SOME ADVANCES IN THE STUDY OF MENTALLY RETARDED: IMPLICATION FOR EDUCATION AND TRAINING

PROFESSOR EGWU. U. EGWU (Ph.D)
Department of Psychology and Sociological Studies,
Faculty of Social Sciences and Humanities, Ebonyi State University, Abakaliki, Nigeria
E-mail: egwu@yahoo.com. Cell Phone(s): +2348(0)34290364

UGWU CALLISTUS CHINWUBA
Department of Psychology Faculty of Management & Social Sciences,
Madonna University Nigeria, Okija Campus
E-mail:callistuschinwuba@gmail.com
Cell phone: +2348(0)38891267

J.O. OKOJIE
University of Benin, Institute of Public Administration & Extension Services,
Benin City, Nigeria, 300001.
E-mail: joel_okojie@ yahoo.com, joelokojie88@ gmail.com
Cell phone(s): +2348(0)23394561, +2348(0)51024447

Abstract
In recent years, researchers have attempted to study the mentally retarded using a wide variety of paradigms. This reading is an attempt to present a comprehensive synopsis of some current social, medical, and psychological and educational attitudes to the mentally retarded and subnormal. The paper concludes by arguing that the ambit and precinct of mentally retarded and subnormal pose some central ethical issues which need to be faced by society thus pointing the way towards plans for the future in this realm of enquiry.

Keywords: mentally retarded, subnormal, education, training, advances

Introduction
In the past, different countries have employed widely different practices for and concepts for individuals with mental retardation. Some refer to them as mentally retarded; subnormal; while others used to refer to them as imbeciles. It is scarcely surprising; therefore, that there are different definitions of these conditions (Okojie & Ibadin, 2013). Probably, at times and within all cultures, the severely handicapped have been identified as such because of their difficulty without help in adapting themselves to social demands. Hence, one finds a greater agreement in defining the more severe than the milder forms of subnormality (Okojie & Okojie, 2013).

The World Health Organization (1954) referred to mental subnormality as "incomplete or insufficient general development of the mental capacities.... it is intended to cover only cases in which general mental development is insufficient". The American Association on Mental Deficiency (Heber, 1959) defined mental retardation as sub-average general intellectual functioning which originates during the development period and is associated with impairment in one or more of the following: (1) maturation (2) learning, and (3) social adjustment'. Here 'sub-average' refers to performance more than one standard deviation below the population mean; 'general intellectual functioning' may be assessed by one of the objective tests developed for the

purpose; and the upper age limit of the ‘development period’ is regarded as about sixteen years. Maturation and learning are also carefully discussed and ‘social adjustment’ at the adult level is regarded .as the degree to which the individual is able to maintain himself independently in the community and in gainful employment, as well as his ability to meet and conform to other personal and social standards as set by the community. Britain’s own Mental Health Act (1959) defined subnormality as ‘a state of arrested or incomplete development of mind (not amounting to severe subnormality) which includes subnormality of intelligence and is of a nature or degree which requires or is susceptible to medical treatment or other special care or training of the patient. Sever subnormality is referred to in the same general terms but with the qualification that the patient is incapable of living an independent life or of guarding himself against serious exploitation, or will be so incapable when of an age to do so.

these definitions use rather similar phrases such as incomplete or insufficient general mental development’, sub-average general intellectual functioning’, and focus on lack of intelligence as an essential criterion. Indeed, with such a wide group as the subnormal, heterogeneous in etiology, level of functioning and prognosis, low or very low intelligence is perhaps the only thing its members have in common: Nevertheless, such criteria as social adjustment are never precisely identified, so that in practice all such definitions, particularly of the higher level of subnormality, permit wide differences in interpretation and in practice.

It is clear therefore, that mental subnormality is not in itself a scientific category but rather a social- administrative concept. Whether defined in terms of IQ, social incompetence or educational failure, any bounding will tend to be arbitrary, and by itself, lead to a degree of misclassification.

Education and Training of the Severely Subnormal

There are two main sources of evidence: on the one hand, the experience of Training Centers and those Educational Subnormal Schools who cater for classes of the severely subnormal; on the other hand, Experimental Studies conducted in workshops and laboratories, which aim to examine in rigorously controlled conditions factors underlying mentally retarded learning and train ability. Regrettably, the wisdom and knowledge gained in the former circumstances are less frequently recorded than in the latter, and furthermore, provision for daily occupation in the community is a relatively new concept, which has not yet come to full fruition. There is, however, increasing acceptance of the idea that mentally retarded, like normal young people need to ‘go to school’ or out to work, to be part of a community adapted to their needs and to be subjected to a type of discipline which can only be provided in a social setting (Okojie, 2014). It has also been suggested that weekly residential centers might meet the need of families whose mentally retarded children are exceptionally disturbed, or where circumstances are such that the mother should work.

