

# Studying intelligence in the 20th century



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Running Head: STUDYING INTELLIGENCE IN THE 20TH CENTURY Studying Intelligence In The 20th Century of the of the institution]

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Nancy Bayley's research

What is Intelligence

For most of twentieth century, scientists and public assumed there was such a thing as intelligence, with general intelligence thought to be a single entity . Now scientists believe it is more useful to look at adult intelligence as several distinct intellectual capacities

Cross-Sectional Research

-For first half of the twentieth century, psychologists were convinced, based on solid evidence that intelligence declined over time

-A classic cross-sectional study found that the average male:

-reached his intellectual peak at about age 18

-Intellectual decline began in mid-20s

-Hundreds of other cross-sectional studies in many nations also found younger adults outscored older adults on measures of intelligence.

In 1955, Nancy Bayley and Melita Oden analyzed adult intelligence of child geniuses who had grown up. Found that most of the 36-year-olds were still improving in vocabulary, comprehension, and information . Bayley wondered whether this group's high intelligence during childhood had protected them from age-related decline . Bayley's research also showed that folder adults previously tested often did not go beyond 8th grade and so did not fully develop their intelligence . and each generation scores higher on IQ tests because each is better educated

Flynn Effect

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James Flynn, a political scientist working in New Zealand, observed in the 1980's that the scores of different groups of people on standard intelligence tests had consistently augmented over the past decades. Earlier researchers had failed to pay attention to that trend, because IQ scores are always calculated with respect to the average score for the present group. By definition, the average is set to 100. Someone who scores 20% more than the average would therefore get an IQ of 120. But if that person's score would be compared with the average for the corresponding group, tested one generation earlier, the final score would be about 130. Flynn was the first to systematically make such cross-generational comparisons.

Since then, the so-called "Flynn effect" has been confirmed by numerous studies. The same pattern, an average increase of over three IQ points per decade, was found for virtually every type of intelligence test, delivered to virtually every type of group. (Sholomskas , 1983)

#### Cattell And Horn Clusters Of Intelligence

This study investigated the group and individual broad ability profiles of children with mental retardation (MR) and a matched sample of children with average achievement using the 7 Cattell-Horn-Carroll (CHC) factor clusters from the Woodcock-Johnson III Tests of Cognitive Abilities (Woodcock, McGrew, Mather, 2001). Results indicated that, as a group, the ranked performance of the children with MR on the CHC factor clusters was largely consistent with the clusters' g loadings. When compared to the average-achieving matches, the children with MR scored lower on all CHC factor clusters, but the groups displayed different patterns of performance. Despite normative deficiencies in IQs, individual children with MR demonstrated a wide range of performance across measures. Implications for assessment

and diagnosis are discussed. (Wolfson, 1997)

### Sternberg's Theory

Sternberg's view of intelligence has been closely linked to Aristotle's ancient premise that intelligence is composed of three aspects theoretical, practical, and productive intelligence. In Sternberg's view intelligence revolves around the interchange of analytical, practical, and creative aspects of the mind.

(Miller, 1996)

Professor Robert Sternberg of Yale University developed a concept of intelligence that equates to combinations of individual preferences from three levels of mental self-management. These three areas correspond with:

1. Functions of governments of the mind,
2. Stylistic preferences, and
3. Forms of mental self-government.

Examples: As a combination a person might prefer legislative functions, internal variables and hierarchic habits of mental self-government; while another individual might prefer executive functions; external variables and anarchic habits of mental self-government, and so forth.

" Schaie's emphasis on education and vocation and Sternberg's and Gardner's stress on context and culture may overlook the realities of physical aging". Discuss

Older adults can even learn the specific skills valued by psycho-morticians if their particular cultural setting encourages it. In the Seattle Longitudinal Study, Schaie provided special training for a group of 60-year-olds who had declined markedly in spatial or reasoning skills. After five one-hour sessions of personalized training, 40 percent of them improved so much that they reached the level they had been at 14 years earlier (Schaie, 1996). At least

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under these circum-stances, time didn't just stop-it moved backward.

Schaie's emphasis on education and vocation, and Sternberg's and Gardner's stress on context and culture, may overlook the realities of physical aging.

Remember that fluid intelligence declines throughout adulthood because of slower blood circulation, fewer new neurons and dendrites, and other changes in the brain. Every researcher has noted these losses of late adulthood many have considered the possibility of a common biological factor (perhaps lower reaction time, or reduced visual acuity, or decreased short-term memory because of a shrinking hippocampus) that powerfully influences intelligence after age 70 or so. (Hamilton, 1960)

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