

Exceptional Children : Gifted, Handicapped and Backward (Learner-centred Techniques and Exceptional Children)

Twenty-first century is said to be an age of children. Now every country is making attempts to bring about the proper development of personality of children. So all types of children – normal, supernormal or sub-normal deserve special instruction and care. Hence, we shall study different types of children (exceptional children) in detail.

(A) CONCEPT (INCLUDING CHARACTERISTICS) OF EXCEPTIONAL CHILDREN

Traditional concept : Exceptional children are those children who deviate from average (normal) children to the extent that they cannot receive classroom instruction in regular school or a school we perceive in general.

Some psychologists mean by 'exceptional', *extra-ordinary talents*, others may use the term for *dull or backward children* who lag behind in academic achievement.

Modern concept : Exceptional children are those children who differ so much from average (normal) children in their mental, physical, emotional and social characteristics that may require modification of school environment or special (supplementary) educational services in order to develop to their maximum capacity. Today, emphasis is on '*environment*' and '*special services*' and not on '*special schools*' for almost all types of exceptional children.

For example, supplementary educational services can meet the requirements of the gifted children. In some of the normal schools, blind students also receive education and special provisions are made for their special needs. For severely handicapped children special schools are needed as their special requirements cannot be met in ordinary (normal) schools. However, there is an increasing emphasis on the integration of exceptional children with normal children.

Exceptional children are those children who deviate from the average (normal) children either to the lower side or to the upper side in any of the following dimensions, areas or directions :

1. **Mental dimension** like superior intelligence, sub-normal intelligence or feeble-mindedness and brain damage due to certain injuries.

2. **Emotional dimension** like psychoneurotics, psychotics, sexual ablations and character irregularities, emotionally disturbed and delinquents.

3. **Social dimension** like leadership, isolates and delinquents.

4. **Physical dimension** like visual defects, hearing defects, nose defects, throat defects, speech disorders, physical deformities, chronic illness, psychosomatic diseases, epilepsy and superior physique.

This definition shows that there are following types of exceptional children :

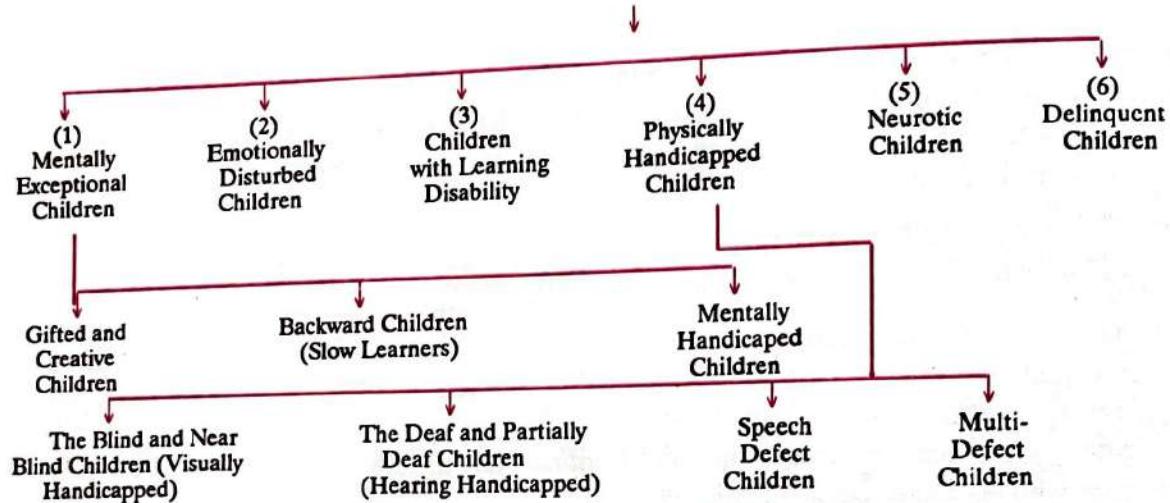
1. **Intellectually exceptional** : Intellectually exceptional children include : (1) Gifted or Precocious children, (2) Creative children, (3) Children with learning disabilities, (4) Backward children (slow learners), (5) Educable mentally retarded children, (6) Severely mentally retarded (Mentally handicapped children).

2. **Emotionally exceptional** : (1) Delinquent children, (2) Emotionally disturbed children.

3. Physically exceptional : Physically exceptional children include children with : (1) Impaired vision, (2) Impaired hearing, (3) Impaired speech, (4) Injured brain.

4. Multi-handicapped : Multi-handicapped children are those children who have more than one defect given above.

Types (Broad Classification) of Exceptional Children



Some Expert Views about Concept of Exceptional Children :

1. Kirk's view : "An exceptional child is one who deviates from normal or average child in mental, physical and social characteristics to such an extent that he requires a modification of school practices or special educational services or supplementary instruction in order to develop to his maximum capacity."

2. W.M. Cruichshank's view : "An exceptional child is one who deviates physically, intellectually, and socially so markedly from normal growth and development that he cannot be benefitted from regular classroom programme and needs special treatment in school."

3. View of Jersild, Telford and Sawrey : "The term exceptional is commonly applied to children who differ notably from the average children."

4. View of Crow and Crow : "The term 'exceptional' is applied to a trait or to a person possessing trait upto the extent of deviation from the normal possession of the trait so great that because of it the individual warrants or receives special attention from his fellows, and his behaviour responses and activities are thereby affected."

5. J.E. William's view : William depicts the pen picture of exceptional children as, "in a typical group of elementary school children from environments of inferior, medium and superior economic and social status about 500 children will present problems calling for special educational, psychological, social, physical adjustments because of exceptional scholastic, intellectual, emotional, social peculiarity or physical conditions."

6. K.C. Panda's view : "Exceptional children are those who differ from the average to such a degree in physical and psychological characteristics that the traditional school programme does not allow to growth according to their ability."

Characteristics of Exceptional Children :

The concept of exceptional children can be made more clear by highlighting their characteristics :

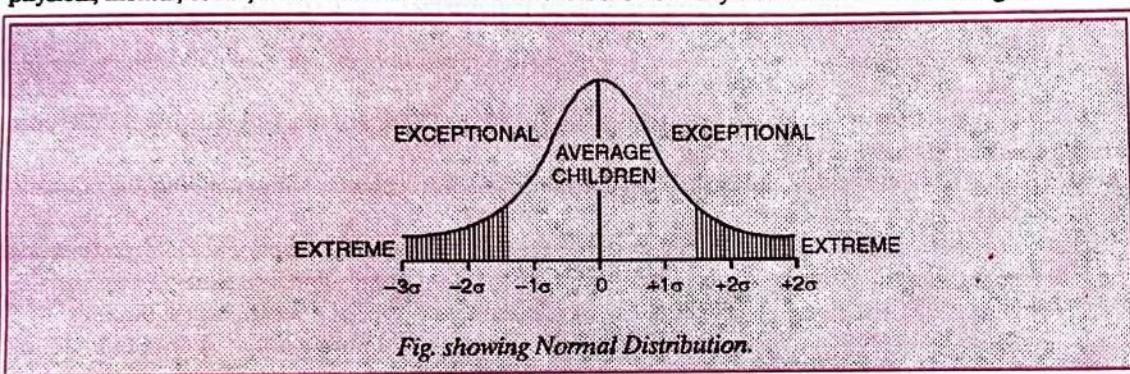
1. Distinctness : Exceptional children are quite distinct and different from the average (normal) children. They differ notably from the average children.

2. Deviation : Exceptional children can be easily recognised as their deviation from the average (normal) children is quite marked. The term 'exceptional' is applied to the trait of a person possessing upto the extent of marked deviation from the normal.

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3. **Dimensions :** Exceptional children deviate mentally, emotionally, socially and physically from normal growth and development.
4. **No benefit from regular teaching :** Exceptional children may not be benefitted from regular classroom teaching programmes.
5. **Special environment :** Exceptional children need special environment for the full development and nurturing of their talents. They require a modification of school practices and need special treatment in school to develop their maximum capacity.
6. **Both extremes :** Exceptional children belong to both the extremes (upper side or lower side) of mental, emotional, social and physical dimension or educational achievement.

As it has been stated that 'exceptional' term refers to a trait of a person possessing upto the extent of deviation from normal. All the human traits are normally distributed for large group or population. The physical, mental, social, emotional and educational traits are normally distributed as shown in figure :



(B) NEED FOR THE EDUCATION OF EXCEPTIONAL CHILDREN

Important considerations for making provision for the education of the exceptional children are :

1. **Constitutional commitment :** The Constitution of India lays down that the State will endeavour to provide Compulsory Primary Education for all children (whether gifted, backward, delinquent, physically handicapped, emotionally handicapped, mentally handicapped or socially handicapped or children with learning disabilities).
2. **United Nations' Declaration :** In 1959, the United Nations in its *Declaration of the Rights of the Child* laid down, "The child who is physically, mentally or socially handicapped shall be given the special treatment in education and care required by his particular condition."
3. **National Policy for Children (1974) :** India's National Policy for Children (1974) envisages that "socially handicapped children who have become delinquent shall be provided facilities for education, training and rehabilitation." It further states that "special programmes shall be formulated to spot, encourage and assist gifted children, particularly those belonging to the weaker sections of society."
4. **National Policy on Education (1986, 1992) :** The National Policy on Education, 1986 as amended in 1992 provides for "special education for education of the handicapped".
5. **Not benefitted by regular classes :** Regular classes for normal children do not meet the needs of exceptional children. Hence, they need separate classes.
6. **Special school training :** Special categories of children like deaf, dumb, blind, mentally handicapped, etc. require special school training. Under normal conditions or ordinary classes they may develop behaviour problems.
7. **Proper development :** The principle of equalisation of educational opportunities highlights that exceptional children should have opportunities to develop themselves to the maximum.

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8. **Self-sufficiency** : Proper opportunities will make them economically self-sufficient.
9. **The World Conference of Education for All (1990)** : The World Conference of Education for All held in Jomitan (Thailand) in 1990, which was participated by 150 countries and more than 150 non-governmental organisations observed, "The learning needs of the disabled demand special education. Steps need to be taken to provide equal access to education to every category of disabled persons as an integral part of the education system."
10. **Salamance Statement (1994)** : The Salamance Statement (1994) adopted by 98 countries and 25 international organisations, 'inter-alia' observed, "Those with special education needs must have access to regular schools which should accommodate them within a child-centred pedagogy capable of meeting these needs." It further added, "Regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes."

(C) SPECIAL EDUCATION FOR EXCEPTIONAL CHILDREN

Generally, the term 'special education' is applied to education of exceptional children.

(1) Axioms of Special Education :

1. **Individual differences** : No two individuals are alike. There are marked individual differences among children in each exceptional area.
2. **Equal right** : Every exceptional child has the same right of acceptance, understanding and education as other children.
3. **Identification and placement** : To ensure maximum progress of exceptional children in school, early screening, identification and placement in special education programme are generally essential.
4. **Specific goals** : Specific goals should be developed for all special education programmes.
5. **Competent persons** : Special education programmes should not be initiated or continued until competent and trained personnel are available.
6. **Individualised teaching** : Exceptional children need individualised teaching procedure which should be based upon abilities and disabilities of pupils.
7. **Special curriculum** : Special curriculum, materials and equipment are needed.
8. **Continuous reassessment** : Continuous reassessment of exceptional children and revaluation of school programmes are essential to progress.
9. **Integral part** : Education for exceptional children should be an integral part of total education programme when possible and practical.
10. **Team approach** : For proper diagnosis and placement, a team approach is to be made by physician, psychologist and educationist.