The importance of social training and the methods by which social skills may be developed both in children and adults have been investigated and ably reported by Gunzburg (1968). The Slough Project (Baranyay, 1971) put into effect many of his methods, and has pioneered the use of residential social and work training for the IQ 35-50 group, with marked success.

Another problem is the dearth of adequately trained staff to cope with the expansion of teaching services for the severely subnormal and dearth of clearly defined curricula for training, based on the accumulating research findings on perception, learning and memory (Okojie & Ibadin, 2014).

A Synopsis of Some Recent Experimental Research
Special Class Opportunities

In reviewing the literature, Kirk (1962b) points out that most studies have been of short duration, and that it has been difficult to establish the benefits of special class training for this group; results have, on the whole, been negative. "Although we have tended to attribute these negative results to the lack of adequate measuring instrument, lack of controlled experimentation, lack of experienced teachers and short-term research, it might be necessary to find new approaches to the educational programmes for these children. It might be necessary to evolve new theories and new instructional approaches to the problem-possibly intensive case studies on a longitudinal basis, similar to Itard's classic experiment with a simple one". Hermelin and O'Connor (1988) studied the reading ability of 32 institutionalized children with IQs between 35 and 50, and ages between 11 and 19. These children had been taught for an unspecified time in a hospital occupation centre. Using a 'core vocabulary list' evolved by Mein and O'Connor (1985), they selected 200 words used by between 50 and 100 percent of mentally retarded in experimental conditions. Each word was printed separately in one-inch letters on a white card. The average number of words read was 34, with a Standard Deviation (SD) of 50-a markedly skewed distribution. An association between reading ability and frequency of word used was claimed; those words which occur in the speech of 74-100 percent of mentally retarded are read by 68 percent of the children while words which are used in speech by 50-73 percent are read by only 24 percent'. Significant correlations between reading score and mental and chronological ages were also found.

It should be noted that the criterion group for word use was of a different age range (10-30) than the reading group. Moreover, the authors do not appear to have considered the fact that there are a larger number of bisyllabic words in the less familiar (50 to 73 percent) than in the more familiar, hence part of these words. Nevertheless it would be surprising if the authors were not correct in their belief. Whether the teaching of reading to children of this type is justified remains, however, an open question. The Hermelin and O'Connor (1988) data on reading ability are hardly impressive from the practical viewpoint. The reading list was extremely simple, the physical size of the word was large and the average score low.

Gunzburg (1968) believes that it is possible, however, and often useful to teach such children certain words, which they are likely to meet frequently, and also to make them familiar with coins in common use. The recognition of one's own name, and those of other children, is a useful achievement, and can be widened by a generous labeling of many familiar articles. It is surprising how many adults, even of feeble-minded are unable to write their names and encounter difficulties whenever asked for a signature, and writing one's own name in script

appears just as important as recognition of names spelt in block letters. Since the mentally retarded is likely to be restricted in his movements, it is often practicable to teach him to recognize printed words denoting landmarks in the area, which he frequents such as bus destinations and streets without supervision. In the same way recognition of common warning words such as danger-poison-wet paint-keep off-no smoking-stop etc, has definite use.

Very simple addition and subtraction, is probably all one can expect from most children at this level. It is a useful social link by providing an appreciation of the value of pocket-money in relation to buying sweets. (Decimalization may have made appreciation of money values easier). There is, however, no doubt that individual devoted and concentrated work can aim at far more and achieve far more than suggested in the remarks above. Various case studies have reported remarkable results. Thus, Riese (1989) has described in detail the methods used in teaching, reading, writing, and spelling to a child with an IQ of 41.

The effects of pre-school stimulation of mentally retarded children have been investigated by Kirk (1968) who included a small percentage of retarders in his group. He found that in the main such children increased their social and intellectual growth rates compared with controls that had not enjoyed special pre-school facilities. But, although this increased rate was maintained during the first period of school life, others caught up after a few years of schooling. This suggests that limits had not been fundamentally altered but that the children had merely reached them earlier.

