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The acquisitions of cognitive skills as a function of a television programme

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in addition to previous levels of aggression age is a determining factor in the learning of aggressive responses to violent television. It thus seems that the socialised controls of younger children are not sufficiently strong to prevent their indulging in violent behaviours, whereas those controls of older children are stronger.

Stein et al (1972 b) found that lower class children learnt far more about co-operation than middle class children. The researchers postulated that lower class children had little experience in prosocial behaviour and so found the behaviour novel and consequently rewarding. Novelty is noted (Schramm et al 1961 Feshback and Singer 1971) as the factor which attracts and maintains attention on the media and this is the reason why younger, less well experienced children will learn most from television. According to Kniveton (1976) very young children cannot tell reality from fantasy and are thus influenced as much by television as by all the new things around them. As they grow older they realise that much television is fantasy and they become less influenced by it. The amount of identification that occurs with specific characters, influences the amount of learning to take place. A child will effectively store up the opinions and attitudes of these characters for future use in the same way as he stores up the opinions, and attitudes of parents, teachers and peers.

Thus to sum up, Kniveton (1976) suggests that children who are limited in their opportunities for getting experience in life will turn to television as a source. This applies to non-aggressive behaviour as much as to aggressive behaviour. Feshbach and Singer (1971) note that normally aggressive children have little to learn from aggressive television. Schramm et al (1961) found that children who were likely to learn from

television had limited environmental experiences. The child living in a city flat, will be unlikely to know of the existence of rural features like cows, chickens and so on, if he cannot read, or has not been taken to the country by his parents. But as children grow older, they have alternative means of gaining information, and so television becomes less important as a source of information. The older child, or the upper class child with greater life experience acquires "bits" of information "incidentally" from television, whilst the younger or lower class child, with less experience, absorbs and learns all that television can offer.

3.2.8 Evaluation of Social Learning Theory:

In evaluating social learning theory and its relevance to television research the present author considers that observational learning, modelling, inhibition and disinhibition are powerful and valid processes in teaching the viewer new behaviours and this is borne out by many studies in the literature (Bandura & Walter 1963; Bandura & Mischel 1965, Kniveton 1976).

As Noble (1975) notes children emulate models on television in the absence of live models and use television to define real life situations. It also appears that for social learning to be effective the characteristics of the model are important. Reference has already been made to the study of Von Feilitzen (1976) that television is an attractive and rewarding model and thus it is submitted that television optimises observational learning.

However, social learning theory may be criticised for its total concern with environmental teaching mechanisms whilst it does not explain

internal thinking processes. For example, Bandura (1971) suggests that a minimum of cognitive development is necessary for the viewer to imitate a model's behaviour, yet he does not explain how these cognitive functions are acquired or developed or how they relate to the environment. Nevertheless as has been noted Social learning theory is an important theory in television research.

Another major trend in television learning studies is the cognitive development model of Piaget (1952, 1962), Bruner (1966), Kohlberg (1968) and others, which takes note of the child's chronological age and proposes concomitant stages of development which incorporate cultural and environmental influences. This theory will be discussed more fully below.

3.3 Cognitive Development and Television Viewing:

Piaget (1962 b) shows how chronological age determines largely the way the child thinks and reacts to the world. Bruner's view is that culture is responsible for nurturing and shaping growth. He maintains that cognitive growth occurs as much from the outside in as from the inside out. A culture provides different motoric, sensory and reflective amplifiers which influence the childs cognitive growth. However, many of the universals of growth are also attributable to uniformities in human culture. (Bruner et al 1966).

Culture is a global term for the environment, climate, language, people and media with which the child interacts in his daily life. The effusion of television into our daily lives makes it one of the most potent

cultural amplifiers to which the child is exposed. Piaget (1926) contends that intellectual growth is propelled by disequilibrium between accommodative and assimilative processes. In other words, the child's models of the environment cannot cope with newly learned complexities of that environment. A stage of conflict arises until the child settles on a new strategy to cope with the new information.

Cognitive growth begins at the stage of sensory motor experience according to Piaget (1950) during which the child becomes aware of the permanence of an object in that it can be moved from place to place, or hidden from sight but still continue to have existence (Lavatelli 1966). Through the process of assimilation and accommodation, the child builds schemas which he combines and co-ordinates to come up with fresh solutions to problems. Toward the end of the period (18 months) he develops the capacity to represent actions rather than only carry them out in motoric fashion and thought is characterised by perception which influences incoming sensory data in terms of the childs past experiences. He integrates new meanings into his store of knowledge or schemata.

Bruner (1964) calls this the age of iconic representation in which the child selectively organises, percepts and images to construct a "picture" of the world. During this stage and the earlier stage of enactive representation the child's thought is egocentric in nature. He conceives of himself as both the centre and the cause of all events and cannot see the world from any other view than his own (Noble 1975). The three year old experiences confusion with regard to his dreams since he believes everybody else can see them (Bruner 1966). These children live exclusively in the present and incorporate television into their experience and their inner world.

The child of 7 to 11 years at the Piagetian stage of concrete operations, also lives totally in the present and is only capable of dealing with concrete problems immediately before him (Noble 1975). Only when he reaches the stage of formal operations at age 12 will he be able to use thought so that in his imagination he can live in the future and cope with the hypothetical and spatially remote (Noble 1975 p 82). The stage of concrete operations approximates Bruner's period of symbolic representation in terms of age ranges.

The forementioned developmental stages of Piaget and Bruner exert an influence on the televiewing habits of children. For purposes of the present study the stages of preoperational thought and iconic representation, concrete operations and symbolic representation shall be described more fully since the approximate age groups of these stages apply to the age groups of the study sample, namely children from 3 to 7 years of age.

3.3.1 Preoperational Thought (2 to 5 years):

According to Noble (1975) egocentrism in thought at this stage is likely to colour the childs televiewing in five distinct ways.

i) The child is unable to perceive events from any stand point other than his own (Noble 1975). He cannot differentiate between internal experiences such as dreams which he thinks everyone can see and external experiences such as television. In this way the two to five year old is likely to consider television as reality because he is not capable of imagining that people can act dramatic parts. Puppet and cartoon characters are also likely to be thought of as real and alive and having an existence independent of the screen. These

characters are friends who visit the children at night to tell them stories. Gomberg (1961) noted the response of a four-year old - "if it is on television, it is true". One child was quite sure Superman was more than just a screen character - "Superman comes to visit me all the time. He brings me presents ....." (p 89).

The six and seven year old who is gradually moving to the stage of concrete operations gains an understanding that television is not a reality and is separate from himself. Noble (1969) showed 40 children aged five, six, seven and eight years a puppet film and asked whether puppets could make pastry like they did in the film. The five-year olds responded significantly more often that the film was real and true (and that they could make pastry) than the six, seven and eight year olds (who felt that the film was not real or true) who were likely to have entered the concrete operations stage.

ii) The child at the preoperational stage seems to think in a binary way, that is, to respond in an all or nothing manner to television. A simple Piagetian task demonstrates this. When a child is asked to place a number of rods of different lengths in order from smallest to largest, he compares every rod with every other rod indicating that he has no concept of largest or smallest. In the same way children aged two to five years appear not to perceive shades of good and bad in television characters. The characters are compared with each other and emerge either all good or all bad.

In a study by Gomberg (1961), four year olds who watched a Western, responded that all the cowboys were good people whereas all the Indians except for one, were bad. Other clear cut conceptions found by Gomberg were that the good guy wears a white hat and rides a white horse while the bad man wears black and rides a black horse. More alarming was the conception that

> "all the good people have to kill the bad people - and that you can't talk to a bad guy - you must shoot him" (Noble 1975 p 85).

iii) Egocentrism in thoughts often leads the child to imagine that he or his friends are involved in the programmes. When a five year old was questioned about a Czech cartoon in which a cat attempts to steal a bird's egg, he responded "I smacked the cat" (Noble 1975 p 90). Such children seem to think that they influence the events that take place on the screen and they put themselves into the programmes alongside the characters, rather than identifying with the heroes.

iv) The child seems to classify objects and events both on and off television in unique ways. An object is defined by its location so that when a scene changes, and a character appears in a new situation smaller or larger than before, or wearing a hat perhaps, this character may be seen as a different person or puppet than the one previously seen (Noble 1975).

Gerhartz-Franck (1955) reported that some six year old children thought that the mouse hero in the British programme 'Town and Country Mouse', was a different animal in close-up than in long

shot. When in close-up, children thought they were watching a different older mouse. In the same way, when watching insect-pest films, African children had to be reassured that they did not have insects as large as those depicted in close-up shots.

v) The child's reasoning does not include reversibility of events or the ability to predict the outcome of a chain of happenings. In Piaget's (1962 b) conservation of liquids experiment, liquid poured into a long thin jug and a short fat jug respectively will not be recognised as the same amount since the child cannot mentally reverse the operation - or imagine what would happen if the liquid was poured back into the original jugs. In the same way, young televiewers who cannot reverse operations are unlikely to recall the beginning of a programme nor predict what will happen next (Noble 1975). They do not perceive that the story of a television film has a beginning, a middle and an end. Noble found that a five year old thought that a puppet programme ended at each commercial break whilst his six year old brother understood that the film only ended when "the trapped people had been rescued". (p 91).

vi) Another aspect of egocentric thought of the preoperational child, is that understanding between children occurs only where there is contact between two identical modes of thought existing in each child (Noble 1975). The two to six year old cannot find a basis in the other childs mind on which to build conversation or play unless they have common experience. Television seems to provide this common experience which increases the likelihood of co-operative, albeit stereotyped play. Noble found that children

would disjointedly discuss the events of a programme they had seen.