(2) Learner-centred Techniques for Teaching Exceptional Children (Educational Services for the Exceptional Children) :

Prof. K.C. Panda (2000) states that the following types of educational services should be provided to the exceptional children depending upon the nature and intensity of the handicap :

1. **Regular classroom support** : Problems in general are to be handled in the classroom. Minor in-class support should be given in the regular classroom.
2. **Regular classroom consultation** : Consultation should be provided in the regular classroom.
3. **Regular classroom with enriched programme** : There should be provision for regular classroom with daily resource from supplementary or enriched programme as the case may be.
4. **Regular classroom plus resource service room** : There should be provision for resource room with several hours of daily regular classroom instruction and non-instructional activities.
5. **Part-time special classes** : Besides regular class work there should be provision for part-time special classes. It means that there should be regular classroom work with limited hours of weekly non-instructional activities with regular classmates.

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6. **Special classes** : Full time special classes should be provided. It means that there should be self-contained special classroom.
7. **Special day school** : Special day school service should be provided to the exceptional children.
8. **Homebound or hospitalisation** : Homebound or hospitalisation educational service should be provided to the exceptional children.
9. **Residential school** : Educational service may be provided to certain categories of gifted children in residential schools.

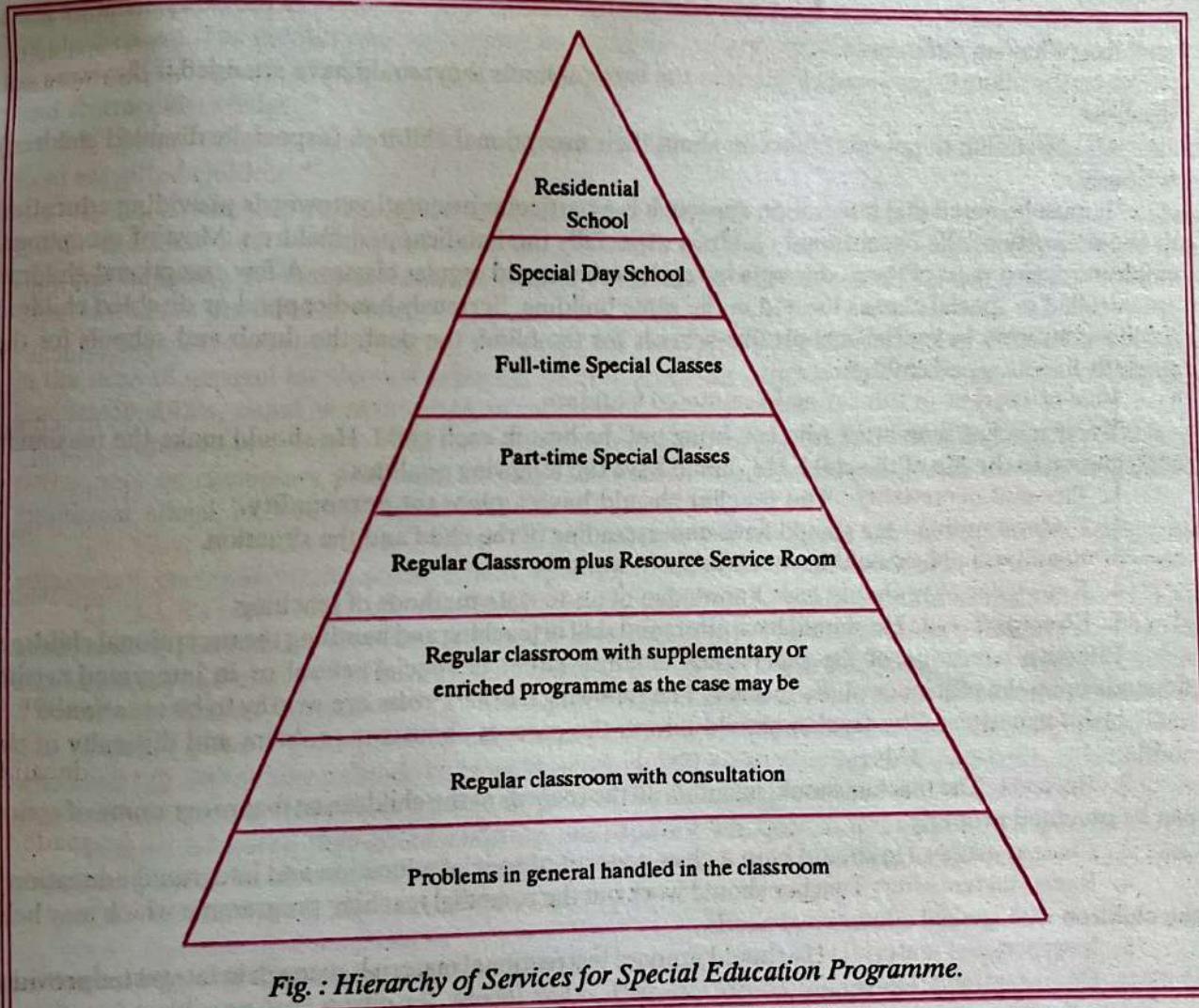


Fig. : Hierarchy of Services for Special Education Programme.

Integration Approach to the Education of the Exceptional Children :

Integration implies the existing of the following elements :

1. **Sharing** the same classroom, resources and opportunities by the handicapped and other categories of exceptional children as well as the regular students.
2. **Providing special service** needed for the exceptional children in the regular schools.
3. **Providing appropriate individualised programme** according to the needs of exceptional children.
4. **Involving exceptional children in several academic courses and co-curricular activities** including painting, music, dancing, singing exercises, debates, declamations, seminars, symposiums, social service programmes and field trips, etc. while keeping in mind their talents and limitations.

5. Having exceptional students follow the same schedule as average (normal) students as far as possible.
6. Encouraging friendly relations between exceptional students and average (normal) students.
7. Enabling exceptional children to use resources like library, playground and other facilities at the same time as average students use.
8. Arranging for exceptional students to receive their education in the regular environment of the community when feasible.
9. Advising all students to understand the limitations and strengths of the exceptional students and accept human differences.
10. Enrolling exceptional children in the same schools they would have attended if they were not disabled.
11. Attending to parents' concern about their exceptional children (especially disabled children) seriously.

It must be noted that integration approach is a particular orientation towards providing education to the majority of the exceptional children especially the handicapped children. Most of exceptional children receive most of their education in regular schools and regular classes. A few exceptional children are enrolled in special classes located in the same building. Seriously handicapped or disabled children receive education in special schools like schools for the blind, the deaf, the dumb and schools for the mentally handicapped children.

Role of Teacher in Educating Exceptional Children :

Every teacher is an artist who can bring out the best in each child. He should make the maximum contribution in the life of the child. He should have the following qualities :

1. Pleasant personality : The teacher should have a pleasant personality.
2. Understanding : He should have understanding of the child and the situation.
3. Readiness : He should have readiness to work.
4. Knowledge : He should have knowledge of up-to-date methods of teaching.
5. Effort and skill : He should have effort and skill in teaching and handling the exceptional children.

Effective education of the exceptional children either in special school or in integrated setting depends upon the efficiency of the teacher. The following *teachers' roles* are worthy to be mentioned :

1. Information : The teacher should inform the parents about any problem and difficulty of the child.
2. Records : The teacher should maintain all the records of the children so that programme of action can be executed properly.
3. Clear concept : He should have a clear concept of special education and integrated education.
4. Remedial teaching : Teacher should work out the remedial teaching programme which may help the children with special educational needs.
5. Instructional material : He should prepare instructional materials to teach in integrated settings.
6. Co-operation : He should co-operate with other faculty for giving best possible education to exceptional children especially the gifted and the handicapped.

(1) GIFTED CHILDREN (PRECOCIOUS CHILDREN)

Gifted children are the backbone of the nation. Potential leaders of different walks of life belong to this group. The future of the nation depends upon the type of education provided to this group. If proper educational arrangements are made for them, they will in future prove to be boons to the society. So, it is the sacred duty of educational institutions to ensure their harmonious development.

Meaning of Gifted Child (Who is Gifted Child ?) :

1. View of Paul Witty : In the words of Witty, "Gifted children are those children whose performance in a worthwhile human endeavour is consistently remarkable and those who are academically superior."

2. **View of Terman and Witty** : "The gifted children are those who are superior in physical development, educational achievement, intelligence and social personalities."

3. **Kolesnik's view** : "The term gifted has been applied to every child who in his group, is superior in some ability which may make him an outstanding contribution to the welfare and quality living in our society."

4. **Havighurst's view** : "The talented or gifted child is one who shows constantly remarkable performance or outstanding behaviour in any worthwhile endeavour."

5. **Hollingworth's view** : "By a gifted child we mean one who is far more educable than the generality of children are. The greater educability may lie along the lines of one of the arts, as in music or drawing, it may lie in the sphere of mechanical aptitude, or it may consist in surpassing power to achieve literacy and abstract knowledge."

6. **James Drever's view** : "Children possessing high intellectual ability, generally or in a particular field are gifted children."

7. **Guilford's view** : "The gifted are those children whose potential intellectual powers are at such a high ideational level in both productive and evaluative thinking that it can be reasonably assumed that they can be future problem solvers, innovators and evaluators of the culture if adequate educational experiences are provided to them."

8. **View of Marland's Report** : "The gifted are those who possess outstanding abilities or potential in the area of general intellectual capacity, specific academic attitude, creative or productive thinking, leadership ability, visual or performing arts and psycho-motor activity."

9. **Tannenbaum's view** : "The term giftedness denotes their potential for becoming critically acclaimed performers or exemplary producers of ideas in spheres of activity that enhance the moral, physical, emotional, social, intellectual, or aesthetic life of humanity."

10. **View of Terman and Oden** : "Gifted children are far above the average in physique, social adjustment, personality traits, school achievement, play, information and versatility of interests."

11. **Kirk's view** : *Kirk Samuel* refers giftedness to any of the special aptitudes and talents : (1) The academically talented ; (2) The artistically talented ; (3) The linguistically talented ; (4) The mechanically talented ; (5) The musically talented ; (6) The physically talented ; (7) The socially talented.

12. **Giftedness in terms of I.Q.** : Some psychologists are of the view that children of I.Q. above 120 may be called gifted or genius. On the other hand, certain other psychologists think that only such children who have I.Q. 140 or above should be termed as gifted. Still some other psychologists believe that children with 150 I.Q. or more should be labelled as precocious children.

It must be noted that gifted children are superior not only in intelligence but also in physical, emotional, social, academic and other intellectual characteristics of children of their age.

Characteristics of Gifted Children :

(A) Positive Characteristics :

(1) Physical Characteristics :

1. **Physically well developed** : *Hollingworth, Terman and his associates* believe that gifted children are physically well developed. They are not undersized but maintain good health.

2. Sharp sense organs : They have sharp sense organs.

3. **Early learning** : They learn sitting, standing, walking, crawling, cutting the teeth and talking at an earlier age than the normal children.

(2) Intellectual Characteristics :

1. **Superior intelligence** : They have got superior intelligence. When their superiority is not recognised they assume boastful attitude.

2. **Better abilities** : They have better ability to (1) organise, (2) analyse, (3) memorise, (4) imagine, (5) reason, (6) judge, and to (7) reproduce things accurately than the normal children of their age.

3. **Rapid learning** : They have extensive rapidity in learning and comprehension.

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4. **Self-expression** : Their self-expression is of very good quality. It is quick and clear.
5. **Good vocabulary** : They have good vocabulary. Their general knowledge is good.
6. **Sustained attention** : They have power of sustained attention and feel bored because of repetition.

7. **Varied in interests** : They have varied and wide interests. They love books, journals, dictionaries, encyclopaedias and newspapers. They may be interested in art, language, painting, music, mathematics, collection of stamps, leaves, labels, pictures and scientific hobbies like photography, chalk-making, candle-making etc.

Terman and Hollingworth remarked that gifted children are more interested in abstract than in manual activities and in difficult than in easy subjects.

