



# The Bar Fight: Understanding Personality

*Thomas pushed Samuel at a bar after drinking too much. Was this aggression part of his personality or just a rough day? Social psychologists blame the situation; personality psychologists point to enduring traits. This fundamental question drives personality research.*

# The Trait Question

## What Makes Us Unique?

*Traits contribute to consistency in behaviour across situations and time, making each person unique.*

## McCrae and Costa's Contribution

*Their research and theory established widespread adoption of the Big Five framework.*

## The Big Five Emerges

*By the 1980s, researchers converged on five major personality dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience.*



Courtesy Robert R. McCrae, PhD



Courtesy Paul T. Costa Jr., PhD



# Measuring Personality: Three Approaches

## Standardised Tests

*Structured questionnaires providing quantifiable data on personality dimensions.*

## Clinical Observation

*Professional assessment through direct interaction and behavioural analysis.*

## Social Judgements

*Evaluations from friends and acquaintances who observe behaviour across contexts.*





# How Many Traits Define a Person?

*Two or three? Half a dozen? A couple of hundred? More than a thousand? Factor theorists have used mathematical procedures to sift personality traits from mountains of test data, seeking the answer.*

# The Factor Analysis Debate

1

## Cattell's Approach

*Identified many more personality traits through comprehensive factor analysis.*

2

## Eysenck's Position

*Insisted only three major factors emerge from factor analytic approaches.*

3

## The Big Five Consensus

*Most contemporary researchers agree five dominant traits consistently emerge from analysis.*

# Allport's Foundation

## 18,000 Trait Names

*Allport identified nearly 18,000 trait names in an unabridged English dictionary, providing the foundation for modern factor analytic studies.*

## Central Traits

*His commonsense approach yielded 5–10 traits central to each person's life.*





# Raymond B. Cattell: Pioneer of Psychometrics



*Born in England in 1905, Cattell spent most of his career in the United States. His inductive method gathered data without preconceived bias, examining people through three different media of observation.*

*His multifaceted approach yielded 35 primary traits, with 23 characterising normal population and 12 measuring pathological dimensions.*

# Cattell's Three Sources of Data



## L Data: Life Record

*Observations made by other people about a person's behaviour in real-world settings.*



## Q Data: Self-Reports

*Questionnaires allowing people to make subjective descriptions of themselves.*



## T Data: Objective Tests

*Performance measures including intelligence, speed of responding, and maximum performance challenges.*



# Understanding Factor Analysis

*Factor analysis begins with specific observations of many individuals, quantified through measurements. These variables are then correlated to identify clusters of related scores.*

01

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## Collect Data

*Gather measurements on multiple variables across many individuals.*

02

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## Calculate Correlations

*Determine relationships between all variables through correlation coefficients.*

03

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## Identify Factors

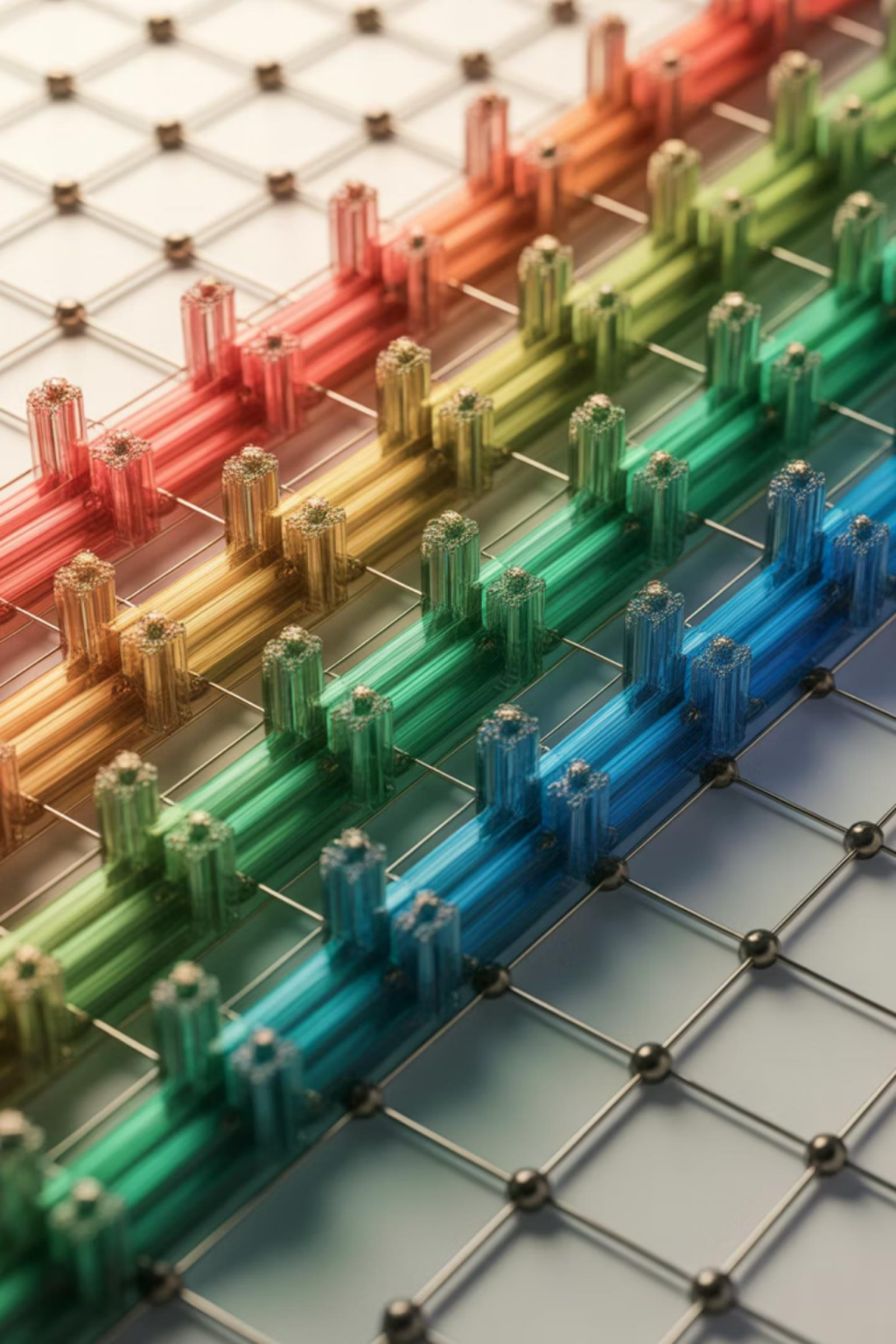
*Use mathematical procedures to find underlying dimensions explaining the correlations.*