Children are also excellent mimics of television characters and may acquire their future models from watching television. One child hit another claiming he had a right to do so because he was Pop-Eye, the Sailors Man (Noble 1975 P 94).

3.3.2 Concrete Operations (6 to 11 years):

According to Piaget (1950) the cognitive world of the child in transition from preoperational to concrete operations, undergoes a revolution. The six year old in the stage of concrete operations organises images and thinks in new and more efficient ways which change his perception of the world. He is no longer exclusively bound to immediate problems since he can use operations in thought and mentally reverse the pouring of water in the jug experiment. However, while he can use operations in thought, he is still limited to solving concrete problems which are immediately before him (Piaget 1950).

A number of changes occur at this stage :-

i) The six year old shows comprehension of the story of the television film. The ability to retrace events seen and predict forward is a feat inaccessible to the younger child. With increasing age, plot comprehension and recall improve. Himmelweit et al (1962) found that seven to nine year olds enjoyed Westerns because they could anticipate future events and predict the ending. Noble found that while five year olds recalled about 6 incidents in a

British programme, Patrick and Putrick, six year olds recalled 11,5 incidents and seven year olds recalled an average of 12,5 incidents. Recall was clearly on the increase with increased chronological age.

ii) In addition to chronological age, mental age and social class are important determinents of the child's ability to comprehend a story fully. The higher the mental age the more easily the child will employ operations of thought, thus enhancing comprehension of film content. In a study by Noble, five year olds (still at the preoperational stage) of above average intelligence recalled only marginally more sequences in order than did average and below average preoperational thinkers. The gap between more intelligent and less intelligent children widened considerably by seven and eight years - the ages which mark the onset of concrete operations. At these ages children of above average intelligence recalled nearly twice as many sequences in order than did children of below average and averege intelligence. Similarly social class has its effects. Newson & Newson (1963) found that middle-class children, more frequently than working-class children, are encouraged to talk and reason with their mothers. It may be expected thus, that middle-class children will talk about and comprehend television films at an earlier age than working-class children.

iii) According to Piaget (1950) egocentrism increases whenever the child begins to cope with a new and untried field of cognitive action. Noble (1975) considers that the child at the beginning of this stage will be so absorbed in his new logical powers that he will

concentrate on isolated incidents rather than on the major plot development of the film. He feels that these children will not be able to see the wood for the trees. Noble notes that nine year olds seem to regress in their ability to correlate incidents with the story line. At 10 years the child improves his recall within the plot. It appears that the nine year old becomes egocentric once more as he learns how it feels to be in another person's shoes, an ability which will aid his recall of the film's story.

iv) As a result of egocentrism diminishing slowly during the concrete operations stage, children of different ages should comprehend variably the emotions, motives and feelings of film characters. The child is still at an age where he is unable to perceive events from a point of view other than his own. Only at the end of the concrete operations stage can the child take roles, or imagine himself in other's shoes. Piaget (1950) found that children aged up to and including nine years, could not visualise the other side of a scale-model mountain, whereas ten year olds could. The nine year old could still only conceive of the mountain from his own viewpoint. In the same way, nine year olds would appear to only understand the concrete physical behaviours of film performers, while ten year olds could empathise and imagine how a character would be feeling. Noble tested this aspect. In a programme in which a clown falls in love with a dancer, eight and nine year olds simply described the physical actions of the clown and dancer, while ten to twelve year olds expressed reasons as to why the two had fallen in love.

v) Yet another facet in the development of concrete operations shows the ability of ten year olds to understand that symbols in a film represent some other and less direct meaning. Bruner (1966) notes that the emergence of the symbolic operation allows the child to resist the temptation to use perceptual appearance alone. Only at age ten to twelve could children understand the symbolic representation of the changing seasons in a programme entitled "Scarecrow". Noble notes that children's programmes often win awards for employing symbolism which is not understood by the child audiences, on whose behalf, the prizes were awarded.

3.3.3 Evaluation of Cognitive Development Theory:

To sum up the stage theory of cognitive development and its relation to televiewing habits, it appears that the child at the pre-operational stage conceives of the television programme as part of his reality, believing implicitly what he sees and imagining himself as taking part in the action. He also tends to see a series of separate and fragmentary incidents rather than the whole story. The late six year old entering concrete operations seems to understand that films have a story. However, some children are capable of understanding the story of a film at an earlier age than others. It seems that middle class and more intelligent children accurately perceive and recall films at an earlier age than working class and less int lligent children (Noble 1975). Thus television is differently understood and utilised by children of various ages, intelligence levels and socio-economic levels, although as has been indicated previously it is most readily absorbed by younger less experienced children. In all cases, however, television is a potent communicator and teacher.

The present author considers that cognitive-development approach is a superior theory to the social learning theory proposed earlier in this chapter since it accounts for the external processes of the culture that affect the individual as well as internal processes such as motivation, assimilation and accommodation which are necessary for cognitive development. The relevance of this theory to television research lies in the fact that television is a potent cultural amplifier to which the child relates according to his particular stage of cognitive development. Thus the child may benefit in a different way from viewing television at the preoperational stage when egocentrism is predominant to his viewing during the concrete operations stage when he organises images, thinks and recalls in more efficient ways.

In this chapter it has been shown how the child progresses through the Piagetan and Bruner stages of cognitive development and that his televiewing changes as a result of these transitions. However, it should be remembered that there are wide variations in the ages at which the development stages are attained and that the ages noted by Noble at which particular processes occur should be regarded only as broad guidelines. It is also possible that within a particular stage the sequence of development will be upset for non-western cultures whose training habits and educational methods are quite unlike those of Western culture. Since the present study investigates a sample of Coloured preschoolers whose cultural background is African as well as Western, differences within developmental stages may occur. For example, at the preoperational stage the Coloured child may not undergo the same egocentrism as the Westernised child, and for this reason he will not respond to the television set in the ways described by Noble. However, it has been noted that although Piaget's age norms are very rough indications and variations occur

within each stage, this theory does indicate the limits, if only very broad ones to the type of thinking skills available to the child at a given point in his development. This guideline will identify whether certain television programmes will be too difficult to comprehend and whether certain television teaching techniques will be unsuitable for children below a certain age. In addition this theory may help establish the ceiling of cognitive growth for various age groups, a factor which is important for compensatory education or education which tries to raise the cognitive level of individuals from disadvantaged groups. In this way the disadvantaged individual may be brought closer to his expected potential.

3.4 Learning from Television:

In this section the theories of social learning and cognitive development are reviewed together to establish whether individuals actually learn from televiewing.

Although the early studies (Schramm, Lyle and Parker 1961) seemed to indicate that the influence of commercial television on cognitive learning was limited, more recent studies (Salomon 1972, 1974, Bandura 1972) appear to demonstrate that significant cognitive learning does occur.

According to the Social learning approach children imitate the behaviours modelled for them by television personalities and characters. They learn to be aggressive (Bandura 1972) or they learn prosocial behaviours (Bryan and Walbeck 1970) but as Lesser (1974) notes they learn by simply watching others perform and by imitating them.

According to Berlyne (1965) a protagonist of the cognitive development approach, there is little reason to assume that imitation from televised models is limited to the motor or verbal behaviours of live models. In addition as Piaget (1962) notes the imitation of operations and not only of human models occupies a rather important role in the development of intelligence. Piaget considers that imitation is interiorised and leads to the development of mental images. These images of actions, operations, sounds and so on, are not exact replicas of the observed, but are schemas of the observed which will be activated when an operation is to be performed.

According to Salomon (1974 b), Gropper (1965) and Travers (1970) learning from visual displays has been shown, not only to be possible, but also powerful. Furthermore, Salomon (1974 a) notes that in a series of his experiments (1972, 1974 b) it was found that eighty eighth grade pupils became better visualisers of transformations in space, better analysers of complex displays and less field dependent after viewing films that overtly and explicitly specified the relevant operations. Pupils who saw films that entailed zooming in on details of paintings were found subsequently to be better able to attend to cues, more sensitive to complexities and better able to absorb more information from one display.

Salomon (1974 c) found in a study on 317 Israeli preschool and early grade children who had little or no prior exposure to television and who viewed 40 Sesame Street programmes twice a week, that their viewing resulted in a gains on parts of whole, classification, field independence, ordering of pictures, points of view, figure and ground and close-up and long shots. In addition Bogatz and Ball (1971) found that after viewing Sesame Street once a week for twenty six weeks, their sample of 283

preschool children made great gains on cognitive skills similar to those mentioned in Salomons study above. Thus it appears that children learnt from both the format and the content of various television programmes.