Chamey (1970) citing Kirk and Weiner (1963) gives a useful overview of research upon trainable (i.e. severely subnormal) children. He points out that, so far as evaluation of school programmes are concerned, the Hottel (2003) study is the only one using proper controls, and this indicated that children in the upper range of retardation, IQ 40-50, made significantly greater gains in mental age than either those who remained at home or who attended the day class programmes but were of lower ability. In brief, then one is confronted with a similar situation both in the United States and in Great Britain. Public funds are rightly being employed on an increasing scale, wonderful new facilities and modem buildings are being erected, but the basic research into the most appropriate means of aiding the severely mentally handicapped is seldom carried out. Indeed, in English Junior Training centers (now special schools), there is a marked contrast between the enrichment of the surroundings and the relative lack of change in training methods. These include learning thresholds that seem to be too high, learning steps that appear to be too far apart, and the fashionable but sentimental belief that unlike the normal child, it is hoped that research upon severely subnormal children will soon begin to make the impact upon training procedures that research upon adults has already made upon their handling.

Schucman (1980) carried out a detailed study to evaluate the educability of the mentally retarded child, and the large sample involved the age range 5-12. Her basic hypothesis was that the child’s educability can be inferred from his responses to learning situations which require abilities on which education depends, namely, to leam from instruction, to transfer the training, and to retain the learning.

A battery of tests was administered to each child individually. After the first attempt at each, the subject was then trained to the correct response, and retested to evaluate the gains following training. Different forms were also used to evaluate transfer, and retention was measured by

retesting at various later dates. Five tests were eventually chosen after pilot experiments; a test of initiative ability and memory, size discrimination, brightness discrimination, shape discrimination, and another test of brightness discrimination. Teacher' ratings of learning ability, on a five-point scale, were used as an external criterion, IQs and social quotients were also employed.

The test battery was administered on nine occasions, the first three yielding pre-training, post-training, and transfer scores, respectively. The fourth and fifth measured retention under different conditions and at different times and the last four administrations were repetitions of the first four, given after an interval of seven weeks. It was found that the group as a whole learned, transferred, and retained learning to a highly differential influence on pre-training. Transfer and retention scores were the most sensitive measures of differences in ability. This longitudinal approach to learning capacity is of great significance and in contrast to the rather limited studies where preliminary performance on some variables is related to subsequent outcomes.

Language

The general proposition that language development in the mentally deficient tends to fall below the level of other abilities has commanded universal support for many years, and so far as the mentally retarded group is concerned, there is little .doubt that this is so, Soviet psychologists, in particular, have stressed the role of speech in the regulation and integration of early behaviour, and have emphasized its function as externalized thinking in the normal child. Luria and Vinogradora (2004), for example, consider that the retarders show pathological inertia of the nervous processes, particularly evident in the speech system. Moreover, unlike the situation for the undamaged child, there is said to be dissociation between speech and motor signaling systems. Both the general neural inertia and the dissociation combine as the gravest defects, and determine the extreme difficulties with which their training is connected. The child is thus prevented from undertaking any creative, intellectual activity. It should at this point be noted that Luria's method of experimentation involves an attempt at linkage of speech and motor reaction under conditions of short stimulus duration.

As O'Connor and Hermelin (2001) point out in a useful chapter reviewing this area, the Soviet view raises two problems in connection with speech. The first is the meaning of words for the mentally retarded, and the second, the connection between words and motor behaviour. On the first point, the well-known experiment of Luria and Vinogradora (2004) is relevant. The participants were adolescents of varying degrees of retardation, and their responses were compared with those of normal. They were required to press a button in response to a signal word and were also tested with words of similar sound and with words of similar meaning. Degree of motor response was measured by the pressure exerted on the button. In this way, an experimental method for eliciting objectively the synonym connections with the stimulus word was evolved. While normal generalized almost exclusively to synonyms, the retarders generalized very considerably to homonyms. This research is of interest but is limited because of lack of precise description of the participants, and because it is unclear whether the words to which generalization were possible were a different level of familiarity or difficulty for the retarders.

In an endeavour to explore word familiarity in retarders, Mein and O'Connor (1985) studied the oral vocabulary of 80 severely subnormal patients, with mental ages between 3 and 7, and chronological ages between 10 and 30 years. The results were compared with those of another study of 330 normal children whose average mental age was about one year higher. It was indicated that routine hospital existence resulted in the limitation of vocabulary concerned with individual interests and personal experiences, which tends to lead to the frequent use of a small number of 'heavy duty' words. Thus mental age had a more significant association ($r = 0.72$) than chronological age ($r = 0.31$) with vocabulary size. Following the earlier study, Mein and O'Connor (1985) examined the grammatical structure of retarders' responses during interview. Progressive drops in percentage of norms parallel this change in maturing normal children. In addition significant differences were found between Mongol and non-Mongol patients matched for sex, MA (Mental Age) and CA (Chronological age).

