iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** IV **Month of publication:** April 2023

DOI: https://doi.org/10.22214/ijraset.2023.51308

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue IV Apr 2023- Available at www.ijraset.com

Intelligent Quotient Testing Using Stanford Binets Standardized Method

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Abstract: ***We aim to help individuals, students, professionals or businesses produce quick and accurate mental skills estimates online, as well as to provide insights and advice on how these skills can be analyzed and fostered!***
In this paper we have promised to estimate an atmost accurate IQ of an individual with 15 set of questions which are based on important aspects such as logical mind, creative mind, spatial mind, verbal mind. This test estimates IQ till 170 that is highest IQ the test can estimate is 170. IQ stands for Intelligence Quotient, which is a parameter for measuring a human being's ability to solved difficult problems and think. IQ tests have been designed and used to estimate this characteristic, and your IQ score tells you how smart you are in comparison to people your age. Your IQ test score actually reflects how well you do in various mental activities, and therefore, can be a good criterion to know if you can be successful in a specific field of study. The results from an IQ test should be analyzed carefully, but as core between 90 and 109 indicates average intelligence.

I. INTRODUCTION

In the early 1900s, IQ test was originally developed by the French psychologist, Alfred Binet. The average IQ score is 100, as core above130 is labeled as extremely smart while as core below 70 is labeled as developmental delays. Unfortunately, fact of statistics showed that half of people score below average intelligence. Is this means that they are not clever and would not success in life? [3]
Averaging the results that my IQ is either 85 which is considered as low average or 135 which is considered excellent. [5]
Now which result do you think is true?
The study found that IQ tests have been show more content. This was done by their searchers who took sample of 46,000 people around the world from an online survey. They analyzed how they performed and found these three distinct components. A study published in the Journal Neuron stated that the traditional IQ test did not accurately measure all of these components. [6]
IQ tests measure experience, not biology. The questions of the intelligence tests concerning concepts and objects based on circumstances. According to Hannah Richardson, intelligence tests measure the ways people respond to their environment but they do not measure genetic predis positions. Intelligence tests are inaccurate to measures true ability of a person because genes affect how a person responds to their surroundings, the tests cannot measure the person biological make up or his true potential for being "smart".[4]
An IQ test is an assessment that measures a range of cognitive abilities and provides as core that is intended to serve as a measure of an individual's intellectual abilities and potential. IQ tests are among the most administered psychological tests. To understand what the wise scores really mean, it is essential to look at exactly how these tests scores are calculated.
Today, many IQ tests are standardized, and scores are derived by comparing individual performance against then orm for people in that age group. While many tests utilize similar methods to derive their scores, it is also important to note that each IQ test is different. Additionally, scoring methods may not be the same from one test to another. [7]
According to Mensa International, an organization for people scoring in the top 2% for IQ.2 Intelligence tests assess a person's mental abilities and compare them with the abilities of other people through the use of numerical scores. Although the term intelligence is used as if there is agreement on what it means, in reality there is much debate as to how this term should be and has been defined. [8]
For example, debate has surrounded whether intelligence should be considered an inherent cognitive capacity, an achieved level of performance, or a qualitative construct that cannot be measured.[7]
Psychologists have debated whether intelligence is learned or inherited, culturally specific or universal, and one ability or several abilities. While these debates are ongoing, evidence is increasing that traditional intelligence tests measure specific forms of cognitive ability that are predictive of school functioning, but do not measure the many forms of intelligence that are beyond these more specific skills, such as music, art, and interpersonal and intrapersonal abilities.[6]

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ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue IV Apr 2023- Available at www.ijraset.com

More specifically, for the purpose of this article, intelligence is discussed as it relates to a child's score on the intelligence (IQ or "intelligence quotient") tests that are used most commonly to measure a person's intelligence for educational planning or neuropsychological assessment. [4]

II. LITERATURE SURVEY

IQ assessments have always been a conversation starter as well as a recruitment method. Intelligence Quotient (IQ) was established in the early 1900s as a way to create a standardized measure of intelligence as well as cognitive abilities. Over the years, the IQ test has been used to identify potential leadership material as well those with certain cognitive skills that would go on to be leading names in different fields. [3]