(3) Emotional Characteristics :

As gifted children have better ability to organise, analyse, memorise, imagine, reason, think, judge and to adjust ; they become active participants in the process of growing emotionally stable. But it does not mean that they are not aggressive. They have some negative emotional characteristics which we shall mention under negative characteristics of gifted children.

(4) Social Characteristics :

1. **Popular** : Socially these children prove to be more mature and popular in the group because they are more humorous, cheerful, liberal, generous, kind, honest etc.

2. **Older friends** : They are generally found to have friends who are older than they are but they play with an equal level.

3. **Sense of responsibility** : They are often interested in activities at home, school and societies and love to be assigned tasks, which they carry out with a sense of responsibility.

(5) School Characteristics :

1. **High achievers** : They are generally high achievers in schools.

2. **Learning** : They learn counting, reading and language very early. They may be able to write their names before they are admitted to school.

3. **Inquisitive** : They are inquisitive in nature and ask more curious questions.

4. **Eagerness** : They are eager to know the minute details of every thing.

5. **Participation** : They take active part in various co-curricular activities of the school.

(6) Character and Personality Characteristics :

According to *Terman*, in character and personality majority of gifted children show superiority and they are well adjusted.

(B) Negative Characteristics :

1. **Restless and disturbing** : They are restless, inattentive and disturbing.

2. **Indifferent** : They are indifferent to class-work when not interested.

3. **Critical** : They are outspokenly critical before themselves and others.

4. **Egoistic** : They show egoistic and jealous behaviour.

5. **Careless** : They are careless in hand-writing and poor in spellings.

Adjustment Problems or Difficulties of Gifted Children :

1. **Poor social development** : Being superior in intelligence they do not find friends to play with. So their social development is blocked.

2. **Insecurity** : If their superiority is not recognised by parents and teachers there is every danger of perversion. They show egoistic and hostile attitude. The result is that they feel that they are rejected and unwanted children. They feel psychologically insecure and suffer from inferiority feelings.

3. **Maladjustments** : When their superiority is too much emphasised by parents and teachers they develop boastful and conceited attitude. It may lead to maladjustments such as aggressive behaviour, too much of egoism and stubborn habits. Over-attention is always at the cost of other children. They become jealous of the child and form undesirable attitude towards him.

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4. Day dreaming : Classroom work being very easy for them, they do not take interest in it and they may become restless, careless, inattentive and idles. They may indulge in day-dreaming as average class-room work is below their standards. Day-dreaming is a sign of inadequacy of personality.

5. Indiscipline : Not being properly guided he utilises his superior intelligence in mischiefs, indiscipline, gang formation, and revolts against his elders. He becomes a nuisance.

How to Identify Gifted Children ? :

The following techniques can be devised to identify gifted children :

1. Identify characteristics to locate the gifted children.

2. Opinions and reports of parents, friends and teachers : We observe them in various settings and take into consideration the opinions and reports of parents, friends and teachers.

3. Achievement tests : Standardized achievement tests are valuable instruments for identifying the gifted child with superior academic ability.

4. Aptitude tests : We also depend upon aptitude tests in identifying the gifted, as the gifted excel in art, drama, music and other non-academic areas.

5. Intelligence tests : Gifted children can also be identified by intelligence or mental tests. Gifted children score high in intelligence or mental tests.

Education of the Gifted :

1. Identifying the gifted : Gifted child is a valuable property of the state. It is necessary to identify or locate such children with the help of opinions of the parents, friends and teachers, intelligence tests, aptitude tests and achievement tests.

2. Segregation of classes : There should be separate classes for the gifted children so that education may be given according to their mental level and they may be saved from the idea that the work is not according to their interests, aptitudes and abilities.

Arguments against the Education of the Gifted Children in Separate Classes :

(1) When we begin to educate the gifted children in special classes it creates intellectual aristocracy.

(2) It is undemocratic.

(3) Inferiority feelings are developed in other children.

(4) Such a scheme of education is costly.

(5) Trained and efficient teachers are not available.

(6) Only a few children have the opportunity to assume leadership of the society.

Arguments in favour of the Education of Gifted Children in Separate Classes :

(1) *Plato* said that we need leaders in different fields and those leaders are provided by gifted children and if the country has to survive we should educate the gifted children.

(2) *Whitehead* said that in modern world the rule is absolute. Any race which does not value trained intelligence is doomed.

(3) It saves the child from many problems and maladjustments.

3. **Rapid promotion :** Gifted children should be given rapid promotions.

4. **Individual attention :** Individual attention should be paid to them so that they may feel psychological security.

5. **Diversification of courses :** Diversified courses should be there so that they take subjects according to their interests, needs, abilities and aptitudes.

6. **Ample home task** of sufficient difficulty should be given to them so that their idle time may be fully utilised in educational and constructive activity.

7. **To help the weak students :** The gifted children should be asked to help the weak students in the subjects in which they are very brilliant. In this way, they will get social recognition. They will develop socially.

8. **Enrichment in co-curricular activities :** There should be enrichment in co-curricular activities i.e. debates, declamations, symposiums, paper-reading contests, variety programmes, film shows, games, excursions and trips etc. should be arranged.

9. A number of hobbies like painting, music, photography, stamp collecting and preparing albums etc. should be introduced so that superior children may utilise their intellect and energies in these useful activities.

10. **Joint enterprise, socialised recitation and project method :** According to Hollingworth, there should be joint enterprise, socialised recitation and project method so that children may work together and execute them independently.

11. **Library facilities :** Gifted children should be given special library facilities. They should be encouraged to make intelligent use of library. It will help them to know new things and acquire knowledge. make them the monitors of various classes, leaders of various societies, clubs and teams. It will give them a training to be able to shoulder the responsibilities in the society.

13. **Competent and noble teachers :** There should be competent and efficient teachers for the gifted children. They should handle the children psychologically and make arrangement for their studies.

14. **Scholarships :** A large number of scholarships should be given to the gifted children.

15. **Hostel facilities :** If the home atmosphere of the gifted children is not good, they must be given free hostel facilities.

16. **Guidance :** Guidance and counselling should be given to the gifted students.

Kirk's View :

Kirk suggests the following adaptations in educational activities of gifted so as to motivate them in the school :

- (1) Increase the guidance and counselling activities in the school.
- (2) Offer a variety of co-curricular activities.
- (3) Advance classes in Science, Mathematics, English etc. should be organised for the gifted children.
- (4) Extra courses should be permitted for the gifted children.
- (5) Special courses should be initiated for the gifted children.
- (6) Courses for gifted children should be revised from time to time.

Existing Programmes for Education of Gifted Children :

The following programmes exist in our country for stimulating the gifted students to display their talent :

1. **Navodaya Vidyalayas :** More than 300 Pace-Setting Schools (Navodaya Vidyalayas) are imparting special education to the gifted students.

2. **Science exhibitions :** Science exhibitions at the district and state levels are organised. Students representing their schools take part in these exhibitions. They prepare models, science material, improvised apparatus or new science-based technology.

3. **Essay writing competitions :** Essay writing and story writing competitions are organised at district, state and national levels. The students who get positions are suitably rewarded.

4. **Competitive examinations :** Various competitive examinations are held for making selection in services and professional courses at state and national levels. Talented students can compete in these examinations.

5. **Independent projects :** Talented students at school, college and university level select projects and execute them independently. Financial assistance is provided to carry out those projects.

6. **Research and experimentation :** Incentives are given for research and experimentation in the field of general and technical education. University Grants Commission offers Junior and Senior Research Fellowships to the suitable and deserving students.

Kothari Commission and Education of Gifted Children :

Indian Education Commission, popularly known as Kothari Commission (1964-66) suggested these measures for the education of the gifted children :

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1. **Search for talent :** Search for talent should be a continuous one. Efforts towards the goal should be made at every level although the most important stage is secondary level.
2. **Scholarships :** The large programme of scholarships proposed at all stages will ensure that all gifted students or atleast the top 5 to 15% of the relevant age-group will be enabled to receive the highest education.
3. **Enrichment programmes :** Enrichment programmes for bright students should be introduced in schools. The performance of the students should be recorded in special certificates.
4. **Co-curricular activities :** A variety of co-curricular activities should be introduced for them.
5. **Summer vacation programme :** A five to six week summer vacation programme can be arranged for talented students from different schools, brought together to an educational centre having special facilities of staff, library, laboratory and equipment. The programme should be reviewed for the particular group from year to year.
6. **Visits :** Well-planned visits may be arranged to laboratories, museums, and other places.
7. **Day-centres :** Day-centres or hostels should be made available for those students whose home environment is not conducive to proper study.
8. **Trained teachers :** Teachers must be trained to deal with the talented and to create an atmosphere of free expression in the classroom and to provide opportunities for creative work.

National Policy on Education (1986) and Education for Gifted Children :

National Policy on Education recommended the establishment of Pace-Setting Schools (Navodaya Vidyalayas) in various parts of the country to provide opportunities to the children with special talent or aptitude to proceed at a faster rate by making good quality education available to them, irrespective of their capacity to pay for it. These schools are residential and free of charge.

Ramamurti Committee of National Policy on Education, 1986, 1991 recommended that the existing 261 (now more than 300) Navodaya Vidyalayas may be restructured and continued with provision of adequate resources.

Programme of Action, 1986 (Follow-Up of National Policy on Education) and Education for Gifted Children :

The gifted students have profound competence in a limited subject area accompanied by indifference in certain other areas. Hence arrangements for such students cannot be fitted into regular courses of study. The programme for such students is given below :

1. **Special arrangements :** Special arrangements for such students will have to provide teaching / learning on a modular basis for every small group of students in a small number of subjects of interest to them.
2. **Ratio and participation :** Such arrangements will be characterised by large facilities, higher teacher student ratio and regular participation by professionals in teaching programmes.
3. **Detailed project :** A detailed project for this purpose should be worked out by a specially constituted group.
4. **Implementation :** Arrangements will be designed for implementation within the present system for such students.

Revised National Policy on Education (1992) :

Pace-Setting residential schools, Navodaya Vidyalayas, intended to serve this purpose have been established in most parts of the country on a given pattern, but with full scope for innovation and experimentation. Their broad aim will continue to be to serve the objective of excellence to develop the full potential of children.

(2) HANDICAPPED CHILDREN

Handicapped children are those children who deviate from the normal children in the negative side mentally, physically or emotionally. Handicapped children may be divided into three major groups :

(1) Mentally Handicapped Children i.e. idiots, imbeciles, maroons and slow learners.

(2) Physically Handicapped Children i.e. the blind, the cripple, the defective in speech and the delicate children.

(3) Emotionally and socially handicapped i.e. emotionally disturbed children and delinquent children. First of all we study Mentally Handicapped Children.

(1) Mentally Handicapped Children :

Mentally handicapped children are also known as *mentally retarded children*. They are those children who deviate from the normal children to the negative side in mental dimensions. They have sub-normal mental development. They possess limited intelligence and social inadequacy. It is generally believed that children who possess I.Q. below 70 are mentally handicapped or mentally retarded children. But there are some psychologists and educationists who hold that backward children can also be called mentally handicapped children. This is not always true.

Mentally handicapped children can be divided into :

1. Idiots (Below 20 or 25 I.Q.) : Idiots have below 20 or 25 I.Q. Idiots are of the lowest grade. Their maximum level of mental development is less than 3 years. They are helpless children. They cannot do any work independently. They need special care in daily activities, even in eating, dressing and washing. They need to be protected against any physical danger. They cannot be educated or guided for any useful activity.

2. Imbeciles (Between 21 or 26 to 50 I.Q.) : Imbeciles possess I.Q. between 21 or 26 to 50. Their level of mental development is from 3 to 7 or 8 years. They can be educated for self care for their physical daily activities. They can be taught to protect themselves against dangerous situation e.g. protection against fire, rain etc. They cannot read or write. They cannot lead an independent life. They can be trained to sweep floors and feed animals.