The question which then arises is whether learning from television will take place after relatively short exposure to a television programme. Bandura, Ross and Ross (1965) have shown that 48 nursery school children imitated a Bozo Doll attack after viewing a three and a half minute colour film or cartoon of an adult attacking the Bozo Doll. On the basis of this study it appears that television learning will occur after relatively short exposure.

In a currently on-going study, Henderson et al (1975) are investigating the effectiveness of television sequences based on social learning principles in the teaching of complex rule-governed behaviours. The goal of this investigation is to identify programming procedures which will teach complex skills which Sesame Street has not been successful in teaching. At this stage of the research 20 Americans ranging in age from three to five years and living in the Papago Indian Reservation, have been shown four fifteen to twenty minute video portrayals, whilst twenty control subjects have been shown irrelevant video portrayals. Their findings at this stage are that children exposed to television models, demonstrating numerical operations, conservation behaviour, seriation behaviour, and question asking behaviour displayed greater proficiency in those skills than children in the untreated group. Although this study is not complete it appears that children can learn complex behaviours, after relatively brief exposure to the filmed modelling of such behaviours.

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In addition Henderson et al note that these results show very clearly that carefully sequenced instruction in a rule-governed intellectual skill can be taught effectively by depicting the requisite skills and rule statements through the behaviour of televised models and that the effects are maintained for a period of at least one to two weeks. Since these researchers used a preschool population of children who were relatively isolated from the direct influence of the mainstream culture, they are optimistic that similar results will be obtained with other populations of young children.

In conclusion, results from the foregoing research, indicate that learning does occur when children view television, even when their exposure to the filmed model is very brief. However, the present author considers that more research into the mechanisms of learning from television is vitally important to substantiate this claim and that caution is necessary in stating that learning occurs from television without a full understanding of the televisual learning process.

CHAPTER 4.

TEACHING VIA TELEVISION

4.1. Introduction:

In Chapter 2 it was noted that the function of entertainment was viewed as extremely important by children, although they considered that they learnt something as they watched. This concept of combining entertainment and education has not been popular in the traditional education system since the turn of the twentieth century (Gattegno 1969). According to Rogers (1969), most schools of today provide irrelevant learning as almost the only mode of instruction, standardised tests by which all students are externally evaluated and instructor chosen grades as the measure of learning. The teacher usually considers that entertainment is acceptable when it is momentary relaxation earned by diligent work, yet it is not really good for you, whilst fact orientated education is good for you although it is serious, hard and tedious (Lesser 1972).

More recently the progressive educators such as Leonard (1968), Holt (1969) Rogers (1969) have tried to show that education and entertainment need not be incompatible. Entertainment need not lack educational value and education need not be boring and unentertaining. In line with this new way of thinking, the challenge confronting producers of children's television programmes is thus to discover how to make entertainment instrumental to learning and simultaneously how to frame a child's learning

experience to contain excitement and joy.

Unfortunately television producers of the past have been slow to take up this challenge, they seemingly have failed to appreciate the potential of television to simultaneously educate and entertain. Only within the last six years has educational television started moving away from a televised classroom lesson to lessons on daily life in the home, business, farm and so on, incorporating humour and entertainment as teaching devices (Lesser 1972) (Ide 1974).

The present chapter considers the use of television as an educational medium and first discusses the development of educational television in countries around the world. It questions whether it is beneficial for the child to learn via a visual or a verbal presentation and investigates the proposition that television is a tactile medium which can restructure the minds of its viewers. If television can alter thinking, it is possible that the child must learn the language of televisual messages in order to extract and process information from a television programme. The ways in which the child learns to be media literate are thus also discussed in this chapter.

4.2. The Development of Educational Television:

In Europe, the BBC and Radiodiffusion Television Francoise began presenting enrichment programmes for schools during the early 1950's. (Koenig & Hill 1969). In 1958 Italy introduced television instruction on a national basis through its Telescuola or television school of the air (Dizard 1966). Educational television was received by the Communist bloc for the

first time in 1960. Since 1962 Soviet television has focussed its attention on both adult and school ETV programming.

Around the same time, Communist China begain offering university course work in subjects like chemistry, and physics through its Shanghai TV station. At other stations like Peking, Tienstin, Canton and Harbin "television universities" were offered as part of the country's national worker education drive.
According to Koenig et al (1969) Japan is one of todays world leaders in educational television. By 1965 Japan was the first country to integrate television into its education structure from kindergarten to university level studies, and into the broad field of adult instruction (Dizard 1966).

Since the 1950's, Latin America has been televising educational programmes with the leader of the movement being Columbia. A full range of primary school subjects is offered during regular school hours. The United States Peace Corps has helped considerably in making Columbia a model ETV country.

The growth of educational television, as shown so far is worldwide with the exception of countries like South Africa and a few other African countries. Development is however most spectacular in the United States. Koenig (1969) records that from May 1953 to May 1967, United States educational television grew from a one station operation to a complex of over 140 ETV stations reaching a population of about 140 million people. At present hardly a public or private educational institution exists

in the United States that does not have closed circuit television instruction and about 200 channels convey educational television on the Instructional television fixed service.

4.3 Television as an Educational Medium:

Film and television are viewed by many theorists as the primary media of communication (Worth 1974). Both media are viewed by film theorists such as Arnheim (1957) and Youngblood (1970) as conveyors of visual thinking, which they contend is superior to verbal thinking. This is a very controversial subject since, as shall be seen, Gombrich (1961) Whorf (1956) Goodman (1968) maintain that verbal thinking is a prerequisite to understand visual reality and that verbal literacy will never be replaced by visual literacy. As an extension of the visual primacy theory, Hoban and van Ormes (1972) assert that "film and television are languages of the "now" generation, and that they are becoming the primary media sociologically and culturally". (Worth 1974 p 273).

Film and television are also viewed as art forms with the potential to do what words have failed to do. The film message is multimodal, multisensual and universal. (Ide 1974). The justification for the use of film and television in schools is founded in its appeal, and its psychological, sociocultural, communicative and sensual primacy over other media (Worth 1974 p 273.)

4.3.1 Visual Versus Verbal Primacy:

In the teaching of cognitive skills, the question arises as to whether it is better to teach via pictures and images or via symbols and words. According to Rudolph Arnheim (19[illegible]) thinking is

primarily imagistic and is based upon visual perception.

Arnheim notes that

> "the principal virtue of the visual medium is that it can represent shapes in two dimensional and three dimensional space, as compared with the one dimensional sequence of verbal language.
>
> This polydimensional space not only yields good thought models of physical objects or events, it also represents isomorphically the dimensions needed for theoretical reasoning" (Arnheim 1957 pp 232).

Gombrich (1961) and Whorf (1956) however, claim that language is the primary means by which visual reality can be comprehended. Through the coding and decoding of visual information people describe what they see, organise that knowledge and reach conclusions.

Although Arnheim never states that thinking has no relation to language itself he feels that language serves as a mere auxiliary to the primary vehicles of thought. Worth considers that Arnheim underestimates or denies the extent to which symbolic systems or conventions mediate our knowledge of the world. As Worth states, psychologists, anthropologists, linguists, sociologists and historians have shown that what we think about, is determined as much by our symbolic systems and conventions for representing that universe as by the universe itself.

> "They have shown that pictures, verbal language, tales, myths, sciertific theory, and speech itself do not depend only upon what is 'out there', but they depend also and in large part upon the structure of symbolic systems that make up the culture" (Worth ibid, pp. 278)

Bruner is a theorist who demonstrates the interaction of the symbolic system and the environment. While not arguing for visual

as opposed to verbal dominance in the adult years, Bruner (1964) maintains that the visual mode precedes the verbal in the young child. As already noted during the ages of 2 to 6 years, the symbolic system of the child is "iconic" in that he thinks in terms of images or pictures rather than in symbols or words. Thus information will be optimally learnt if presented in pictures rather than in words. From about seven years onwards the symbolic mode develops in which the child thinks in terms of symbols or words. At this stage the child should benefit more from information presented verbally rather than pictorially.

However, Bruner's theory is central to the controversy of visual or verbal primacy and is disputed by Paivio (1970), Rohwer (1970) and Reese (1970). Paivio and Yarmey (1965) conducting paired-associate studies[1] on young children and adults found that pictures are superior to concrete words when presented as the stimulus but inferior when the response was tested.

In contrast to Bruner, Rohwer (1970 maintains that the young child makes use of verbal modes of storing and representing information at an earlier age than he makes use of the visual mode. Rohwer explains that while language is a coherent, well-organised system, imagery is not. The young child finds it easier to use a well-organised system than an arbitrary one for storing and representing

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1 Paired-associate studies are conducted by presenting a subject with a list of stimulus and response associations, and testing for recall of the response item when it is obscured. Alternatively recall of the stimulus item may be tested by presenting the response item and asking for recall of the stimulus item.

information. Reese's (1970) views support those of Rohwer. He maintains that the younger preschooler will be less able to use imagery than will the older preschooler; and more able to use the verbal mode. Reese provides possible explanations for this age-related difference.

Firstly, the imagery condition requires the covert verbalisation of the pictured interaction. The younger child who is deficient in verbal skills relative to the older child, will be less likely to make the covert verbalisation than the older child, and so will benefit less from the imagery than from a sentence or verbal condition. This view opposes Bruner's (1964) theory that thinking is predominantly "iconic" in the young child. In terms of Bruner's theory it would be expected that the verbal stimulus would interfere with the young child's performance, while the imagery condition would facilitate it.

