Paper ✓ 2001

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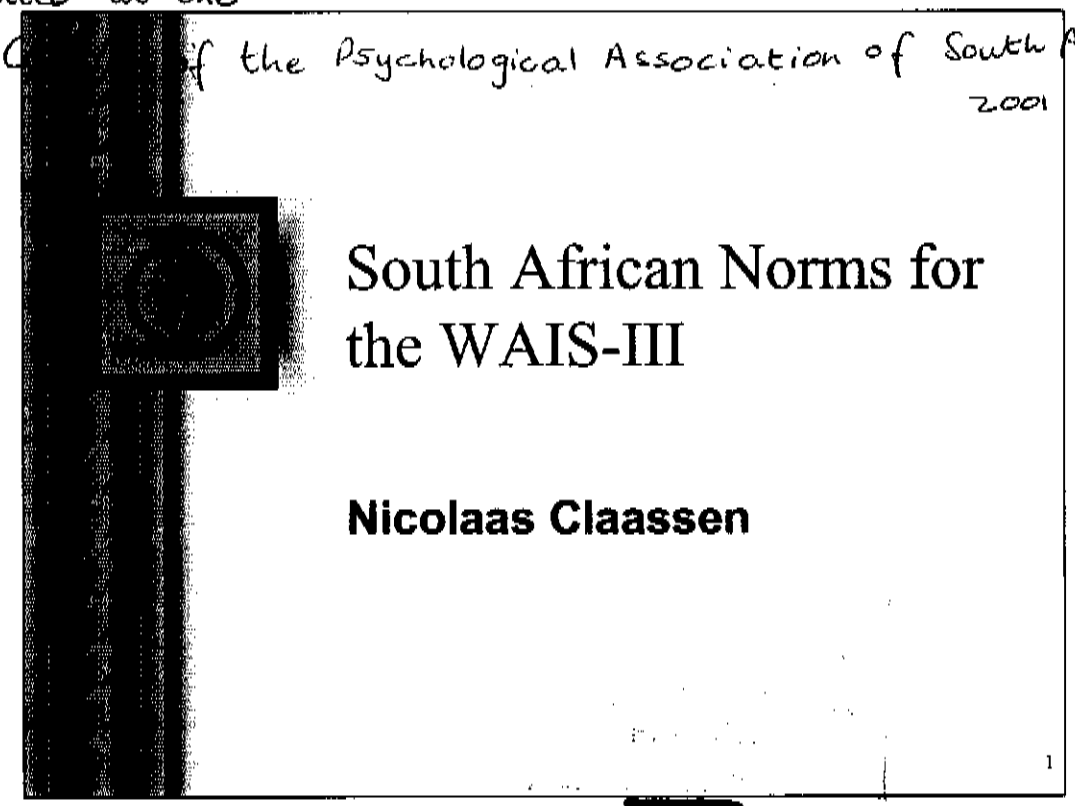

Basic Assumption of "IQ" or intelligence scale:

- **The norm population spans a spectrum from highly intelligent to very limited cognitive abilities**
- **Differs from cognitive tests devised for discriminating within particular populations e.g.**
  - **High ability persons**
  - **Morons and imbeciles**
  - **Applicants for certain level job**

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Planned norm sample

- **English-speaking South Africans**

	Population	Planned
Black	*3%*	25%
Coloured	*17%*	25%
Indian	*30%*	25%
White	*50%*	25%

- **Matched on education**

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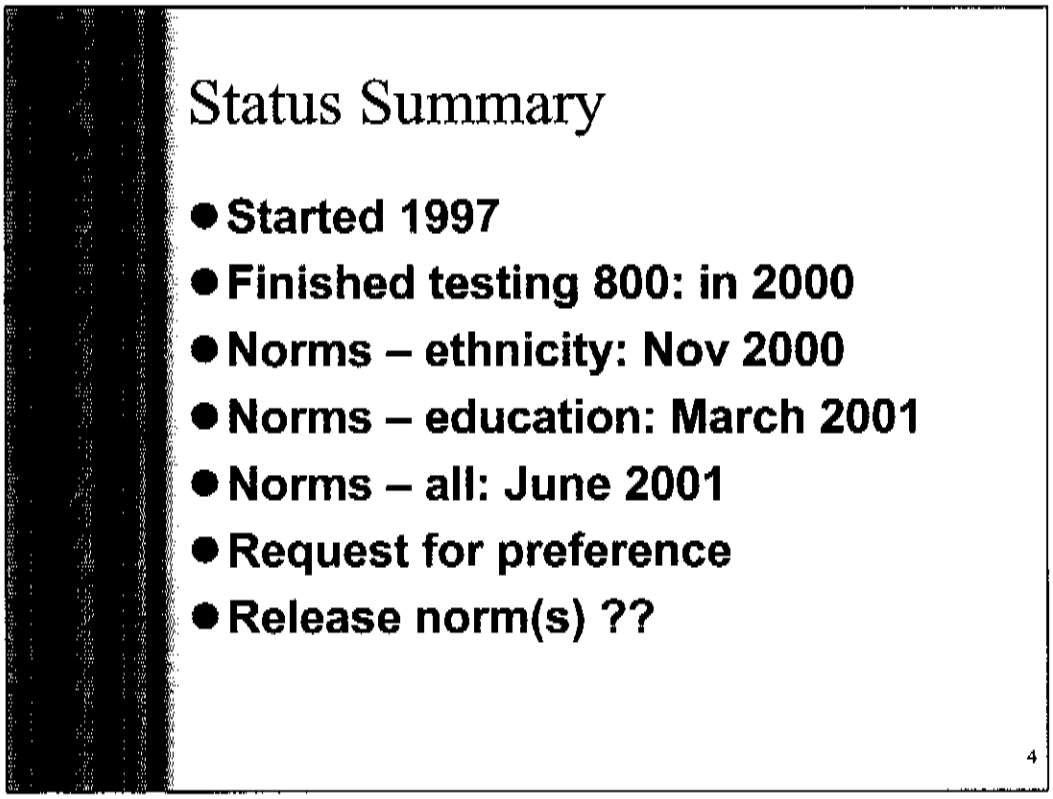