A. What is IQ?

IQ or Intelligence Quotient is a standard score that shows how far above or below, his/her peer group an individual stands in mental ability. The peer group score is an IQ of 100. The IQ number is attained by giving the same test to huge numbers of people from all socio-economic strata of society and then taking the average.[4]

Coined in 1912 by psychologist William Stern, IQ was represented as a ratio of "mental age to chronological age x 100". For example if someone was 10 years old and had the mental age of a 10 year old, their IQ would be 100. But if their mental age was for example, 13 rather than 10, their IQ would be 130.[6]

B. What are IQ Tests?

A typical IQ test consists of taking various tests measuring intelligence including; spatial recognition, short-term memory, mathematical ability, and analytical thinking. Commonly misunderstood as something that tests all the knowledge you have acquired over the years, the IQ test is actually testing your capacity to learn.[7]

The modern day IQ test has come a long way since its inception in the early 20th century. Their purpose hasn't changed, and the methodology remains similar – in that they are testing facets of an individual's intelligence quotient rather than anything that has been learnt in the past.[8]

C. What does an IQ Test Measure?

An IQ test measures a range of an individual's cognitive ability and provides a score that is intended to serve as a way to measure an individual's capabilities and potential.[2]

A typical IQ test takes one to two hours and consists of anywhere between 25 and 50 multiple choice questions. It depends on the association administering the test but examinations can be shorter. Tests taken on social media for example can be short but do not cover a wide range of requirements to accurately measure IQ.[5]

D. What are IQ Tests used for?

IQ tests can be used for a variety of different purposes. These include:

1) *Schools:* To help identify children who may be gifted and thus to be given extra support to achieve or equally, analysing where children may require additional help in education.
2) *Military:* When originally coined, the IQ tests were separated into ALPHA and BETA. The first is for new recruits, the second for those who pass training. It helped to identify those with candidates with intellectual deficiencies, psychopathic tendencies, nervous intangibility, and inadequate self-control.
3) *Recruitment Professionals:* The IQ test helps point out candidates who exhibit critical thinking skills, learning ability and problem solving.
4) *Individuals:* This could just be for fun for many people, a bragging rights measure at the pub quiz or it could be done for genuine interest.
5) *Mensa:* Mensa tries to identify those of a higher intellect in order to foster human intelligence for the benefit of humanity.[7]

E. Types of IQ Tests

There are many different types of IQ tests with over 200 being last identified in a 2017 study. They are all trying to do the same thing but with different focuses on cognitive abilities and differentiate measuring tools.[3]

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F. Are IQ Tests Accurate?

People often ask if IQ tests are accurate. There appears to be a variety of opinions on this subject. One of the common concepts around IQ test accuracy is that it depends on the tests that are being administered where scores can vary at different ages.

This application would help to determine your IQ by performing standardized tests which will measure special factors of your brain and your Intelligence level based on two assessments

1) Standford binet Intelligence Scale

2) Raven's Progressive matrices [7]

G. What is the Stanford-Binet Test?

The Stanford-Binet test is an examination meant to gauge intelligence through five factors of cognitive ability. These five factors include fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing and working memory. Both verbal and non-verbal responses are measured. Each of the five factors is given a weight and the combined score is often reduced to a ratio known commonly as IQ. [5] How reliable is the Stanford-Binet test? The Stanford-Binet test is among the most reliable standardized tests currently used in education. It has undergone many validity tests and revisions throughout its long history, and while there are undoubtedly a few issues with the assessment, most results are treated as accurate. That is, individuals with high scores are usually gifted, and those with low Stanford Binet test scores often face some sort of cognitive disability. [5]

H. Origins of the Stanford - Binet Test

The Stanford - Binet test traces its roots to the Binet - Simon scale, French device for identifying levels of intelligence. The Binet-Simon Scale was developed by Alfred Binet and his student Theodore Simon. French education laws were influx at the time and Binet was approached by a governmental commission. The commission wanted a device to detect children that possessed not ably below-average levels of intelligence for their age. The Stanford-Binet Intelligence Scale (Terman&Merrill, 1973) and the most recent revision of the Wide Range Achievement Test (Jastak & Jastak, 1978) were administered by certified school psychologists and psychological assistants.[5]

III. PROPOSED SYSTEM

An IQ Test score is calculated based on a norm group with an average score of 100 and a standard deviation of 15. The standard deviation of 15 means, 68% of individuals have scored between 85 and 115 on the IQ test. This means the average score will always be 100 and 95% of individuals will score between 90 and 145.