Secondly, it is possible that imagery and verbal stimuli are initially equally effective, but that verbal memory is better than visual memory in young children. In other words they remember what they heard but not what they saw. This argument once again disagrees with Bruner's conclusions that early cognitive processes are based primarily on imagery.

A third possibility, derived from Bugelski's (1968) extension of Huey's (1908) theory is that the young child fails to "read" the pictorial materials used in the imagery conditions. The stimulus and response items as separate elements may arouse images, but the interaction generates no imagery. Elkind (1969)

supports this assumption when he notes -

> "when young children are shown a picture depicting a social situation, they merely enumerate the elements and say 'a man, a dog, a house,' etc." (p 3)

In this way the picture as a whole arouses no meaning; however a sentence arouses the required imagery because the salient elements and their interaction are all explicitly named and will thus be attended to by the subject (Reese 1970).

From the above it would appear that verbal instruction may be more effective than instruction utilising the visual mode in the very early preschool years. However, in the later preschool years visual imagery will be an important educational medium.

4.3.2 Imagery Research and Instruction:

Rohwer (1970) recommends that information will be learnt and retained by preschool children if the stimulus is concrete rather than abstract and pictorial rather than verbal amongst the older preschoolers. Furthermore, if items are to be associated they should be presented in some kind of meaningful linguistic context rather than as isolated terms, or else be involved in some kind of meaningful interaction.

In order to increase their own powers of learning, children should be taught to use both verbal and visual kinds of activities. The child cannot always rely on the world to offer up information in the best ways, and so he should be equipped to transform information himself into a form that renders it maximally memorable. (Rohwer 1970 p 402)

On the whole the present author contends that there appears to be no advantage to arguing the primacy of the visual over the verbal or vice versa. As Worth (1974) notes thinking is a multimodal, symbolic process that uses words, images, sounds and symbols. Thus one should not investigate whether visual or verbal thinking modes are superior but rather how a particular medium can help in the development of the thinking and behaving of the human organism.

4.4 Television - A Visual or Tactile Medium:

Another controversy relates to the nature of the medium. According to Arnheim,

> "television is a purely visual medium. Raw experience is the proper subject matter of television and the medium itself is no more than an extra lens for the eye". (p 232)

McLuhan (1964) opposes Arnheim's view, contending that content is irrelevant to a study of the media and that the sensory mode of television is tactile rather than visual. McLuhan felt that while the television set may look like a visual instrument it really provides us with little visual information.

> "The TV image is visually low in data. The TV image is not a still shot. It is not a photo in any sense but a ceaselessly forming contour of things limned by the scanning finger". (McLuhan 1964 p 313).

McLuhan felt that TV could never become the same as film or even a primary visual medium regardless of technical changes.

> "The TV image is now a mosaic mesh of light and dark spots which a movie shot never is, even when the quality of the movie image is very poor" (p 313)

McLuhan conceived of the television image as sculptural or iconic in quality and thus tactile rather than visual in its appeal. The "mosaic-mesh" quality of the image, he felt, resulted in a cool or highly participative effect. The viewer must fill in all the omitted information, he must "feel" the mosaic in an intense but never speedy fashion. This is a contrast to a "hot" medium such as the printed page which packages a large quantity of data and projects with great speed and intensity. Television, according to McLuhan provides a highly participative experience in which the viewer must feel like the associate producer. McLuhan considered that television being radically different from radio, film or print would produce corresponding radical changes in the logical thinking of habitual viewers. Some support for McLuhan's view of television being a tactile medium can be gleaned from the work of Parker (1974). According to Parker (1974) the tactile medium of television will restructure the minds of its viewers, because the active participation or involvement of its viewers is

> "naturally inimical to the dispassionate yet analytical survey developed by two thousand years of visual literacy". (p 86)

Parker (1974) notes that television will restructure minds in terms of the viewer's cultural imagery. Thus the child who is not yet imbued with visual literate values will complete the television image imaginatively by an image involving all the senses, but his completed image will be much more related to the feel of things - a tactile image. The aural man will remake the image in terms of his own cultural sensory bias toward the ear. Because of the high value placed on

the visual by our society, literate man will replace the low-definition image of television with an image of higher visual definition. In fact, Parker claims "book man" will tend to recreate all images, whether aural, tactile or visual in a visual modality. However, after continued viewing of the medium, the tactile sense mode will eventually move to reconstruct the sensory bias of the culture, toward a tactile way of responding.

Parker (1974) considers that television is often misused since it is frequently viewed as a mere carrier of data, or yet another method to teach patterns and values of a visually oriented or literate society. However, television like the arts has the potential to cultivate sensitivity to a variety of experiences, and educators should thus make use of its wide sensory applicability.

In concluding the visual-tactile controversy it would appear that television is more than a visual medium since it provides tactile experiences which evoke the active participation of the viewer stimulating a variety of experiences in various sensory modes.

4.5 Media Literacy:

As Worth (1974) has noted, the visual-verbal primacy controversy is secondary to an investigation of how television helps develop the thinking and behaviour of human beings. Parker has offered a theory as to why television should restructure the minds of its viewers but the important question to be answered is how television induces new ways of thinking. In other words does television, in the same way as language, require a person to learn new symbols

and codes in order to understand the message conveyed? In addition will the film format of television induce him to learn new thinking skills? Many writers, namely Bruner (1966) Vygotsky (1962), Luria (1961) Sapir (1959) and Piaget (1962 b) have argued that language influences cognitive and perceptual skills. Nonetheless whether visual communication media have any power of affecting cognition and perception is still questioned.

Bruner (1966) notes that for a communication system to be effective it must produce an appropriate internal counterpart in the user's mind. Berlyne (1965) adds that signs and symbols function both for external communication and for internal representation. What this implies is that the external system that an individual adopts, is somehow internalised to serve in a representational capacity (Salomon 1972). According to Marshall McLuhan (1965) not only minds but whole social structures are shaped by media. His theory is that during the dominance of print, man became a linear creature. This led to linear thought processes, linear social structures, and the science of cause and effect. However, television computers and other electronic media have changed the situation. Man is now becoming a simultaneous and involved thinker; he is abandoning the one at a time approach because of the multi-dimensional ways in which electronic media transmit information to him.

However, Salomon (1972) cautions that little empirical evidence exists to support the claim that exposure to some medium actually produces a parallel representational system. Non-western cultures

often fail to extract the correct information from media developed in the West. They fail to perceive depth in pictures, continuity in films or essential features in maps. Hudson (1962) found in tests of pictorial depth perception carried out on various educated South African adults, that Whites surpassed Coloureds, who surpassed Blacks and Indians in recognising three dimensional aspects of simple outline drawings.

According to Hudson, our Western culture, emphasizes the use of visual perception, whilst other cultures utilise different cues in eliciting information from the environment. The young White child is shown picture books and told how to look at and understand pictures. From an early age this child acquires the ability to perceive the depth, distance and size of objects in a picture. He also learns the symbolism of the use of different colours (for example, that red stands for danger).

The Black[i] child is however not raised on visual perception. His culture makes great use of auditory perception in its music and dancing. When his parents decorate the walls of their huts, their portrayal is always flat. Profile views of animals or motor cars are drawn in twisted perspective, for example a side view of a cow shows two horns, two ears and often two eyes. A motor car drawn

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i Black -a term denoting a person who belongs to one of four main ethno-linguistic groups, namely the Nguni, Sotho, Vendu and Shangane-Tsonga (Rosenthal 1961).

in side view shows the front grills and two head lamps.

According to Hudson (1962), the Coloured[1] child has acquired visual perception abilities more similar in nature to White Western than to the Black African culture. The reason why the Coloured child has not yet fully reached the level of the White child in visual perception may be attributed to insufficient mediation by the Coloured mother who may not provide her child with as many picture books and explanations as the White mother.

In South Africa television is also more likely to be understood by White individuals familiar with pictorial conventions than by Coloured, Black or Indian individuals unaccustomed to visual presentation. Although television provides a different mode of perception to pictures or still photographs, with its close-up shots, long shots and 'zoom-ins', it is based on simple pictorial conventions and its understanding will be facilitated by previous experience in two dimensional drawings and pictures. The Black, Coloured, or Indian individual will be less able to extract the correct information from this Western developed medium.