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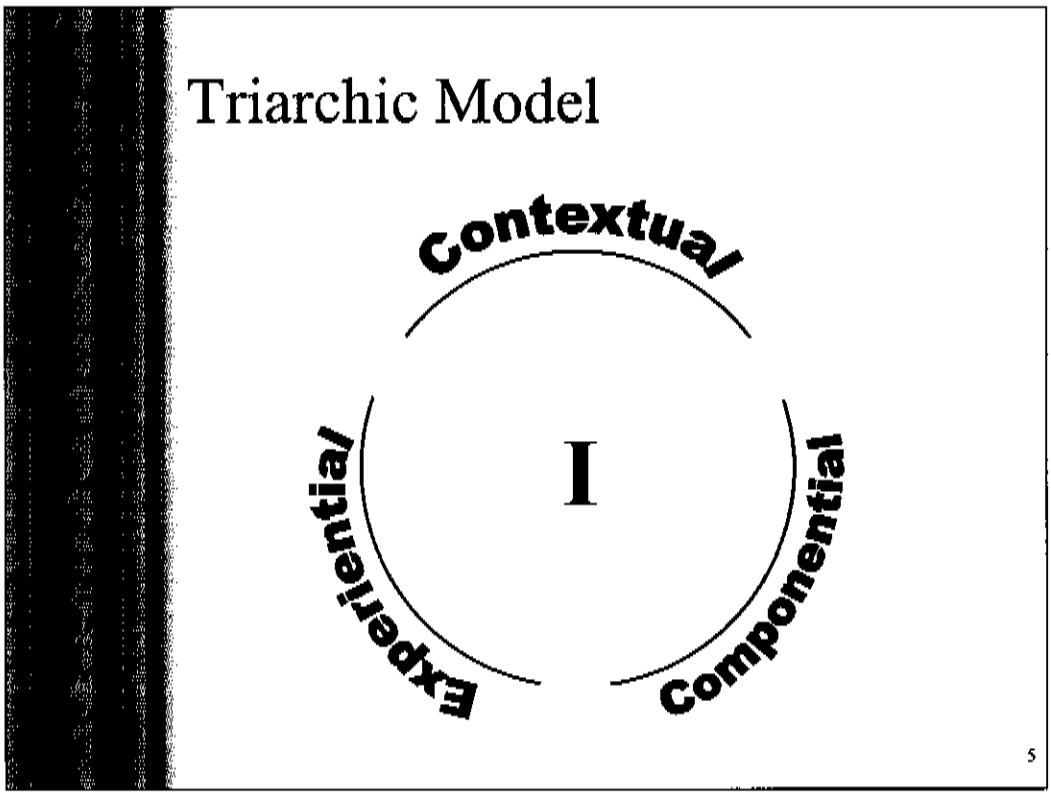


