

Psychology 360: Personality Research

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Outline

Overview

- The ABCDs of personality

Two disciplines of scientific psychology

- Two cultures

- Two tribes within the scientific culture

Theory testing

- Persistence of theories

- The process of theory testing

Types of Relationships

- Theory

Personality

Personality

1. All people are the same, some people are the same, no person is the same. (Kluckhohn and Murray, 1948)
2. “Whatever exists at all exists in some amount. To know it thoroughly involves knowing its quantity as well as its quality” (E.L. Thorndike, 1918)

Goals

1. To acquire an appreciation of current research in personality including taxonomic, biological, and cognitive approaches.
2. To acquire an understanding of the ways in which personality may be measured using current psychometric techniques.
3. To conduct original research in personality.

Requirements

1. Class participation (asking questions, helping your classmates)
2. Research proposal reviewing relevant prior research and proposing to answer a theoretical question. (October 17)
3. A mid term exam covering the theories of personality and methods of research discussed in class and in readings. (Perhaps November 9, Ideally October 12)
4. A final research project reviewing the relevant literature, constructing and validating a personality scale (using a large personality-ability-interest data base.) (December 10)
5. A final exam (optional– Friday, December 10th).

Readings

1. Readings will be assigned from relevant journals and texts. Most of these will be web accessible.
2. Check the syllabus and the associated outline on the web for handouts, course notes, and additional readings. These will be updated at least once a week. Class handouts will become available late in the evening before class.

Broad Brush Syllabus

1. Introduction to personality research
 - Place of personality in psychology
 - 5 Basic Questions we ask about personality
2. Descriptive taxonomies
3. Causal models of personality
4. Psychometric theory
5. Other current research techniques

Personality is the coherent patterning of affect, behavior, cognition and desire

1. The ABCDs of personality
 - Affect: How we feel
 - Behavior: What we do
 - Cognition: What we think and what we know
 - Desire: What we want
2. Personality: Stability and Change
 - How do we recognize an old friend?
 - Are we the same person we were 10 years ago?
 - Are we the same person we will be in 10 years?
3. Personality as Music
 - It is not the notes, it is not the instrumentation, it is the melody that we recognize
 - A person is the same person years from now even though older, wiser
 - It is the patterning of the ABCDs over time and space that we recognize

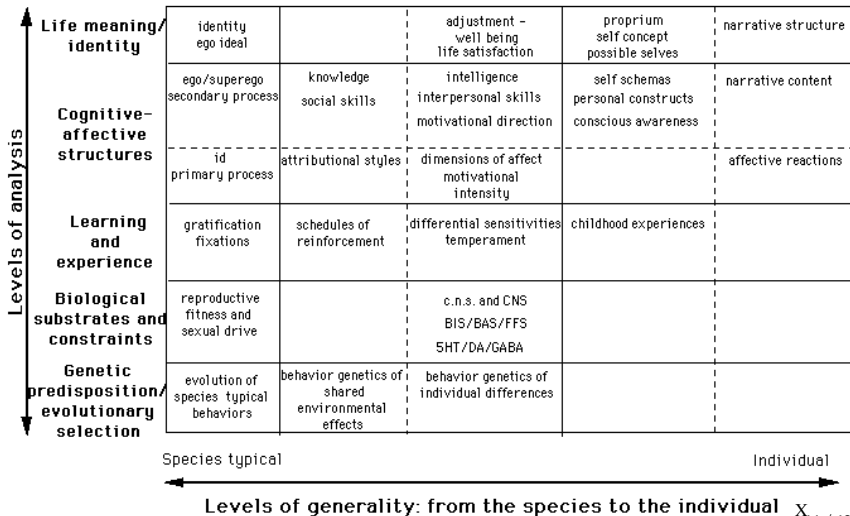
Five Questions about personality

1. Generality across situations
2. Stability across time
3. Functioning (adaptive vs. maladaptive)
4. Causality (biological/nature + environmental/nuture)
5. Application (does it make any difference)

Personality research: Generality x Levels of analysis

1. Generality ([Kluckhohn & Murray, 1953](#); [Revelle, 1995](#))
 - All people are the same: Species typical behavior
 - Some people are the same: Individual differences
 - No person is the same: Individual uniquenesses
2. Levels of analysis: From biology to society
 - Genetic substrate
 - Physiological systems
 - Learning and experience
 - Cognitive-emotional structures
 - Life meaning and identity

A conceptual organization of personality theory and research



Eysenck and the process of science

Prologue: two broad themes to be discussed and interwoven

1. The two disciplines of scientific psychology
 - 1.1 Two broad cultures of intellectual activity ([Snow, 1959](#))
 - 1.2 Two broad cultures of psychology ([Kimble, 1984](#))
 - 1.3 Two disciplines within scientific psychology ([Cronbach, 1957, 1975](#)) and ([Eysenck, 1966, 1987a, 1997](#)).
2. The process of theory construction and validation
 - 2.1 Science from hunch to law ([Eysenck, 1976, 1985](#))
 - 2.2 Good theories as alive and generative: the example of theories of Extraversion.