How then will they acquire televisual perception? It is hypothesised (Salomon 1972) that as with language, a visual code must be internalised if the content is to be understood. The internalised communication code is expected to be used in thought, to classify abstract and interpret new experiences. If

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1. Coloured - a term describing membership of a mixed racial group due to the intermarriage of Whites of European descent and Blacks of African descent (Brindley 1976).

a media code is internalised one should be able to think in terms of split screens, close-ups or long shots. In addition, once internalised the format could encourage the development of mental skills. For example, the zoom-in technique might teach a child who has difficulty in discriminating salient cues, to attend more selectively; or the format in which a speech balloon appears above a characters head to display his thoughts, may be used to teach the child the value of mental mediation in solving problems. Slow motion techniques might help an impulsive child develop a more reflective mental pace and exposure to split screens which visually juxtapose two or more events that actually are distant from each other, could teach the child to juxtapose objects or events in his or her own mind. (Lesser 1972)

As has been noted in Chapter 3, Salomon (1974 a) found that children who viewed the zooming-in format became better able to attend to views, and more sensitive to televisual complexities. The question arises as to how the internalisation of codes would occur. The internalisation of a film message does not seem to occur in the same way as does internalisation of verbal language. According to the "weak" form of the Whorf hypothesis (1941) language is used internally by the individual to encode his ideas and communicate them. In this way he is both a sender and a receiver or an encoder and decoder of all codes of verbal messages. Furthermore, the young child interacts with others using verbal messages and thus learns their structure (Brown & Bellugi 1964). However, when it comes to film messages, most people do not encode ideas in filmic codes, nor do they interact directly with others using such codes. "We are simply receivers and decoders of film content. We are simply

being spoken to through the screen, with little or no interaction accompanying it" (Salomon 1972 p 45).

If no encoding of ideas into film or TV codes takes place, and if there is no interaction with others by means of such codes, how is the code internalised? It seems that the internalisation of communication codes could come about through imitation. Bandura (1965) has demonstrated the possibilities of the imitation of human models. Piaget (1962 a) maintains that learners can also imitate non-human objects and their behaviours. Piaget showed empirically that the imitation and internalisation of operations are major elements in the generalisation of schematic images, and are a part of ones developing intelligence. Although one might not use the schema as an encoder or interact with others by means of such a code, it might still become internalised.

Berlyne (1965) contends however, that the simple observation of an operation is not enough to ensure its internalisation. According to Piaget, a new operation is interwoven into a general structure by the processes of assimilation and accommodation (Ginsberg & Opper 1969). Thus the learner who has already acquired general assimilatory schemes, but has not yet mastered the one to which he is exposed is most likely to imitate and internalise it. If, however, an individual is already highly skilled in the operation being shown to him, interference is likely to take place (Jensen 1967).

Thus, novelty is necessary if a demonstrated action is to be

internalised. However, too much novelty, according to Charlesworth (1969) will not facilitate learning since it will exceed the assimilatory capacity of the learners representational repertoire.

In the case of visual media such as television and film, formats like 'zooming-in', rotations of objects in space, certainly provide novelty. They should thus be good candidates for imitation and internalisation.

However, it is also possible that these formats would be too novel to be internalised. In other words, such codes would differ too much from the way we would represent them ourselves. In this case, existing schemes would be incapable of assimilating and accommodating the new information. Therefore there would be the need to replace a mental operation already in the individual's repertoire or to complement existing schemas.

It appears that age is an important consideration in determing when novel formats will be assimilated or when a mental operation will be replaced. In terms of Piaget's (1962, 1964) framework, it would appear that the child at the stages of concrete and formal operations would have developed a general structure of schemas and be most susceptible to assimilating new operations. However, the very young child at the age of preoperational thinking, who is equipped with a primitive range of cognitive skills, will learn new skills by the supplanting of mental operations rather than by calling upon existing schemas. The mechanisms of calling upon and supplanting must now be discussed.

4.5.1 Mechanisms of Skill Learning:

According to Salomon (1974) media-literacy skills develop through the action of two mechanisms. One type of presentation format "calls upon" or activates specific skills which are already in the repertoire of the individual. For instance, showing a series of seemingly unrelated segments, activates processes in the viewer to relate the segments to one another. Alternatively, a presentation of close up shots, which moves quickly to long shots requires the viewer to activate existing mental skills which relate the blown-up image to the more distant long-shot reactivated they lead to the extraction of meaning which reinforces the act and gradual improvements in the mastery of these skills can be expected.

According to research done by Salomon (1974) such im$_{\text{t}}$ovements do not take place uniformly in all learners. In agreement with Piaget (1962, 1964) and Jensen (1967), Salomon found that only learners with initially moderate mastery of a skill show skill improvements as a result of exposure to media formats which activate skills.

A code may however "supplant" a skill rather than call upon it. In this case the format explicitly models a skill. For instance, a format may show very explicitly a transformation in space, like moving around an object and viewing it from many angles, an operation which the viewer ought to perform covertly on his own. The viewer is thus taught how to perceive the object by imitating and internalising this explicit

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technique.

Research by Salomon (1974) shows that learning in this case takes place mainly be learners who initially had poor mastery of the mental skill so modelled. However, learners with a greater repertoire of skills, feel "spoonfed" and such explicit modelling tends to interfere with their already existing mastery of the skill.

In terms of Salomon's theory of media literacy acquisition it would seem, that children at the stage of concrete and formal operations, and non-Western cultures will be able to benefit from television if they have a repertoire of skills which they can "call upon". Alternatively, where a very primitive range of cognitive skills exists, during the preoperational stage of development, a skill may be "supplanted" in which case, subjects may learn from explicit television transformations how to perceive the shown objects.

It is the view of the present author that Salomon provides an interesting theory for the development of media literacy skills which are important elements of a range of cognitive skills. It is relevant to note however that while Salomon's results indicate that television codes are internalised and used in thought processes, his hypothesis requires further substantiation before it may be fully accepted.

CHAPTER 5

CULTURAL DISADVANTAGE AND COGNITIVE SKILLS ENRICHMENT

5.1 Introduction:

The present study investigates the acquisition of cognitive skills by a sample of Coloured[i] preschoolers. The origins of the Coloured people are described more fully in a later chapter. The present concern is that the child coming from a Coloured family is often considered culturally disadvantaged or culturally retarded, in that he/she usually functions lower than the norms of average Westernised White children on general verbal and non-verbal intelligence tests (after the cultural bias in tests has been eliminated.

Since the present study aims to provide an enriching experience for culturally disadvantaged children it is necessary to understand the conditions which create cultural disadvantage, since without such an understanding the enrichment might prove inappropriate. This chapter also considers the role the schools play in educating society and the effects of formal schooling on the culturally disadvantaged child. It then discusses which skills are most important for the development of perception and cognition in the preschooler and describes how television can present these skills most effectively.

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i. See footnote on page 66 for definition of the Coloured population group.

5.2 Reasons for Cultural Disadvantage:

5.2.1 Poverty:

It is known that the environment of the Coloured child usually features poverty, with bad housing and sporadic violence (Brindley, 1976), but whether it lacks stimulation for cultural advancement is disputable. Indeed it would seem that the child from slum areas is exposed to richer more intense experiences at an earlier age than the middle-class child who lives in a more protected, more scheduled, more controlled and more tabooed world (Feuerstein and Rand 1975). Thus, retarded cognitive development cannot be attributed to poverty of stimulation but rather to the incapacity of the organism receiving the stimuli to use, integrate and organise the stimuli into larger arrays or schemes necessary for higher level functioning. The question to ask is why should particular individuals not be able to utilise incoming stimuli effectively when others can, in environments where stimulation is available?

5.2.2 Lack of Mediated Learning Experiences:

According to Feuerstein and Rand (1975), the intervention of a mediator in the advantaged child's world sets him apart from the deprived child who does not have "mediated learning experiences". (p 15).

The mediator in this sense is an

> "intentioned and experienced individual who interposes himself and mediates the stimuli impinging on the child" (p 15).

Thus stimuli emanating from various sources

> "will not reach the organism of the developing child before either the stimulus or organism or both have undergone

> certain changes following the intervention of the initiated, intentioned, mediating individual", (Feuerstein and Rand 1975 p 15).

The role of the mediator is to accept certain stimuli and reject others; which he does by reinforcing certain stimuli and by de-emphasising others. The mediator also controls the variation and intensity of stimuli. Certain stimuli may be made accessible to the child in the sensory, concrete or the representational symbolic modalities according to the developmental stages of the organism. The mediator prepares the child by orientating him towards a focus on and attention to certain stimuli. The constant interaction between mediator and organism builds in patterns of functioning and motivation. It induces in the individual the need to search for meaningful links between unconnected objects and events. This search for meaning between discrete events is the prerequisite for the concept of causality and the search for relationships encourages "an operation upon objects" instead of the isolated manipulation of objects (Feuerstein and Rand 1975 p 16).

Mediated learning experience does not affect cognition without affecting attitudes and beliefs. Instead the mediator transmits certain styles of life, which belong to the value and goal system of the individual and of the society to which he belongs. There is an active interest on the part of the mediator in the outcome of this interaction and he chooses to reinforce behaviours concomitant with his selected cultural beliefs. Mediated learning experience thus sensitises the organism towards stimuli impinging on him from the environment and enables the

individual to integrate these stimuli into a broader range of mental functions. The organism which has not been subjected to mediated learning experiences is considered culturally deprived since his world is comprised of isolated haphazard stimuli requiring immediate unplanned response. The presence of a mediator to encourage selection and organisation of stimuli is not present in the deprived child's environment.

The question to ask at this stage is how does this model relate to the Coloured child resident in a Johannesburg township? Who should his mediators be and why are they failing?