04

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## Interpret Meaning

*Assign psychological meaning to the mathematically derived factors.*



# The Mathematics Behind Traits

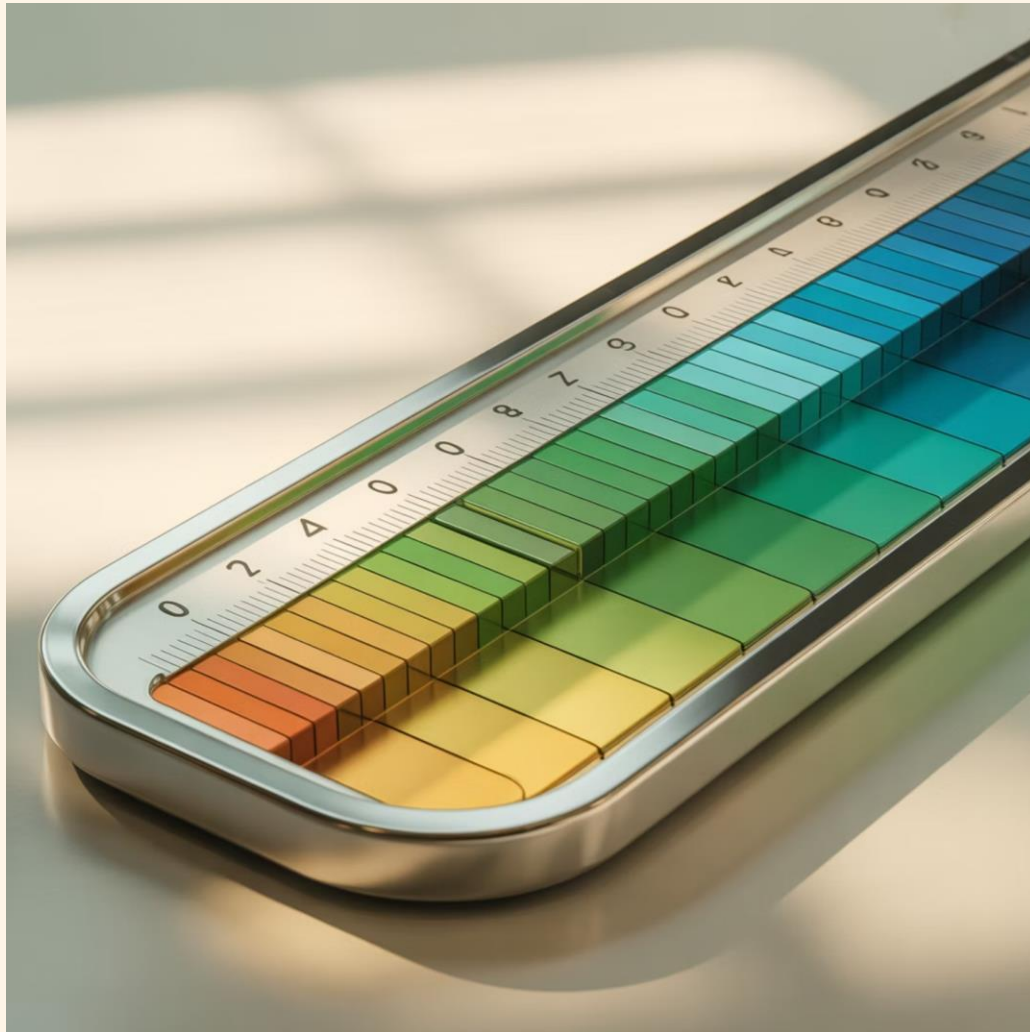
*With 1,000 variables measured on 5,000 people, researchers calculate 499,500 individual correlations. Factor analysis accounts for these variables with a smaller number of basic dimensions—traits representing clusters of closely related variables.*



# Unipolar vs Bipolar Traits

## Unipolar Traits

*Scaled from zero to some large amount.  
Examples include height, weight, and intellectual ability.*



## Bipolar Traits

*Extend from one pole to an opposite pole, with zero representing a midpoint.  
Examples include introversion versus extraversion and liberalism versus conservatism.*





# Rotation Methods in Factor Analysis

## Orthogonal Rotation

*Axes at right angles to each other, with variables completely unrelated. Favoured by Five-Factor Theory advocates.  
Results in fewer meaningful traits.*

## Oblique Rotation

*Assumes positive or negative correlation between factors.  
Advocated by Cattell. Ordinarily produces a larger number of traits.*



# Robert R. McCrae: The Journey to Traits

*Born in 1949 in Missouri, McCrae studied philosophy at Michigan State before pursuing psychology at Boston University. Despite Walter Mischel's 1960s–70s critique questioning trait consistency, McCrae believed traits were real and enduring.*

*In 1975, his destiny changed when he met Paul Costa through James Fozard at the Normative Aging Study in Boston.*

# Paul T. Costa Jr.: Building the Foundation

1942

Born

*Franklin, New Hampshire*

*Costa earned his doctorate in human development from the University of Chicago, where his interests in individual differences flourished. After teaching at Harvard and University of Massachusetts–Boston, he joined the National Institute on Aging's Gerontology Research Center.*

1970

PhD

*University of Chicago*

*In 1985, he became president of the APA's Division on Adult Development and Aging.*

