Since or physical strength. the teacher or

Since these modifications and changes or the whole process of educating the individual do not entirely depend on the environmental forces or factors but, in a great measure, on the genetic constitution and the innate capacities, qualities or attributes of the individual given to him by nature. One of those capacities or qualities, which lie at the back of the changes and modifications in the individual, in various aspects of his development, is intellectual capacity or intelligence which is also called by some psychologists as mental energy as compared to physical energy, stamina or physical strength. The teacher or the educationists responsible for the education of individual children form the beginning, are supposed to know as to what is understood by intelligence, what is its real nature; whether it is a unitary quality and a faculty or is composed of certain elements or factors. Sometimes teachers in the class-room and even many educational administrators are not quite clear about the concept of intelligence.

It is, for example, noted that if a teacher is asked to point out the most intelligent pupil in the class, he very often points out a quiet and a shy child who gives no trouble, comes to the class regularly, does his home-work regularly and is no problem to teacher and the teacher thinks that this boy is very good in his behaviour and routine class work and is thus very intelligent. He may on the other hand point out another child who is rather aggressive, rowdy, sometimes cutting classes, not doing his homework regularly and even sometimes questions the teacher in the class and enter in an argument. He may be labelled as a bad boy and may be labelled as an ass. But if the intelligence of these two boys is judged, the former may be

found to be having I. Q. near about 90 or 100 whereas the second child who is active and restless may be found to have an I. Q.

of 125. To the teacher, ordinarily good behaviour stands for good intelligence but it is known that good behaviour is different from intelligent behaviour. The confusion, therefore, arises when the meaning of intelligence as a concept is not understood. So, in educational psychology attention is devoted to the study of intelligence with regard to its meaning, nature, variation as well as to the various method and means of assessing its level in different individuals. Intelligence, ever since the interest taken in its study by psychologists, in modern times, after the pioneering work of Binet, has been understood in different ways and has been defined by many psychologists from their own points of view. However, now, there seems to be almost a consensus of opinion about the meaning of intelligence although definitions of the term have diferred so widely during all these decades. For example, Binet himself thoughts of intelligence as, “ the capacity to think in abstract terms or the capacity to reason well, to judge well and to be self-critical”. Thorndike thoughts of intelligence as the, “ power of good responses from the point of view of truth or fact.

” According to him the mind was a host of highly particularised and independent abilities and he even; identified three types of intelligences—(i) Abstract Intelligence which consisted in understanding abstract ideas, concepts and symbols and to use them effectively, (ii) Concrete Intelligence as the ability to deal with concrete objects, things or materials as in skilled trades or as in working with appliances, apparatus and tools used in physical sciences or in practical tasks; and (iii) Social Intelligence as the ability to

understand people in life and to make one’s headway through them by dealing with them or handling them. Political leaders in society, for example, could be said to possess higher social intelligence, though they may have failed in school. Cyril Burt, while working on various investigations at Oxford and Liverpool, thought of intelligence as “ the inborn general intellectual efficiency”. Similarly Terman who was a great contributor in the field of intelligence testing in USA, understood that a person was intelligent in proportion as he was capable of abstract thinking. Freeman in 1940 also defined intelligence as the ability to learn action or to perform new actions that were functionally useful.

William Stern in Germany (who first gave out the idea of I. Q. as a ratio between Mental Age and Chronological Age multiplied by 100) defined intelligence as “ a general capacity” of the individual to consciously adjust his thinking to new requirements. Intelligence has now generally been under-stood : (i) as the capacity to integrate experiences and to meet a new situation successfully by means of appropriate and adaptive responses of varied nature and of numerous types; (ii) it is also the capacity to learn new things to the extent one is educable; (iii) as a capacity to perform intellectual tasks by carrying on abstract thinking by using symbols and concepts which may be verbal or numerical; (iv) as a capacity to handle new practical tasks requiring the use of concrete media; and (v) intelligence also is considered as the capacity to deal with social situations and also to deal with different types of people to make a successful carrier, as we find in the case of social or political workers and leaders. Considering all these areas with which the individual is concerned in actual life, intelligence is considered by Wechsler

as the, “ aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment”. Woodworth, in a similar manner thought of intelligence as the mental capacity to deal with novel situations successfully. In both these definitions the reference is to all sorts of situations in the environment which the individual has to face and his intelligence consists in dealing with all those new situations as effectively and successfully as he could and the degree of success or effectiveness will lie the level of his mental capacity.