Lyle (1996a) reported a study, which was one of a series giving data on a group of mentally retarded children in an institution and a group living at home attending day schools. A number of objective ad hoc scales were devised to measure various aspects of speech and language, and the verbal subtest of the Minnesota Preschool Scale was given. Results indicated a high intercorrelation of measure of various aspects and language, accounted for by one common factor of verbal ability. Lower verbal ability was found in Mongols than in non-Mongols, whether at day school or in the institution, and there was comparative verbal retardation among the institution group. The same author (Lyle, 1996b) tested the effect of a stimulating environment on the verbal ability of 16 mentally retarded children age 5-10 (excluding sensory or physical handicaps and the untestable) moved from an institution to a residential family unit. For a full account of this special environmental situation, the reader is referred to Tizard (1962). A matched control group was used, and the experimental effects assessed by the differential improvement over a period of time on a series of ad hoc verbal tests, the Minnesota Preschool scale or the Merrill-Palmer test. The experimental group developed verbally at a significantly greater rate than their controls that remained in the institution; positive changes in social and emotional maturity, effective relationship, and social participation were apparent in the experimental group. These changes were believed to be due to the creation of a child-centered social organization with no special training programme, where the social and emotional needs of the children were the focus of concern.

O'Conner and Hermelin (2001) showed that the structure of the language of the imbecile resembles that of normal children of similar mental age, and that words have the same semantic characteristics. Moreover, semantic generalization does occur in an experimental situation closely similar to that used in Soviet research. The authors believe, therefore, that Luria's theory that "meaningful verbal system" can rarely be built up in such children might be too pessimistic a view'. Furthermore it is possible to build-up learning sets which favour the meaningful verbal connections rather than random or "clang" associations.

O'Conner and Hermelin's (2001) experiments were short term in nature but support Lyle's (1996a) finding that in the language sphere some modification of development might be possible. What is now needed is a research of long duration with subjects randomly assigned to control and experimental conditions. Two important reviews on language functions in mental retardation have been published by Spreen (1968a). In the first, evidence is presented on the relationship

between intellectual and language development and consideration is given to specific types of retardation and to factors identified as contributing to the severity of language handicaps. The second concentrates on the role of language in higher intellectual functions such as abstraction, concept formation learning and verbal mediation. Spreen (1968b) indicates that language dysfunction occurs in 100 percent of those below IQ 20, in 90 percent of those between IQ 21 and 50, and in around 45 percent for the mildly subnormal. It is also argued that the abstract-concrete dimension in vocabulary definitions is of some value in differentiating subnormal matched for mental age with younger normal, and there is some indication that the brain-damaged are more handicapped in abstraction ability than familiar subnormal.

A common view suggests a close relationship between language and thinking, and that some form of inner language' or verbal mediation may be essential to intelligent behaviour. Spreen goes on to review the dissociation hypothesis and concludes by suggesting that further important variable may also be involved.

There is impressive evidence that retarders are particularly handicapped with respect to verbal and higher-order conceptual abilities (Miller, Hale, & Stevenson, 1998). This is to be expected almost by definition, and may reasonably be accepted as evidence of constitutional deficits. It should however, be immediately apparent that differences between the subnormal and normal in these respects parallel in differences between the average and intellectually gifted, and the entire nature-nurture controversy (which will not be elaborated here) can be applied to the findings. It has been suggested that, even among the severely retarded, environmental factors significantly influence the level attained (Lyle, 1996a, 1996b).

It is equally clear from the work of many investigators, and particularly Furth and Milgram (1999) that even fairly low-grade subnormal are not wholly devoid of conceptual categories, but that the greater the severity of defect, the greater the deficiency in verbal formulation of conceptual activity. The whole area of language has been well reviewed in an important chapter by Mitter (1974).

Distraction

The view the intellectually normal in comparison with the subnormal are always more distractible is not entirely supported by the experimental evidence. It is indeed far from clear how far this supposedly greater distractibility might be a function of impaired brain function, or reflection of the monotony of life conditions, such that any unusual stimulus has a novelty or arousal value. Sen and Clarke (1988) report a series of five interlinked experiments in which they studied the effects of different distracters on tasks requiring verbal responses by subnormal of two different verbal IQ levels. It was found that distraction was related to task difficulty and that not all-external stimuli designed to act as distracters operated in this way. In addition, however, the result, taken in conjunction with evidence from other studies with both normal and subnormal participants, suggest that further factors are also important; (1) the nature of the task; (2) its duration; (3) the intensity of distracting stimuli; (4) the relevance of the distracters to the task; and (5) in case of conversation and related distracters such as stories, their attention value.

The authors believe that their findings are consistent with the view that subnormal as a group, are more likely to show distractible behaviour than normal. They also suggest that a blanket

description of them as distractible serves to cloud the issues of why and in what circumstances they manifest this type of behaviour, and how it may be overcome. The immediate implication is that care must be taken to minimize distraction in the early stages of learning a difficult task. It is also possible that training may reduce the subnormal's proneness to distraction behaviour.