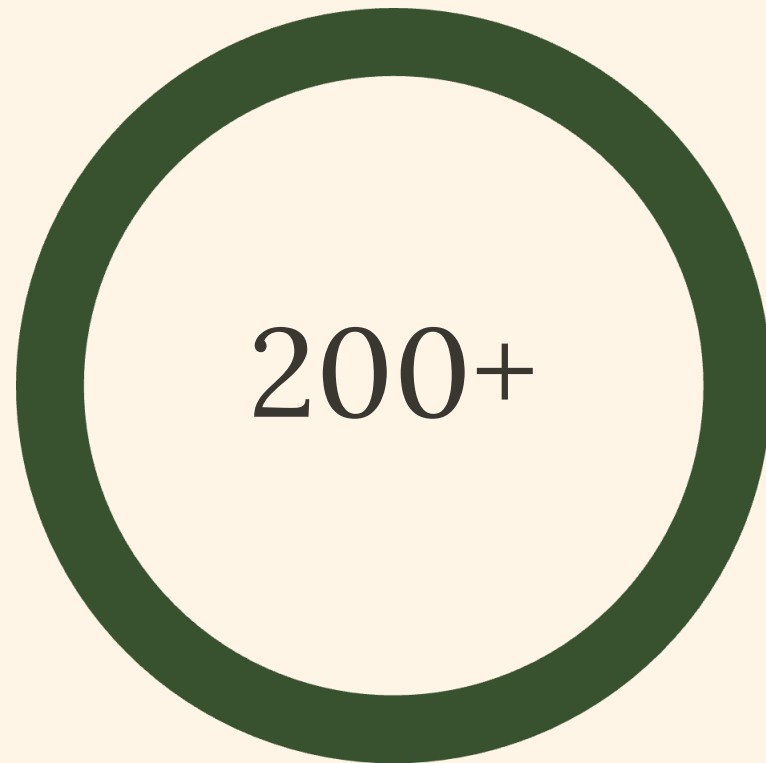
1978

NIH Career

*National Institute on Aging*

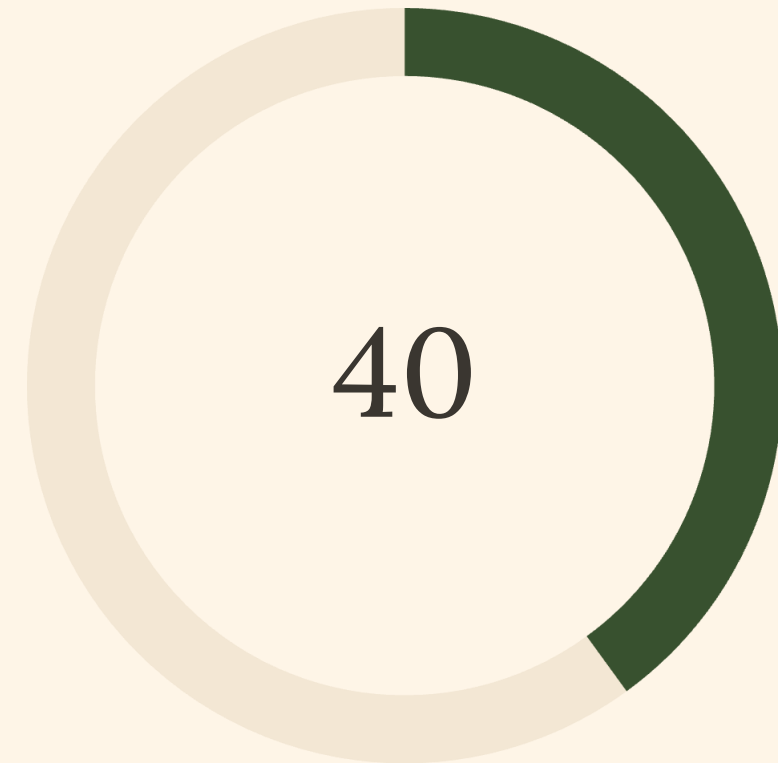


# A Fruitful Collaboration



Co-Authored Works

*Research articles and chapters published together.*

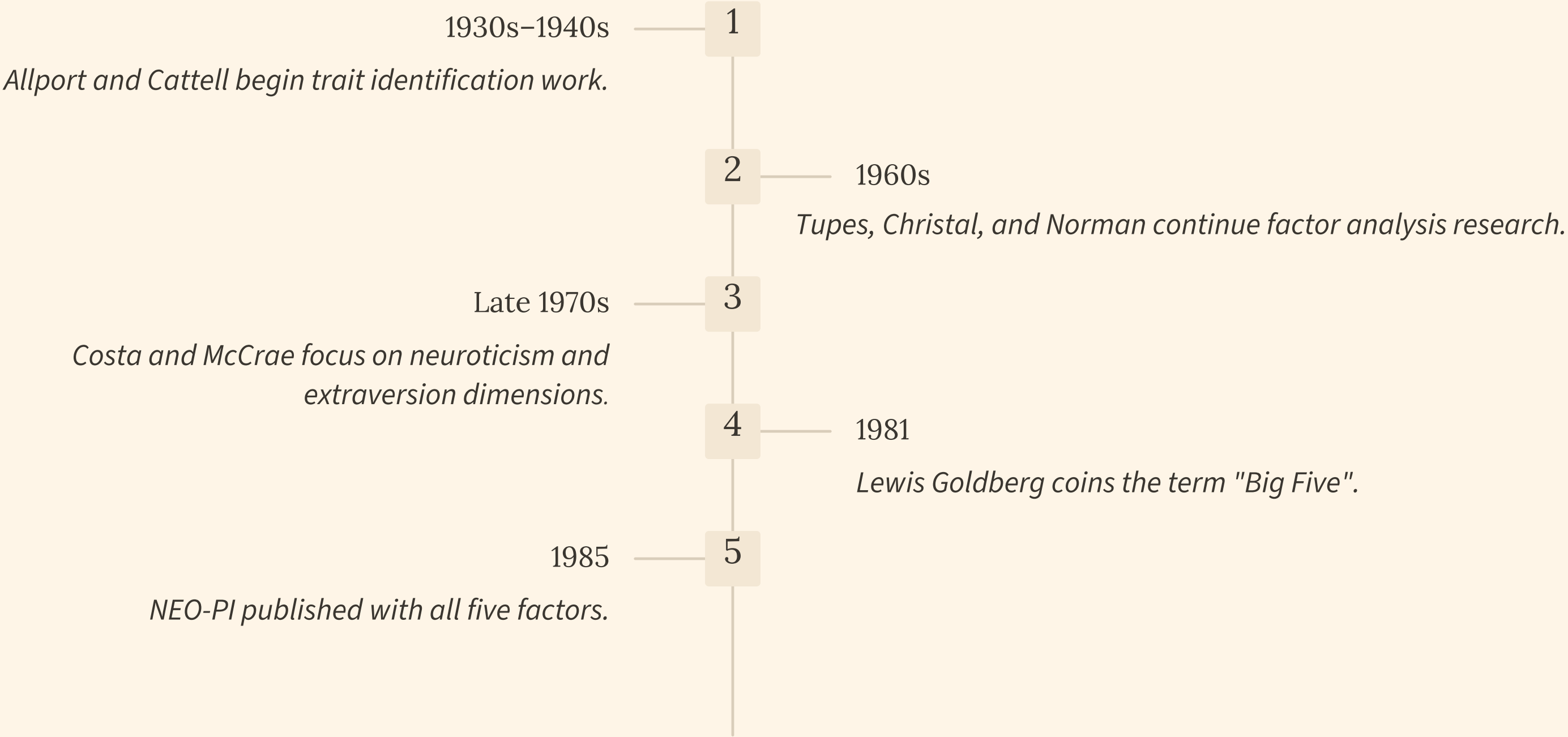


Years of Research

*Decades analysing personality structure.*

*Costa and McCrae's partnership produced groundbreaking books including Emerging Lives, Enduring Dispositions and the Revised NEO Personality Inventory.*

# The Path to Five Factors



# The Big Five Personality Traits



Neuroticism

*Anxious, temperamental, self-conscious, emotional, vulnerable to stress versus calm, even-tempered, self-satisfied.*



Extraversion

*Affectionate, jovial, talkative, fun-loving, active versus reserved, quiet, passive, solitary.*



Openness

*Creative, imaginative, curious, liberal, prefers variety versus conventional, down-to-earth, conservative.*



Conscientiousness



Agreeableness

*Trusting, generous, yielding, good-natured versus suspicious, stingy, unfriendly, critical.*



# Universal and Stable

*The five factors have been found across cultures using multiple languages.  
Adults maintain the same personality structure as they age, absent  
catastrophic illness.*

*"The facts about personality are beginning to fall into place."*

— McCrae & Costa, 1996



# From Taxonomy to Theory

1

## Classification

*Five-Factor Model provided a common language for describing personality traits.*

2

## Structure

*Answered what the structure of personality is through empirical research.*

3

## Explanation

*Five-Factor Theory emerged to explain and predict behaviour, not just describe it.*



## A Modern Theory Emerges

*McCrae and Costa objected to earlier theories relying on clinical experiences and armchair speculation. By the late 1990s, they transformed the Five-Factor Model into a comprehensive theory grounded in empirical principles.*

