

Nature vs. nurture



Introduction

Intelligence is a very common subject in psychology but as common as it is, there is no complete way of defining intelligence in its constitute. Some psychologists have suggested that intelligence is an ability that is general as well as single. Others have come to believe that intelligence is made up of different skills, aptitudes as well as talents. There are many theories that have been in existence as from the early 1900s in their attempt to define intelligence or to look at what really constitutes intelligence.

General Intelligence by Charles Spearman

Charles Spearman was a British psychologist who lived from 1863 to 1945. He introduced the general intelligence concept or the g factor to the psychology body of knowledge (Currie, 1995). He made use of a technique referred to as factor analysis to examine some mental aptitude tests. His results showed him that the scores he got on the mental aptitude tests were surprisingly so similar. If a person performs well in one cognitive test, he or she also performs well on other tests administered and this was the trend. Those who had bad scores in the cognitive tests also had bad scores on the other tests that were administered. His conclusion after numerous tests and research was that intelligence is general cognitive ability that could be measured and numerically expressed (Moore, 2003)

The Primary Abilities by Louis L. Thurstone

“ Intelligence, considered as a mental trait, is the capacity to make impulses focal at their early, unfinished stage of formation. Intelligence is therefore the capacity for abstraction which is an inhibitory process” (Thurstone, 1924). The psychologist Louis L. Thurstone (1887-1955) came up with a

different theory on intelligence whose main focus was the primary mental abilities. This challenged Spearman's theory then existing theory whose main focus was the g factor. He did not take intelligence to be a single entity whose ability is general but rather decided to focus on seven different "primary mental abilities" (Gazzaniga, 1994). The primary mental abilities on which this theory focused on include:

- **Reasoning:** –

When a person can reason something out then the person is said to be intelligent. This is why human beings are referred to as intelligent beings even in biology. In ITC the machines that can do a job that a human being should do in terms of sensing and adjusting to the environment in which it exists is referred to as an intelligent machine.

- **Associative memory:** –

Humans tend to remember things by associating the thing to another that they know very well. This is seen as intelligence according to Thurstone's theory.

- **Verbal comprehension:** –

The way a person articulates any language is a very important measure of intelligence.

- **Numerical ability:** –

The ability to manipulate numbers also plays a key role in establishing a human being's intelligence.

- **Spatial visualization:** –

This is the ability of the human mind to play around with 2-dimensional as well as 3-dimensional figures. This was measured using simple cognitive tests.

- **Perpetual speed:** –

This factor was also identified by Thurstone to contribute to intelligence.

There is a lot of debate as to whether perpetual speed contributes to intelligence. Some psychologists have come to disagree with the idea that perpetual speed contributes to intelligence.

- **Word Fluency:** –

The ease with which a person has to communicate using words also measures a person's intelligence.

Thurstone is also responsible for the development of a statistical technique referred to as the multiple-factor analysis. He has made major contributions to psychology that has formed a base for other psychologist to add on to the existing knowledge that psychology has so far accumulated. Thurstone's argument regarding the theory by Spearman was that the g-factor was a mathematical result of the procedures of a mathematical nature used to study it. His tests show that people with different IQ scores had different profiles when it came to the primary abilities. His tests however revealed the g factor when he administered the same tests to a group of heterogeneous children. He finally reorganized his theory to include the g factor as well as the seven primary abilities. This was a very important base for future psychologists who came up with theories.

Multiple Intelligences by Howard Gardner

Gardner, 1993 asserted that human intelligence needs to entail a comprehensive set of skill both learnt and acquired that aid him in solving a myriad of problems. Knowledge is indeed the food of the mind that keeps the mind motivated and challenged. Therefore, human intelligence directly depends on what the human mind is exposed to in terms of knowledge. The theory of multiple intelligences is the name of the theory by Gardner (Novartis Foundation, 2001). Further tests indicate that normal children as well as adults are both gifted and intelligent enough thus have reduced chances of brain damage. This is also true for individuals who are virtuosos and experts as well as people from different cultures. He proposed that just because a human being has the ability to tackle tests and also answer numerical questions may not be a full description or measure of intelligence (Stenberg & Grigorenko, 1997). He said that the earlier theories ignored very major intelligences that are used in daily life and are thus very important such as social intelligence. The theory of multiple intelligences propose eight intelligences each of which are distinct and are based on the abilities as well as the skills which are valued with the different cultures of the world (Novartis Foundation, 2001). They include:

- **Intra personal Intelligence:** –

These people understand their goals as well as interests. They tend to be loners and are in tune with what they feel inside. These are the people with wisdom, motivation, intuition as well as opinions, confidence and strong will. The tools to be used for this group include diaries, privacy, creative materials, books as well as time. These are the most independent learners of all the intelligences listed.

• Visual-spatial Intelligence: –

These are people who are always in the present and very aware of their surroundings. They also think in terms of the physical space. They like to read maps, draw, and daydream as well as do jigsaw puzzles. They grasp things easily when taught through the use of drawings, physical imagery as well as verbal lessons therefore the learning tools here include video, multimedia, models, television, graphics, photographs, 3-d modeling (Epstein, 1998).

• Naturalistic Intelligence: –

This kind of intelligence was thought of last by Howard Gardner. Human beings use this kind of intelligence to draw upon the environment and then the mind plays around with what is seeing in the environment. It “ combines a description of the core ability with a characterization of the role that many cultures value” (Gardner, 1993)

• Verbal-linguistic Intelligence: –

These people know how to use words in an effective manner and even think in words. They are the sort that always likes to read, write stories or poetry as well as playing games that involve words such as scrabble. They make use of mysteries, logical games as well as investigations to learn. They get the concepts first then get into the details of the concepts.