5.3 The Coloured Person and a Lack of Mediated Learning Experience:

According to Feuerstein and Rand (1975 p 20) mediated learning experiences may cease during a cultural clash when a culture is forced to give up its own values which do not assist it in adapting to the values of the dominant culture. The Coloured person, in limbo between White and Black cultures, struggles to find an identity and concomitant set of values to pass on to his children. Striving for White standards and values he is made to feel that he belongs to the Black 'inferior' group. Prospective mediators are made to believe that they are second class citizens, since they have no political rights and their needs and aspirations are thwarted by restrictive legislation. Brindley (1976) notes that a child's estimate of his ego is bound up with attitudes the people around him hold of themselves of himself and of his position in life. Through years of racial discrimination many Coloureds accept their roles as second class

citizens and thus as mediators they pass on feelings of racial inferiority to their children. In addition feelings of poverty are often transmitted through the generations. As Bane and Jencks (1972) note

> "poverty is a relative rather than an absolute deprivation. People feel poor and are poor if they have a lot less money than their neighbours" (p 21).

Many coloured people compare their earnings to those of Whites and so feel poor, even when they earn a living wage.

On the individual level, a lack of mediated learning experience is often determined by situations of real or perceived poverty, which render the adult unable to perceive and plan the future of the next generation. The adult is then often indifferent and apathetic to long term needs of the children, and concentrates solely on their immediate elementary physical needs (Feuerstein and Rand 1975, p 2). Beneficial adult mediation is further thwarted since both Coloured parents usually work the whole day. Domestic servants, grandmothers and elder siblings often care for the children while the mothers work, but they do not provide satisfactory mediation. Even when mothers are at home, their daily chores keep them from providing the activity and stimulation that is vitally necessary for the socialisation and mental development of the child.

At this stage it is important to consider Ginsburg's (1972) counter-argument to Feuerstein and Rand's (1975) theory proposed above. It is Ginsburg's contention that a lack of mediated learning experiences does not necessarily lead to poor cognitive development but that poor childrens' development shows healthy

development because these children are active learners who play a major role in shaping their own growth. For instance, the child initiates activities, practices tasks, asks questions and makes sense out of the world: Given all this the parent can serve useful functions by supplying information and correcting errors. However, the parent must build on the childs activity and interests. The child's contribution is thus crucial since in interaction with the environment it is he who initiates, directs, controls and motivates his own learning (Ginsburg 1972).

Ginsburg draws on Piaget's (1952) work, noting that while societies differ in child rearing techniques the children still develop conversation and other aspects of thinking, regardless of whether the parents reinforce, suggest, train or ignore such behaviour.

In addition, Ginsburg maintains that most parents have inaccurate expectations of intellectual development and thus cannot systematically teach or control intellectual growth since they might reinforce or eliminate the wrong types of behaviour.

However, it is the present author's view that Ginsburg presents an incomplete picture of adult mediation. Whilst the child may certainly be paramount in directing his learning, the importance of the adult mediator is underestimated, since it is through constant child-mediator interaction that the child can move to new and more complex questions and propositions.

In addition, while the cognitive universals of each Piagetian stage do eventually develop, in the absence of mediation they do so at a much slower rate, limiting the amount of learning possible in the early years and subsequently affecting the learning rate throughout the individual's life.

Ginsburg (1972) is also particularly extreme in his view that a parent may misdirect the child's learning, since if this is the case, the child should not interact with his peers, adults or anyone other than the psychological experts who could channel his cognitive development in the right direction. Since it is widely accepted that cognitive development is enhanced by the child's interaction with a variety of individuals, Ginsburg's approach appears to be untenable.

Thus Feuerstein and Rand's (1975) theory proposing the importance of adult mediation still appears to hold true. The problem arises, however, when the child without mediated learning experiences enters school, where his disadvantage is exposed in battles with the demands of the school curriculum. It is Ginsburg's view that while the poor child develops distinctive skills which are useful for coping with his own environments, these skills are sometimes unsuited to the typical school and he may fail to develop some abilities which it emphasises. He must rapidly learn unknown symbolic skills used in reading, writing, mathematics and other school activities and he usually flounders in this new threatening atmosphere. In the current educational system this initial deficiency is often crippling. He then learns through a process of failures and humiliation that learning is a very

exists. Children learn informally from television in their acquisition of stereotypes about people and products and it has been shown in studies on Sesame Street that children can learn a range of cognitive skills from the television screen. However, the question that arises is what types of verbal and manipulative activity are appropriate to the acquisition of knowledge and which techniques are needed in order to teach both advantaged and disadvantaged children cognitive skills necessary for mental development and school readiness. Schermann (1966) suggests that activities involved in perceiving and conceptualising are the most essential.

5.5 A Range of Skills:

Perception involves the full use of the five senses as well as the organization of the information so conveyed. Perception requires the selection of certain stimuli to the exclusion of others and the concurrent choice of an adaptive overt response. The mediator's task is to show the child how to use perception to its best effect.

Cognitive development involves not only the development of suitable perceptual responses but also a further organization at the conceptual level. According to Piaget & Inhelder (1956), conceptualising has its roots in perceiving but cannot be carried out adequately at a more complex level unless the child frees himself from the need for perceptual support and is able to cope with ideas and propositions. The three and four year old, still involved in preoperational thought will not be faced with propositions. However, the five, six and seven year old, approaching concrete operations will need experiences that will encourage conservation,

essential to his intellectual growth during his early school years.

Discrimination is basic to conceptualising, for if the child cannot discriminate he will be unable to classify material. Discrimination will allow analysing, abstracting and resynthesising of relevant elements, coping with conflicting and non-essential cues and organising them into their appropriate categories. At an early age the child's conceptualising will be restricted to the physical observable traits of incoming stimuli. At a later stage conceptualising will depend on a common meaning present in two situations. To achieve this type of classification the child will need to use class names. The development of language at this stage will facilitate the discrimination of categories. Language will also be necessary for labelling, communicating, questioning, and creating which are all aspects of cognitive functioning. In addition, language aids perception and remembering. Opportunity for both delayed and immediate recall as well as for recognition provides a means for reviewing knowledge.

As has been noted television may be a useful medium to encourage the development of perceptual, conceptual and language skills. Although television cannot substitute for the cultural stimulation of a mediator in the home environment or make a preschool teacher redundant, it can serve as a supplement to other forms of early experience (Lesser 1972). In the absence of other mediation, television may serve as a mediator, providing a selection of programmes to the viewing child. However, under optimal conditions an adult should mediate between the child and television, explaining aspects and encouraging selective viewing.

In support of this view, Singer and Singer (1976) conducted an experiment in which they found that a group of preschool children viewing the American television programme Mister Rogers with adult mediation made greater gains in imaginativeness of play than a group of children who viewed the programme alone.

The experience of Sesame Street has shown that through entertainment television can provide mediated learning experiences. Sesame Street provides a continuously changing programme which bombards the child with visual and auditory stimuli, actively drawing him into participating in the televised action and teaching him through his active participation. The way in which television encourages the development of cognitive skills will now be discussed more fully, with specific reference to the culturally deprived child.

5.6 The Development of Cognitive Skills via Television:

5.6.1 Sensory Stimulation:

According to Russell (1956), sensations are the raw material of thinking and thus sensory stimulation should be available for the young child. The culturally advantaged child will have been well introduced to the sensations of sight, hearing, feeling and smelling, whilst the culturally disadvantaged child who lacks mediated learning experiences may not yet use all his senses to their full potential. Television formats provide visual and auditory stimuli whilst the content of the programmes e.g. a programme teaching smell and texture discrimination might encourage the child to use these

senses when the television is turned off.

5.6.2. Curiosity :

Curiosity is another important element in early cognitive development (Schermann 1966). According to Berlyne (1960) a distinction can be made between "perceptual curiosity" and "epistemic curiosity". "Perceptual curiosity is reduced by exposure to appropriate stimuli" (p 195), whereas epistemic curiosity is "that brand of curiosity that motivates the quest for knowledge and is relieved when knowledge is procured" (p 291).

For satisfactory cognitive growth the child's environment should provide material to arouse both kinds of curiosity. Children start asking questions at an early age. In the culturally advantaged home, these questions will be answered by parents and new questions will be encouraged. The culturally disadvantaged child may however, not be answered when he starts questioning or may be reprimanded, thus stifling his enthusiasm at the start (Schermann 1966).

Television may serve to revitalise that curiosity. Certain perceptual problems on television will give rise to perceptual curiosity. Once solved, for example, by the characters in the programme, the child's curiosity will be satisfied. Some problems on completion, will initiate questioning, indicating that epistemic curiosity has been aroused. For this to occur the programme should be a colourful, complex one, depicting a novel situation involving some element of uncertainty or conflict. The programme should also stimulate question asking since it is

through questioning that the child will learn more and stimulate his curiosity further. The involvement of parents and teachers along with television exposure will nurture natural curiosity.

5.6.3 Perceiving and Conceptualising:

These two aspects of cognition are dealt with together since both are acts of classification and it is difficult to indicate precisely where perception ends and conceptualising begins. Perceptual training by television programmes, may provide the child with many experiences in finding similarities and differences in pictured objects, geometric figures and abstract symbols, in sounds and in textures and in perceiving more than one property of an object. It is argued that the culturally disadvantaged child has lacked mediated learning experiences that sharpen perceptions and make one a good observer and that to make up for this deficit, perceptual training should be emphasised (Lavatelli 1966, Feuerstein and Rand 1975).