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*"Neither the model itself nor the body of research findings constitutes a theory of personality. A theory organizes findings to tell a coherent story."*

*— McCrae & Costa, 1999*

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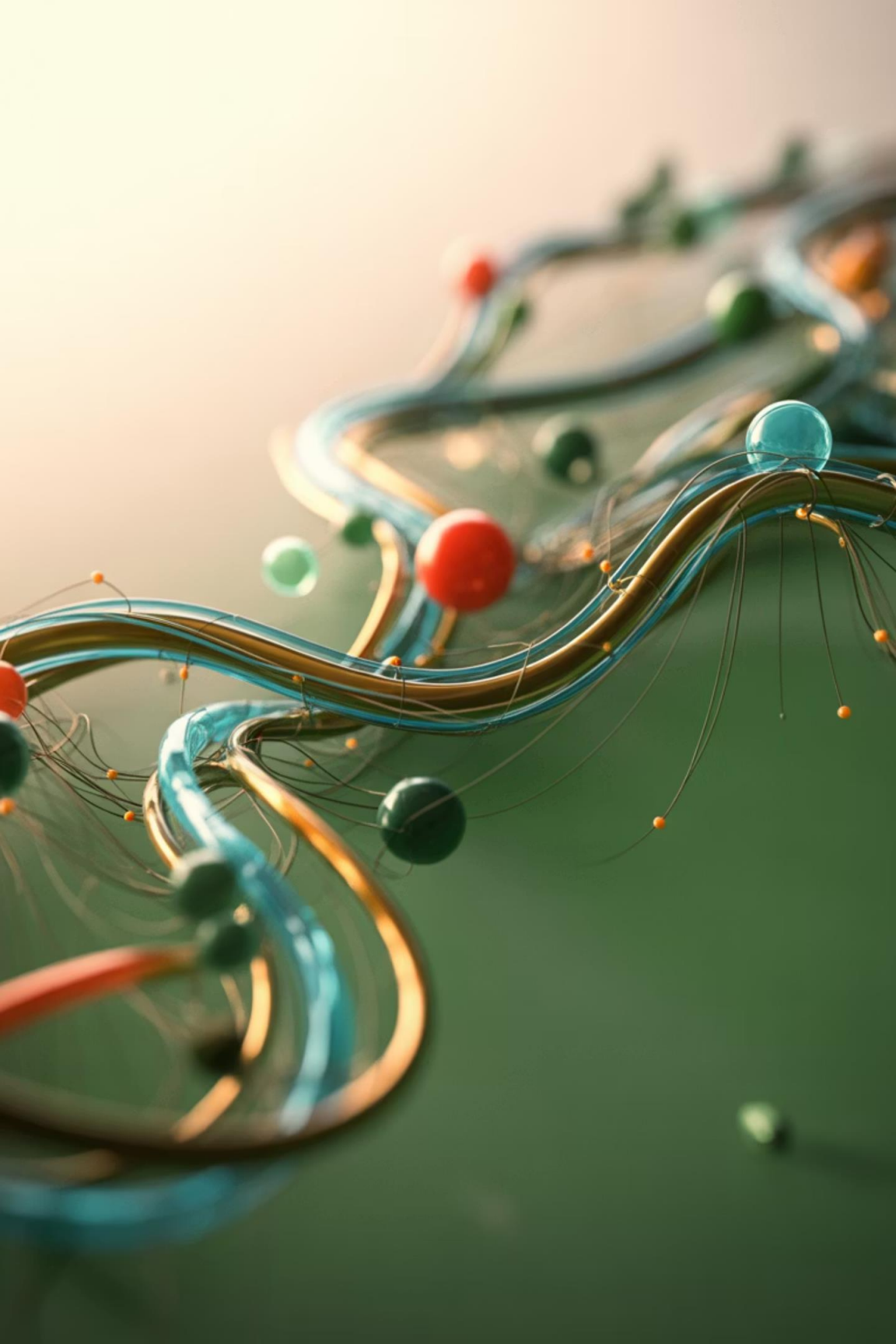
*The Five-Factor Theory now incorporates 25 years of research, providing both description and explanation of personality.*





# Five-Factor Theory of Personality

*Understanding personality through McCrae and Costa's comprehensive framework of basic tendencies and characteristic adaptations.*



# The Personality System

## Core Components

*Basic tendencies and characteristic adaptations form the foundation of personality structure.*

## Peripheral Elements

*Biological bases, objective biography, and external influences shape personality development.*

## Dynamic Processes

*Causal influences operate continuously, changing over time and across situations.*