3. Maroons (51 to 70 I.Q.) : I.Q. of Maroons ranges from 51 to 70. Their level of mental development is from 7 to 10 years. They are incapable of receiving proper benefit from the instructions in ordinary schools. They can learn a very limited amount of reading, writing and spelling etc. but with great difficulty and at a very slow rate. They can be trained to do domestic service, laundry work, feeding animals, distributing newspapers and to do unskilled work in factory or farm. They can earn their livelihood with much training and supervision.

4. Border-line cases (71 to 80 I.Q.) : I.Q. of border-line cases ranges from 71 to 80. They cannot go on well with their class. They constitute a large number of population.

Causes of Mental Retardation :

- (1) Defects in the chromosomes.
- (2) Severe nutritional deficiency in the mother during pregnancy.
- (3) Abnormal conditions of delivery.
- (4) Premature separation of placenta.
- (5) Hydrocephalic conditions.
- (6) Glandular disturbances in the child.
- (7) After-effects of diseases like epilepsy, severe small pox, typhoid.
- (8) Emotional starvation of the child as a result of long isolation in early infancy.

Education for Handicapped Children (Mentally Handicapped) :

Its Need :

A simple survey conducted at Chandigarh by the Department of Mentally Handicapped Children with J.S. Gandhi as the incharge has revealed that more than 1% of school going children are mentally handicapped or retarded. According to another view there are more than 50 lac children who are mentally or physically handicapped. It is our duty to rehabilitate these handicapped children and to make them self-sufficient on the following grounds :

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1. **Social grounds :** In order to make handicapped children the useful and the self-sufficient citizens of the society education should be imparted to them.
2. **Democratic grounds :** Our beloved country India is a democratic country and justice demands that a democratic government has to look to the needs of each section of the population.
3. **Humanitarian grounds :** On humanitarian grounds education must be given to unfortunate handicapped children in order to make their life worth-living.

Educational Programme for Mentally Handicapped Children :

In 1947, there was only one centre in India for the education of mentally handicapped children but now the number of such institutions is more than 40 with an enrolment of more than 15000 persons. In 1960, the Central Government established a Model School for Mentally Deficient Children in New Delhi with an enrolment of 60. Two centres are functioning for training teachers for mentally retarded children. One centre is at Chandigarh. Here we can suggest the following types of educational programmes for mentally handicapped children :

1. **Location and diagnosis :** Mentally handicapped children should be located with the help of achievement tests, intelligence tests, medical check up and with the help of collecting material from parents, friends, psychologist and psychiatrist. Proper diagnose must be made.

2. **Educate the parents :** The teacher should educate the parents about the mental calibre of their children. The parents must be made conversant with the level of intelligence of their children. They should be stimulated to do the best for their child.

3. **Individual attention :** Teacher should pay individual attention to the child and take him in confidence. Individual attention is possible only if the size of class is small.

4. **Help in understanding the child :** Indirect knowledge should be given to the child to know himself so that he may not long for unachievable aims.

5. **Special schools, clinics or mental hospitals :** Mentally handicapped children (who possess below 55 I.Q.) must be taught in special schools or they should be kept in mental hospitals or clinics.

6. **Special teachers :** There should be specially trained teachers, psychologists or psychiatrists for handicapped children. They should have sympathetic and affectionate attitude. They should teach from the point of view of handicapped children and put their best to bring out the maximum out of these children. They should help them to make maximum adjustment. They should not expect too much from them.

7. **Special type of curriculum :** There should be special type of curriculum for mentally handicapped children. Emphasis should be placed on manual work and practical activities for vocational training. Useful habits of routine should be inculcated in them so that they may not become a great burden on society. However, those who are of very low I.Q. should be trained only in those activities which are essential for their survival needs like physical care or protection, eating and dressing.

8. **Special methods of teaching :** The teacher should make use of various psychological methods of teaching. The teacher should make use of illustrative and audio-visual aids. Concrete objects should be used for explaining the things. The teacher should make use of love, affection, sympathy, patience, repetition and simple language.

9. **Special time-table :** Time-table should be constructed while keeping in view the needs of the pupils. The duration of the period should be short. There should be provision for more rest intervals. Time-table should be flexible.

(2) Physically Handicapped Children :

A physically handicapped child is that child who has some physical impairment which hinders his participation in one way or the other. The impairment may be slight or serious. For example hearing defects may range from complete deafness to a slight loss of hearing. Similarly eye defects may range from complete blindness to imperfect vision of one or both the eyes or mere eye strain.

Adjustment Problems of Physically Handicapped Children :

On account of their physical deformity physically handicapped children have to face many adjustment problems. They are unable to satisfy their interests and to take part in desirable normal activities. As a result they develop in them emotional problems like attitude of self pity and futility, discouragement and resentment. Sometimes they develop inferiority complex which may lead them to many abnormalities.

Education for Physically Handicapped Children :

Physically handicapped individuals should be provided with all those educational activities which are meant for normal children, keeping in mind, their physical deformity because in most of the cases they possess normal intelligence.

1. The Blind and Near Blind Children : Blind children sometimes tend to develop inferiority feelings. It is the duty of the school authorities and the parents that they should keep such children in environment that develops their ego and they should be placed in a setting that will not further increase their feeling of inferiority. Usually the children who are near blind or possess defective eye-sight do not want to show to others that they have that particular defect. The teacher should be very careful in spotting out such cases.

Education can help such children in the following ways :

- (i) **Glasses :** If glasses can help, proper glasses should be got fitted by a good optician.
- (ii) **Devices :** Large textbook and similar other devices can be used to teach them.
- (iii) **Special School :** Those who are totally blind should be sent to the special school for the blinds.

There they can get training for vocational adjustment.

- (iv) **Facilities :** Adequate facilities of light and ventilation should be provided in the schools.
- (v) **Good habits :** Good habit of reading and writing should be developed in them.
- (vi) **Blackboard :** Blackboard should be properly cleaned and placed at right distance in the class-rooms.

2. The Deaf and Hard of Hearing : A totally deaf individual is he who has no hearing at all. Such children may be born deaf or might have become deaf because of a disease or other environmental factors. We call that individual who loses his hearing after he has acquired speech as 'hard of hearing'.

Education can help the deaf and hard of hearing children in the following ways :

(i) **The totally deaf children** must be educated in special type of schools with special methods and with special type of apparatus meant for them. Special methods are used to train such children. Special type of materials are used for training them in language. Special type of schools and correspondence courses have been started for helping such children to adjust in life. John Traily Clinic, Calif is one such institution that provides a correspondence course for the parents of the deaf children.

(ii) **The children who are hard of hearing** should be allowed to study in regular classrooms and they may not be segregated to a row so that they may watch the teacher's lips.

3. The Cripple : A crippled child is he who suffers from a defect of physical deformity that does not allow him the normal use of his muscles, bones or joints. Crippling may be innate, the result of uncongenital factors, injury or the effect of a disease. The crippled individual is just like other normal individuals except his physical handicap. He may have absolute normal intelligence or even superior intelligence. Some of the steps which are to be taken for his education are as follows :

(i) **Attitude :** Education must help them to develop normal attitude towards their deformity and towards their relationship with other people.

(ii) **Opportunities :** They should be provided opportunities for their mental development as they are generally not inferior to the normal children in intelligence.

(iii) **Equipment :** The equipment that they are required to use, should be specially designed, in school as well as in their homes so that they are adjusted to their deformity. Their chair, table etc. should be specially designed so that they can be comfortably seated and absorbed in reading and writing without any strain.

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(iv) **Special attention :** They need special attention for their movements. Physical frailty, difficulty of transportation and locomotive and normal limitation may interfere in their learning. Such facilities of transportation which help in moving about should be provided by school authorities, if the parents are poor.

(v) **Vocational training :** They should be given vocational training for their adjustment to vocations. They may be helped to take up jobs that they can do well.

(vi) **Orthopaedic surgeon :** The teacher should contact orthopaedic surgeon to consult him for the child. It is very common to use the artificial limbs or to set right the defective bones and limbs after operating on it. If the school authorities cannot afford to spend so much on the child, red cross fund can be used for this purpose or the school authorities can guide their parents by giving them necessary information.

4. The Defective in Speech : Speech defects can be of various kinds e.g. stammering, stuttering, lisping, hoarseness etc. The speech defects can be due to physiological, anatomical or psychological reasons. Physician should be consulted for physiological and anatomical causes. Among the psychological causes are emotional disturbances, inferiority complex, traumatic experiences, lack of proper rest and learning of wrong speech. The speech defects can be improved or reduced in the following ways :

- By sympathetic and affectionate attitude.
- By giving proper speech training.
- By overcoming wrong habits.
- By proper nourishment.
- By improvement through exercise or surgical operation of any physical mal-formation.
- By setting a model for the formation of correct speech habits.

5. The Delicate Children : Delicate children do not suffer from any specific disease but their health conditions are such that they need to exercise care of their health. Such individuals are often the result of malnutrition or infection.

The delicate persons can be improved in the following ways :

- Special arrangements should be made for their medical and psychological check up.
- They should be provided with the necessary diet and milk in the school and home.

Institutions for the Handicapped in Jammu and Kashmir :

- Abhedananda Home, Home for Blind and Handicapped, Modern School for Integrated Education, Silk Factory Road, Srinagar, 190001;
- Akhil Bhartiya Netrahan Sangh and Residential School for the Blind, Ved Mandir, Jammu, 180001;
- Blind Welfare Centre, Sopore.
- Deaf and Dumb School, Abhedananda Home, Ram Bagh, Silk Factory Road, Srinagar 190001;

Kothari Commission and the Handicapped :

The first step in educating a handicapped child is to prepare him to adopt himself to the socio-cultural environment created for fulfilling the needs of normal children. Hence the education of handicapped children should be an inseparable part of the normal educational system. The difference will be only in method of teaching the child, and the means adopted by the child to receive knowledge. Their differences do not bring about any change in the subject-matter of education or its aim. Their education has been called special merely for the sake of convenience.

According to the Commission there are 25 lakh handicapped children and 239 institutions for the handicapped in our country. The number of institutions for the handicapped is not adequate. Hence Kothari Commission made the following recommendations :

1. One institution in each district : There should be atleast one institution for the handicapped in every district.

2. Absorbtion : There is immediate need that maximum number of handicapped children should be absorbed in the normal school programmes.

3. Services and facilities : It is also necessary to develop services and facilities on an experimental basis for children who have some special educational needs, for example, those with weak vision, those with speech defects, those with weak mind and those with retarded mental development.

4. Implementation and development of programmes : It is necessary to lay emphasis upon the training of teachers, harmonizing the activities of various agencies engaged in this field, encouraging the necessary research into the study of handicapped children etc. in order to implement and develop programmes for the education of handicapped children.

National Policy on Education, 1986 and 1992, and Education of the Handicapped :

National Policy on Education, 1986 and 1992 propose to integrate the physically and mentally handicapped with the general community as equal partners. It also expects them to face life with courage and confidence by preparing them for normal growth.

1. Ordinary schools : Children with locomotor handicaps and other mild handicaps should be placed in ordinary schools.

2. Special schools : Children with severe disability should be enrolled in special schools. Special schools should be provided with hostels as far as possible at district headquarters, for the severely disabled children.

3. Vocational training : Adequate vocational training should be provided to the disabled.

4. Teacher training : There should be reorientation of teacher training programmes to deal with the special difficulties of the handicapped children.

5. Additional material and equipment : Additional material and equipment should be provided to the schools.

6. Free textbooks and uniforms : Textbooks and uniforms should be supplied free of cost.

7. Mobilising support : Support should be mobilised from other establishments such as health, sanitation, industry, public welfare department.

8. Removing architectural barrier : Architectural barriers in school buildings should be removed where atleast 13 disabled children are enrolled.