According to Piaget (1961), perceptual training is not enough. A compensatory programme should involve more advanced conceptual skills. In this sense a television programme should provide the following five aspects of cognitive development.

5.6.3.1 Activities to Facilitate Development from the Simple to the Complex.

According to Ellis (1967), the culturally disadvantaged child lacks the cognitive structures to deal with the school curriculum. Thus a programme should include the presentation of the elementary structures upon which the logical operations of reversability associability, combinativity and identity are founded. The

television programme should encourage the child to combine objects, take groups apart order objects set objects in one-to-one correspondence, consider two properties of an object at a time and carry on simple conservation tasks.

5.6.3.2 Transactional Experiences:

A television programme should encourage a child to operate on data to which he is exposed and not merely to note likenesses or differences. A programme showing how a child transforms a piece of bubblegum from a small ball into a long thin string, in teaching conservation might encourage a child to try the experience for himself. This will make him aware that by his own operations, a change in one direction is compensated for by a change in another. Bearing in mind that one should encourage transactional tasks and tasks which lead from the simple to the complex, the question arises as to whether one should teach arithmetic to the young preshooler? It appears that the young child at the preoperational stage of thinking will not be able to reverse operations and so will not benefit from learning arithmetic which requires reversibility. The older child however, who is moving into the concrete operations stage might benefit from arithmetical tuition.

According to Piaget (1952) the development of logical and arithmetical operations is a natural component of concrete operations. He believes that arithmetical operations like addition, multiplication, and so on, correspond to more general operations of thought which are internalisations of the childs actions upon concrete operations in the external world. According to Kohlberg (1968), the teaching of simple arithmetical operations would encourage and lead to the conservation of number which is developing in the six to seven

year old. However, Kohlberg cautions, that teaching arithmetical concepts to the younger child, not yet at the stage of concrete operations, will lead only to rote learning of habits with no conceptual base (Kohlberg 1968).

Bereiter and Engelman (1966) oppose this view. They believe that arithmetical structures may be taught to the very young child (4 year old) in the same way that a foreign language would be taught. They support the "new math" curriculum which stresses understanding rather than the rote learning of habits. According to Bereiter and Engelman (1966) this programme was used successfully in 1966 to bring 15 young pre-school children to school-readiness level. It appears to the present author that young children will benefit from experience with arithmetical operations but whether they will incorporate these processes in rote fashion, or through genuine understanding is still disputed.

5.6.3.3 Dissonant Information:

A child should be called upon to correct incoming information thus encouraging thinking and evoking active participation. In a couple of episodes of the Sesame Street series, Mr Hooper tells the children a story with incorrect information and they are encouraged to correct him by shouting "No" when he makes an error. In this way children learn not to passively accept what they see on the screen but to think and act on the material.

5.6.3.4 Emotional Stimulation:

According to Lavatelli (1966) intellective and affective development

are interrelated in that children come to deal more competently with their environment and thereby develop self-confidence and a better self-image. As has been noted previously the culturally disadvantaged child often faces difficulties in concept acquisition due to inadequate mediated learning experiences (Feuerstein 1978) and this deficit may lead to anxiety or flightiness when the child must perform a cognitive task (Lavatelli 1966). In order to enhance positive affect in the child, a television programme should include items encouraging improved self-image and self-confidence (Lesser 1974).

5.6.3.5 Language stimulation:

From the time he is born, the child becomes involved in manipulating and modifying his world and adapting his behaviour to gain satisfaction of his needs. At this stage, he makes his first efforts at expressive behaviour and communication. Constant exercise with this developing language facility leads to more articulate use of language. Cognitive development and language are closely related. According to Sapir (1931) language makes thought possible and thought refines language. Thus the child who achieves good language stimulation will be likely to master cognitive concepts more easily. However, as has been stated previously the language of the culturally disadvantaged is usually "informal or restricted" (Frost and Rowland 1969 p 370). Simple in nature it lacks the breadth and depth necessary for precise descriptions of ideas or emotions and concept development is poor. (Frost & Rowland 1969).

Television can be beneficial to both advantaged and disadvantaged children in stimulating language skills. The child will be drawn into active participation teaching him new words or revising words he already knows.

According to Lesser (1972) certain preschool children sing or talk along with (or even talk at) the televised characters. They often reply to questions directed toward the children on the programme or toward the viewing audience. They often yelp or tremble in mock fright at monsters, acrobats on the high wire, or offer delighted or disdainful comments on what they see. In all, they respond with a high level of both physical and verbal activity (Lesser 1972). According to Lesser (1972) a measure of success in enhancing childrens language can be seen in the degree to which the learnt language becomes part of the children's communication during their play.

5.6.4 Showing the World:

In addition to the traditional skills that television can enhance, like language enrichment, perceptual training, and so on, television has the power to show the world to children. It can transport the child to places and people, to encounter events and ideas he'd be unlikely to face in his life, but which would be relevant to his frame of reference. For example, there might be little value in showing a rocket "blast off" from Cape Kennedy to the South African child living in the slums of Western or Kliptown.

There might however, be some value in depicting the conditions of his living area, since as Noble (1975) notes television should depict the realities of the world whilst showing aspects of positive interactions in his neighbourhood, if these occur. In addition a valuable experience for the 'township' child would be to show him places in his vicinity like a bakery, a post office, the station or the zoo, places which he is unlikely to have visited before.

5.7 Sesame Street and the Acquisition of Cognitive Skills.

The American programme Sesame Street was produced to provide a supplementary educational experience to help prepare American children for school. It incorporated all the abovementioned instructional goals in its production and serves as a model for the present educational programme. The skills it included were

1) symbolic representation, such as identifying, letters, numbers and geometric forms;
2) cognitive processes like perceptual discrimination, relationships, classifications and ordering;
3) reasoning and problem solving and
4) the child and his world - such as developing the self concept, identifying social units and appreciating social interactions, recognising the man-made aspects and natural environment was yet another goal area.

In conveying these skills entertainment was encouraged through the use of humour, music and unusual characters since the effect of an educational programme depends on how well it maintains the child's attention. According to Lesser (1974) an entertaining, exciting programme will not only hold the child's attention, but will encourage him to learn since learning will become an exciting, joyful adventure.

The connection between education and entertainment will be examined in more detail in Chapter 7 in the discussion pertaining to the television programme which was produced for this study.

CHAPTER 6

TELEVISION IN SOUTH AFRICA AND THE STUDY SAMPLE

6.1 Introduction:

Having considered a definition of cultural disadvantage and its relation to Coloured preschoolers who form the sample of this study it is necessary to investigate more extensively the environment of the Coloured townships and the schooling facilities available to the preschool child. However, before tackling this subject, it is important to understand the extent to which television is used in South Africa by the poor and the minorities in order to motivate the proposition that television is an important medium to propogate education to those groups.

6.2 Television in South Africa:

According to Pool (1977) the flow of television from a few centres in developed countries to the rest of the world will change fairly rapidly to a more dispersed network. South Africa is perhaps an example of this dispersing network. Until recently this country had no television but since its emergence in January, 1976, television has taken on the form and characteristics of British and American commercial television. It is replete with programmes showing violence, thrills, romance, education, politics, news and advertisements. Sexual content however, has been minimised, probably due to strict censorship control.

According to Katz (1977), American and European theorists and

policymakers propose that television broadcasting will contribute to a process of integration, helping to forge a nation from regional, tribal and ethnic loyalties. Furthermore, they hope that broadcasting will contribute to socio-economic development, by motivating and instructing in the problems facing the peasant population of developing countries (Katz 1977).

This would be an important development in a country such as South Africa which is made up of diverse population groups such as Blacks, Whites, Coloureds and Asians. Each group has its own particular regional, ethnic and tribal characteristics. If each group is to learn to communicate well with each other, they must try to understand the reasons for customs particular to each group. In Katz's terms, television could be a vital instrument in encouraging better race relations. It could also contribute to socio-economic development, by helping to motivate and instruct in the problems that trouble the lower-class population groups of this country.

At present however, South African television is firmly based on Western cultural ethics and within this structure it is restricting its potential. The present author considers that it is only when the medium will make use of its indiginous African culture that it will have a positive effect on race relations.

6.3 Television Viewing Amongst the Poor:

6.3.1 In the United States and Britain:

In the United States and Britain, television is considerably important

in the lives of the poor and the minorities, since as has already been noted, Bower (1973) found that Blacks enjoyed television more than Whites and more frequently felt they were not watching it as much as they would like. In addition, as has been mentioned in Chapter 1 Greenberg and Dervin (1970) noted that children and teenagers from lower income families and from Black families reported devoting more time to television because they expressed greater belief than high class and White children that television accurately portrays real life. (Greenberg and Dervin 1970).

It would appear that because low income people have fewer resources to information such as books and since they cannot afford various entertainments such as film or theatre they are very dependent on television for such stimulation. Furthermore, it appears that they believe that television accurately portrays real life since their judgements are less critical than those of their higher class counterparts who have been exposed to a wide range of life portrayals in film, theatre, newspapers and books. However, the researchers are uncertain as to why American Blacks from middle socio-economic levels should watch television more than Whites of the same socio-economic group.

