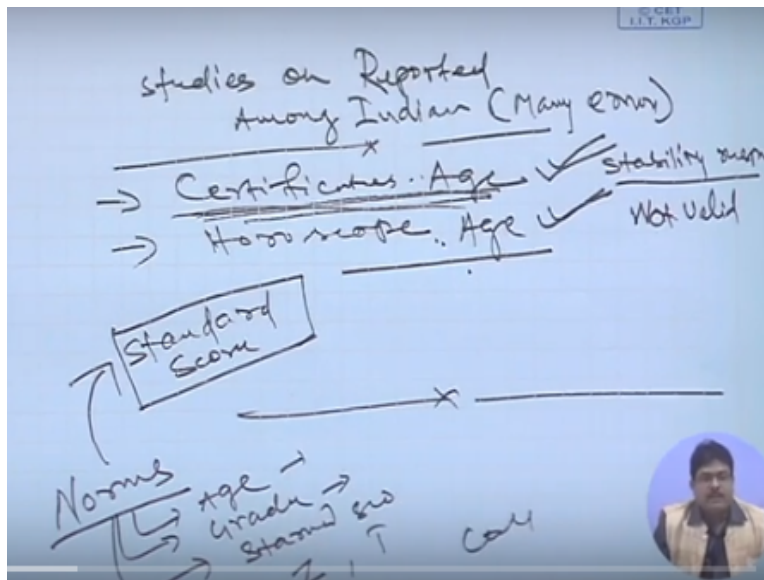


**Emotional Intelligence**  
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**Indian Institute of Technology, Kharagpur**

**Module No # 2**  
**Lecture No # 08**  
**Applications**

A dimension of reliability and validity and no test can be utilized without having norms.

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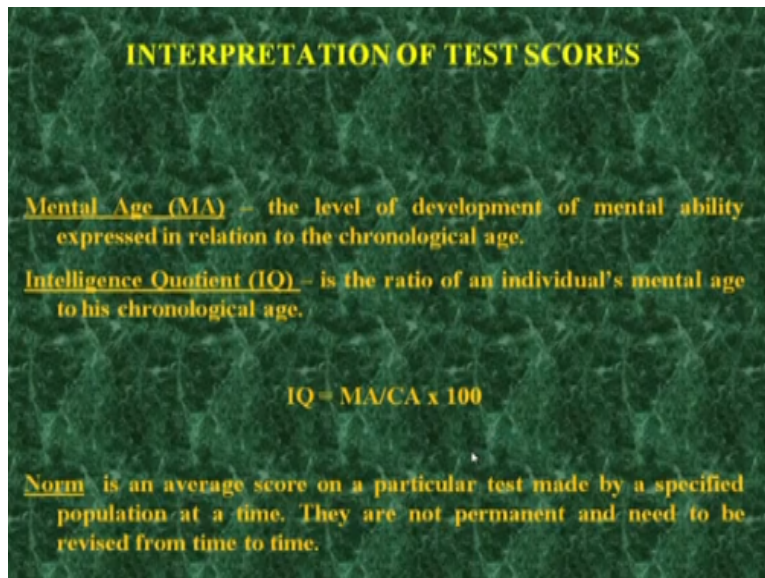


So norms is nothing when you talk about norms this is nothing but a standard score by the help of which we compare individual scores or people score on a particular intelligence scale test. So it is otherwise called also known as a standard so just like you when you purchase anything any raw materials from a grocery shop one kilo, two kilo so one side the matter the other side is the standard weight.

So that compares at the word itself so similarly a standard score norms compares different people's individual test scores. So this norms can be at various types age related, grade related and then standard score norms like Z scores, T scores are calculated for the comparison of individual scores or some people say cut off scores. So cut off scores are here age wise cut off

scores, grade wise cutoff scores. When we prepare intelligence test, for different samples on the basis of different age groups.

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**INTERPRETATION OF TEST SCORES**

Mental Age (MA) – the level of development of mental ability expressed in relation to the chronological age.

