence of Osage Indians. Journal
        of Social Psychology, 16, 99-105

SCHWARZ, P.A. (1963), Adapting tests to cultural setting. Educational
        and Psychological Measurement. Vol. 23, 673-686

SEGALL, M.H., CAMPBELL, D.I., KERSKOVITS, M.J., (1963), Cultural
        difference in the perception of geometric illusions. Science,
        Vol. 139. 769-771

SEGALL, M.H., CAMPBELL, D.I., KERSKOVITS, M.J. (1966), The influence
        of culture on perception. Bobbs-Merrill

SHUEY, A.M. (1966), The Testing of Negro Intelligence. (2nd Ed.),
        Social Science Press, New York

STINCHCOMBE, A.L. (1969), Environment: The Cumulation Of Effects Is
        Yet To Be Understood. Harvard Educational Review. Vol. 39. No. 3,
        511-522

STRAUSS, M.A. (1954), Subcultural variation in Ceylonese mental ability:
        a study in national character. Journal of Social Psychology, 39,
        129-141

STRODTBECK, F. (1964), Considerations of meta-method in cross-cultural
        studies. American Anthropologist, Vol. 66, 223-9

The First Mental Measurement Handbook for India (1966), National
    Council of Educational Research and Training, New Delhi.

VERNON, P.E. (1964), Personality Assessment - a Critical Survey.
    Methuen, London

VERNON, P.E. (1965a), Environmental handicaps and intellectual
    development. part 1, British Journal of Educational Psychology,
    Vol. 35, 1-22

VERNON, P.E. (1965b), Ability factors and environmental Influences.
    American Psychologist, Vol. 20, 723-733

VERNON, P.E. (1968), What is potential ability ? Bulletin of the
    British Psychological Society, Vol. 21, No. 73, 211-219

VERNON, P.E. (1969), Intelligence and Cultural Environment. Methuen,
    London.

WESMAN, A.G. (1967), Intelligence testing. Presidential address to Div.
    5 at the meeting of the American Psychological Association. Sept. 67

WHITING, J.W.M. (1953), Child Training and Personality: A cross-cultural
    study. Yale University Press.

WHITING, J.W.M. (1954), The cross-cultural method. In G. Lindzey (ed)
    Handbook of Social Psychology, Vol. 1, Addison Wesley. Cambridge

WOBER, M. (1967) Notes on administering psychological tests in Africa.
    Bulletin of the British Psychological Society, Vol. 20. No. 68, 25-34