# Basic Tendencies

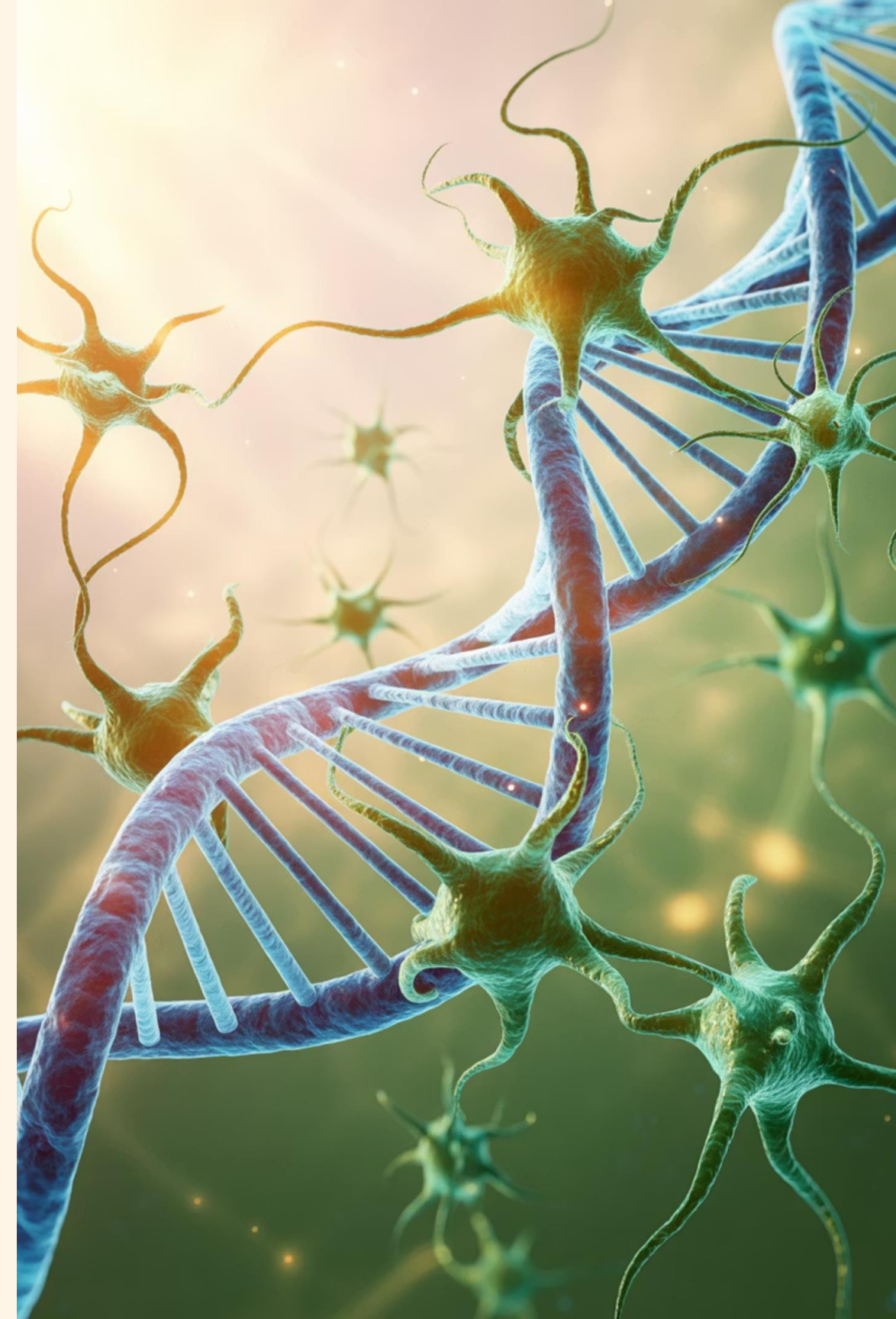
## Definition

*Universal raw material of personality—capacities and dispositions generally inferred rather than observed.*

*These tendencies define an individual's potential and direction at any given period in life.*

## Components

- *Five stable personality traits*
- *Cognitive abilities*
- *Artistic talent*
- *Sexual orientation*
- *Language acquisition processes*



# The Big Five Dimensions

1

## **Neuroticism (N)**

*Emotional stability and tendency towards negative emotions.*

2

## **Extraversion (E)**

*Sociability, assertiveness, and energy in social situations.*

3

## **Openness (O)**

*Curiosity, creativity, and willingness to embrace new experiences.*

4

## **Agreeableness (A)**

*Compassion, cooperation, and trust in relationships.*

5

## **Conscientiousness (C)**

*Organisation, responsibility, and goal-directed behaviour.*



# Characteristic Adaptations



## Flexibility

*Unlike stable basic tendencies, characteristic adaptations can be influenced by external factors and change over time.*



## Acquired Skills

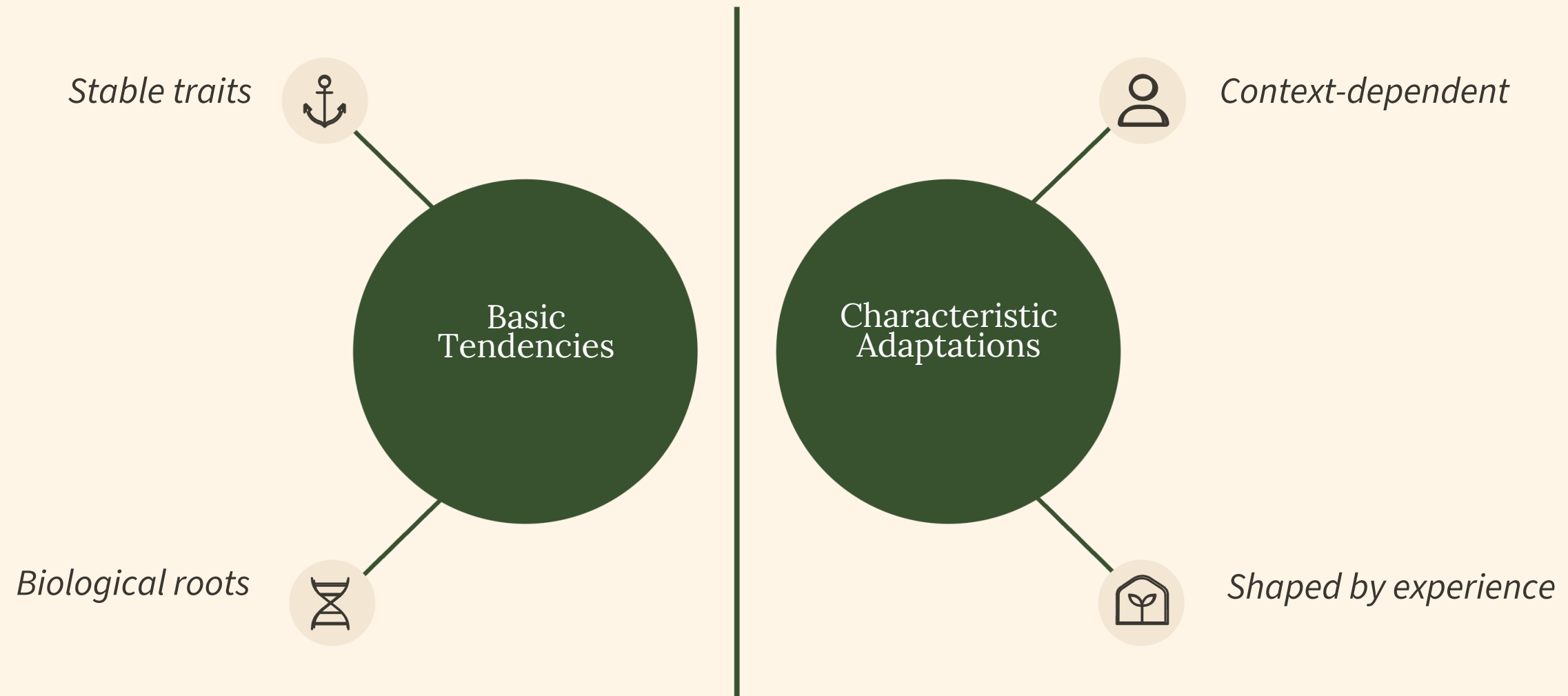
*Habits, skills, attitudes, and relationships developed through interaction with the environment.*



## Environmental Response

*Shaped by what the environment offers, allowing individuals to fit into their surroundings.*

# Stability vs. Change



*The distinction between basic tendencies and characteristic adaptations explains both personality stability and plasticity throughout life.*



# Self-Concept

*"Self-concept consists of knowledge, views, and evaluations of the self, ranging from miscellaneous facts of personal history to the identity that gives a sense of purpose and coherence to life."*

*Self-concept is a crucial characteristic adaptation that includes beliefs, attitudes, and feelings towards oneself, influencing behaviour in given circumstances.*