The mean (**μ**) IQ score for the entire population is 100. The standard deviation (**σ**) is 15 points.

If you have an IQ score of 115 (100 + 15), then you are 1 standard deviation above the mean (z = +1).

If you have an IQ score of 85 (100 – 15), then you are 1 standard deviation below the mean (z = -1).

To put this in perspective, we need to know the area under the curve between the IQ scores of 85 and 115. This is the area under the standard normal curve between z = -1 and z = +1. Therefore, we know that 68% of the population have and IQ score between 85 and 115. Similarly, if we look at the scores that are 2 deviations away from the mean (z = +/-2), we would be looking at people with IQ scores between 70 and 130. We know that 95% of the population lies between these z scores which tells us that 95% of the people in the world have an IQ score between 70 and 130.

Any score within 2 standard deviations of the mean is considered "normal". Outside of these values, statisticians consider the scores to be "extreme" or different from the normal population. Only 5% of the population will have IQ scores above 130 or below 70.

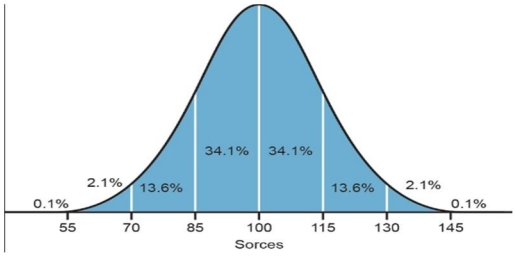


Fig 3.1: an IQ graph

Fig 3.1 shows an IQ graph that shows the overall data of average IQ of majority of people which is 100(average IQ).

A. *Problem Definition*

IQ tests are unable to measure variable aspects of intelligence like emotional and social intelligence. Both of these are crucial factors in assessing an individual's potential for success, but they are not tested in IQ tests. Ultimately, IQ tests only really measure how well an individual takes an IQ test and little more.

IQ tests have the potential to inaccurately measure an individual's intelligence and cause problems including low confidence, unrealistic expectations, and just a generally flawed understanding of a person's potential.

Every person is different, and while an IQ test can be useful for identifying certain strengths and weaknesses, you should be proactive when evaluating your student's learning needs and look beyond their IQ score. Identifying your student's ability level in areas not tested by an IQ test, such as creativity and is essential to maximizing their potential for success.

B. *Scope of the Project:*

The scientific study of human intelligence dates back well over 100 years. In that time there have been numerous schools of thought about how to measure intelligence. The core disagreement between researchers and theorists about intelligence is around whether it's genetic or largely influenced by the environment; whether it's nature or nurture. In the late 1800s, Englishman Sir Francis Galton (1822-1911) became one of the first people to study intelligence. He tried to measure physical characteristics of noblemen and created a laboratory to measure their reaction time and other physical and sensory qualities. Regarded as one of the fathers of modern-day intelligence research, Galton pioneered psychometric and statistical methods. Given the technology of the day, he wasn't particularly successful at measuring biological parameters. But he did create testable hypotheses about intelligence that later researchers used.