Training for Skill in the Severely Mentally Retarded

Loos and Tizard (1966) transferred adult participants who are mentally retarded to a sheltered workshop where industrial work involving folding of cardboard boxes was to be carried out. This task involved nine different bi-manual movements in the correct order; and after initial difficulties it was achieved within two weeks. By this time the participants were working deftly and at speed. It was found that in this simple type of industrial job, the ability of the mentally retarded was not in fact markedly inferior to that of subnormal persons averaging an IQ of 71. Before long, however, it had surpassed the level of the brighter patients, and all that has occurred in this workshop over a decade underlined the excellence of these mentally retarded at industrial work.

Clarke and Hermelin (1995) pointed out that to the unfortunate families into which the mentally retarded are bom, such cases represent a formidable social, emotional, and economic problem, particularly since, in later life, they have seldom been able to contribute materially to their own support. They mentioned that most previous researches had employed laboratory tasks, and they set themselves four questions: (1) can the mentally retarded do a fully day's work on industrial tasks; (2) can they acquire comparatively difficult skills; (3) to what extent does initial ability relate to final achievement; and (4) what, indeed are the limits to mentally retarded trainability?, and what practical and theoretical implications emerge?

They reported that their participants were the same six typical mentally retarded first studied by Tizard and Loos (1954) and that they had been under observation for a period of two and a half year doing simple industrial work efficiently. Supervision had been minimal, indeed on one occasion they did a morning's work voluntarily in the absence of any supervisor. Their age range was by now 20-30 (mean 24); their Standford-Binet IQs ranged from 24 to 41 (mean 33); and their period of stay in the hospital ranged from 6 to 14 years with, in most cases, long period in other institutions. In view of subsequent results, it may be appropriate to amplify these bare figures by describing some of their behaviours. Two of the six could hardly talk at all; three could not name colours correctly, though all could match them; two hoarded rubbish; two were unstable, one of these showing apparently psychotic traits. Four of them did not know their ages, only one could count above ten, and two could not really count at all.

The first experiment investigated the abilities of the participants to use a simple guillotine and to cut insulated wire to exact lengths-in this case 10 inches. Though simple, this task requires both dexterity and co-ordination, qualities in which the mentally retarded are commonly regarded to be lacking. There were two sessions of one hour each, separated by a week of non-practice. Initial and final scores for each participant per five-minute period were as follows; 35-46, 23-33, 40-52, 16-48, and 15-57. At the end of the second session, the level attained by individuals whose average IQ was 40 points higher and who had been well practiced in the task. It was suggested that five out of the six participants could then earn between £2 and £3 per week on this task.

The second experiment was a relatively complex soldering task- the soldering of four different coloured wires to the correct terminals of an 8-pin television plug. This is far from being a mechanical job, involving as it did the distinction of colours (and some of the subjects could not even name colours) and spatial relationships and the handling of a soldering iron in a relatively dexterous way. Initial scores, with assistance, ranged from 4 to 19 minutes per plug, with an average of about 8 minutes. At the completion of the experiment, after 34 trials the time per plug, without assistance, had been reduced to a range of from 1 minute 42 seconds to 3 minutes 30 seconds. (Average 2 minutes 37 seconds) and errors had become uncommon.

In the third experiment, an attempt was made to teach a simple assembly task, involving a sequence of different operations. Bicycle pump assembly was chosen, because nine operations have to be performed in the correct order, including the use of screws and washers. Initial scores ranged from 4 minutes 20 seconds to 10 minutes 45 seconds, with assistance from the experimenter. By the 30th trial, the time per assembly ranged from 54 seconds to 1 minute 50 seconds without any assistance. Accuracy had become perfect; and indeed this seemed to be an ideal assembly task for the mentally retarded.

In the fourth experiment, the participants were unable to learn a more abstract series of operations, namely the construction of the first three designs of the Wechsler Block Design test. They were able, with difficulty, to learn to copy each design individually, but quite unable to learn to construct three designs as a sequence in the time available.

From these experiments, the authors deduced three descriptive principles; (1) the initial ability of the mentally retarded on industrial as on other tasks tends to be exceedingly low; (2) their initial ability has little relationship with the level achieved with training; and (3) the main distinction between the performance of retarded and others on simple tasks is not so much the end level as the time taken to achieve it. Nevertheless, the time needed is within practical possibilities for the trainer.

It is clear that traditional clinical opinions on mentally retarded are reasonably accurate descriptions of their abilities before training, but to take them at face value is to ignore their potentialities. Many could perform useful tasks and contribute in some cases substantially to their own support, in national conditions of full employment, provided that their physical handicap is not severe. Finally, the authors, while conceding the value of ‘occupation’ centers, which kept the patient happily occupied, aided his social adjustment, and gave some relief to parents and relatives, called for a more positive approach.