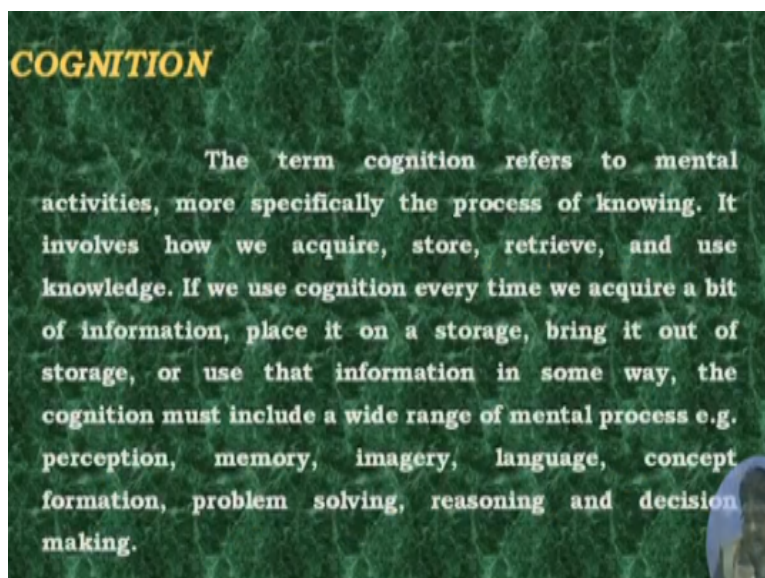
Intelligence Quotient (IQ) – is the ratio of an individual's mental age to his chronological age.

$$IQ = MA/CA \times 100$$

Norm is an average score on a particular test made by a specified population at a time. They are not permanent and need to be revised from time to time.

So that is why you say cutoff scores meant for children's cannot be applicable for cut off score meant for adults. So accordingly we decide as far as IQ test is concerned here also the norm is equally applicable. It is an average score on a particular test made by specified population at a time they are not permanent and need to be revised from time to time

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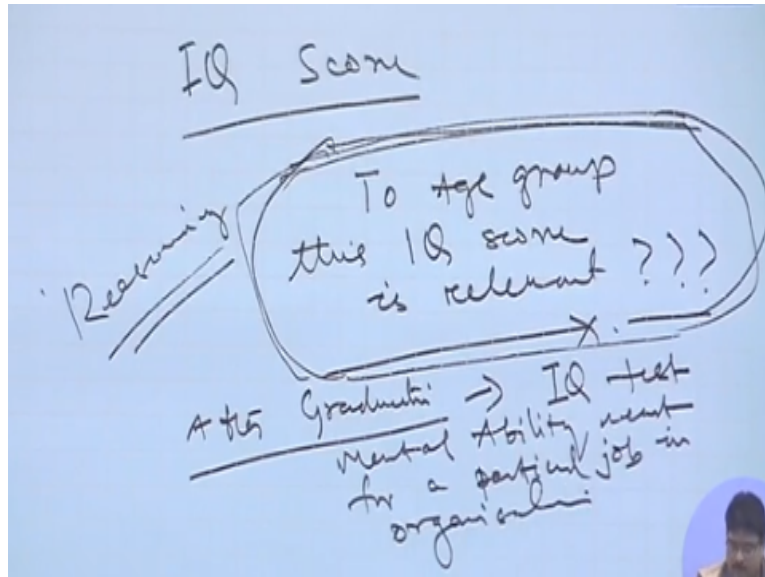


**COGNITION**

The term cognition refers to mental activities, more specifically the process of knowing. It involves how we acquire, store, retrieve, and use knowledge. If we use cognition every time we acquire a bit of information, place it on a storage, bring it out of storage, or use that information in some way, the cognition must include a wide range of mental process e.g. perception, memory, imagery, language, concept formation, problem solving, reasoning and decision making.

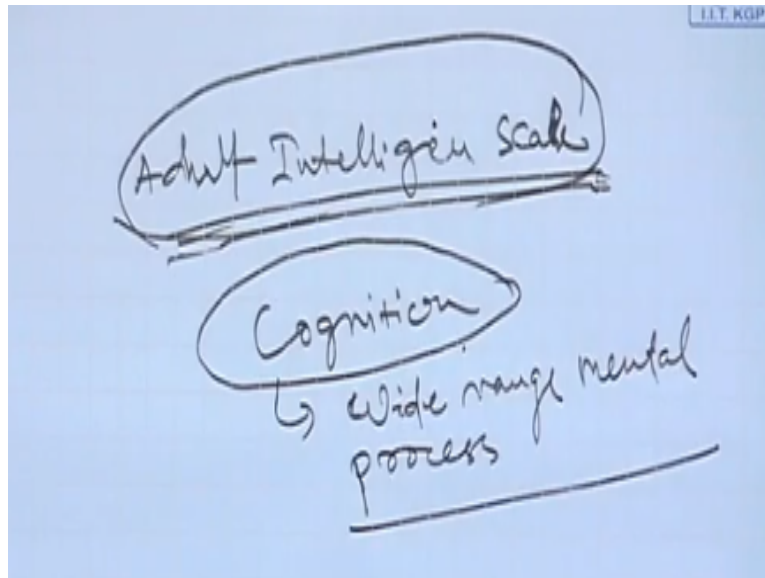
But now the questions is how far we can go ahead with making use of this IQ score.