# Biological Foundations



## Genes

*Genetic inheritance shapes personality traits from birth.*



## Hormones

*Chemical messengers influence temperament and behaviour.*



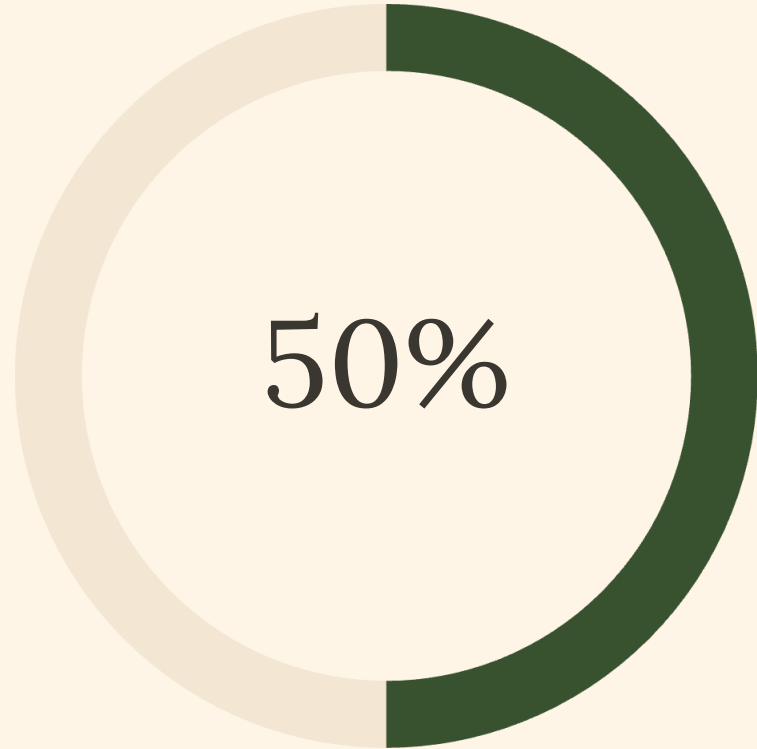
## Brain Structures

*Neural architecture determines personality expression.*

*Biology is the sole causal influence on basic tendencies, with environment playing no direct role in their formation.*

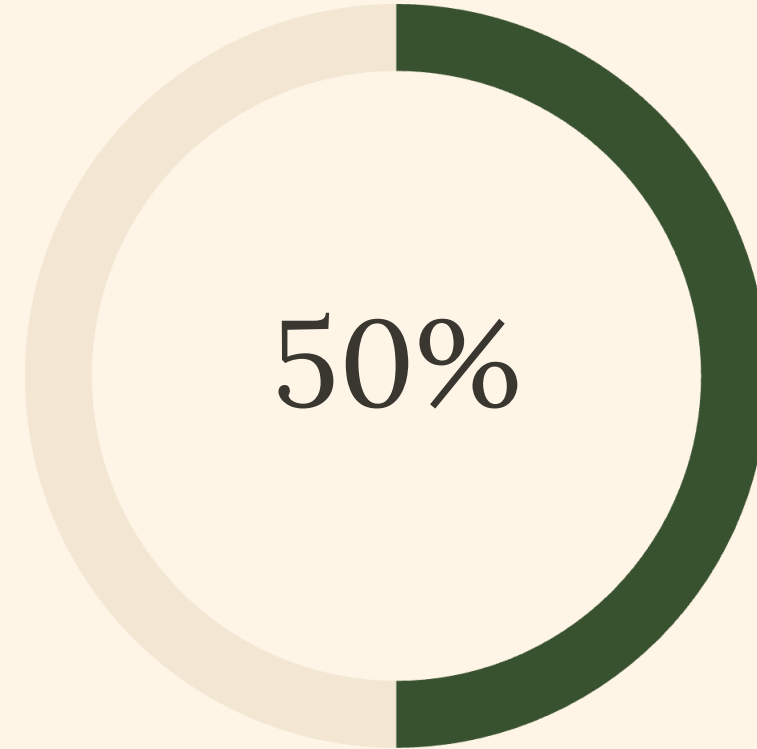


# Heritability of Personality



Genetic Influence

*Approximately half of personality variability explained by genetics.*



Environmental Factors

*Remaining variability due to nonshared experiences and unique life events.*

*Identical twins show greater personality similarity than other siblings, even when reared in different environments.*

# Four Core Postulates

01

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## Individuality

*Each adult possesses a unique combination of trait patterns.*

02

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## Origin

*All personality traits result solely from endogenous forces like genetics and brain structures.*

03

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## Development

*Traits develop through childhood, slow in adolescence, and stabilise by age 30.*

04

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## Structure

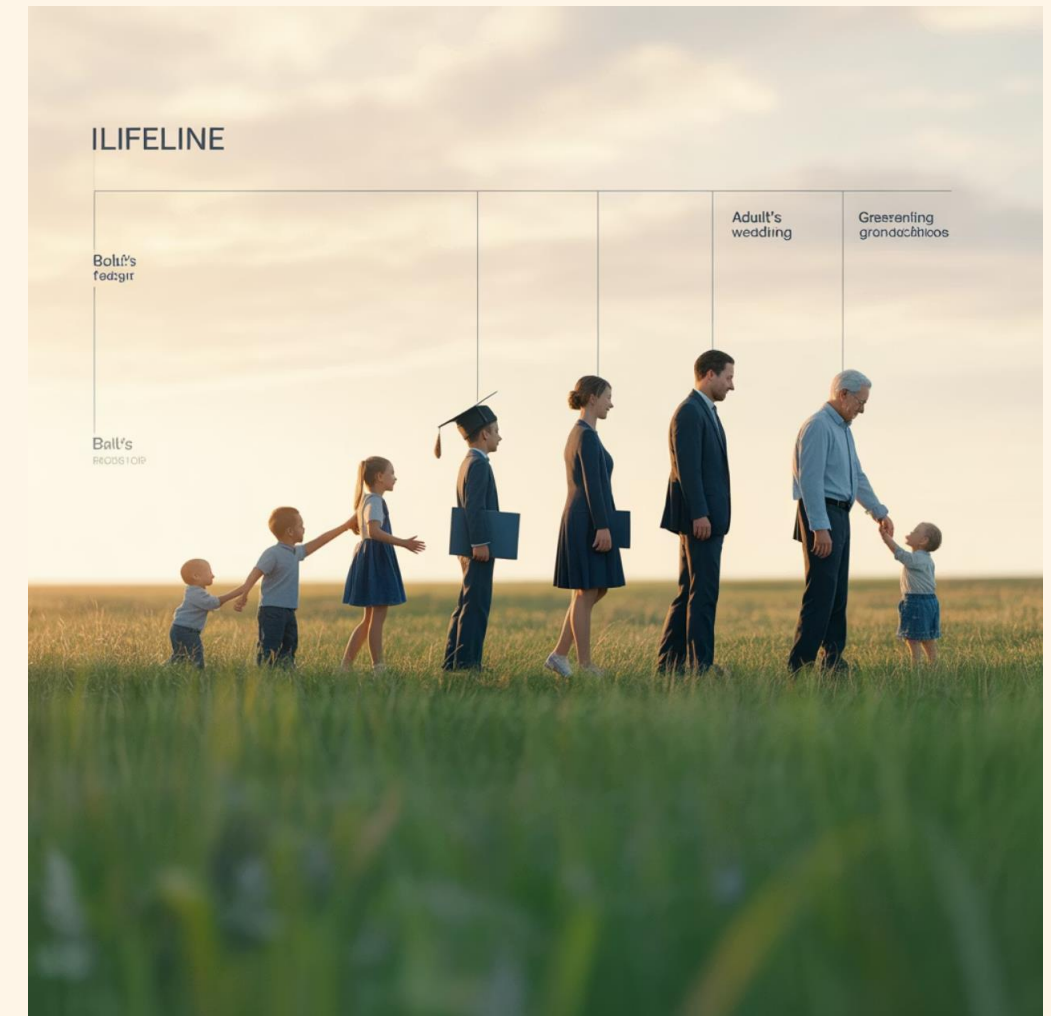
*Traits are organised hierarchically from narrow and specific to broad and general.*