It is of interest that this small group, now supplemented by others, worked happily and usefully for a decade. Although these industrial studies have been in many ways rather crude, it may be of use to summarize the principles of training of adult severe subnormals for industrial work.

1. Incentives: The severe subnormal, like the normal, is very much affected in the learning situation by the presence or absence of suitable incentives. The most effective seems to be to set him realistic goal to work for, a little above performance on the previous occasion. This goal can be indicated visually, for example, having yesterday’s pile of work in front of the person, or a simple scale and pointer. Needless to say, verbal encouragement and competition also reinforce his learning.

2. Break-down of work: The task to be learned needs to be broken down to its basic constituents; e.g. to screw two pieces of perforated metal together it is necessary (a) to pick up a screw and screwdriver; (b) to place the pieces in some securing device which will hold them steady; (c) to see that the two holes are opposite each other; (d) to push the screw into the hole and (e) to turn the screwdriver. Each has to be taught separately in the right sequence so that the whole job from start to finish is tried at each attempt.
3. Correct movements: It is essential that the correct movement should be insisted on from the very start, because by definition the correct ones are the easiest. Thus, following this example, if the retarders fail to hold the screwdriver correctly they should repeatedly be shown how, no matter whether this takes five or twenty-five minutes.
4. Learning should be spaced: It is much more economical if learning is spaced rather than massed. Thus, three separate 20-minute periods will produce more learning than a one-hour session.
5. Need for over learning: The learning process should be taken well beyond the amount at which correct responses are made, so that it becomes deeply ingrained. This is familiar enough to us all in schooldays when, to our great advantage later, we have to 'over-learn' our times and other tables.
6. Verbal reinforcement: With normal participants, the acquisition of skills is made easier if the leaner uses work almost as a commentary on his own actions. This is very apparent with young children, whose learning may be greatly facilitated if they use words at the same time. Thus two chains of events are learned; first, the actual movement needed for the task, second a parallel verbal chain in the simplest language, describing the actions. It is however, not entirely clear how far this applies to the severely subnormal, and who are often particularly retarded verbally. Opinions differ on the subject and further research is needed to clarify the problem. This is the basis of verbal conditioning, which is particularly difficult to achieve in the low-grade defective.
7. At first, accuracy rather than speed should be stressed
8. Material should be arranged in such a way that muddle or fumbling can be minimized
9. In general, the teacher must remind himself that initial levels is a very inadequate predictor of response to training, and that even if no progress is made for a very considerable time, it is likely to occur if training is considerably prolonged. Finally, it is wise when teaching a new technique to keep the group small, and at first limited to two or three individuals at a time.

Clarke and Clarke (1983), in reviewing five main streams of experimental work on learning in the severely subnormal, have indicated how well the result of many such studies can be integrated. Of those they quote, all agree that learning can be effective, and some indicate good retention and transfer. A wide range of differences between individuals on particular tasks can, with training, be greatly reduced in association with a marked improvement. The learning of the handicapped is very similar once it has really commenced. Its commencement is limited by virtue of defects in sorting out and registering the incoming stimuli, defects which appropriate programming can minimize. This defect in acquisition is most obvious in their relative inability to profit from ordinary unstructured experience, a deficiency in spontaneous learning. Such spontaneous learning, of course, plays a most important role in the development of normal or intellectually superior children. Finally, performance in one situation reflects the demands of that situation and gives little indication to potential.

There appear to be clear and unambiguous implications for education here which can be summarized as follows and which equally applies to the training of adults (Okojie & Ibadin, 2014).