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To what age group this IQ score is relevant so this is a big question because I score usually basically highlights the reasoning capabilities of students, most of the test items whether it is series completion or odd man out, picture completion etc., But intelligent is much more than this so therefore after going to a certain adult age group. Say for exams people on job a graduate who is joining a particular job in industry or corporate after graduation.

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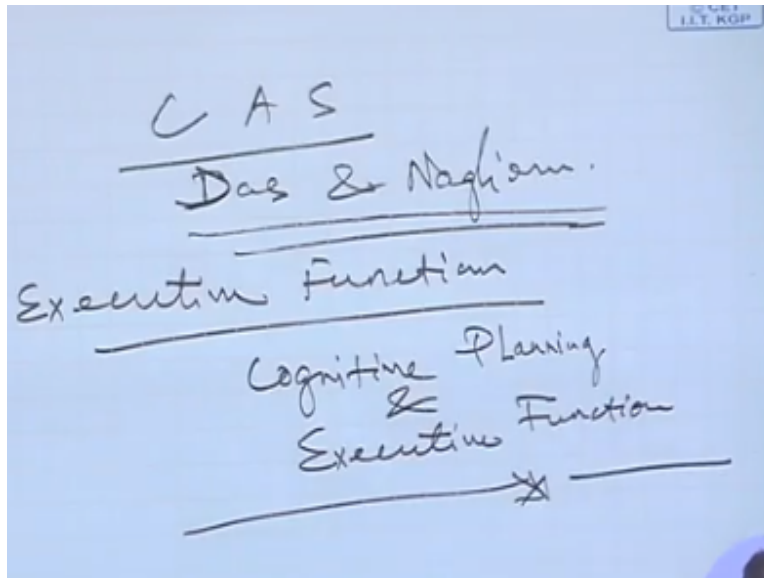


I do not see any meaning applying a IQ test to judge their mental ability or meant for mental ability meant for a particular job in an organization right how far psychologist have recommended adult intelligent scale you know adult intelligent scale. Although it gives an impression about measuring the adult intellectual domain or mental ability but many times we also miss out many important dimensions that covers within the domain of cognition.

So that is why the concept cognition defined in terms of mental activities more specifically the process of knowing. So it involves how it acquire, store, retrieve and use knowledge if you use cognition every time. We acquire a bit of information place it on a storage bring it out of storage or use that information in some way. The cognition must include a wide range of mental processes it includes a wide range of mental processes.

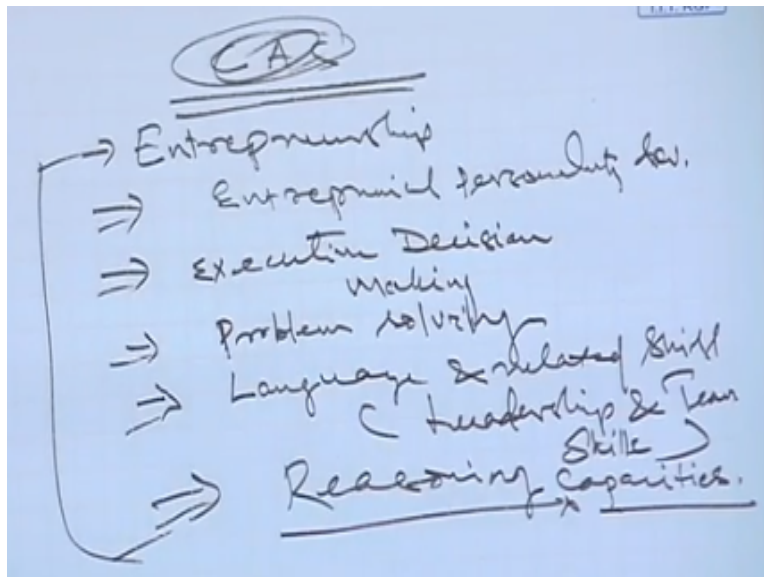
So therefore probably we will be missing most of the important mental processes while evaluating one's adult intelligence. So therefore it is essential to look beyond the traditional intelligence scale to map one's mental ability or we can reframe and redesign the other areas of cognition to include in the measurement of intelligence that would be a better approach to study adult intelligence such as perception, memory, imagery, language, concept formation, problem solving, reasoning and decision making.

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Just now we discussed about the CAS where the comprehensive assessment system developed by Das and Naglieri although this is neuropsychological tool now it has been extended to measure executive functions. So recently JP Das has written a new book on cognitive planning and executive function.