Programme of Action, 1986 (Follow-up of National Policy on Education) :

National Policy on Education, 1986, in its Programme of Action suggested the following measures regarding the special education programme :

1. Opening of special schools : For severely handicapped children special schools will be established at district headquarters. In a particular district, if the number of particular disabled children exceeds 70, a separate special school for that area of handicap should be established. It is expected that 400 special schools will be established within a few years. Separate hostel facilities should be provided for both boys and girls. The strength of the boys' hostel should be 50 and that of the girls' hostel about 25.

2. Craft training centre : Where the special school is built up, craft training centre either as a part of the school or as an adjunct to it will be established. Such centres will provide vocational training to the severely handicapped children for appropriate vocations. While imparting training, it is required to consider about the availability of local jobs.

3. Training of teachers : It is not an easy task to handle the children who are enrolled in special schools. Teacher's training programme in handicapwise should be organised immediately. To make run the special school at suggested speed, not only teachers should be trained properly, but also untrained teachers should be rolled out. Besides the trained teachers other professionals like physiotherapist, occupational therapist, special therapist should be appointed in required number.

4. Special curriculum : Taking into account the learning difficulty of the handicapped children the special curriculum framework should be designed. A particular curriculum designed for visually impaired may not be suited for auditory impaired.

(3) BACKWARD CHILDREN (SLOW LEARNERS)

Backward children are also known as 'Educationally Retarded Children' or 'Slow Learners'. The presence of backward children in a class is harmful both to the gifted and the average students. The backward children, too, suffer, because their progress is obstructed and they develop a sense of inferiority complex. When the teacher tries to pay more attention to them and explains again the same point for the benefit of backward children he makes his teaching uninteresting for other children.

Meaning of Backward Children :

Backward children are those children, who do not keep pace with the class. They show inability to progress normally in the school work. They are weak in their studies and their results of examinations are not upto the mark.

1. Schonell's view : "Backward pupil is one who as compared with other pupils of the same chronological age shows marked educational deficiency."

2. Burton Hall's view : "Backwardness in general is applied to cases where their educational attainment falls below the level of their natural abilities."

3. Cyril Burt's view : "A backward child is one who in mid-school career is unable to do the work for the class next below that which is normal for his age."

4. T.K.A. Menon's view : "In the Indian situations a backward child is one who being more than one year older than the average of his class."

5. Burt's view : In his book on "Backwardness", Burt gives a more precise definition in terms of 'educational quotient' or 'educational ratio'.

$$\text{Educational Quotient} = \frac{\text{Attainment level}}{\text{Chronological age}} \times 100$$

According to Burt, backward child is one whose educational quotient is below 85.

Concept (meaning) of backward children can be further illustrated in the light of characteristics of backward children which are given below:

1. Slow learner : A backward child is a slow learner. In comparison to the backward children, average (normal) children learn rapidly and quickly. As a result backward children feel difficulty in keeping pace with the normal school work. They find it difficult to work with normal children and make adjustment with them.

2. Low achievement : Educational achievements of backward children fall below their natural abilities. They are unable to achieve for which they have potentiality. They fall far behind other children of their age.

3. Stagnation : Backward children are far behind other children of their age in matter of study. Usually they fail in various examinations. Thus they become repeaters and cause stagnation in the class.

4. I.Q. : A backward child may not possess a lower I.Q. (Intelligent Quotient). In other words, a lower I.Q. alone does not make a child backward.

5. Types of backwardness : There are two types of backwardness :

(i) **General backwardness :** This is all round backwardness. In general backwardness, child is weak in all the subjects.

(ii) **Specific backwardness :** In case of specific backwardness, child is weak in one or more than one subjects but he is not backward in all the subjects. He shows satisfactory results in some school subjects but does not go on well with other subjects.

Characteristics of Backward Children according to Cyril Burt and Schonell :

Cyril Burt and Schonell have statistically characterised such children with the help of mental age and chronological age of the child :

1. **Small mental age** : Mental age (attainment level) of the backward child is smaller than his chronological (real) age.
2. **Retardation** : A backward child is educationally retarded.
3. **Low educational attainment** : A backward child has low educational attainment than what he is capable of.
4. **Unable to pace** : A backward child does not keep with the class even in one or in all subjects.
5. **Unable to do class work** : A backward child is unable to the work of the class next below to him, who is normal for his age. Moreover, he seems to be weak in class assignments and examinations or class tests.

Characteristics of Backward Children according to Sullivan :

Characteristics of backward children as given by *Sullivan* can be summarised as under :

- (1) Low attention (Low span of attention),
- (2) Slowness to form association between words and phrases.
- (3) Long reaction time.
- (4) Limited power of self-direction.
- (5) Limited ability to work with abstractions and to generalise.
- (6) Limited ability to evaluate material for relevancy.
- (7) Lack of originality and creativeness.
- (8) Lack of power to use the higher mental processes.
- (9) Inability to set up and realise standard of workmanship.
- (10) Habits of learning very slowly and forgetting very quickly.
- (11) Failure to recognise familiar elements in new information.
- (12) Inability to analyse, to do problem solving or think critically.

Characteristics of Backward Children according to John Kough and Robert Dehaan :

- (1) Unable to think abstractly or to handle symbolic material.
- (2) Unable to understand and carry through directions.
- (3) Unable to work independently.
- (4) Unable to concentrate voluntarily.
- (5) Unable to keep up with the class on academic work.
- (6) Lack the so-called common sense.
- (7) Short span of attention and interest.
- (8) Generally confused.
- (9) Slow in various areas : academic, social, emotional and physical.
- (10) Behind normal grade achievement in schools.

Identification of Backward Children :

Backward children can be identified by employing the following methods :

1. **Observation method** : Observation method is both formal and informal method of identifying backward children. Teachers, parents and school counsellor can use this method. They observe their pupils, wards and clients in the classroom, home and social situations. Teachers and parents observe their pupils and wards daily in the classroom and home situations. Teacher is the best judge of identifying backward children on the basis of daily observation in the class and outside the class. It is the most appropriate method of identification of backward children.

2. **Intelligence tests** : Group tests of intelligence may be used to screen backward children at the preliminary stage on the basis of their I.Q. (Intelligent Quotient). Individual test of Intelligence may be used with Group Test to reach the definite conclusion. This is a statistical method and is used very commonly by most of the researchers and psychologists.

3. **Achievement tests** : Achievement tests in various subjects should be used to know the level of achievement of backward children. If the child is poor in all subjects, it will be considered as general

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backwardness. If the child is poor on one or two subjects but good in other subjects it will be considered as specific backwardness.

4. Personality inventories : Many personality inventories can be used for detecting backwardness among school children. These adjustment inventories can be used to detect maladjustment in various fields. These school maladjustments may indicate the backwardness.

5. Case study or pupil's records : Case studies or pupil's records (*including cumulative records*) prepared by the school are very useful in locating backwardness among school children. These case studies or pupil's records should be prepared carefully and be treated as most confidential. They should be used only for diagnostic purposes.

Causes of Backwardness :

(1) **Physical causes :** According to *Schonell*, about 75% backwardness is due to the various physical defects and diseases such as :

- (1) Defective eye-sight.
- (2) Defective hearing.
- (3) Speech defects.
- (4) Left handedness.
- (5) Chronic disease or illness.
- (6) Various physical deformities.

(2) **Mental causes :** Sometimes backwardness may be caused due to low intelligence. *Burt* found that 75% backwardness is due to low intelligence.

(3) **Social causes :** Backwardness can be due to social causes like :

(1) **Poverty :** Poor children cannot purchase essential books and other material. They cannot satisfy their physiological and psychological needs. Hence, poverty may lead to backwardness.

- (2) Broken homes or divorce between father and mother.
- (3) Presence of step-father or step-mother in the house.
- (4) Quarrels in the family.
- (5) Strict discipline in the house.
- (6) Over-protection or under-protection to the child.
- (7) Mental abnormality of parents.
- (8) Unhealthy sibling competition.
- (9) Bad company of the child.
- (10) Over-crowding families.

Burt found that 66% of backwardness is due to social causes.

(4) **Personal or emotional causes :** Backwardness sometimes may be due to personal or emotional causes like stubbornness, nervousness, anxiety, aggressiveness, restlessness and certain other emotional disturbances. According to *Burt*, 1/3 cases of backwardness are due to temperamental or emotional causes.

(5) **School causes :** Some of the school causes which are responsible for backwardness are :

- (1) Inefficient and untrained teachers.
- (2) Wrong, ineffective and uninteresting methods of teaching.
- (3) Harsh attitude of the teachers.
- (4) Defective time table.
- (5) Lack of interest in the subject.
- (6) Unhygienic conditions in the school.
- (7) Absence from the classes due to illness, transfer of parents or changing of the subject.

Burt found that 1/6 cases of backwardness are due to school causes. We can say that backwardness is phenomenon of multiple causation.

Adjustmental Problems or Difficulties of Backward Children :

1. **Emotional problems :** Backward children develop inferiority complex. They suffer from frustration and humiliation since they fail in various examinations. The result is that they become emotionally disturbed.
2. **Social problems :** Backward children lack social acceptability. They have got less friends. They may become delinquents and anti-socials in behaviour. *Burt* remarked that paupers, criminals and other anti-socials are the result of backwardness. Backwardness is said to be the first stage of delinquency. Hence backward children face problems of social adjustment.
3. **Educational or school problems :** Backward children retard the progress of the class because they are to be dragged with the class. They cause stagnation since they fail in various examinations. So, they find difficulty in making adjustment in the school.

Education for Backward Children :

In our country education of backward children is ignored practically but in other countries special attention is being paid to them. So the problem of teaching backward children in our schools is a great challenge to our educators and administrators in our democratic country. The following are some of the suggestions for their education :

1. **To discover the causes :** First of all causes of backwardness should be discovered with the help of observation method, achievement tests, intelligence tests, medical tests, rating scales i.e., it should be known whether backwardness is due to inherited or environmental factors and then they should be treated accordingly.
2. **Special schools :** If the individual has some physical handicap of serious nature, he should be sent to the special schools such as the schools for the deaf and the dumb etc.
3. **Consult specialists :** If the physical defect is prominent and developed, suitable treatment should be sought from the medical officer. The teacher can help him to refer to the doctors for eye test and glasses if eye-sight is weak. Similarly, if the student is hard of hearing ear-specialist should be consulted for such student.
4. **Physical defects and teacher's immediate help :** If the eye-sight of any student is weak, the teacher can help him in making classroom adjustment, such as by giving front seat ; teaching him good posture of sitting. Similarly, if the student is hard of hearing teacher should provide him front seat.
5. **Readjustment in schools and homes or changing the environment :** As we have said that backwardness may be due to some emotional trouble at home or school. The actual conflicts, complexes or the repressed wishes, which are the source of emotional trouble are found and either the attitude of the child towards such objects of environment is changed or the environment is changed if the fault lies with the environment.
6. **Multiple and diversified courses :** should be there so that children may take subjects according to their abilities, interests and aptitudes. Manual work i.e., art and craft should be given more importance. Moreover, the curriculum should be useful and full of concrete and vocational subjects. It must be light and attractive.
7. **Special coaching :** There should be ungraded classes and special coaching should be given to backward children. They need more practice, drill, repetition and review. When they become equal to the average children they should be given promotion with others. This will give them sense of social security.
8. **Use of audio-visual aids and experimental work :** They should be taught with the adequate help of the audio-visual aids and more of experiment work should be assigned to them.
9. **Cultural aspects :** in the form of dramatics, music, art, painting and other hobbies should not be ignored because they make the teaching work more interesting and effective.
10. **Various educational trips :** of historical, geographical and scientific interest should be organised. It will help them in understanding the different aspects of teaching.