a) A one-to-one teacher-child ratio is highly effective, even if only for short periods daily. This is not a utopian idea beyond the possibility of arrangement in school.
b) The particular approach to education must be didactic and highly structured but in a pleasant modem context, such a view will be disputed by many teachers who extrapolate downwards from the current fashion emphasizing appropriate exposure learning for normal children in nursery and primary schools. The fact that initial ability prior to training on almost every task is so poor and surely indicates that the retarded child learns neither by discovery nor even guided discovery, for the child has usually had ample opportunity to learn in this way. To give him further similar opportunities will do little good. For example, work in the 1950s showed the severely subnormal to be at first grossly deficient in space perception; these children and adults had plenty of unstructured opportunity to develop these processes but were inept until trained.
c) The child will respond both to high expectancies by teacher and parents and within the limits of common sense, to high demands. His limited achievements are directly and almost solely related to the structured and directed training, whether social or vocational, he has undergone, together with its subsequent reinforcement, and to the demands made upon him and to their motivational consequences. These rather simple ideas have as yet made virtually no impact upon practice, as Grant (1971) has clearly indicated for the adult severely subnormal in training centers. Here the supervisors, who might be taught to know best the capacities of their changes, were shown to underestimate seriously their responsiveness to training on new tasks.
d) Rather than try to predict who will learn what, it is better to prescribe one's learning targets and then seek to achieve them. Assessment, as currently practiced, is only useful as an indication of a baseline or as a check upon progress. As a predictive device its use will probably act against the interest of many of the children. Many psychologists and school medical officers, perform a meaningless assessment ritual, which if nothing has been done for the child, do not change year by year, and justify the possibly false inference that nothing can change.
e) There are obvious and very considerable limitations upon the child's development. The aims of education should be linked with the child's future status as a simple adult. What are the essentials of the simple life? This should be the prescription and should embrace work, leisure and hobbies and general social and domestic competence, with the teacher working much more closely with the parent than is usual in normal education, more time is, of course, needed to develop a particular skill than with normal children so the range of skill taught cannot be as wide. Concentration on this narrow range will be far more realistic and effective than any attempt to produce well rounded education. As with disadvantaged children, the seductive attempt to enrich rather than teach only ensures that efforts are spread shallowly and ineffectively.

Speijer (1968) has described seven important principles relating to sheltered workshops; (1) the workshop is a rehabilitation centre and not a place where subnormal are kept; (2) the trainee should perform work for which he is most adapted at any given time; (3) the subnormal must be transferred to more difficult work as soon as he is ready for it; (4) careful examination of the

individual's failures should result in guided development; (5) patience on the part of the instructor will often ultimately be rewarded by the emergence of unforeseen abilities in the trainee; (6) a fair wage system must be evolved; and (7) the sheltered workshop is not an end in itself but a means to an end; the social integration of the mentally handicapped.

Conclusion

The field of subnormality poses some central ethical problems which need to be faced by society. How far, for example, should doctors strive heroically to keep alive that small minority of this group who are bom so profoundly physically and mentally handicapped that their further existence is a continuing tragedy? Or again, with evidence that children rescued from gross neglect, have normal prospects if adopted early in life, should one instead try to support adverse and inadequate families in which the outlook for those same children is poor? Should one talk about the sanctity of the family where no sanctity exists? Far too often such issues are discussed solely in emotional terms; the time is now ripe for a hard-headed evaluation of the options potentially open for children for their families and society at large.

Generally speaking, once an area of endeavour has attracted systemic scientific research and the development of new ideas and techniques, accelerated progress is likely to be achieved. Thus, further advances in both prevention and amelioration of subnormality can confidently be expected. Indeed, such advances as have already been achieved have, in the United States, prompted the President's Committee on Mental Retardation (1972a) to state that, using present techniques in the biomedical and behavioural sciences, it is possible to reduce the incidence of mental retardation by half at the end of the twenty first century. Whether this possibility becomes a probability is, of course, another matter. Much depends upon the resource which society is prepared to allocate in attacking its own pathologies, whether biological or social.

References

Baranyay, E. P. (1971). *The mentally handicapped adolescent.* London Oxford Pergamon Press.

Clarke, A. D. B. & Hermelin, B. F. (1995). Adult imbeciles: their abilities and trainability. *Lancet,* 1337-339.

Clarke, A. D. B. & Clarke, A.M. (1983). *Mental retardation and behavioural research.* London: Churchill Livingstone.

Chamey, L. (1970). The trainable mentally retarded. In Kirk and Wiener (1963). *Behavioural research on exceptional children.* Washington D.C. Council for Exceptional Child.

Furth, H. G. & Youniss, J. (1988). Colour object paired - associates in deaf and hearing children with and without response competition. *Journal of Consulting Psychology;* 28, 224-227.

Furth, H. G. & Milgram, N. A. (1999). The influence of language and classification: a theoretical model applied *to* normal, retarded and deaf children. *Genetic Psychology Monography,* 72, 317-315

Grant, G. W. B. (1971). Some management problems of providing work for the mentally disordered with particular references to the handicapped. *Unpublished M.Sc. Thesis University of Manchester, Institute of Science and Technology.*

Heber, R. (1959). The role of environmental variables in the etiology of cultural-familial mental retardation. *Proceedings of the First Congressional Association of Scientific Studies of Mental Deficiency* 456-465 B. W Richards (ed). Reigate; Michael Jackson.

Hermelin, B. F. & O'Connor, N. (1988). The role and concept learning of imbeciles. *Journal of Mental Deficiency Research,* 2, 21-27.