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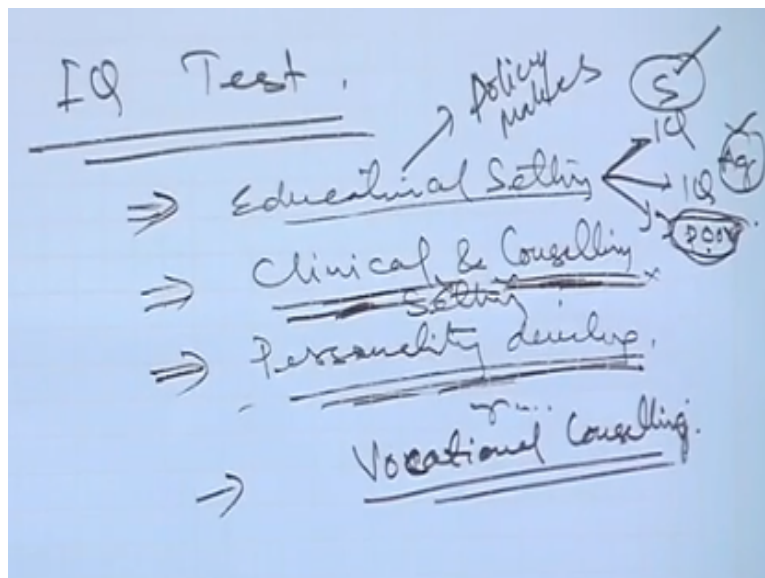
So this has been very interesting and has a lot of applications in the domain of entrepreneurship or entrepreneurial personality development. It has also applications in executive decision making, problem solving it may also give an impression of linguistic or language skills related skills, language and related skills these are likely to develop leadership and team skills although

it is focusing on cognitive areas at the same time the CAS is extending not exactly can concentrate on CAS.

CAS is restricted to a particular age level executive decision or executive functions are planning functions of executives can be measured may be I think a Das as developed a tool to measure the executive functions of corporate managers to how to examine different how these planning functions, attention and other successive and simultaneous processing acting on and helping the executives by enhancing their cognitive domains.

Facilitating problem solving and reasoning and decision making abilities another domain is called also their reasoning capacities. So these are major outcomes of different type of intelligence test that has been in use both in schools and corporate sectors.

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When we talk about in the IQ test it has also a lot of applications in educational situations, educational setting, clinical and counseling settings. It is useful for personality development by enhancing one's reasoning and logical ability on the basis of the test score the teacher can assess the different level of IQ, IQ superior. IQ average, IQ inferior or poor you can say ok.

Say for there are three categories of students available in a single class how the student how the teacher is going to deal with them. If the teacher is going to adopt a high level of teaching methods it may not be appropriate for the other two groups.

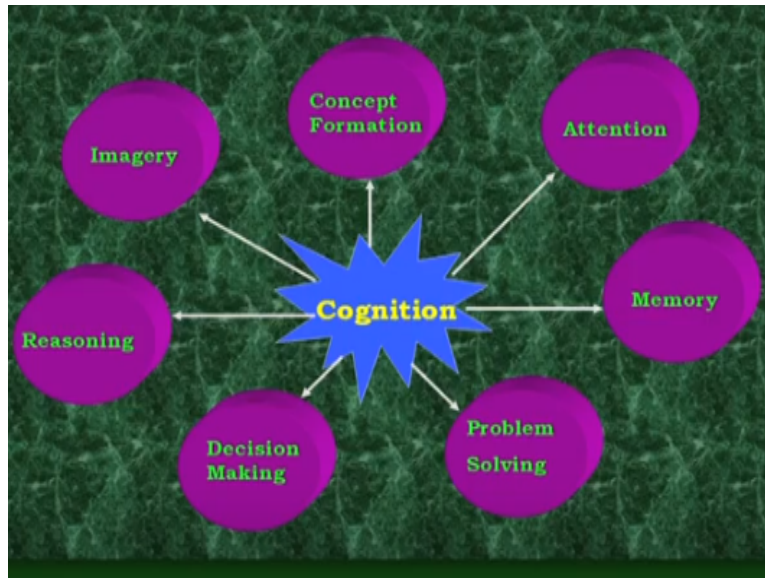
But if the teacher adopts a low level of teaching method that may not motivate or create interest in the superior or average strengths. So therefore that on the basis of this IQ assessments this you will have help the teacher to go for designing special classes for poor students or maintaining average or high average level classes for other two categories. So that is how it helps in educational settings teachers and academicians.

It also help policy makers academic policy makers to design school curriculums that is very important what level of curriculum should be appropriate the general populations in clinical and counseling. You know if you look into (()) (12:37) classifications most of the psychological deficiencies are based on mental deficiencies.

The abnormality is categorized if you look at the classification of IQ scores it on the basis of IQ scores the people's abnormality is classified somebody's mentally retarded, somebody is very poor, Somebody is just average. So accordingly they get counseled by the psychologist and thereby taking advice they can develop further.