• Interpersonal Intelligence: –

This group of individuals understands and always reacts with others in their environment. They learn by interaction. These are the street smarts we have around and they are also full of empathy for others and do have a load of friends. They are taught through seminars or anything that will involve group

activities. The tools used include the telephone, video conferencing, E-mail as well as computer conferencing and writing.

• **Musical Intelligence:** –

These are sensitive to sound as well as rhythm. Music is their first love but they are also sensitive to the sounds made by birds or those in their environment. These can study with music playing and they can be taught by turning the contents of a lesson into lyrics. The tools here are therefore anything that can help produce music.

• **Bodily-kinesthetic Intelligence:** –

They make use of the body a lot such as dancers or surgeons. They are aware of their body movement and they like touching, movement and making things. They can be taught using hands on techniques and the tools to be used here are real objects to be used in real life (Cianciolo and Sternberg, 2004).

• **Logical-mathematical Intelligence:** –

These are good at reasoning and calculating. They think in a conceptual manner and they would always experiment or be solving puzzles.

The theory by Gardner has greatly challenged educators. Educators know understand that individuals have different kinds of intelligence and given the nature of the instructions or unit being taught then proper means of teaching should be adopted so as to ensure that the learning process is as smooth as possible. This ensures that students understand and not just master something they do not really understand.

Triarchic Theory of Intelligence by Robert Sternberg

This theory was developed so as to give a more detailed description of competence intellectually than the theories herein mentioned. This theory was developed by Robert Sternberg who proposed that three fundamental aspects of intelligence exist; Creative, Practical and Analytic (Bartholomew, 2004). He maintained that Creative intelligence is absolutely necessary for the tackling of nearly strange tasks or when a human being needs to automate a task. Practical intelligence has been seen to be needed when a human being is to adapt to an environment in the best possible way while analytic intelligence referred to the processes that go in the mind so as to express intelligence. According to Sternberg, general intelligence has been branded as being a family of the renowned analytic intelligence and it is the combination of the three fundamental aspects that one can have full insight into intelligence (Cohen, 1999).

The individual is termed intelligent if he or she has attained his or her success in life by the same person's standards. The success a person achieves in life can be attained by making use of the creative, analytic and practical intelligence. These three in combination are given the name processing skills. Stein and Book (2006) argues that success is achieved by adapting to the environment in which one exists then shaping of the same environment as well as selecting the kind of environment the individual would want. This is done by making use of one's strengths and putting in effort so as to correct one's weaknesses. This theory is still a contentious issue among psychological scholars and hence we do expect other theories to come up.

Intelligence: Nature vs. Nurture

If we say intelligence is nature it means that human beings are born with it but if we were to say it is nurtured then it means that one can be born not intelligent but develops the intelligence over time. According to Spearman, intelligence is natural in that you either have the g-factor or not (Anderson, 1999). There is no part that he suggests improvement. He even goes ahead to say that those who passed continued to pass and those who failed, continued to fail. In other words, he was saying that you either have it or you simply do not have it. In classes as well as industries, we have seen people improve in class and also people improve in the way they relate with others.

Keeping the previous paragraph in mind, it means that intelligence can also be nurtured as long as the individual is willing. The second theory was by Thurstone and according to him; there were many factors that constituted intelligence. In his tests he concluded that children tended to be either born intelligent or not as he failed to see the primary features he had in his theory. This was a shift in thought that one can be born as intelligent or not but as a child grows, they begin to learn and nurture intelligence so according to him, he does acknowledge that one is either born with it or not but as the person grows, he or she, will develop some primary features which will now determine whether the person is intelligent or not.

The next theory discussed in this paper is the theory of multiple intelligences by Howard Garner. According to his theory he does acknowledge that everyone is intelligent in their own way as there are different kinds of intelligence (Goleman, 2006). It is then nurtures using appropriate tools that match the type of intelligence the individual exhibits. For example, if a

person shows interpersonal intelligence then the best tool to teach such a person is the use of group activities. Always ensuring that such a person is at a place where he or she can interact is important because the kind of intelligence harbored in such a person dictates the use of people as his or her best friend is people.

According to Sternberg in the Theory of Successful Intelligence, he does agree that a part of the intelligence in a human being is general, meaning natural or inborn. Quite a big chunk is developed by the person and this is dependent on the success levels the individual would want to reach.

Intelligence is measured by the success a person has achieved in life but then success in the same individual's eyes. This means that everybody has different levels of intelligence as what one individual would term as intelligent, another would not. According to Armstrong (1999), this means that intelligence is natural but it depends on how everyone uses it or nurtures it so as to be intelligent sully in terms of analyzing, creating and practicalities.

Depending on what base you are talking about intelligence, it may fall under natural or being inborn but if we are to look at it from a success point of view then we can easily say it is nurtured. Therefore, whether intelligence is nature or nurture is a matter of the point of view as well as the individual. This still remains a contentious issue in the psychology world but there is hope that other theories will come up to better explain intelligence.

Conclusion

The definition of intelligence has not been well established and is still the reason psychologists are still fighting among other issues. It is therefore difficult to conclude as to whether intelligence is inborn or nurtured once a human being gets to earth. One thing is clear though, every person has their own kind of intelligence which is worth exploring. This is inborn. After a person has realized their natural intelligence, then they can nurture it.

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