# Objective Biography

*Everything a person does, thinks, or feels across their entire lifespan becomes part of their cumulative record.*

*Emphasis on **objective experiences**—actual events rather than subjective interpretations.*

*Every behaviour and response contributes to the ongoing life story.*



# External Influences in Action

## Example: Joan and the Opera

*Joan is offered tickets to see La Traviata (external influence). She has a long history of detesting opera (characteristic adaptation) and refuses the offer (objective biography).*

*Her basic tendency towards being closed to new experiences predicts this response, reinforcing her distaste over time.*

*Behaviour results from the interaction between characteristic adaptations and external influences.*

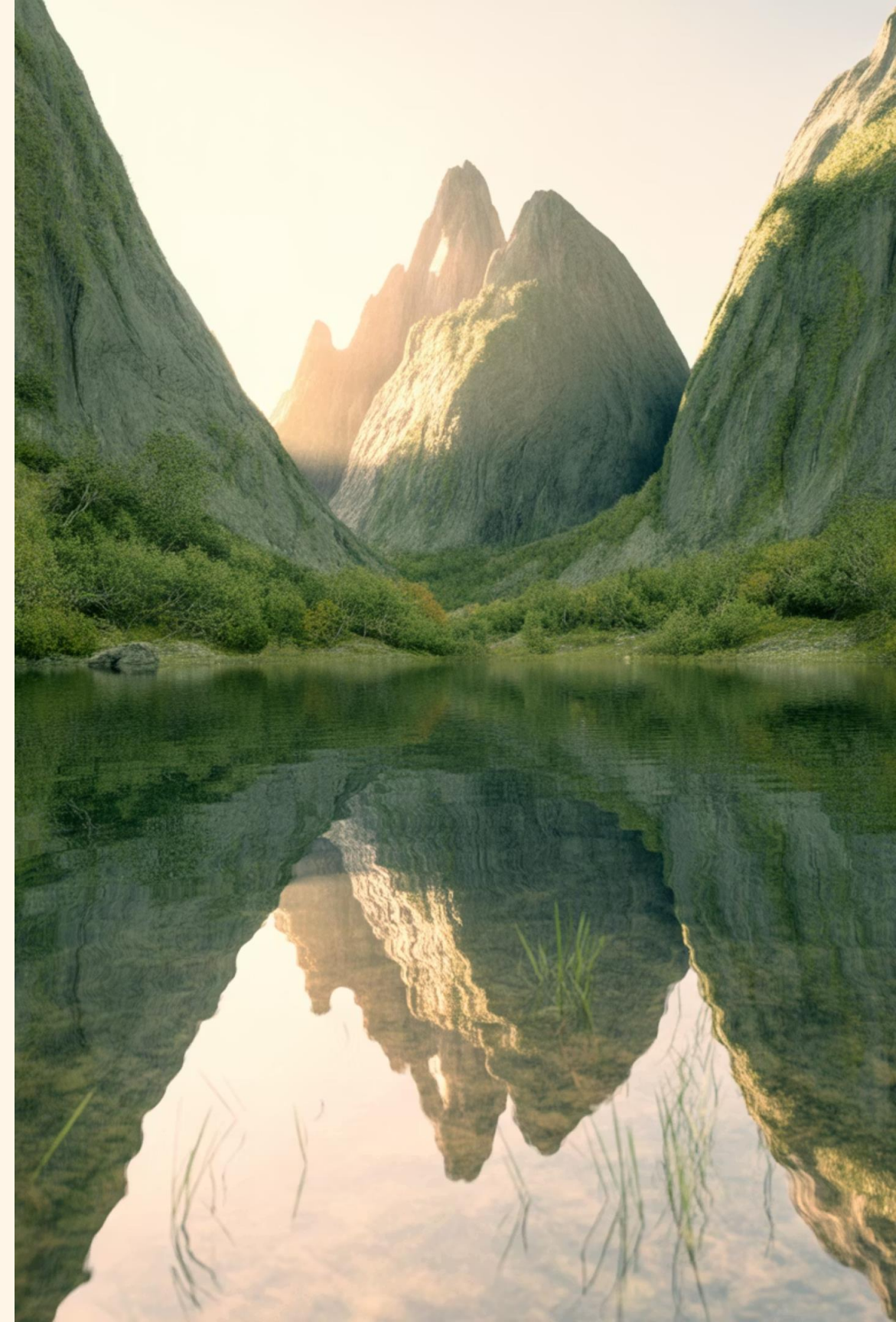


# Personality Consistency

## Longitudinal Evidence

*Costa and McCrae's early research revealed high stability over 10 years. Subsequent studies showed minimal changes in neuroticism, extraversion, and openness over 6–9 years.*

*Genetics contributes to personality consistency from adolescence to adulthood, whilst environmental factors contribute to both stability and change.*