So this is how it helpful in clinical settings in general psychologist can counsel their clients whether the students or an adult in which directions they need to move and what are the grey areas they are deficient. So this can be highlighted and this will be useful for vocational counseling a particular student a candidate can be counseled on the basis of his IQ scores in which profession he is going to excel

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. But this cognitive profiling will be more useful for the higher age groups may be graduates and above so that the better or the broader cognitive profile could be made if they look into the concept formation. Suppose somebody interested in designing, somebody is developing software. How he is conceptualizing that framework in (( )) (14:25) in his mind that is called concept formations.

How he develops the images into ideas how he develops reasoning connect his thoughts and ideas. So that they are turned into a valuable product so that's how it goes on and how it attention, memory and reasoning abilities are helpful in problem solving and decision makes capacities.


Overall this abilities is going to enhance is executive functions as a whole. So that is the focus of going for a overall mapping of cognitive profile of executives. However there are some other issues related to intelligence you can see here like factors that influence intelligence that are responsible for development of intelligence and also at the same of discourage of intelligence.

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## Factors Influencing Intelligence

- The Child's Influence
  - Genetics
  - Genotype–Environment Interaction
  - Gender
- The Immediate Environment's Influence
  - Family Environment
  - School Environment
- The Society's Influence
  - Poverty
  - Race/Ethnicity



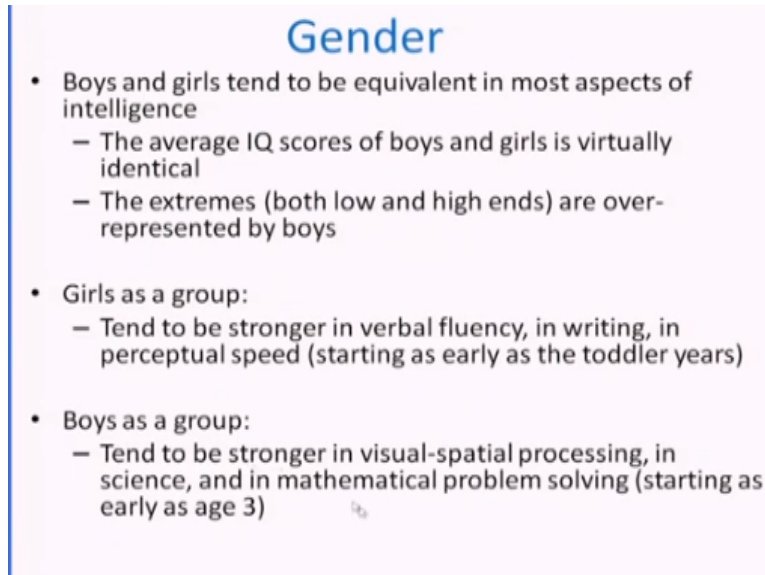
We can just quickly see few of them here are some of the factors like say the child's influence genetic is very important factors in the growth of one's intelligence where we the interactions of environment plays a very important role there are also we have observed and there are scientific evidences. IQ score differs with regard to genders like say for examples males have been pumped to be a high on their reasoning abilities then females.

So there are few studies but it is not always correct but there are certain abilities and their what you say females are better than the males the immediate environmental influence say suppose say examples family environment, school environment, pure influence etc., These are likely to influence the cognitive domain of the students as a whole society is completely responsible for a students or a person intellectual growth in the sense that we have seen that people brought up in a very impoverished climate.

Where facilities are not there the kids or the children's are deprived of basic needs they are deprived of say for examples school necessities they are they are likely to develop a very low level of intellectual profile and there are also studies that shows about to the race and ethnicity like in earlier times when the theory of intelligence come up some psychologist say that whites are higher on the intelligence then the blacks.

But later on there are many contradictions to those Latin people also found even many blacks are brighter than the whites. So this is a very controversial issues that still remain us on unresolved or unanswered questions in the field of intelligence.

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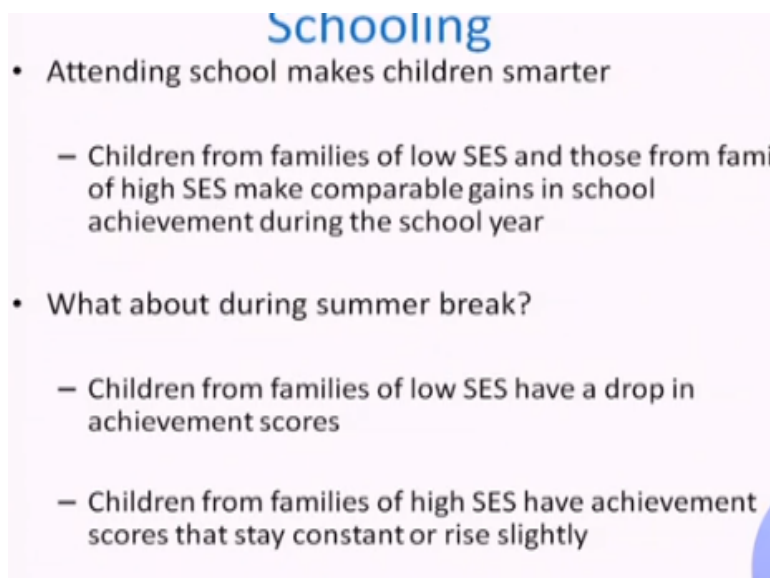