Another writer, Stoddard defined intelligence as, “ the ability to undertake activities that are difficult, complex and abstract and which are adaptive to a goal, and are done quickly and which have social value and which lead to the creation of something new and different.” Here again the meaning of intelligence is understood, though in a different language, as the capacity to handle new situations. So, on the whole investigators concerned with the study of intelligence have understood it as the mental capacity or mental energy (as called by Burt in later years) which enables the individual to handle his environment concerned with abstract, concrete or social situations as successfully as the level of his mental capacity could warrant. This word ‘ mental energy’ is used for intelligence in contrast with physical energy, strength or stamina which means that intelligence is a function of the quality of the brain cells.

Sometimes in ordinary parlance it is said that intelligent people have big heads or brain and that the labourers have big feet. This popular statement is not scientifically correct like many such popular Sayings which are ‘ half truths’. Big heads with big brains do not necessarily mean high intelligence.

One study, for example, conducted by Dunlop to find the correspondence between the size of the brain in the head and the level of mental alertness revealed a low correlation as. 112 which meant that there was hardly any relationship between intelligence and the size of the brain or of the head or cranium (skull). What actually mattered was not so much the size, shape or the dimensions of the brain or head but what actually was contained in the head. This meant that the quality of the brain and not so much the size of the brain in the head was important. The quality of the brain means the type of the nerve cells in the brain cortex in the frontal lobe of the cerebrum which is said to be the seat of cognitive functioning.

The nerve cells in the brain cortex of an intelligent man seem to be different in quality than the nerve cells of the less intelligent person. If mental energy made available by the type of the nerve cells is used to deal with the novel situations, the success will depend on the amount of the nervous energy supplied by the nerve cells. By analogy the supply of the nervous energy could be understood if we consider the amount of water passed on to a spot by various pipes or tubes from a reservoir or the flowing river. The amount of water carried by these tubes or pipes to the spot will depend upon: (a) The number of the pipes put in action; (b) The bore of the pipes which measures its capacity to transfer the water; and (c) The ease and smoothness with which the water flows through the pipe i. e., if there is any obstruction inside or the pipes are constructed intricate, zig-zag, involved and lying in a confused state, the flow of water will be slower and comparatively less.

In a similar manner when a new task is to be handled the success would depend upon the supply of the mental energy and the mental energy

supplied would depend upon the number of cells coming into operation at the moment, the amount of energy carried by the nerve cells and the ease and the smoothness with which the energy is supplied by the nerve cells. Neurologically, therefore, the more intelligent man seems to possess nerve cells in the brain cortex which are so sensitive that a large number of them came into operation and that they carry more energy quickly to be thrown, as it were, in the task and the success depending on the amount of mental energy or intelligence available at the moment. It is not so simple or certain to say that intelligent behaviour depends actually on such a neurological framework. But to understand intelligence as nervous energy this is one-way to explain the phenomenon by taking the analogy of supply of the quantity of water from a source by a network of pipes. Persons not taking recourse to nerve cells thought of intelligence as a faculty like other faculties such as memory, attention, perceptions, imagination, reasoning, etc. Faculty psychologists like Ebbinghause, Galton and others thought that the mind was constituted by a number of faculties and that intelligence was one of those faculties. But studies conducted from the epoch making work of Binet (when he tried to measure mental level of school children), the nature of intelligence is examined very closely and much light is thrown on it.

The enquiry was to find out whether intelligence was a unitary quality or a faculty or that it was constituted by or composed of certain factors. This enquiry started with Binet’s work to assess mental level of children and it led to the mass of knowledge and investigations resulting in host of intelligence tests in which process of constructing and using the so many intelligence tests the investigators were led to study the nature of intelligence itself and

a number of theories of intelligence were propounded. Binet had thought that there were three characteristics of intelligent behaviour: (i) tendency to maintain and take definite line of thinking; (ii) to make adaptations for attaining the right goal; and (iii) power of self- criticism to Judge the success. Binets contribution in the study of intelligence was to give out the concept of general mental level and also the concept of an individual’s mental age.

He, however, did not go into the question of further analysing the nature of the thinking process or of the intelligent behaviour.