IV. RESULT AND DISCUSSION

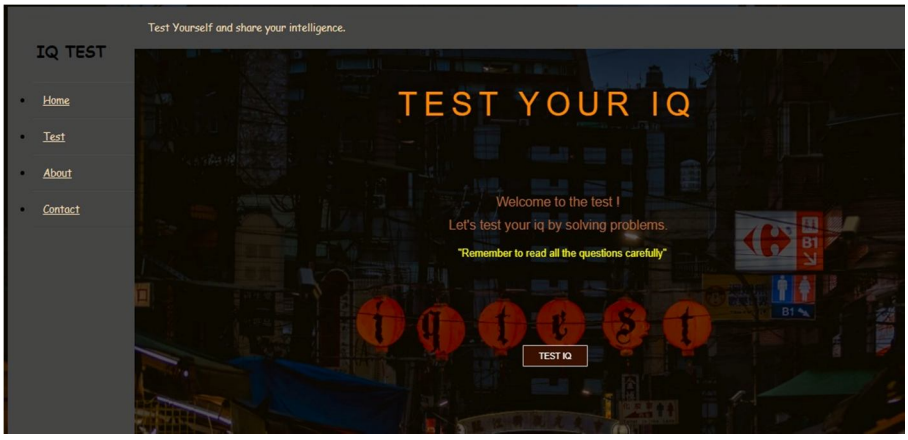


Fig 4.1:.Home page of IQ Testing

Fig.4.1 shows the home page of IQ Testing

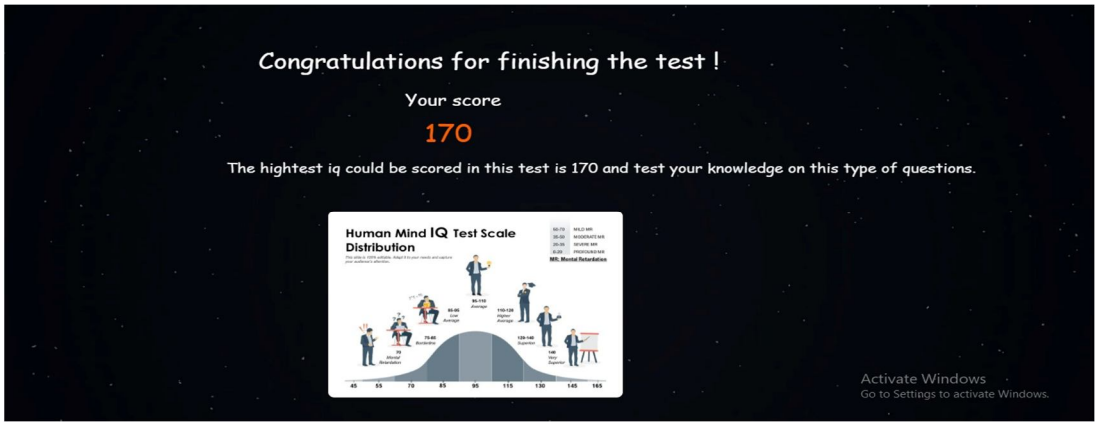


Fig 4.2: Result page of IQ Testing

Fig.4.2 shows the Result page of IQ calculated after conducting the test. The highest IQ result showed is 170 based on number of question's evaluated points. The question deploys the core aspects of intelligence.

V. APPLICATION

A. Psychological Batteries in Clinical Settings

1) Screening Assessment: A brief assessment with the intent of determining risk or eligibility of certain disorders or programs.

2) Focused Assessment: A detailed assessment of a specific area of functioning.

3) Diagnostic Assessment: A detailed evaluation of a person's strengths and weaknesses in various areas (e.g. cognitive, academic, and behavioral).

4) Counseling and Rehabilitation Assessment: Focuses on a person's ability to adjust and successfully fulfill daily responsibilities.

5) Progress Evaluation Assessment: Focuses on a person's progress overtime.

6) Problem-solving Assessment: Focuses on specific types of problems.