### Gender

- Boys and girls tend to be equivalent in most aspects of intelligence
  - The average IQ scores of boys and girls is virtually identical
  - The extremes (both low and high ends) are over-represented by boys
- Girls as a group:
  - Tend to be stronger in verbal fluency, in writing, in perceptual speed (starting as early as the toddler years)
- Boys as a group:
  - Tend to be stronger in visual-spatial processing, in science, and in mathematical problem solving (starting as early as age 3)

Like a when you talk more about gender boys and girls tend to be equivalent in most aspects of intelligence but the average IQ scores of boys and girls is virtually similar or identical. The extremes both low and high ends are over represented by boys girls as group tend to be stronger in verbal fluency writing in perceptual speed boys as a group tend to be stronger in visual special processing in science mathematical problem solving etc.,

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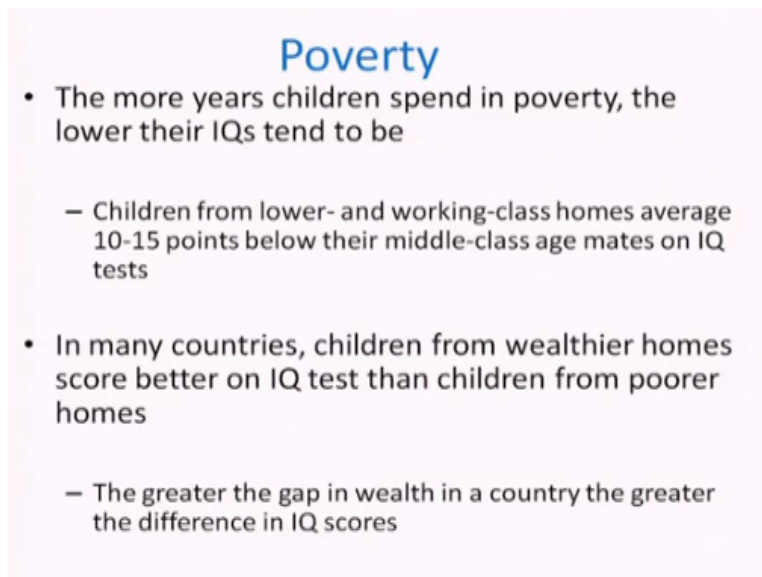


### Schooling

- Attending school makes children smarter
  - Children from families of low SES and those from fami of high SES make comparable gains in school achievement during the school year
- What about during summer break?
  - Children from families of low SES have a drop in achievement scores
  - Children from families of high SES have achievement scores that stay constant or rise slightly

When we discussed the influence of schooling students attending school makes better score in their IQ test. There are strategy about what happens to this summer break children from families of low socioeconomic status have a drop in achievement scores children from families of high socioeconomic status have a drop in achievement scores high and sill constant or rise slightly because they are able to afford to have a very meaningful and enjoyable summer break than those people from low socioeconomic status.

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### Poverty

- The more years children spend in poverty, the lower their IQs tend to be
  - Children from lower- and working-class homes average 10-15 points below their middle-class age mates on IQ tests
- In many countries, children from wealthier homes score better on IQ test than children from poorer homes
  - The greater the gap in wealth in a country the greater the difference in IQ scores

However poverty have been a big influencing factor in the development of children's intelligence because poor children's are not able to afford to their expenses in schooling buying schooling materials or going for a extra tuitions etc., Children from lower and working class homes average say ten to fifteen points below their middle class age meets on IQ test. In many countries this also seen that children from all their homes they score better on IQ test than children from poor homes.

Because the high class are the high socioeconomic status children's are likely to enjoy better facilities availabilities etc., in comparison to their counterparts in the poor homes the greater the go in the wealth in a country the greater the difference in their IQ status or IQ scores.

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## Poverty Continued...

- Chronic inadequate diet can disrupt brain development
  - Chronic or short-term inadequate diet at any point in life can impair immediate intellectual functioning
- Reduced access to health service, poor parenting, and insufficient stimulation and emotional support can impair intellectual growth

The chronic inadequate diet can also disrupt the brain development that is also another significant influence as far as the biological factors are in a concern in the development of one's intelligence. As you all know that heredity has a big role to influence so a person who does not get proper diet is likely to develop deficiency, mental deficiencies then reduce to access to health services poor parenting in sum sufficient stimulations and emotional support can impair the intellectual growth.