Creativity and Creative Children

Modern art and literature, philosophy and religion, science and technology, industry and commerce, transportation and communication, agriculture and social institutions owe their dazzling progress and advancement to human ingenuity and creativeness. Individuals gifted with creativeness in the field of human endeavour are held in high esteem and enjoy higher status and prestige. One of the important functions of education is the development of creative ability and talents. Hence it is essential for the teacher to understand the meaning of creativity, stages involved in creativity and ways of developing creativity.

(A) NATURE OF CREATIVITY

- (i) **Stagner and Karwoski** : Creativity implies the production of totally or partially novel identity.
- (ii) **Ruch** : "Those who show originality and ability to integrate the elements of a situation into a harmonious whole—whether as a parent, a doctor or a football player—are leading creative lives".
- (iii) **Skinner** : Creative thinking means that "the predictions and/or inferences for the individual are new, original, ingenious, unusual. The creative thinker is one who explores new areas and makes new observations, new predictions and new inferences".
- (iv) **Torrance** : Creativity is "a process of becoming sensitive to problems, deficiencies, gaps of knowledge, missing elements, disharmonies and so on, identifying the difficulties, searching for solutions, making guesses or formulating hypotheses about the deficiencies; retesting and testing hypotheses and possibly modifying and retesting them and finally communicating results".
- (v) **Guilford** : "Creativity sometimes refers to creative potential, sometimes to creative production, and sometimes to creative productivity." Here creative potential means the personal disposition of the individual in which there are some more or less permanent qualities which help him in creative thinking. Creative thinking leads to new ideas. Creative production means the process of productive thinking. Creative productivity means productivity according to socially confirmed forms of words, thoughts and phrases, etc.

It can be concluded that creativity can best be defined as *original thinking, new types of associations, divergent thinking and behaviour, new solution of old problems, seeing or expressing new relationships, flexibility and a new approach in different fields of life. Every idea or expression that is original for the creator is an example of creativity. Thus creativity is possible in thinking, in modes of social interaction, or in studying, working or playing.*

Creativity is not merely confined to writing poems, short stories, novels or biographies. There are many other media like art, craft, painting, music or dramatics, exhibitions, social festivals, religious and social get together in which children should be encouraged to express themselves in a new way.

Characteristics of Creativity :

- The following characteristics of creativity summarise its nature :
1. **Process and product** : Creativity is both a process and a product.
 2. **Universal** : Creativity is universal. Every person possesses creativity to some extent.
 3. **Unique** : Creativity is a unique mental process which is accompanied by a number of mental abilities and personality characteristics.
 4. **Originality** : Creativity results in original and useful product. Creativity leads to useful results.
 5. **Novelty** : Creativity implies the production of totally or partially novel identity.
 6. **Flexibility** : Flexibility of thinking and behaviour is an important characteristic of creativity. The creative person is always prepared to adopt new attitude, idea or behaviour. Hence he succeeds in finding out new solutions to problems.

7. Divergent thinking : Divergent thinking is the most important characteristic of creativity. It involves open thinking, continuity, originality and flexibility. These traits can be observed in the works of great scientists, philosophers and literary thinkers.

8. Reinterpretation : Reinterpretation of the problem or its part is a characteristic of creativity. The following are important elements in the creative solution of a problem :

- (1) The object of thinking should be novel and valuable.
- (2) Thinking should be divergent.
- (3) Thinking should be highly motivated and constant.
- (4) The problem should be confused and undefined.

It is only in the case of above characteristics that problem solving can be creative.

9. Nurtured by training : Creative abilities are natural endowments but they can be nurtured by training or education.

10. Multiplicity of responses : In creative thinking there is complete freedom for multiplicity of responses, choices and lines of action.

11. Source of joy and satisfaction : Any creative expression is the source of joy and satisfaction for the creator.

12. Wide field : Creative expression has a very wide field. Every ideal or expression that is original for the creator is an example of creativity. It is possible in thinking, in modes of social interaction or in studying, working or playing. It covers all the aspects of human accomplishments like writing of story, drama, poem and song; scientific invention and discovery, performance in the field of painting, music, dance, sculpture, social and political relationship, business, teaching and other professions.

13. Harmony of abnormal and relevant thinking : Creative children are those who accommodate with relevant but abnormal thinking through creative thinking, reasoning and imagination. They accept the challenge and give a creative reply to it.

14. Creative personality : Nature of creativity can be understood through the traits of creative personality. The most important traits in creative personality are original thinking, independence of judgement, curiosity, sensitivity, self-confidence, persistence, autonomy, humour, ability to see relationships and make associations.

15. Intelligence and creativity : Intelligence and creativity are not synonymous. Difference between the two can be summarised as under :

- (1) *Convergent thinking* forms the basis of intelligence whereas *divergent thinking* is the basis of creativity.
- (2) In intelligence tests convergent thinking is *tested* whereas creativity emphasizes more on divergent thinking.
- (3) Intelligence has to do with *great doings*, and creativity has to do the *great in creation of something new and novel*.
- (4) Certain amount of *intelligence is necessary condition* for being creative. A mentally retarded cannot be expected to be creative. Intellectually superior persons have better chances of being creative.
- (5) All the *intelligent persons may not be creative*. One may have high intelligence without leaving creative abilities.
- (6) Like general mental ability, no general creative ability exists. Creativity is always *specific*.
- (7) In intelligence testing, speed and accuracy of the cognitive behaviour is emphasized while in creative tests fluency, flexibility, originality and novelty are given more weightage.

Dimensions of Creativity :

1. Originality : Barron defines creativity as the process which is characterised by originality, uniqueness and even sometimes idiosyncratic ways of doing things or solving problems.

2. Unusualness : According to Guilford, Creativity is the (1) ability to go beyond the immediate solution, (2) ability to redefine the problem or some part of it, (3) ability to cope with ideas that are unusual, and (4) ability to change or having new approach to the problems. In the words of Simpson, Creativity is the ability to break away from the usual way of thinking and then form altogether a different pattern of thought.

3. Sensitivity : Creativity is sensitivity to problems (seeing defects, needs, deficiencies, seeing the odd, the unusual, seeing what must be done). Rollo May describes creativity as the encounter of the intensely conscious human being with his world.

4. Usability : Lovell states, "Creativity is the disposition to make and to recognise valuable innovations."

5. Product : Stein has made product as the basis of his definition of creativity. He considers a process to be creative "when it results in a novel work that is accepted as tenable or useful or satisfying by a group at the same time." This definition emphasizes both novelty and utility. A Russian psychologist Zbigniew Pietrasinski emphasizes the social value of creative work. He writes, "Creativity is an activity resulting in new products of a definite social value."

6. Process : Torrance has defined creativity in terms of process. According to him, creativity is a mental process of seeing or creating most unforeseen and new relationship between two or more things or ideas. Two stages are involved in the process :

(1) To make and choose things together and to choose and discriminate from a variety of different possibilities.

(2) To synthesise and bring together elements in new and original way.

7. Product and process : Both product and process are important in creativity. Without the process there would be no product and without product there would be no creativity.

8. Morphological synthesis : Creativity uses the process of synthesis and produces something new after synthesising various factors into new combinations.

9. Combination : Creativity is the capacity of forming new combinations of associative elements according to our specified and useful requirements.

10. Types of creativity : Creativity can be classified into three types :

(i) **Chance creativity :** Chance creativity means the art or act that happens by pure luck and can rarely be duplicated.

(ii) **Spontaneous creativity :** Spontaneous creativity means bringing something new into being from a feeling of spontaneity which is designed to meet an immediate purpose.

(iii) **Conservable creativity :** Conservable creativity refers to the process where the things created do not necessarily meet an immediate purpose. There is very little, if any, feedback is present in this type of creativity. It comes through generation to generation.

According to another classification there are two types of creativity :

(i) **Creativity in the field of art and literature :** It is hot creativity. You are inspired, you will write a poem immediately. You will not wait. It is a case of *hot creativity*.

(ii) **Creativity in the field of science :** It is called cold creativity. Creativity in the field of science is a slow process. You take years to develop an atom bomb.

Theories explaining Nature of Creativity :

Different theories have explained the nature of creativity differently :

1. Psychoanalytical theory : Creativity originates in a conflict within the unconscious mind. Creative person satisfies frustrated ambitions and desires through creative processes.

2. Associative theory : New ideas are manufactured from older ideas. Hence more association, more ideas and more creativity. The creative person forms new associations or recognizes old ones.

3. Gestalt theory : Creativity is a restructuring of patterns or Gestalts. Creative thinking begins with a problematic situation. Creativity involves change of central point, change of meaning and a novel organisation. It involves insight which is the cause of sudden emergence of new ideas.

4. Existentialist's theory : Existentialists have presented a theory similar to the Gestalt theory. According to them creativity involves perception of new objects and struggle for understanding.

5. Creativity as intuitive genius : Creativity is a highly developed form of intuition. The creative person is a rare species, intuits directly and immediately. Kant in his classical work '*The Critique of Pure Reason*' says that the creativity is natural, and therefore cannot be taught. But we see now that creativity is more developable than intelligence.

6. Divine inspiration theory : According to Plato, a creative writer no longer remains in control of himself but becomes an agent of super-power. Most of the creative artists have experienced such feelings where they perceive that they are simple puppets in the hands of some higher power which is squeezing out the best from them. Being a subjective experience, it is not open to scientific analysis.

7. Creativity as a cosmic life Force : Darwin's theory of Evolution points out that human creativity is the manifestation of creative force inherent in life, in organic matter. This continually brings forth new species,

unique, unprecedented, unrepeatable, irreversible. As a step further, human creativity has also been seen as the expression of a universal creativity.

8. Creativity as madness : According to *Nietzsche*, creativity is like madness. *Lombrosso* cited many examples of creative men who were mad or insane. But there does not seem any relation between the two. It is one thing that a creative person looks like a mad man but a mad man is not and cannot be creative person. In fact, creative behaviour may appear mad to ordinary persons.

9. Trait theory : The trait theory considers particular trait as characteristic of creativity. For example, according to *Gulford*, the most important traits of creativity are consciousness of the problem, continuity of thinking, continuity of words, continuity of association, continuity of expression, flexibility of thinking and accommodation, originality and re-definition, etc.

It should be noted that each theory puts emphasis upon a particular aspect of creativity. Each theory elucidates a particular aspect of creativity better than others. Every theory is one-sided and none clarifies creativity from every aspect.

Creative Process :

From psychological point of view, creative thinking has four stages :

1. Preparation : Preparation is the first step in creative thinking. Preparation means *orientation* to the problem. It is a period of conscious labour and anxious search. In preparation all the facts relating to the problem are collected and all necessary and superfluous facts are eliminated. For example, for writing a book, an author collects all the material connected with his book.

2. Incubation : After facts have been collected they are incubated which means that the individual's further effort is *blocked*. During the period of incubation no new knowledge or experience is added to the existing stock but the individual patiently waits for the inspiration. Although no work is consciously done to the problem during this period, yet unconscious work goes on and is responsible for the illumination or inspiration. The stage of incubation is necessary because of the following two reasons :

- (1) It brings illumination.
- (2) It assimilates new ideas that we have gained to our store of previous knowledge and experience.

3. Illumination : Illumination or inspiration comes suddenly after incubation probably from the depths of the sub-conscious mind. It is quite *direct* and *effortless* when it comes, though preceded by effort and concentration. Many poets and artists have told us that their most creative ideas have come to them during their period of idleness. *Wordsworth* used to get his best ideas while roaming ; *Darwin* while digging in the garden. *Archimedes* solved his problem in his bath. Thus illumination comes in a state of intellectual passivity

4. Verification : Inspiration or illumination is no good if it cannot stand the test of verification. Verification tests the validity of illuminated thoughts. In a way verification is a process of *rethinking* so that the new idea is revised and clarified. It may have to be critically examined. Surely a work of art is born out of inspiration, but it must be tested by the laws of criticism. The worth of a work of art does not lie in the inspiration of that artist but in the standard of excellence which the work has attained ; and so frequently the artist is not the best judge of his own work.