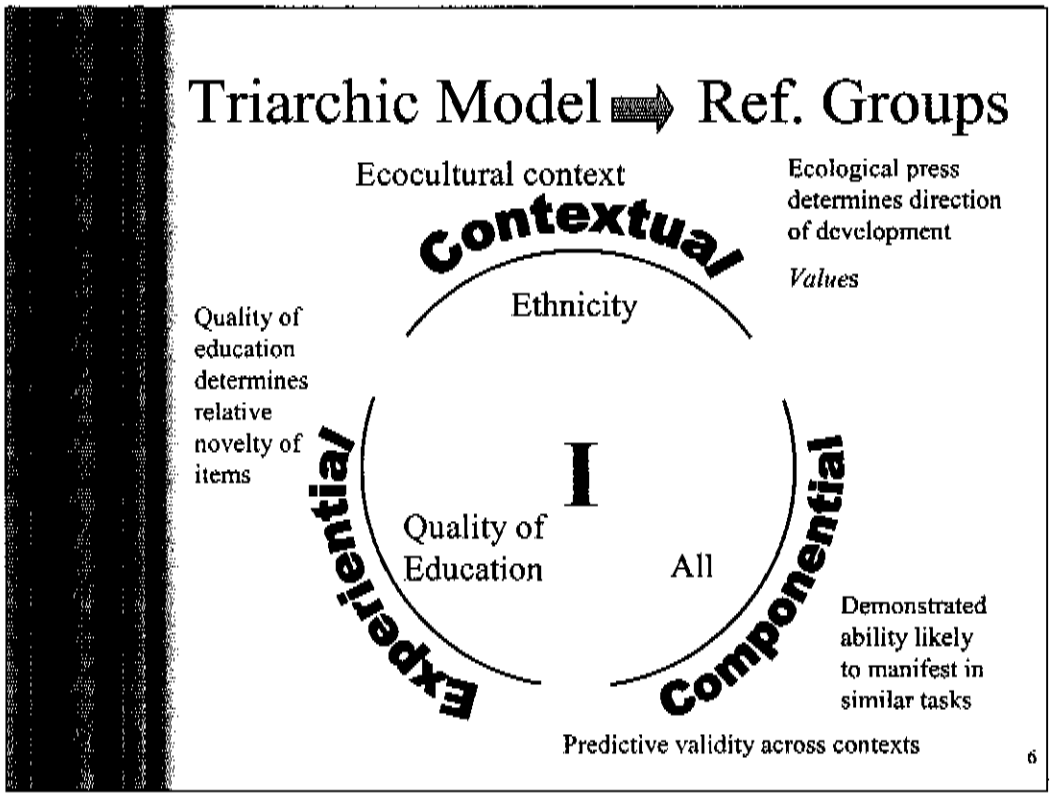
The greatest strength of Sternberg's Triarchic Theory is that it brings together diverse aspects of intelligence by changing focus. There is a contextual subtheory an experiential subtheory and a componential subtheory.

The contextual subtheory is meant to address the high-level views of intelligence, those that deal with judgement and adaptation in the "real world." It is aimed at explaining how internal mental mechanisms are used by individuals to make an intelligent fit with the external world (Sternberg, 1990, p. 268).

The experiential subtheory considers the role of experience in intelligence. It looks at intelligent performances in light of a continuum of experience, from novelty to automatisation. The best tasks to use for measuring intelligence are those that are relatively novel or are in the process of becoming automated.

The componential subtheory considers low level explanations. It examines the basic mental mechanisms or processing abilities underlying intelligence. The basic mental abilities transcend culture and experience.

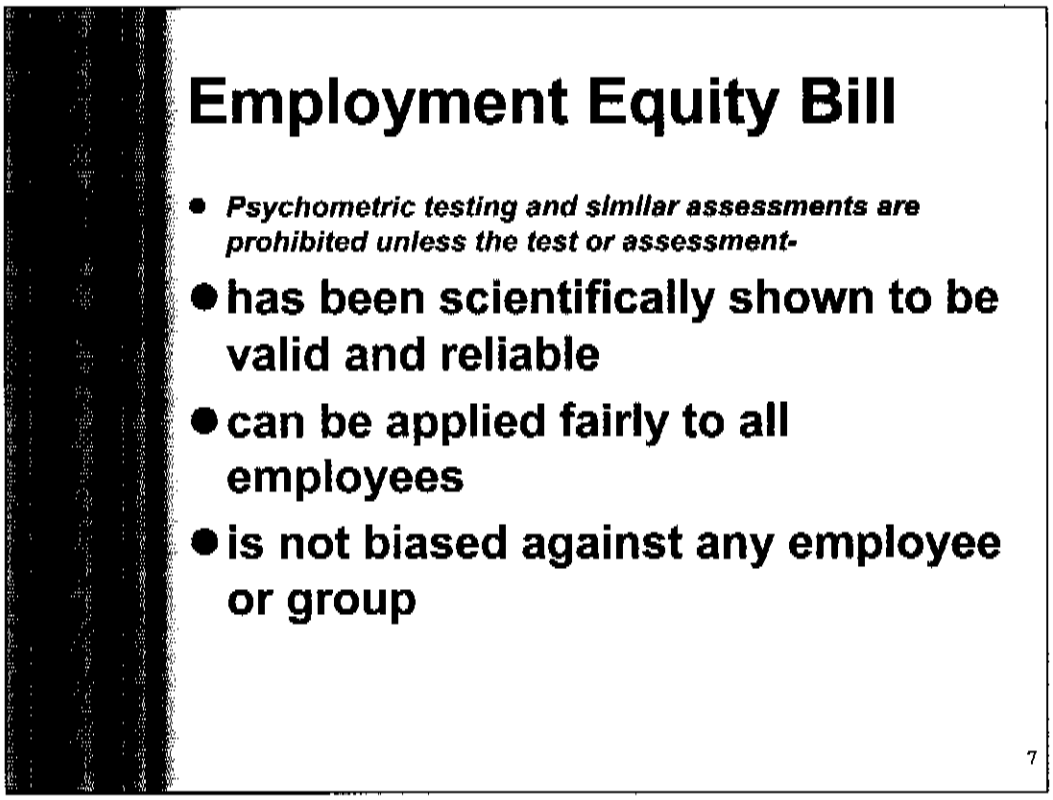
Metacomponents play a supervisory role in problem solving. They are used to plan, control, monitor and evaluate processing during problem solving. Performance components carry out problem solving strategies specified by metacomponents. Knowledge acquisition components selectively encode, combine and compare information during the course of problem solving and thereby enable new learning to occur.