B. Intelligence Testing in School Settings

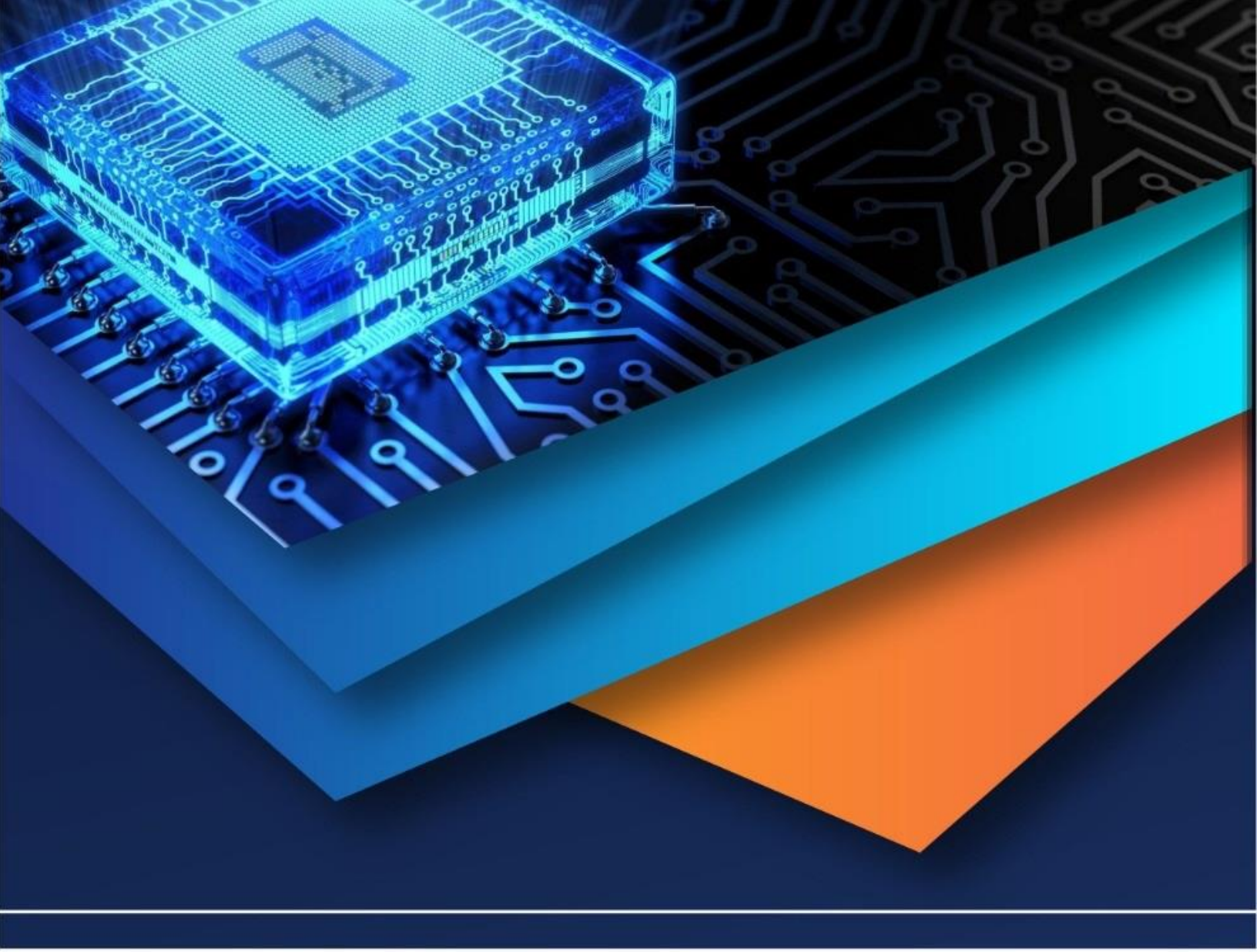
Intelligence testing can be used in the schools by qualified individuals to help determine if a student has a specific learning disability, a developmental delay, or a cognitive delay. In most schools, the individual that is qualified to administer and interpret intelligence tests is the school psychologist.

VI. CONCLUSION

In conclusion, the argumented theory of successful intelligence provides a theoretical basis for assessing many of the skills needed for college (and other forms of) success. Measures derived from the theory show significant and substantial incremental predictive power, and also increase equity across ethnic groups. If our society were to experience better teaching, with more emphasis on the creative and practical skills needed for success in school and life, the predictive power of WICS assessments might increase as well. This application would really workout and can be a great source for the society based on the intelligence batteries working in this application

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