In this class, I will emphasize the power of integrating psychometric and experimental techniques in a programmatic study of personality and individual differences.

The two cultures of intellectual inquiry

C.P. Snow (1959) considered two cultures of intellectual inquiry:

“I believe the intellectual life of the whole of western society is increasingly being split into two polar groups.” ..

“I felt I was moving among two groups—comparable in intelligence, identical in race, not grossly different in social origin, earning about the same incomes, who had almost ceased to communicate at all, who in intellectual, moral and psychological climate had so little in common ... one might have crossed an ocean.”

Kimble and the two cultures of psychology

Just as Snow considered the scientific versus humanistic cultures of English and American society, so did [Kimble \(1984\)](#) consider two cultures of psychology: the scientific and the humanistic.

“The remaining points of disagreement involve the items asking about most important values (scientific vs. human), source of basic knowledge (objectivism vs. intuitionism), and generality of laws (nomothetic vs. idiographic).”

Two competing tribes/paradigms within scientific psychology

But even within the culture of scientific psychology, we have two competing tribes who differ in their basic paradigmatic view of how to do science: the correlational vs. experimental paradigms discussed by [Cronbach \(1957, 1975\)](#) and [Eysenck \(1966, 1987a, 1997\)](#). Both pleaded for an integration of the two tribes. Neither was overly successful.

Others who have tried to reconcile these differences include [Vale & Vale \(1969\)](#), and [Underwood \(1975\)](#).

In a review ([Revelle & Oehlberg, 2008](#)) we reported that this dichotomy still continues. We can go beyond this dichotomy by showing how theory development and theory testing requires a mixture of the inductive power of correlations with the deductive power of experimental techniques. For we as individual differences psychologists are most able to unify the two disciplines.

The conventional dichotomy of research paradigms in psychology ala Cronbach (1957, 1975) and Eysenck (1966, 1987a, 1997)

Correlational

1. Influential founders
 - 1.1 Galton (1886)
 - 1.2 Pearson (1896)
 - 1.3 Spearman (1904)
2. Measurement of variances and covariances
 - 2.1 bivariate r , ϕ , $Yule_Q$
 - 2.2 multivariate R , factor analysis, principal components
 - 2.3 General Linear Model and its extension to multi-level modeling
3. Addresses threats to validity by statistical “control”

Experimental

1. Influential founders
 - 1.1 Wundt (1904)
 - 1.2 Gossett (Student, 1908)
 - 1.3 Fisher (1925)
2. Measurement of central tendencies
 - 2.1 bivariate t and F
 - 2.2 multivariate MANOVA
 - 2.3 General Linear Model and its extension to multi-level modeling
3. Addresses threats to validity by randomization

Two disciplines: two viewpoints

Table: The naive perspective from both sides—the other side is easy, why don't they just do it right? Our variables are complicated, well articulated, theirs are simple, just use any one.

Individual Differences

Experimental

Personality
Ability

Task Performance

The experimentalist's challenge: what to measure

Measures

1. Giant 3
 - EPI
 - EPQ
2. Big 5
 - NEO-PI-R
 - IPIP B5
 - IPIP NEO
 - BFI
 - TIPI
3. Beyond the Big 5
 - HEXACO
 - IPIP HEXACO
 - BFAS
 - SAPA 3-6-12
 - ICAR-IQ
 - ...

Constructs

1. Extraversion
 - but which one? Costa vs. Goldberg
2. Neuroticism
3. Agreeableness
4. Conscientiousness
5. Openness-Intellect
 - but is it openness or is it intellect?
6. Honesty/Humility
7. Impulsivity
8. Sociability
9. Trust
10. ...