Henry Poincare stated that there are four conditions of creative thinking :

1. Period of conscious work : There is a period of conscious work which consists in the accumulation of data, posing problems and conscious efforts to solve such problems.

2. Period of unconscious work : The unconscious mind starts work after preliminary work has been done by the conscious mind, and selects useful material for the solution of a problem.

3. Formulation of hypotheses : Therefore, he forms a hypotheses or a number of hypotheses which may lead to the solution of a problem.

4. Reflectivity and adventure : Third stage is followed by reflectivity and adventure in a realm of thought. Adventure in the realm of thought may give rise to new innovation.

(B) CHARACTERISTICS OF CREATIVE CHILDREN

Barron, who has made extensive studies of creative children, lists the following characteristics as typical of them :

- (1) Ability to keep many ideas in focus at a time ;
- (2) Independence of judgement ;

- (3) Preference for complex phenomenon ;
- (4) Self-assertiveness ;
- (5) Ability to integrate diverse elements ;
- (6) High energy level ;
- (7) Lack of inhibition and freedom of fantasy.

We give the following characteristics of Creative Children :

1. **Independent in judgement** : Creative persons can take independent judgement in crucial matters.
2. **Independent in thinking** : Creative children are independent in thinking about the problems of various types.
3. **Courageous in convictions** : Creative children show strong convictions in their beliefs and values. They can go beyond socially conformist behaviour.
4. **Curious** : Creative children are curious to know more and more about their environment.
5. **Visionary** : Creative children have vision for future problem.
6. **Willing to take risk** : Creative children have risk taking capacity.
7. **Unwilling to accept routine solutions** : Creative children do not easily accept the routine solutions of problems. They are not conformists.
8. **Become pre-occupied with tasks** : When creative children start task, they completely absorb themselves in that task. They concentrate all their mental energies on the task in hand.

Other characteristics of creative children or people are :

9. Originality in ideas and actions.
10. High degree of attentiveness and alertness.
11. High degree of sensitivity towards problems.
12. Abundant foresightedness.
13. Preference for complexity, asymmetry and open-mindedness.
14. Fluency in expression.
15. Rich imagination.
16. Rich ability to see relationships and make decisions.
17. Rich ability to elaborate *i.e.*, to work out the details of a plan, idea or outline.
18. Rich ability to transfer learning.
19. Rich aesthetic judgement and high aesthetic value.
20. More progressive, autonomous, bold, resourceful, self-assertive, self-sufficient, self-accepting, adventurous, spontaneous, alive to obligations and sensitive to environmental stimuli which means sensitive to loopholes and gaps in the environment.

(C) IDENTIFICATION OF CREATIVE CHILDREN

Need of Identification :

The identification of creative children is essential because of the following reasons :

1. **Individual teaching** : It is helpful in individual teaching.
2. **Remedial programmes** : It is helpful in getting class for arranging remedial programmes.
3. **Understanding personality** : It is helpful in understanding human mind and personality.
4. **Guiding development** : It is helpful in guiding cognitive (intellectual) and aesthetic development.
5. **Evaluation of programmes** : It is helpful in the evaluation of programmes, products and processes.
6. **Need for guidance** : It is helpful in emphasising the need for guidance in future.

Process or Methods of Identification :

We can use both testing and non-testing techniques for the identification of creative children in different areas—academic, art, mechanical and scientific.

(1) By using Tests of Creativity :

1. **Guilford and Merrifield Tests of Creativity for College Students** : This test battery measures six important factors : (1) Fluency, (2) Flexibility, (3) Originality, (4) Sensitivity to problems, (5) Semantic elaboration, and (6) Redefinition.

2. **Torrance's Minnesota Test of Creative Thinking** : This test measures fluency, flexibility, originality and elaboration with following sub-tests :

- (1) Figure Completion Test, (2) Circle Task, (3) Product Improvement Task, (4) Unusual uses.

3. Tests by Getzels and Jackson : They have used five different measures of creativity in their research :

- (i) **Word-association tests :** Students are required to give as many definitions and number of different categories into which they could be placed.
- (ii) **Uses of things tests :** A student is asked to give as many uses as he can for a common object.
- (iii) **Hidden shapes tests :** A student is required to find more complex form of figure shown on card in a simple form.
- (iv) **Three different endings :** Here a student is required to suggest three different endings to incomplete short fables.

(v) Make up problems : A student is required to make up as many mathematical problems as he can on the basis of information given in a complete paragraph.

4. Tests by Wallach and Kogan : Wallach and Kogan designed a battery of tests which measure divergent thinking developed on Guilford's pattern.

5. Creativity Test by Flangen : Flangen developed a test which consists of a series of problem situations for which an ingenious solution can be found.

6. Creativity Test by Wech.

7. Creativity Test by Meier and Mcclow.

8. Remote Associate Test by Mednick.

9. Barron Welsh Art Scale.

10. Harris Test of Scientific Creativity.

11. Thinking Creatively with sounds and words by Torrance, Khatena nad Cunningham.

Indian Tests of Creativity :

(1) By Using Testing Techniques :

1. Passi's A Battery of Creativity Tests (1972) : This battery uses both verbal and non-verbal sub-tests e.g., (1) The Seeing Problem, (2) The Unusual Uses Test, (3) The Consequences Test, (4) The Test of Inquisitiveness, (5) The Square Puzzle Test, and (6) The Block Test of Creativity. It gives fifteen different scores on various areas such as fluency, flexibility, originality, persistency, etc. Passi's A Battery of Creativity Tests standardised on Punjab population could be used in identification of creative talent in different fields.

2. Baquer Mehdi's Verbal and Non-verbal Test of Creative Thinking (1973) : The Verbal form uses (1) What will happen test, (2) New uses of objects, (3) Test of new relationship and (4) Creating things interested. The Non-verbal test has got three sub-tests : (1) Picture Construction, (2) Picture Completion, and (3) Geometrical Figures.

3. Ramachandrachar's (1975) Creative Response Matrices : It consists of Visual Figural stimuli of varying ambiguity, letter duplets and sets of five single digit numbers.

4. ISPT Creativity Performance Scale : This scale is meant to identify creative talent at all stages of education from class VI onwards. It consists of three parts : (1) Verbal, (2) Non-verbal, and (3) Performance. The scale uses Fluency, Flexibility, Originality, Elaboration and Redefinition traits or tasks. The total time needed for administration is three hours. Hence the scale can be administered in three instalments. The Verbal Test can be administered in 58 minutes while the Non-verbal and Performance Scale take 55 minutes and 52 minutes respectively. Five minutes are given extra to each of the three parts if the testee wants to add something in his earlier responses.

The Verbal Part of the Scale includes four sub-tests namely (1) Unusual Uses, (2) Consequences Questions, (3) Product Improvement Test and (4) Imaginal Production.

The Non-verbal Part of this Scale consists of four sub-tests namely (1) Picture Construction, (2) Picture Completion, (3) Angle and Rectangular Activity, and (4) Pattern Meanings.

The Performance Part of this Scale includes six sub-tests namely (1) Turney Designs, (2) Drawing Designs, (3) Boat Improvement, (4) Missing part Activity, (5) Discovery of Picture Material, and (6) Construction Ability.

5. Chatterjee-Mosaic Test.

6. Mazumdar-Scientific Creativity Test.

7. Chauhan and Tewari Creativity Test.

(2) By Using Non-Testing Techniques :

The creative aspect in the child can be assessed through non-testing techniques like (1) Observation, (2) Situational Techniques, (3) Rating Scales, (4) Check-list and testing techniques like, (5) Value Schedules,

(6) Interview, (7) Aptitude Test, (8) Attitude Scales, (9) Interest Inventories, (10) Personality Inventories, (11) Projective Techniques. These techniques are useful in understanding and identifying behavioural and personality characteristics of creative children.

IDENTIFICATION IN DIFFERENT AREAS : ACADEMIC, ART, MECHANICAL AND SCIENTIFIC

Identifying Students or Children with Academic Ability :

List of identifying characteristics of academic ability (area) includes :

- (1) Learns rapidly and easily.
- (2) Uses a great deal of common sense and practical knowledge.
- (3) Retains what he has heard or read without much rote drill.
- (4) Reasons things out, thinks clearly, recognizes relationships and comprehends meanings.
- (5) Knows about many things of which most students are unaware.
- (6) Performs difficult mental tasks.
- (7) Asks many questions.
- (8) Has a large vocabulary, which he uses easily and accurately.
- (9) Can read books that are one to two years in advance of the rest of the class.
- (10) Is alert, keenly observant and responds quickly.
- (11) Is original in his thinking, uses good but unusual methods.
- (12) Does some academic work one or two years in advance of the class.
- (13) Has a wide range of interests.

Besides these characteristics the teacher can supplement his observation by the study of cumulative records, and use standardised tests etc.

Identifying Children or Students with Artistic Talents :

In every class there are some students who show more artistic talent and whose artistic conditions are better than others. The student with artistic talent, can be identified on the basis of following characteristics :

- (1) Covers a variety of subjects in his drawings or paintings.
- (2) Fills extra time with drawing, painting and sculpturing activities.
- (3) Uses art to express his own experiences and feelings.
- (4) Is interested in other people's art work.
- (5) Likes to model with clay, carve, or work with other forms of three dimensional art.
- (6) Takes art work seriously and seems to find much satisfaction in it.
- (7) Shows originality in choice of subjects, technique and composition.
- (8) Is willing to try out new materials and experience.

Observations of the traits can be supplemented by the study of cumulative records and by giving special art assignments and standardised tests.

Identifying Children or Students with Mechanical Skills :

Every progressive country needs today thousands of persons with mechanical skills. This growing need can be fulfilled only if students with mechanical skills are identified. This identification is possible on the basis of the following list :

- (1) Is interested in mechanical gadgets and machines.
- (2) Has a hobby involving mechanical devices such as radios, televisions, model trains, construction sets.
- (3) Can repair gadgets. Can put together mechanical things.
- (4) Comprehends mechanical problems, puzzles and tricky questions.
- (5) Likes draw plants and makes sketches of mechanical objects.
- (6) Does good work on craft projects.
- (7) Reads popular mechanics or other magazines and books on mechanical objects.

These observations can be supplemented by the study of cumulative records, introduction of special projects and application of standardised tests.

Identifying Children or Students with Scientific Ability :

Every progressive country needs scientific ability in almost every field of life and therefore there is a constant effort for the identification of student with scientific ability. The list of identifying characteristics for

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scientific ability include :

- (1) Is one to two years ahead of his class in mathematical and scientific ability.
- (2) Has greater than average ability to grasp abstract concepts and sees abstract relationships.
- (3) Has good motor co-ordination, especially eye-hand co-ordination. Can do fine precise manipulation.
- (4) Wants to know the causes and reasons for things.
- (5) Spends much of his time on special projects of his own such as making collections, constructing a radio, making a telescope.
- (6) Reads a good deal of scientific literature and finds satisfaction in thinking about and discussions of scientific affairs.
- (7) Expresses himself clearly and accurately either through writing or speaking.
- (8) Is willing to spend time beyond ordinary assignment or schedule on things that are of interest to him.
- (9) Is not easily discouraged by failure of experiments or projects.

Observations of these characteristics may be supplemented by the study of cumulative records and area of standardised tests.

Helping Children or Students with Academic Ability :

This requires classroom enrichment, acceleration, ability of the teacher, teacher's own attitude about talented students. It requires physical arrangements and materials. Steps to enrich teaching courses should be based on the following principles :

- (1) Prune your curriculum.
- (2) Reexamine your teaching methods.
- (3) Establish goals and select techniques.
- (4) Discuss the plan with the individual student.
- (5) Plan with the talented students as a group.
- (6) Use large, flexible teaching units.
- (7) Consider your talented youngsters as your own special project for the year, whether you work with one student or more.