Statistical evidence supports the studies mentioned above in that lower income American adults reported greater dependence on television as a source of stimulation and information and they viewed more television than did a sample representing the general public. The mean number of hours viewed for the general population was 2,0 hours compared with 5,2 for the low income sample.

In terms of television ownership, low income adults were as likely

as the general population sample to own at least one television set. Only 3% of the low income group reported not owning a set. Regarding other media, 7% did not have at least one radio, 25% did not have a newspaper delivered and 23% did not own a gramophone.

6.3.2 In South Africa:

The pattern of television ownership and viewing mentioned above has not reached the same proportions in South Africa as it has in the United States. The reason for this is because it is still a relatively new medium and it is still too costly for the average poor family. However, predictions are that it will become the most popular medium for the poor and the minorities when the price of television sets is lowered.

Radios are owned by very many poor families and until the emergence of television in South Africa, the radio was regarded as a status symbol to be bought before many other necessary com lties. It is thus possible that television will soon be similarly consumed by the majority of the poor.

According to a Market Research Africa survey, conducted during 1978, television sets are owned by 19.6% of Coloureds as opposed to 67,6% of Whites (29,2% of Asiatics and 0.2% of Blacks own TV sets). Over one week 45% of Coloureds watched television at home or at friends' homes as opposed to 81,5% of Whites, (50,3% of Asiatics and 4,7% of Blacks) who watched television during the same period.

6.4 The Importance of Television in South Africa:

Block (1970) notes that since the mass media do reach the urban poor, greater interest should be encouraged to disseminate information to them. Due to the potential for widespread television viewing by Blacks, Coloureds and Asiatics and the poor, the educative function of TV has become the focus of attention.

As has been noted previously, programmes like Sesame Street, the Electric Light Company and Mister Rogers Neighbourhood have been produced to enrich the lives of minority children in the U.S.A. According to Bogatz and Ball (1971) 283 disadvantaged Blacks and Whites both benefitted from regularly viewing Sesame Street and from results of a previous study (Bogatz and Ball 1970) in which 1,200 advantaged and disadvantaged children were tested, they concluded that Sesame Street can help close the gap between disadvantaged and advantaged children.

The importance of an educational programme for the poor, the minorities and the culturally disadvantaged generally cannot be overstated. South Africa's political and social situation makes it vital for her to now cater for the needs of the culturally deprived, both to improve race relations and to develop higher educational levels necessary for increased productivity. The introduction of a TV programme with similar educational goals to those of Sesame Street could serve as a sensory input in the absence of other stimulation and could also provide the same catalyst for educational advancement as Sesame Street has done for disadvantaged American children. With a view to enriching the lives of a group of minority children in South Africa a

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television programme was produced and it is the purpose of this study to investigate whether cognitive skills were learnt from it.

6.5 The Study Sample:

Coloured preschool children were chosen as the sample since the Coloured community forms a minority group in South Africa and because their standing on the national socio-economic scale is relatively low. According to the latest population figures, Coloureds with a population of 2,432,000 people form 9, 6% of the total population of South Africa of 25,246,800(Survey of Race Relations 1977, page 50). The average annual income in Johannesburg is R1,895 for Coloureds, R5 867 for Whites, R1 269 for Blacks and R2,367 for Asians (figures from Department of Statistics, 1976). As can be seen from these figures, the Coloureds are second lowest on the National Socio-Economic scale. Within this group are levels of extreme poverty (11.5% earn less than R50 per month) and levels of relative affluence (11.4% earn more than R500 per month).

In addition to low income levels, Coloured families usually have more dependents than average White families. There are usually more than 5 dependents in the Coloured family and 3 or less dependents in the average White family. This serves to reduce an already small income. According to a 1977 census of income and dependency, Whites have R1,544 per annum for each dependent while Coloureds have R372 per annum for each dependent.

6.5.1 Origins:

The Coloured people originated in South Africa through the inter-marriage of early Dutch White settlers, Hottentot slaves and African inhabitants of South Africa. (Brindley 1976). The Hottentots (or Khokoi), the original inhabitants of the Western Cape were the first indigenous people that the Dutch settlers met when they landed in South Africa. The Whites rapidly dispossessed the Hottentots and made them their servants (Troup 1977). During the next six years, slaves were imported from the Indies and East and West Africa. The Hottentots merged and eventually lost their separate identity with the African and oriental slaves, local Africans and Whites to form the distinctive Coloured communities of the Western and Northern Cape. An unfortunate consequence of the meeting of White and Black was the racial antagonism towards the Coloureds by the Whites, and a rigid master servant relationship was established. Marriage between Whites and Coloureds was however not prohibited until 1949; intercourse between these groups was made illegal the following year. However, sexual relations between White and Africans has been prohibited since 1927.

The Indian population is of interest here, since many have inter-married with Coloureds, Indians arrived in Natal in the latter 19th Century to work in the sugar plantations of the White, mainly British settlers. A few became very prosperous and soon were rivals with the Whites for land and commercial gain. In response, the Whites enacted laws to keep the Indians in a subservient role. Like the Coloured, therefore, they are victims of racial discrimination and have no political rights (Troup 1977).

6.5.2 <u>The Coloured Townships of Johannesburg</u>:

In Johannesburg the Coloured population live in various townships on the outskirts of the city. These include Eldorado Park and its

extensions, Nancefield, Kliptown, Bosmont, Coronationville, Newclare, Western, Wesbury, Noordgesig and Riverlea and its extensions. Whilst most of these areas need social aid in terms of economic social and educational conditions, the townships that are reached in the present study are Western, Newclare, Bosmont, Eldorado Park and Kliptown.

5.2.1 Western, Newclare and Bosmont:

Westerr Coloured Township lies to the West of Johannesburg and has a population of over 12,000 people. According to Brindley (1976), there are 2,000 dwellings to accommodate its people. Four-fifths of the area is characterised by small two-to-three roomed substandard houses averaging 13 square metres per room. About one-fifth of the people live in row-houses and flats of the re-developed part of the township called Westbury. The old area where most of the people live is notorious for its poverty to slum conditions, violence, insecurity and alcoholism. Few adults have an education of higher than standard 8 and most are employed as skilled, semi-skilled administrative or clerical workers (Brindley 1976).
Newclare lies on the southern border of Western Township. It has a population of 7,826 people and is known as a haven for delinquent gangs. The houses in Newclare range from very poor squalid dwellings to well built buying houses and flats. The adult population is made up of about 60% of middle to high income earners and 40% of low income earners.

Bosmont, lying south west of Western Township has a population of about 8,000. According to Venter (1974), Bosmont compares

favourably with any other middle-class suburb in the country. There are good schools, houses have fine gardens and a car or two is owned by almost every house-owner.

According to Dickenson (1978), 80 to 90% of the adults are high income earners, comprising professionals, skilled tradesmen, personnel and clerical workers.

5.2.2 Eldorado Park and Kliptown:

This is a rapidly developing area, lying to the south-west of Johannesburg and has a population of about 25,000.

Kliptown ranks lowest in social and economic standing of all the townships. It is "a rambling, festering sore of dirt and dust just beyond Soweto" (Venter 1974 p 425).

The usual forms of dwelling are tin or corrugated iron shanties, but some abandoned motorcars have been covered with sacking and are also used as homes. The shanty dwellers must share communal taps and toilets and no electricity is available for use.

The Tamatievlei area of Kliptown continues to be a particularly bad slum district (Survey of Race Relations 1978). In one section, sixty families consisting of about 290 people were living in sixty-two rooms, an average of 5 people per room. All inhabitants had to use a bucket latrine system, one bucket being shared by an average of about 148 people (Survey of Race Relations 1978 p 442).

Eldorado Park, about 5 kilometres from Kliptown, consists mainly

of small holdings. It is divided up into six extensions with plans for another six to be built, Ext. 2 being the site for a new housing scheme (Rand Daily Mail, May 5, 1977). The houses and flats throughout Eldorado Park are usually small and poorly designed. Many are very cold in winter, and whilst electricity is available, its cost is prohibitive for this income group. Heating for cooking or warmth is not available in the houses of Extension 2 and there are no chimneys for coal fires. The roads are not tarred and dust is constantly blown into the houses (R.D.M. 1977).

6.6 Facilities for the Preschool Child:

In all the townships the preschool child is left for most of the day to his own resources. The child generally receives no conscious adult stimulation from the home. There are a few parks and some play equipment, but the parks are uninviting and infrequently used and the swings are often wrecked by gangsters (Brindley 1976).

The more affluent minority of the population who live in the re-developed areas consisting of flats and row houses, complain that their children have nowhere to play. Mothers get irritated as children play and fight with their peers in the passageways of the flats. A minority of children attend full day or half day creches or child care centres.

The child care centres discussed below constitute three out of ten similar centres in the Johannesburg environs and were chosen randomly for purposes of the present study. The sample children not only come from but are tested in and view the programme Bright Rides in each centre and thus an understanding of the available facilities is important in assessing the effects that the educational intervention has on the preschoolers.

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