The challenge for individual difference researchers: what constructs to measure

Memory

1. Working memory
2. Iconic memory
3. Short Term memory
4. Long Term memory
5. Semantic memory
6. Episodic memory
7. Procedural memory
8. Autobiographical memory
9. False memory
10. Recall
11. Recognition

Attention

1. Sustained Attention
2. Allocation of Attention
3. Capturing Attention
4. Breadth of Attention
5. Local/Global Attention
6. Paying Attention

System I or System II

1. Fast, automatic
2. Slow, controlled, but lazy

The experimentalist's challenge: how to analyze, what to report

Analysis

1. Dimension Reduction
 - Principal Components
 - EFA
 - CFA
2. Structure
 - Path Analysis
 - SEM
 - Latent Growth Curves
3. Reliability analysis
 - Internal Consistency
 - Alternate Form
 - Test-Retest
4. Item Response Theory

Statistics

1. Measures of association
 - Pearson r , Spearman ρ
 - ϕ or *YuleQ*
 - $r_{tetrachoric}$, $r_{polychoric}$
2. Goodness of fit
 - χ^2 or χ^2 difference
 - RMSEA or RMSR
 - Tucker-Lewis
 - BIC or AIC
3. Reliability
 - α
 - β
 - ω_h
 - ω_t

The challenge for individual difference researchers: which paradigm to use

Memory

1. Reaction time
 - Sternberg Memory Scanning
 - Ratcliff choice
 - Jacoby identification
2. Accuracy
3. Serial anticipation
4. Free recall
5. Cued recognition

Attention

1. Posner letter search
2. Erickson flanker task
3. Vigilance
4. dot probe
5. emotional “Stroop”
6. Eye tracking
7. Reaction Time

The extra subtleties of design

Personality

1. Item wording
2. Response alternatives
3. Appropriate sample size
4. Subject selection
 - restriction of range
5. generalization of subject characteristics

Experimental

1. number of practice trials
2. Inter Stimulus Interval
3. Stimulus Onset Asynchrony
4. Type of randomization/counterbalancing
 - block randomization
 - complete randomization
 - counterbalancing
5. Data trimming procedures
6. Power/p-hacking

Theory testing is hard work

1. Confirmatory bias
2. Theory induced blindness
3. Seductive power of hindsight
4. Illusion of control
 - Under appreciation of chance
5. See *Thinking, Fast and Slow* [Kahneman \(2011\)](#)

Scientific progress and levels of theory

Eysenck (1976, 1985); Eysenck & Eysenck (1985)

1. Hunch

- observations
- deduction

2. Hypothesis

- hypothesis development
- hypothesis verification

3. Theory

- Weak theory –
confirmation studies
- Strong theory
–disconfirmation studies

4. Law

Eysenck, Lakatos, Popper and Kuhn

Eysenck (1983, 1985, 1987b, 1988); Eysenck & Eysenck (1985) followed Lakatos (1968) in suggesting that disconfirmation studies did not lead to theory rejection until a better theory was supplied.

“Purely negative, destructive criticism, like ‘refutation’ or demonstration of an inconsistency does not eliminate a programme. Criticism of a programme is a long and often frustrating process and one must treat budding programmes leniently. One can, of course, undermine a research-programme but only with dogged patience. It is usually only constructive criticism which, with the help of rival research programmes can achieve major successes; but even so, dramatic, spectacular results become visible only with hindsight and rational reconstruction.” (Lakatos, 1968, p 183)

Eysenck's theory as an adaptive and changing theory of personality

Eysenck (1983) thought that the building of paradigmatic personality research required critical analysis of theory and welcomed the publications of some of his strongest critics (e.g., Gray, 1981).

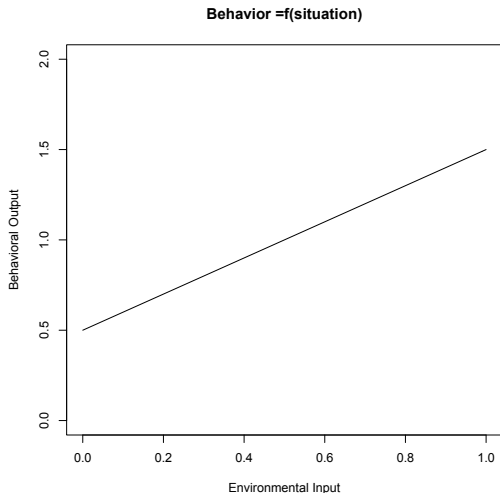
“the existence of anomalies should be no bar to the acceptance of the paradigm; the existence of such anomalies should merely act as a spur for the puzzle-solving capacities of ordinary science.”