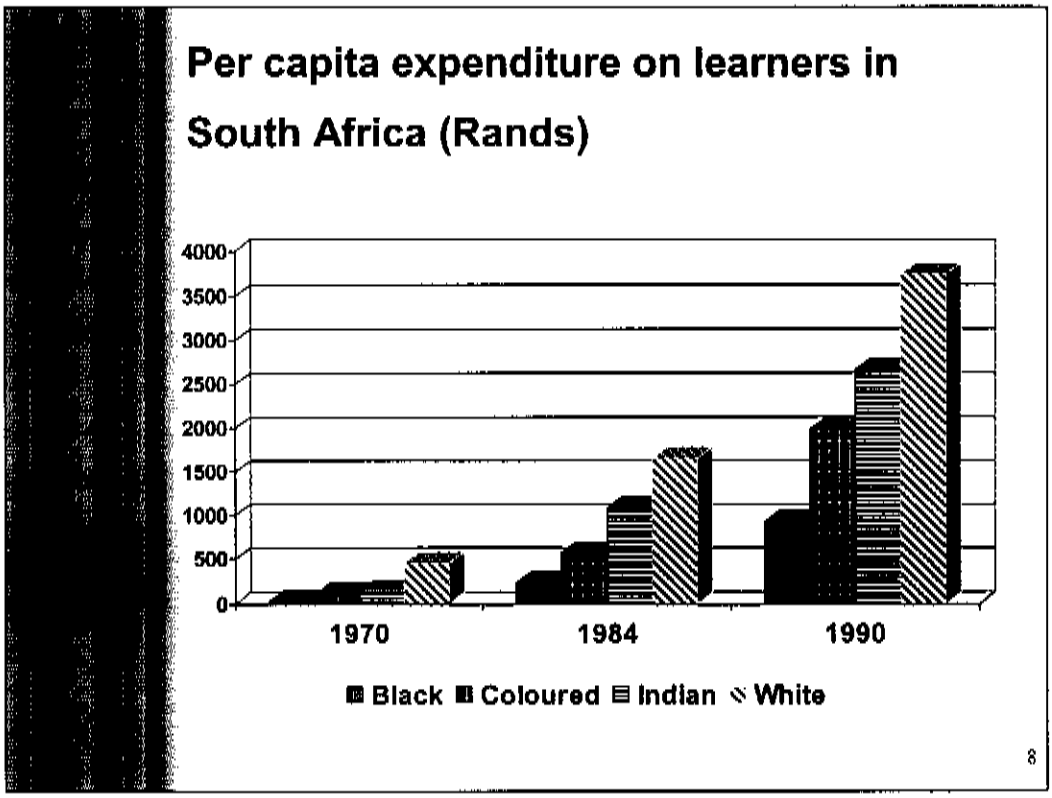
The contextual subtheory is aimed at explaining how internal mental mechanisms are used by individuals to make an intelligent fit with the external world (Sternberg, 1990, p. 268). Values and ecocultural press influence the nature and direction of cognitive development. This focus implies that ethnic or cultural groups are seen as reference groups.

The experiential subtheory looks at intelligent performances in light of a continuum of experience, from novelty to automatisation. This focus implies reference groups formed on the basis of amount or quality of education.

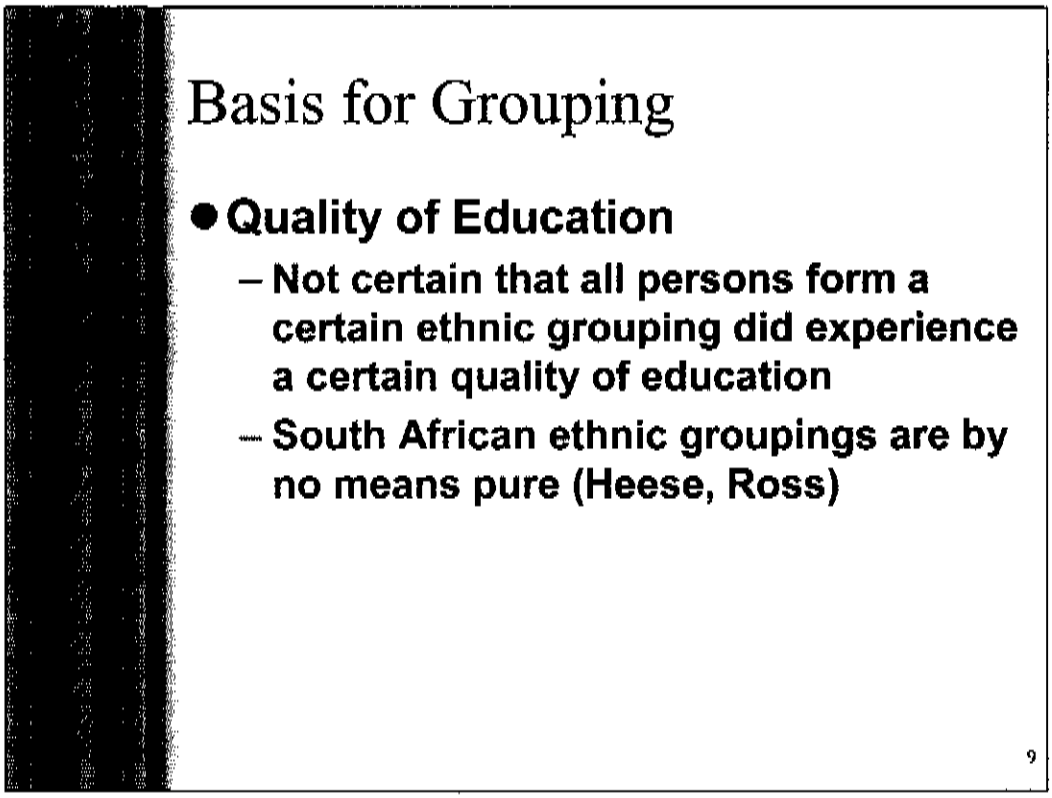
The componential subtheory deals with the basic mental mechanisms or processing abilities underlying intelligence. The basic mental abilities transcend culture and experience and the reference group would include everyone irrespective of educational experience or cultural context.