It also requires an enrichment technique which includes (1) Individual Research, (2) Reporting the Research, (3) Learning by Listening to the Reports of others, and (4) Evaluating any of these things. The students should be encouraged to ask questions. They may be enriched by tours with intellectual and famous persons, the changing world, exploring in science, citizenship in action, treasure chest of words, our city of tomorrow, construction of magic squares, wall newspaper, a world of different dimensions etc.

Helping Children or Students with Artistic Talent :

First of all the stage of artistic expression should be set in educational institutions. Encouragement of artistic talent involves :

- (1) Help students become aware of their feelings and impressions through the techniques of full and free classroom discussions.
- (2) Encourage students with talent to incorporate visual materials in their reports and to develop some from which the entire class can learn charts, posters, displays.
- (3) Be generous and judicious with your praise. It involves the following don't's :
 - (i) Do not stress too much competition.
 - (ii) Do not ask students to draw objects as they appear to you.
 - (iii) Unless you are an art teacher do not correct students' art work, but try to see what they are trying to express in it.
- (4) Try to have basic art materials available.
- (5) If possible, provide a place to work.
- (6) Encourage the students to take part in school and community events where they can use their talents.

Helping Children or Students with Mechanical Skills :

This requires provisions of suitable material for the development of mechanical skills. Moreover, the following steps should be taken :

- (1) Utilise community resources for students with mechanical ability to develop their talent.
- (2) Help skilled students learn about the possibilities for careers in engineering, in scientific development, and in the skilled crafts.

(3) To make the parents of students with mechanical ability aware of the talents of their children and what they as parents can do to foster it.

(4) Give your support to the setting up of co-curricular activities, clubs, and groups that will provide opportunities for talented students to develop their mechanical ability.

(5) Look for information about contents, fairs, science fairs, and exhibits where students with mechanical skills can compete and develop their abilities.

Helping Children or Students with Scientific Ability :

The first step in this process requires identification of students with scientific talent. The teacher should know the scientific method and stimulate its use in the classes of different subjects. The following suggestions are useful for enrichment of scientifically talented students :

- (1) Set high standards of achievement.
- (2) Encourage experimentation.
- (3) Encourage library research.
- (4) Encourage students to make a study of various branches of science.
- (5) Take the help of others in stimulating the scientific interest of student.
- (6) Acquaint the student with opportunities outside the school.
- (7) Contact the student's family.

Special sections should be created for talented students in science. Physical facilities should be provided and all sort of encouragement should be given.

(D) ROLE OF TEACHER IN DEVELOPING CREATIVITY

One of the main aims and responsibilities of education is the encouragement and promotion of creativity among young people. Teachers can help to kindle the spark of creativity among children by following ways :

✓ **Creating an encouraging climate :** For developing creativity the school should provide opportunities for exploration in an accepting atmosphere where the child can feel free to be himself. Teacher should make the child feel that he is accepted and appreciated and that he can ask questions, mention half thought-out notions or suggest even wild ideas without being judged and censured.

✓ **Encouraging creativity in many medias :** Teachers should encourage pupils to express their thoughts and feelings spontaneously in as many media as possible. Generally, the teacher thinks that creativity is merely confined to writing poems, short stories, novels or biographies. In reality there are many other media like art, craft, painting, music or dramatics, exhibitions, social festivals, religious and social get together in which children should be encouraged to express themselves in a new way.

✓ **Encouraging variety of approach :** Teacher should encourage variety and originality. If the teacher demands the one right answer, then the students will not have any incentive to ponder the meanings and implications of what they are studying and to introduce their own judgements and evaluations into their learning. Teacher should encourage variety of answers. Any sign of change or variety in children's work and effort should be welcomed and encouraged.

✓ **Encouraging activeness and flexibility :** The creative person is both more active than most and more flexible than most. Teacher should encourage and foster both the amount of the activity and its flexibility. Many brilliant students have devised more effective and efficient methods of study. Such bright departures should be welcomed, respected and fairly evaluated.

✓ **Encouraging self-trust :** Teacher should encourage pupils' confidence and respect for their own ideas. He should reward their creative thinking through treating questions with respect, showing respect for imaginative ideas, and encouraging and valuing self-initiated learning.

✓ **Encouraging to study masterpieces :** Teacher should encourage the pupils to study masterpieces and work for original productions and to produce new and better form of expressing experiences.

✓ **Thinking over consequences :** Children should be encouraged to think over the consequences of an action. The mental exercise will be helpful in the development of creative thinking.

✓ **Being a creative person one self :** There is truth in the old axiom that *what a teacher does speaks more loudly than what he says*. The teacher who is creative in his own routine and is constantly surprising his pupils with a clear approach, is putting an unspoken premium on creativity and gearing student appreciation to

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novelty. The teacher who is himself still wandering and learning and still trying his best to know the unknown in his subject field gives pupils a creative model to follow.

9. Rewarding creative achievement : Creative achievement of a student should be rewarded. Torrance lists five ways in which the teacher can encourage and reward creative achievement :

- (1) Treat unusual questions which the children ask with respect.
- (2) Treat unusual ideas and solutions with respect.
- (3) Show children that their ideas have value.
- (4) Provide opportunities and give credit for self-initiated learning.
- (5) Provide chances to children to think, discover without threats of immediate evaluation.

10. Organisation of the curriculum : Organise the curriculum primarily on the basis of concepts rather than facts. It should cater to the personal needs of the students rather than the generalized needs. It should reflect what it desires from the creative children in terms of originality, novelty, fluency, flexibility, divergent thinking, elaboration and inventiveness etc. Learning experiences in the form of curriculum should be so designed so as to foster creativity among children.

11. Creative resources of the community : Creative resources of the community should be effectively utilised. Creative artists, scientists and creative persons from other fields may be invited to the school. Students should be taken to the centres of creative art, scientific, and industrial creative work. It can be helpful in kindling the spark of creativity among students.

12. Use of special techniques for fostering creativity : Some of the special techniques which can be used for fostering creativity among children are as under :

(i) **Role playing :** It gives experiences that a student cannot obtain in real life situation. It may take form of 'psychodrama', 'socio-drama', 'creative dramatics', 'reality practice', etc. This process involves exploration, correlation, comparison and contrast.

(ii) **Programmed learning :** Programmed learning technique does not impose anything on the student. The materials may be developed specifically to help develop divergent thinking ability in the user.

(iii) **Morphological analysis :** In this process, a problem is solved through analysis of variables that also involves utilisation of permutation and combination.

(iv) **Attribute listing :** It is a simplified form of morphological analysis. Once the listing is done, effort is made to improve the attributes.

(v) **Synetics :** This technique had been developed by *Willian Gordon*. It tries to join together different elements.

(vi) **Use of teaching models :** Some of the teaching models are very useful in developing creativity among students. For example, *Suchman's Inquiry Training Model* helps in developing creativity among students besides imparting training in the acquisition of scientific inquiry skills. Similarly *Bruner's Concept Attainment Model* is helpful in developing creativity in the students for the attainment of various concepts.

(vii) **Gaming technique :** Creativity can be developed among students with the help of gaming techniques, in a playway spirit. Both verbal and non-verbal material may be used in gaming techniques. For illustration in verbal transaction of ideas, types of questions which may be addressed to the children are : (a) Tell the different ways in which a goat and a sheep are alike. (b) Tell all the round things you can think of. (c) Tell all the different ways you could use a pencil. In non-verbal transactions the students may be asked to complete or draw a figure, draw and build patterns, to build a cube, and build or construct something or any thing with the raw material given to them.

(viii) **Brain storming :** This technique has been developed by *Osborn*. It involves storming of a creative problem. It is a technique which emphasizes the importance of divergent thinking. It has two types of mental activities : (a) Creative and (b) Judicial. The function of creative mind is to invent ideas, to find out new solutions to problems. The function of judicial mind is to critically examine the ideas which emerge from creative mind. The technique of brain storming can be conveniently used for small groups of children. A problem is proposed for discussion. The students are asked to express their views with full freedom of expression. Then with the help of teacher some consensus or opinion is reached. The following principles are to be observed :

- (1) Children are encouraged to give as many ideas as they can.
- (2) They are encouraged to give original or new ideas.
- (3) All ideas are encouraged and appreciated.

CREATIVITY AND CREATIVE CHILDREN

- (4) No criticism is allowed during the brain storming session.
- (5) After the expiry of the session, all the ideas received should be discussed in a free, frank and congenial environment and suitable ideas should be accepted for the solution of the problem in hand.
- (6) **Elaboration :** Elaboration is an important aspect of creativity. The child is provided with outline of a problem and by use of his imagination he completes the problem. This process of elaboration gives an opportunity to the child to develop his thinking, reasoning and problem solving abilities which are important ingredients of creativity. The classroom teacher can use this technique within the framework of his regular teaching.
- (7) **Imagination :** Children should be given full freedom for the development of their imagination because imagination helps in the development of creativity.

In the end, it can be stated that the flexible curriculum, the democratic administration through Student's Councils, well organised scientific hobbies, magazines, dramas, debates and other cultural activities, excursions and tours etc., can be usefully exploited to give a chance of expression to the students. But an over all change in the system of examination and in the curriculum has to be brought by the educational planners. And above all, a creative teacher who relishes teaching, and while teaching obliges none is most indispensable.

Conditions Helpful for Creative Work in Schools :

1. **Spontaneity :** Spontaneous activities of children should be encouraged by the teacher.
2. **Self-evaluation :** The teacher should encourage children to evaluate their performance.
3. **Confidence :** The teacher should seek and establish an atmosphere that would encourage confidence in work. The children should feel confidence in work. The children should feel confident of their abilities to perform a task set for them.
4. **Mental health :** According to Rogers, two conditions namely psychological safety and psychological freedom are essential for the emergence of creativity. The mental health of children should be sound.
5. **Opportunities for expression :** The teacher should provide opportunities for free expression of ideas. He should engage a wide variety of disposition in the class.

(E) TECHNIQUES OR METHODS OF DEVELOPING CREATIVITY

(I) BRAIN-STORMING TECHNIQUE :

Brain-storming technique for fostering new ideas had been developed by Osborn in 1963. It involves storming of a creative problem. It is a technique which emphasises the importance of divergent thinking. It has two types of mental activities : (1) Creative and (2) Judicial.

1. **Creative mind :** The function of creative mind is to invent ideas, to find out new solutions to problems.
2. **Judicial mind :** The function of judicial mind is to critically examine the ideas which emerge from creative mind.

The technique of brain-storming can be conveniently used for small groups of children. A problem is proposed for discussion. The students are asked to express their views with full freedom of expression. Then with the help of teacher some consensus or opinion is reached.

What is Brain-Storming ?

1. **View of Page and Thomas :** "Brain-storming is a technique of exploring possible solutions wherein participants are encouraged to contribute suggestions without risk of ridicule."
2. **David's view :** "Brain-storming is an approach to increase the learner's creativity and openness for problem solving."
3. **Osborn's view :** "Brain-storming is using the brain to storm a creative problem and to do so in a commando fashion, with each stormer audaciously attacking the same objective..... The crux of brain-storming technique lies in the fact that the exercise generates a wide spectrum of solutions as the participants explore along new and possible fruitful lines of thought."

Osborn opines that brain-storming technique consists of group members which suggest ideas as rapidly as possible, prohibiting criticism, encouraging speaking out, and evaluating at a later session, holds possibilities that have not yet been thoroughly tested.

4. **View of Bruner and Suchman :** Brain-storming implies "the use of discovery and inquiry methods in teaching in order to foster creativity among children. In this way possible solutions to the problems are explored. It is group participation method of problem solving where the ideas come to the mind of the participants without fear or criticism."