Indeed, in his presidential address to the inaugural meeting to the International Society of Individual Differences (Eysenck, 1983) spent much of the time discussing Gray's criticisms and then cheerfully announced that Gray was going to replace him at the Maudsley!

Types of Relationships

1. Behavior = $f(\text{Situation})$
2. Behavior = $f_1(\text{Situation}) + f_2(\text{Personality})$
3. Behavior = $f_1(\text{Situation}) + f_2(\text{Personality}) + f_3(\text{Situation} * \text{Personality})$
4. Behavior = $f_1(\text{Situation} * \text{Personality})$
5. Behavior = idiosyncratic

The most naive behaviorist model: $B = f_1(S)$

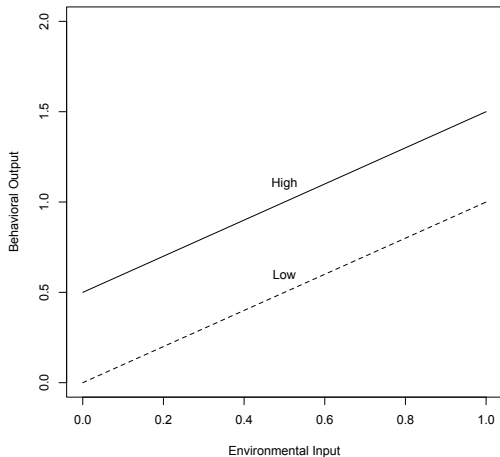


Neural firing as function of stimulus input

Behavior as an additive function of Persons and Situational Press

$$B = f_1(S) + f_2(P)$$

Behavior = f1(situation) + f2(person)

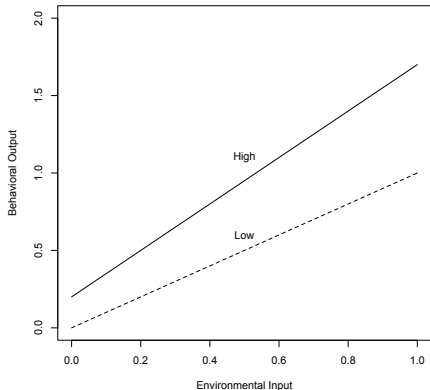


College attendance as function of parental income and ability

Behavioral outcome as additive + interactive effects:

$$B = f_1(S) + f_2(P) + f_3(S * P)$$

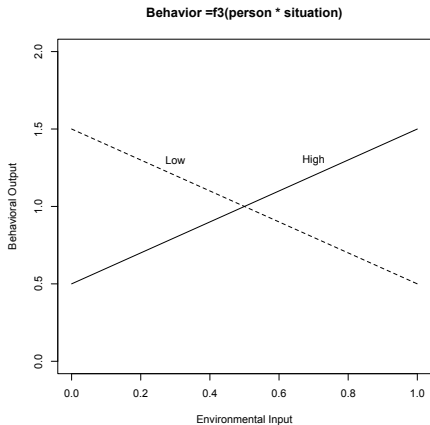
Behavior = $f_1(\text{situation}) + f_2(\text{person})$
+ $f_3(\text{person} * \text{situation})$



Avoidance = $f_1(\text{shock intensity}) + f_2(\text{anxiety}) + f_3(\text{shock} \times \text{anxiety})$

Reading skill = $f_1(\text{hours of Sesame Street}) + f_2(\text{cognitive ability}) + f_3(\text{SS} * \text{ability})$

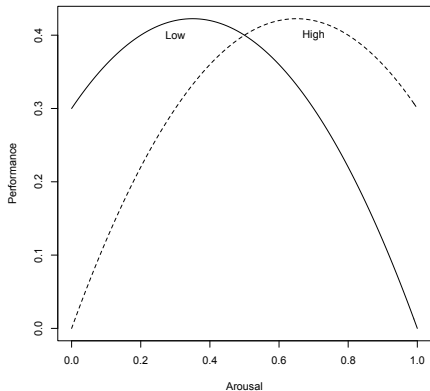
Behavioral outcome as interactive effects: $B = f_3(S * P)$



Eating = $f_3(\text{Preload} \times \text{restraint})$ (Herman & Mack, 1975)

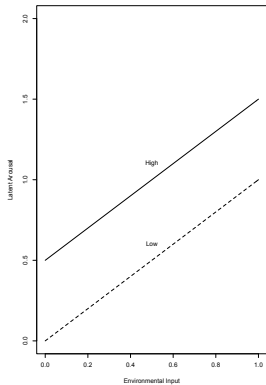
GRE = $f_3(\text{caffeine} * \text{impulsivity})$ (Revelle, Amaral & Turriff, 1976)