Both the constitution and the Employment Equity Bill must be understood against the background of our present understanding of cross-cultural testing. Psychologists such as Sternberg (1985) and Van de Vijver (1991) are among those who have argued that experience and context are important co-determiners of performance in the kind of tasks frequently found in tests of cognitive ability. When psychologists began to develop instruments for cross-cultural assessment in the first half of the twentieth century they still hoped it would be possible to measure "hereditary intellectual potential" (Anastasi & Urbina, 1997, p 342) independently of the impact of cultural experiences. Behaviour was thought to be overlaid with a sort of cultural veneer that could be penetrated by "culture free" tests. We now recognise the fallacy of this concept as heredity and environmental factors operate jointly at all stages in the development of a person and their effects are inextricably intertwined in the resulting behaviour. Since all behaviour is thus affected by the cultural milieu in which the individual is living and since tests are but samples of behaviour, cultural influences will and should be reflected in test performance (Anastasi & Urbina, 1997; Claassen, 1997). It is therefore futile to try to devise a test that is free from cultural influences. Even resorting to so-called "culture-common" or "culture-fair" tests offers a very limited solution, as no single test can be equally fair to all cultures. A nonreading test may be culture-fair in one situation, a performance test in another and a translated adaptation of a verbal test in a third. Cultural difference becomes cultural handicaps when the individual moves out of the culture or subculture in which he or she was reared and endeavours to function, compete or succeed within another culture.



Approximately 5% to 25% of the amount spent on the education of a white child was spent on the education of a black child. For coloureds the percentage was about 40% and for Indians it was about 60%. It is therefore likely that blacks, coloureds and Indians may not have benefited to the same extent as whites from the education they received.



Quality of education rather than ethnicity can server as a basis for grouping people.

Educ. level of Eng. South Africans (20-24) (%)

	<9	9-11	12	13-15	>15
Black	19.2	27.9	40.9	10.9	1.1
Coloured	9.5	31.4	47.9	10.8	0.4
Indian	5.4	22.3	60.1	11.6	0.6
White	1.8	12.4	61.1	22.8	1.9
All	**5.2**	**20,0**	**57.5**	**16.2**	**1.2**