So this is where the intelligence is moving towards a bit of emotional intelligence like you know who are parenting may have a bearing on low level of emotional support. So this emotional support can be compensated if the parents are also brought up or not sure to announce their emotional capacities. Where EI have a great role to play we will take up those issues later on.

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## Race and Ethnicity

- The average IQ score of Euro-American children is 10-15 points higher than that of African-American children
- The average IQ score of Latino and American-Indian children fall somewhere in between those of Euro-American and African-American children
- The average IQ score of Asian-American children tend to be higher than any other group in the US

However race and ethnicity has also influence of intelligence the average IQ score of Latino and American Indian Children's they fall somewhere in between those of Europe euro Americans and African American children's.

The average IQ scores of Asian American children they tend to be higher than any other group in US. So these evidences are implications that there are little bit difference with regard to race and ethnicity in terms of IQ scores

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## Race and Ethnicity Continued...

- American-Indian children:
  - Better on the performance part than the verbal part of an IQ test
- Latino children:
  - Better on the performance part than the verbal part of an IQ test
- Asian-American children:
  - Better on the performance part than the verbal part of an IQ test
- African-American children:
  - Better on the verbal part than the performance part of an IQ test
- Overall - differences in IQ scores of children from different racial and ethnic groups describes children's performance ONLY in the environments in which the children live

American Indian children's the better on the performance part than the verbal part of an IQ score. Then let Latino children shows better on the performance on the part than the verbal part of IQ test.

Asian American children have a better score on performance part that the verbal part of IQ test. Studies also shows that African American children's are better on the verbal part than the performance part of the IQ test if you look at the overall differences the differences in IQ scores of children from different and ethnic groups describes children's performance only in the environment in which children life.

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### Culture-Fair Intelligence Tests

- Raven's Progressive Matrices
  - A "culture-fair" or culture-reduced test that would make minimal use of language and not ask for any specific facts
  - These matrices progress from easy to difficult items -- measures abstract reasoning
- Even on culture-fair tests, Euro-American and African-American children still differ
  - One reason - culture can influence a child's familiarity with the entire testing situation

So therefore culture plays also a very important role in the determination of one's intelligence therefore it would not be fair to apply culture specific test across different cultural groups' samples. Therefore it would be advisable to practitioners and apply psychologist those who use intelligence tests should we go for always culture free test or culture free intelligence tests such as Raven's progressive matrices standard progressive matrices, Raven's advance progressive matrices.

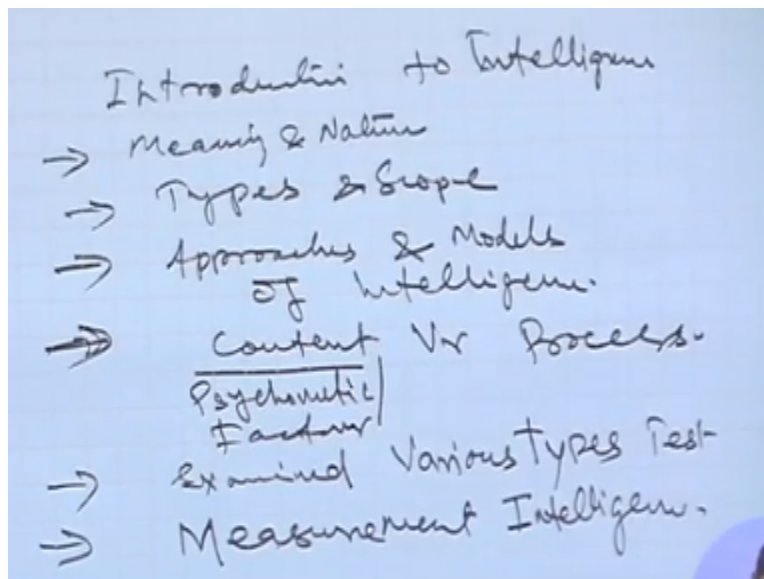
So these are some of the screen what some of the test they are culturally then what is called culture free. A culture fair or culture free test is that reduce the cultural burden of the test that would make minimal use of language and not ask for any specific facts say for examples it tests

that content certain questions related to a church and mosque that may that may happen that may hinder the information capability of students from Hindu community.

Who is not well aware of mosque and church so therefore instead of church related questions if in that place temple related questions you will be created maybe that will be facilitate a culture specific intellectual profile. So therefore you need to avoid those types of questions. If a test maker can go for a picture based or activity based questions that would be better way of measuring one's intelligence.

So the maters the matrixes progress from easy to difficult items measures abstract reasoning even on culture fare test Euro American and African American children still differ on their intelligence course one reason is there. Culture can influence the child's familiar with the entire test situations.