Behavioral outcome as interactive effects: $B = f_3(S * P)$

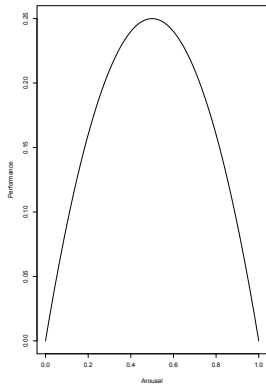


GRE = f(caffeine * impulsivity)

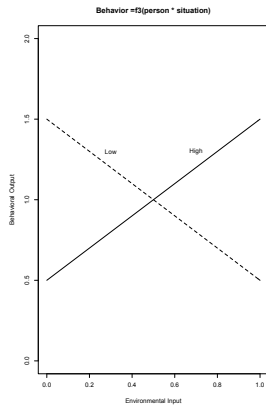
Theory to integrate individual differences and general laws



Arousal = Impulsivity + Caffeine



Performance = f(arousal)



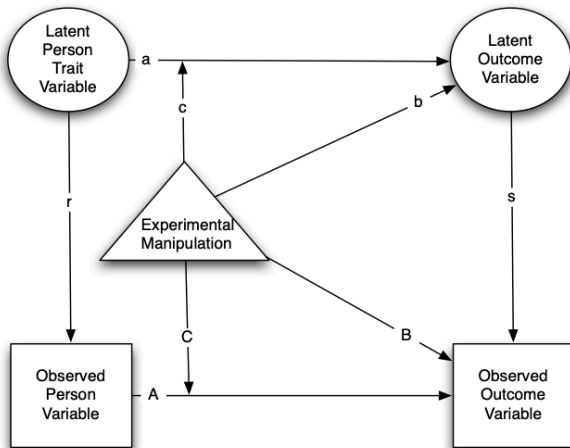
Performance = f(Impulsivity × Caffeine)

Integration of the two approaches

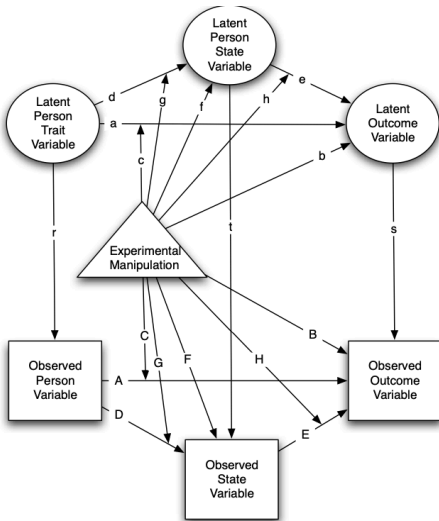
1. Correlational models are descriptive but do not allow for causal inference.
2. Experimental control allows for causal inference.
3. Possible to use experimental techniques to examine causal models of personality.
4. Typically believe that the manipulations are affecting some state variable related to the trait variables.

See ([Revelle, 2007](#); [Revelle & Oehlberg, 2008](#))