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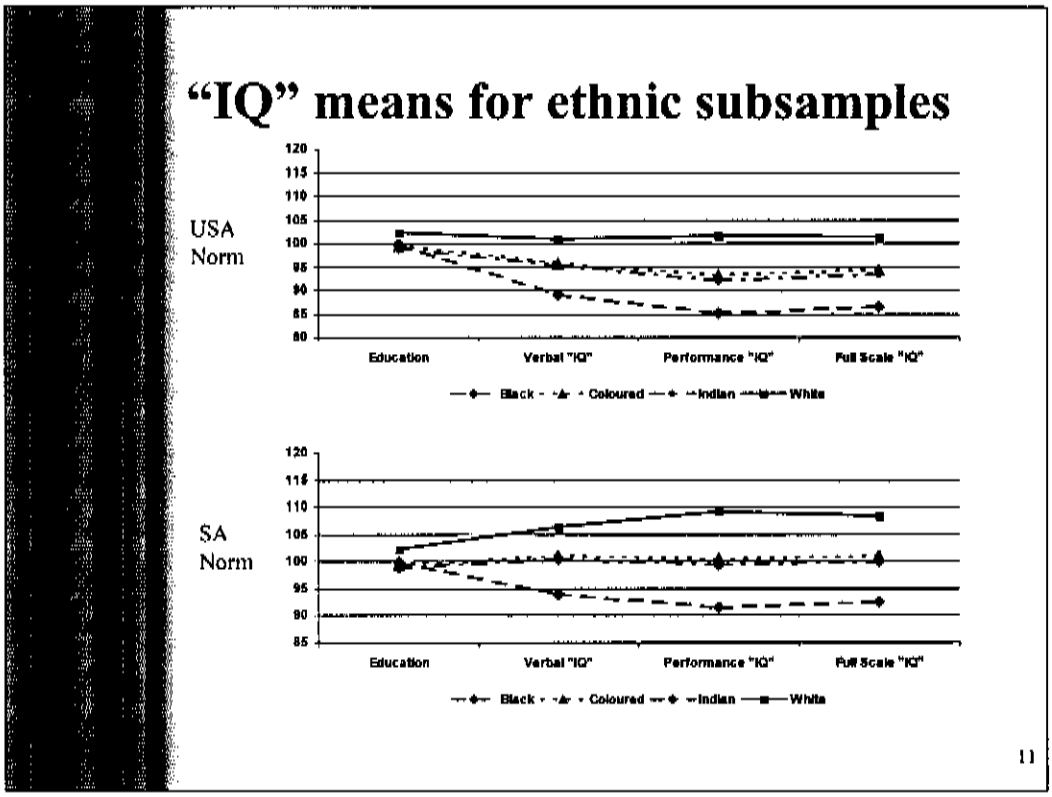
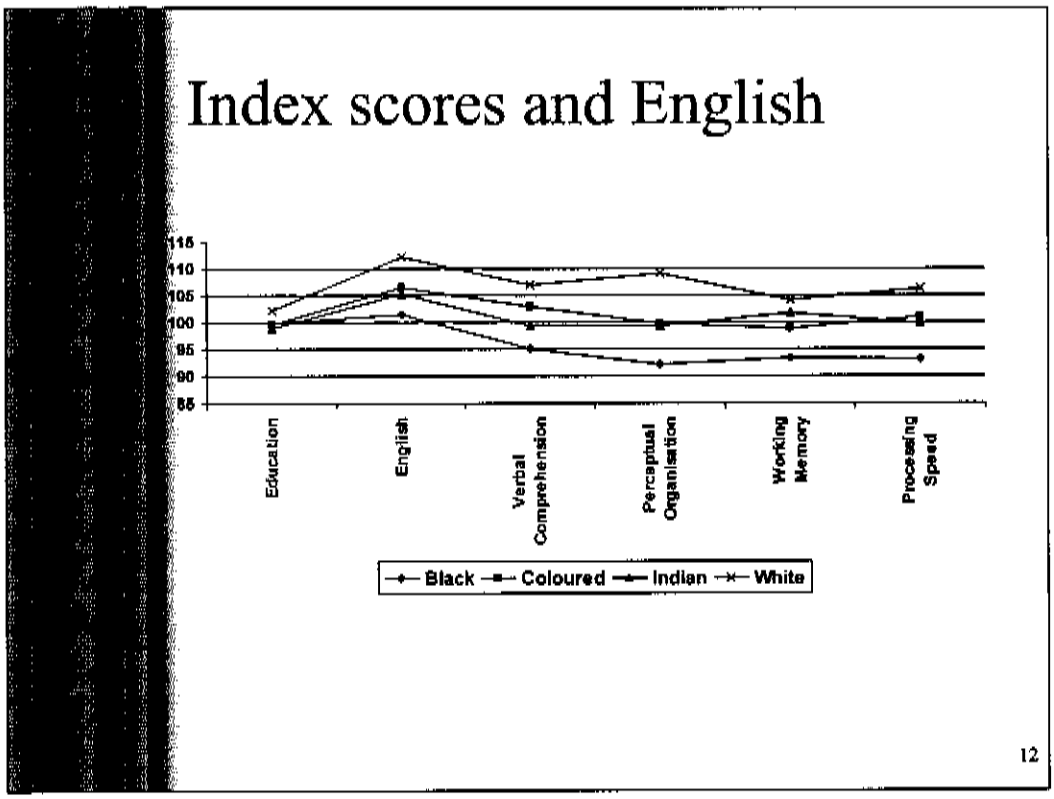
Standard 10 plus at least one year of study – 10% vs 20%