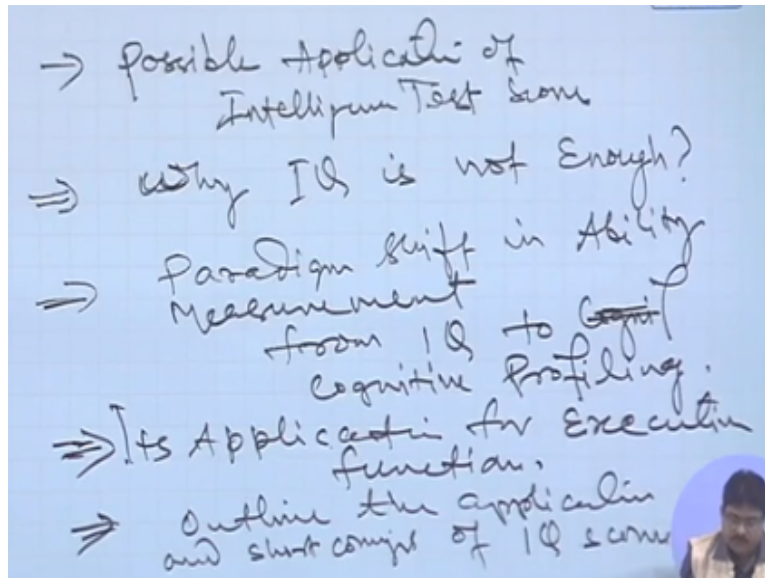
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This is in a nutshell about the concept so far we discussed the different aspects of intelligence starting the introduction then the meaning and nature then types of types and scope. Then after understanding the concept we went to the different approaches and models of intelligence we discussed about two groups of theories one is content theories content versus process this content theory is otherwise known as the psychometric theories, psychometric or factor theories, factor

theories and process theories and there after we also examine various types of tests where we examine the measurement of intelligence.

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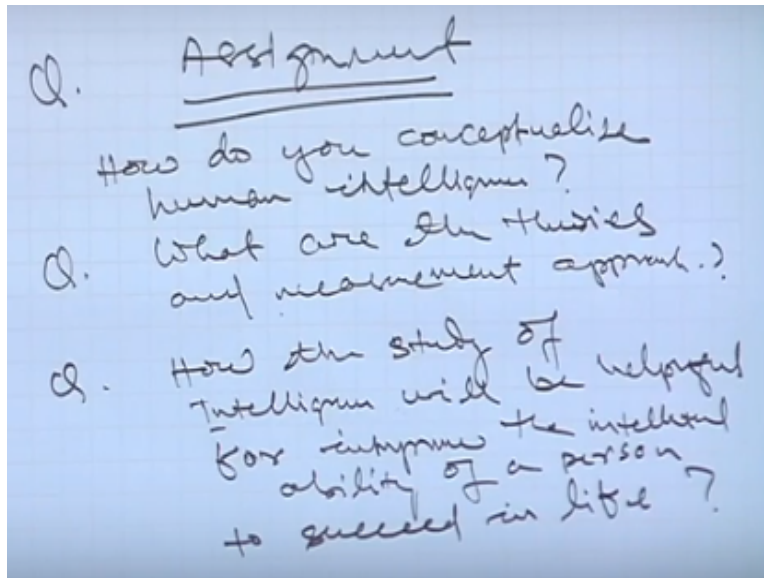


Okay then after measurement then we examine the possible applications of intelligence test score we also examine why IQ is not enough. Under this framework why IQ is not enough because of its domain coverage in the test itself because IQ mostly covers into the reasoning aspects but when you discuss intelligence in the framework of cognitive ability or cognition the domain of cognition who probably we are missing the higher form of cognitive abilities of a person after a certain period of time in his life.

So therefore we move from a paradigm shift in intelligence measurement in ability measurement particularly in ability measurement. What is that (()) (28:50) from IQ to cognitive profiling sorry cognitive profiling. We are in addition to reasoning we try to examine the relevance of concept formation, image formation, analysis, attention, perception, memory, problem solving, reasoning, decision making and we also examine how these cognitive process are going to be helpful to corporate executives its application for corporate its applications for executive functions executive functions right.

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And we also outline the applications and shortcomings of IQ score hopeful this discussions will helps us in understanding in better way or exploring a new dimension of human abilities what we call emotional intelligence in our next discussions thank you very much for you kind patience. I hope after going through this lecture you will be able to understand and analyze what intelligence is so here is the small assignments you can go for how do you conceptualize human intelligence?

What are the different theories and measurement approaches? How the study of intelligence will be helpful for improving the intellectual ability of a person to succeed in life? Once you once these questions may be probably you will realize the value of the session on intelligence its meaning ness runs application thank you very much.