Experimental and correlational modeling

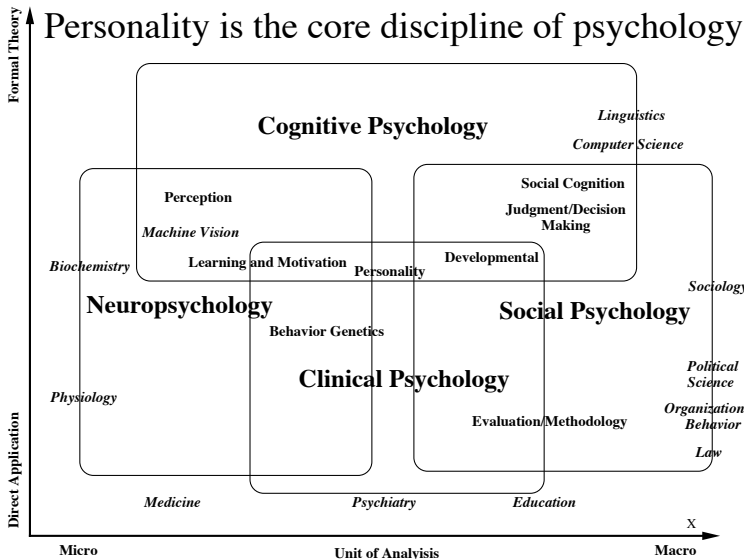


Experimental and correlational modelling: states and traits



Place of personality in psychology

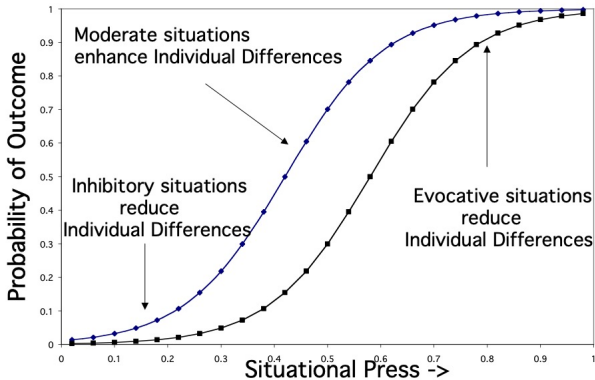
1. The study of personality is the core discipline of psychology.
2. Personality is the coherent patterning of affect, behavior, cognition and desire (ABCD) over time and space.
3. Five meta questions asked by personality research
 - 3.1 Who (descriptive taxonomies of stable individual differences)
 - 3.2 Where (To what extent does the situational press make a difference)
 - 3.3 What (Behavioral/Affective/Cognitive outcome measures)
 - 3.4 When (Temporal dynamics)
 - 3.5 Why (Causal theories)
4. Two approaches to the field (descriptive vs. causal)
5. Personality is the integration of multiple (brain) systems
6. The study of personality is the last refuge for the generalist in psychology.



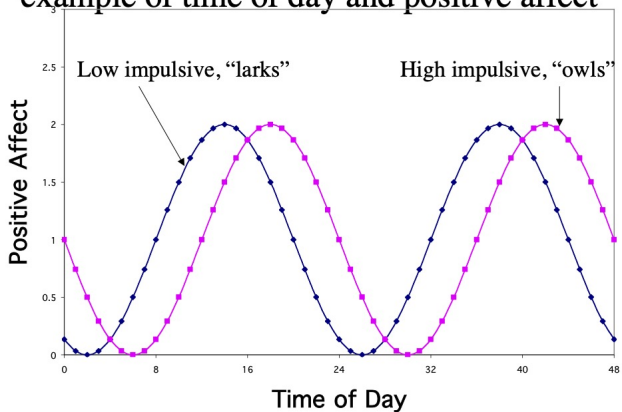
Multiple approaches to personality

1. Psychology of the individual (dynamics)
 - Consistency and change in the life of a person (life span developmental)
 - Coherence over situations and time (temporal dynamics of mood)
2. Individual differences (structural and description)
 - How many dimensions are needed? (The curse of dimensionality)
 - What are they? (The big few versus the mighty many)
3. Stability of individual differences over time and space
 - Does knowing about individuals in one situation predict anything about other situations?

Personality Consistency: the power of the situation



Coherency of individual differences: the example of time of day and positive affect



Conley (1984) meta analysis of longitudinal studies of personality showing consistency over 50 years

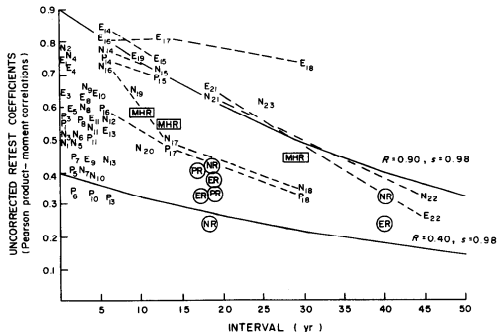


Fig. 3. Results of longitudinal studies of personality traits. (Numbers correspond to those in Table 3. N = neuroticism, E = extraversion, P = psychoticism.)

Conley (1984) meta analysis of longitudinal studies of cognitive ability showing consistency over 50 years

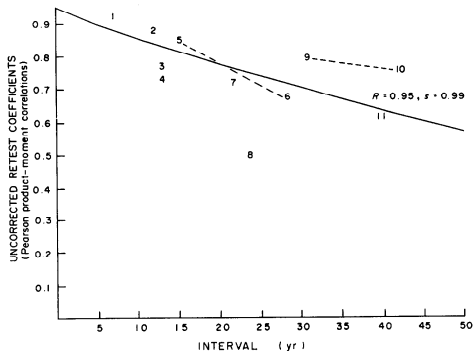


Fig. 2. Results of longitudinal studies of intelligence. (Numbers correspond to those in Table 2.)

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