Hottel, J. V. (2003). The effect of day class training of severely mentally retarded on their intelligence, social maturity, behavior development and home adjustment. Nashville, Tennesse George Peabody College for Teachers.

Kirk, S. A. (1962b). *Educating exceptional children.* Boston: Houghton Mifflin.

Kirk, S. A. (1968/ *Early education of mentally retarded.* Urbana II; University of Illinois Press.

Kirk, S. A. & Weinner, B. B. (1963). *Behavioural research on exceptional children.* Washington D.C. Council for Exceptional Child.

Kolstoe, O. P. (1998). Language training of low grade mongoloid children. *American of Mental Deficiency* 63, 17-30.

Luria, A. R. (1987). *The role of speech in the regulation of normal and abnormal behaviour.* London: Pemamon.

Luria, A. R. & Vinogradora, O. S. (2004). An objective investigation of dynamics of semantic systems. *British Journal of Psychology,* 50, 89-100.

Lyle, J. (1996a). The effect of an institution environment upon the verbal development of imbecile children; ii speech and language. *Journal of Mental Deficiency Research,* 4, 1-13.

Lyle, J. (1996b). The effect of an institution environment upon the verbal development of imbecile children: The Brooklands residential family unit. *Journal of Mental Deficiency Research,* 4, 14-22.

Loos, F. M., & Tizard, J. (1966). The Employment of adult imbeciles in a hospital workshop. *American Journal of Mental Deficiency,* 609, 122-132.

Milgram, N. A.. (1996). Verbalization and conceptual classification in trainable mentally retarded children. *American Journal of Mental Deficiency;* 70, 765.

Mein, R. & O'Connor, N. (1985). A study of the oral vocabularies of severely subnormal patients. ; *Journal of Mental Deficiency Research, 4,* 130-143.

Miller, L. K., Hale, G. A. & Stevenson, H.W. (1998). Learning and problem solving by retarded and normal subjects. *American Journal of Mental Deficiency,* 72, 681-690.

Mitter, P. (1974). Language and communication. Chapter 17 in Clarke, A.M. and Clarke, A.D.B. (eds) j *Mental deficiency. The changing outlook* (3rd edition) London; Menthuen.

O'Connor, N. & Hermelin, B. F. (2001). *Speech and thought in severe subnormality*. London; Pergamon

Okojie, J. O. & Okojie, E. O. (2013). The Control and Management of Pain: A Hypnotic Approach. *Benin Journal of Educational Studies* 17(1) 150-161.

Okojie, J. O. & Ibadin V. O. (2013). Illness, Disease and Health: A Psycho-Social Discourse. *African Journal of Education,* (AJE), 6 (1), 155-156.

Okojie, J. O. (2014). Social Construction of Conceptions of Stigma. *Africa Journal of Education, (AJE),* 6 (2) 41-46.

Okojie, J. O. & Ibadin, V. O. (2014). The Relevance of Psychology for Education: A Pedagogical Perspective. *African Journal of Education (AJE),* 5 (2), 232-244.

Presidents Committee on Mental Retardation, (1972a). *Entering the era of human ecology.* Washington, D.C: *Department of Health Education and Welfare Publication,* 5, 72-77.

Riese, H. (1989). Academic work with an eleven years old girl with an IQ of 41. *American Journal of Mental Deficiency,* 60, 545-551.

Schucman, H. (1980a). Evaluating the educability of the severely mentally retarded child. *Psych ological Monograph,* 60, 545-551.

Schucman, H. (1980b). Evaluating the educability of the severely mentally retarded child. *Psych ological Monograph*, 74, 1-32.

Spreen, O. (1968a). Language functions in mental retardation; a review of language child. *Psychological Monograph*, 74, 1-32.

Spreen, O. (1968b). Language functions in mental retardation: a review of language development, types of retardation and intelligence level. *American Journal of Mental Deficiency*, 69, 482- 494.

Sen, A. & Clarke, A. M. (1988). Some factors affecting distractibility in the mental retardate. *American Journal of Mental Deficiency*, 73, 50-60.

Speijer, N. (1968). Basic principles of the sheltered workshop. *Proceedings of the first congress of international association of scientific studies. Mental Deficiency*, 162-165 Reigate Michael Jackson.

Tizard, J. (1962). The residential care of mentally handicapped children. *Proceedings of the London conference on the scientific study of mental deficiency,* 1960, 11 659-666. Dagenhoun: May and Baker, Ltd.

Tizard, J. & Loos, E. M. (1954). The learning of a spatial relations test by adult imbeciles. *American Journal of Mental Deficiency*, 59, 85-90.

World Health Organisation, (1954). The mentally subnormal child technical report Serial No.75 General WHO.