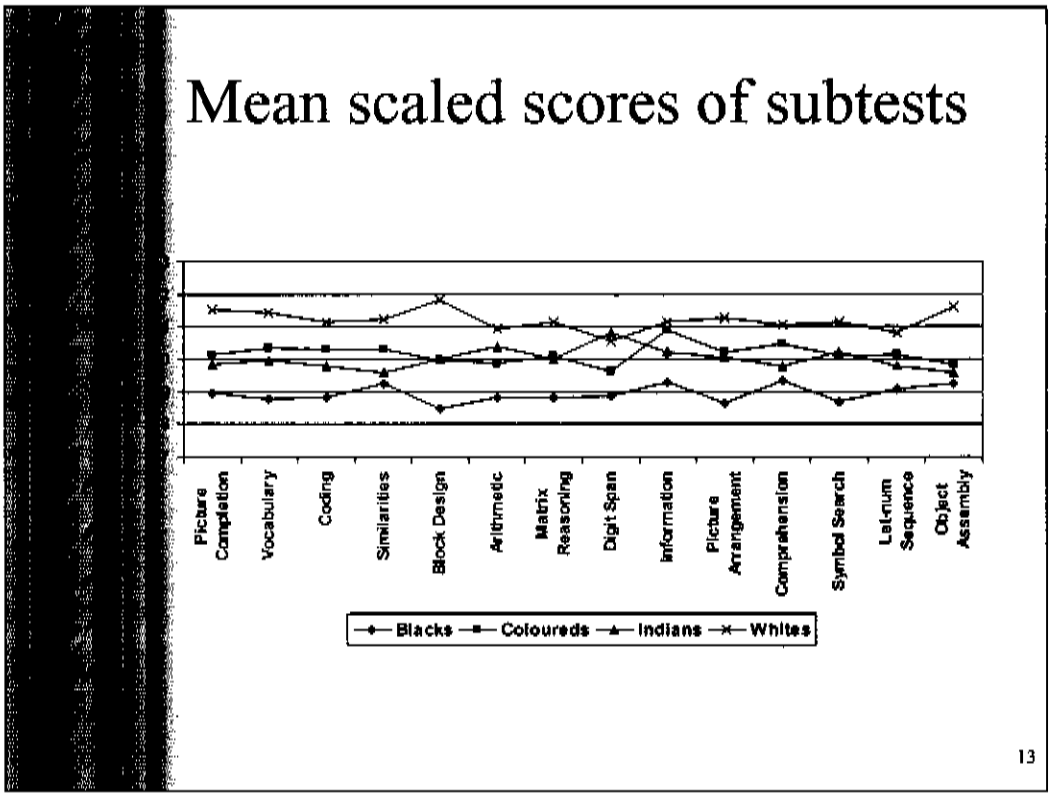


The means of ethnic subsamples were calculated in order to investigate the possibility of adverse impact resulting from differences in the quality of education. Education was also transformed to a scale with mean 100 and SD 15. At the top is the graph when US norm tables were used and at the bottom the graph for a common SA norm.

Means for level of education differed minimally, but large differences for the IQ means could be observed. The Duncan multiple range test indicated no significant differences between the Indians and the coloureds in VIQ and PIQ. All other differences between groups for VIQ and PIQ were significant

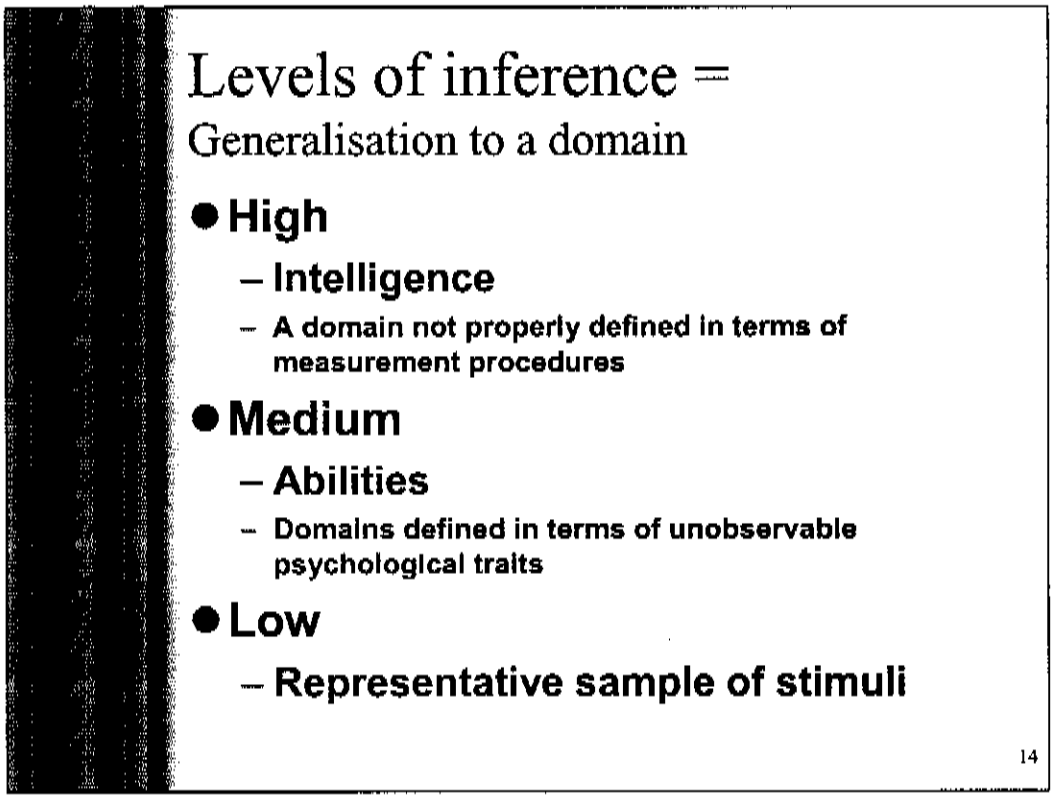


The index scores of the English-speaking coloureds and Indians differed by less than a third of a standard deviation. The English test results correlated fairly strongly with all the Wechsler scores and consequently the pattern of differences for English was much the same as for the index scores.



The distances between the means of the different ethnic subsamples remained very much the same for all the scores. With one exception the means remained fairly close for the Indians and the coloureds. A notable exception was Digit Span where the Indians scored on a par with the whites. The means for the Indians and the coloureds were about a third of a standard deviation below those for the whites, and the means for the blacks were generally about a third of a standard deviation lower still.

