

Psych 020: Chapter 4

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HEREDITY & ENVIRONMENTAL INFLUENCES

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INTELLIGENCE: HEREDITY, & THE ENVIRONMENT

Correlations in Intelligence for Degrees of Genetic Similarity

| <u>Relationship</u> | <u>% Genes Shared</u> | <u>Correlation of IQ</u> |
|--|-----------------------|--------------------------|
| Identical twins raised together | 100 | .86 |
| Identical twins raised apart | 100 | .75 |
| Non-Identical twins raised together | 50 | .57 |
| Siblings raised together | 50 | .45 |
| Siblings raised apart | 50 | .21 |
| Biological parent (raised by parent) | 50 | .36 |
| Biological parent (not raised by parent) | 50 | .20 |

SUPPORT FOR:

Genetic contribution – identical twins higher than non-twin siblings

Environmental contribution – identical twins not 100% concordance.

- twins & siblings raised together more similar than those raised apart.

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GENETIC-ENVIRONMENT INTERACTIONS

REACTION RANGE – genetics influences a range (upper and lower limits) & environmental factors influence where in this range the individual will fall.

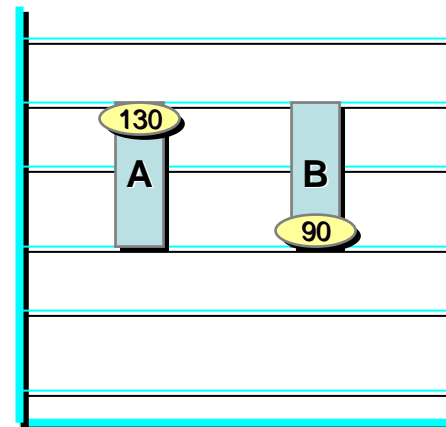
Both A & B have an identical Reaction Range, BUT

A is raised in an enriched environment, &

B is raised in an impoverished environment

I.Q.

150
130
110
90
70
50



Genetically determined Reaction Range

HERETABILITY ESTIMATES

Estimated genetic contribution

TRAIT

Height

.80

Weight

.60

Intelligence

.50 - .70

PERSONALITY

Extraversion

.36

Conscientiousness

.28

Agreeableness

.28

Emotional Stability

.31

TEMPERAMENT

Emotional Reactivity

.40

Activity Level

.25

Sociability

.25

Impulsivity

.45

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