In all likelihood the mean differences observed between subpopulations is a reflection of the outcomes of quality of education experienced. The association between quality of education and ethnicity was discussed in Chapter 2. Even though, in the past, qualifications were publicly recognised as being on a par, the fragmented and differentially resourced education system could not ensure that the academic qualifications of the members of the different ethnic groups were in fact comparable. Performance in the WAIS-III tasks probably reflect levels of developed abilities given particular educational experiences.



The level of inference is low in cases where the measuring instrument can be constructed by selecting a representative sample of stimuli from the appropriate set of elements (e.g. addition with one-digit numbers). Medium-level inferences refer to generalisations to domains defined in terms of the unobservable psychological traits of individuals. When we talk about cognitive abilities or personality traits we refer to unobservable characteristics, often called hypothetical constructs, which are assumed to underlie certain behaviours. Theoretical and empirical relationships, as established in validation research, determine the range of behaviours in a domain at this level. For this kind of inference, instruments are not constructed with a view to obtaining a representative sample of all possible elements. Rather, stimuli are selected that supposedly capture the essence of a trait or ability. The interpretation of the WAIS-III subtests as measures of abilities can be seen as medium-level inferences.

High-level inferences involve generalisations to domains that cannot be properly defined in terms of measurement procedures. In this category it is not clear which instruments provide valid indexes of the domain of interest and which do not. Numerous observed differences can be explained post hoc in terms of a broad conceptual label.

Hence Poortinga (1989) calls it an unconstrained domain. Examples of high-level concepts are "intelligence A", and adaptability. Berry et al. (1992, p. 242) see a difficulty here in that adaptability is contingent upon different environmental requirements in each group. How can we establish whether one group has adapted better psychologically to its environment than a second group to another environment? For any answer to a question like this, some evidence can be mustered, but its validity would be problematic. Consequently Berry et al. consider generalisations to unconstrained domains as unmeasureable. Interpreting the WAIS-III index and IQ scores to make deductions about intelligence, imply high-level inferences.

Utilisation of individual scales

Options:

- **Use US or European norms**
- **SA norm crossing borders of ethnicity and education**
- **Personally developed norm**
- **Ref groups defined by ethnicity**
- **Ref groups defined by quality of education**

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Reliability coefficients

	Blacks	Coloureds	Indians	Whites	SA all	US
N	67	72	74	64	277	600
Picture Comp	0.82	0.82	0.79	0.69	0.82	0.82
Vocabulary	0.92	0.88	0.90	0.88	0.91	0.93
Similarities	0.78	0.75	0.71	0.75	0.77	0.84
Block Design	0.79	0.73	0.77	0.80	0.80	0.89
Arithmetic	0.86	0.83	0.85	0.83	0.85	0.88
Matrix Reason	0.91	0.84	0.89	0.86	0.89	0.89
Digit Span	0.79	0.80	0.82	0.77	0.81	0.91
Information	0.89	0.86	0.87	0.84	0.87	0.92
Picture Arran	0.78	0.87	0.76	0.67	0.76	0.72
Comprehension	0.79	0.75	0.77	0.76	0.78	0.85
L - N Sequence	0.69	0.72	0.74	0.71	0.72	0.77
Object Assemb	0.82	0.56	0.67	0.59	0.71	0.73

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Factor structure US

	(VCI)	(WMI)	(PSI)	(POI)
1.Picture Compl	.272	.277	.280	**.438**
2.Vocabulary	**.802**	.273	.176	.203
3.Coding	.150	.251	**.825**	.140
4.Similarities	**.761**	.183	.190	.220
5.Block Design	.352	.395	.194	**.551**
6.Arithmetic	**.456**	**.532**	.197	.390
7.Matrix Reason	.370	.381	.213	**.560**
8.Digit Span	.181	**.739**	.293	.141
9.Information	**.760**	.205	.160	.244
10.Picture Arran	**.417**	.087	.186	**.481**
11.Comprehen	**.765**	.096	.128	.272
12.Symbol S	.280	.324	**.596**	.344
13.Let-num Seq	.137	**.711**	.196	.221

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Factor structure SA

	(VCI)	(POI)	(WMI)	(PSI)
1.Picture Completion	0.309	**0.572**	0.136	0.139
2.Vocabulary	**0.780**	0.298	0.232	0.267
3.Coding	0.226	0.154	0.189	**0.740**
4.Similarities	**0.745**	0.247	0.192	0.162
5.Block Design	0.209	**0.643**	0.143	0.263
6.Arithmetic	**0.468**	**0.429**	**0.446**	0.146
7.Matrix Reasoning	0.276	**0.621**	0.270	0.284
8.Digit Span	0.200	0.163	**0.794**	0.235
9.Information	**0.715**	0.343	0.294	0.181
10.Picture Arrange	0.383	**0.536**	0.176	0.077
11.Comprehension	**0.754**	0.300	0.175	0.166
12.Symbol Search	0.154	0.339	0.235	**0.600**
13.Let-num Seq	0.305	0.254	**0.601**	0.204

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