# Early Predictors

Age 3

*Impulsive, aggressive children more likely to use drugs during adolescence.*

Adulthood

*Early traits predict alcoholism, drug abuse, and gambling problems.*

1

2

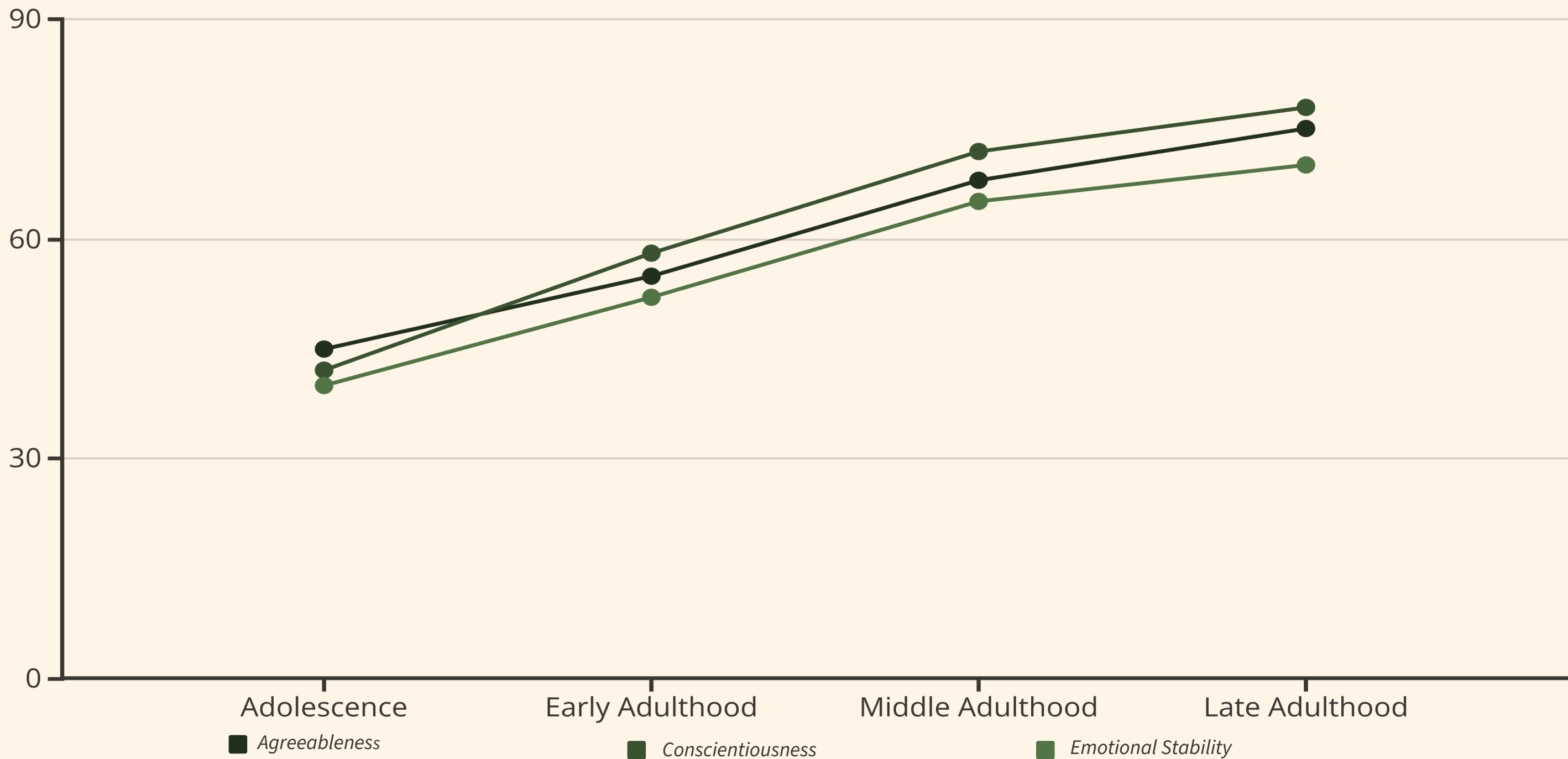
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Adolescence

*Under-controlled temperament predicts substance abuse issues.*

*Childhood temperament at age 3 can predict adult outcomes including employment, mental health, and interpersonal relationships.*

# Personality Change Across Life





# Life Events and Change



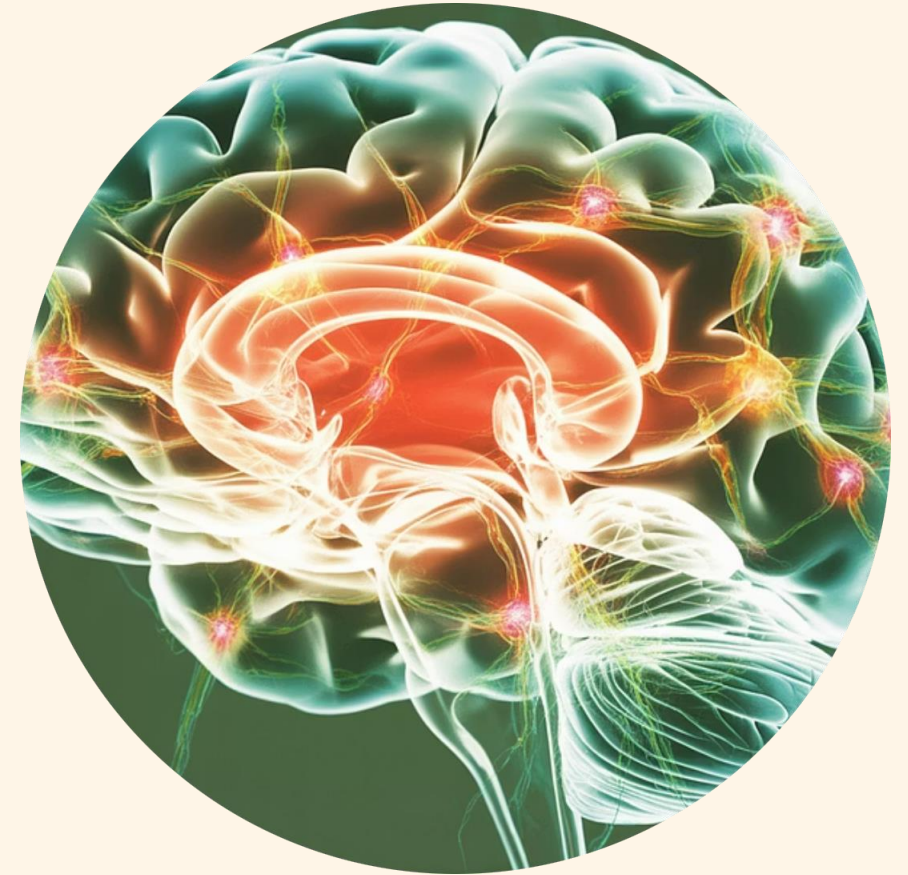
## Living Abroad

*Decreases overall anxiety and increases agreeableness.*



## Parenthood

*Brings fundamental changes in personality structure and priorities.*



## Brain Changes

*Dementia or injury increases neuroticism, decreases extraversion and conscientiousness.*



# Digital Footprints and Personality

## Social Media Predictions

*Our digital footprint—likes, shares, tweets—reflects personality traits with moderate to high accuracy.*

*Facebook "likes" predict Big Five traits:*

- *Openness: 0.39*
- *Extraversion: 0.40*
- *Conscientiousness: 0.35*
- *Agreeableness: 0.29*
- *Neuroticism: 0.33*



# Computers vs. Humans

0.27

Work Colleagues

*Lowest accuracy in personality ratings.*

0.45

Friends

*Moderate agreement with self-ratings.*

0.50

Family

*Good understanding of personality.*

0.56

Computer Algorithms

*Outperform most human judges.*

0.58

Spouses

*Highest human accuracy in ratings.*

*Digital footprint records are more accurate than ratings by friends and family for predicting personality traits.*

# Theory Evaluation



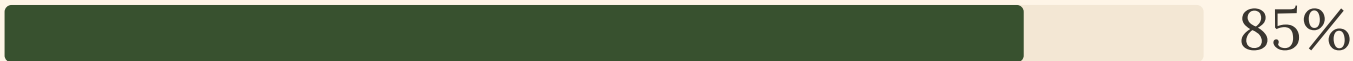
Research Generation

*Produces extensive empirical research across cultures.*



Organising Knowledge

*Provides comprehensive framework for personality observations.*



Internal Consistency

*Cross-cultural research supports universality of five dimensions.*



Falsifiability

*Lends itself to empirical testing and potential refutation.*



Practical Application

*More useful for researchers than practitioners.*



Parsimony

*Factor analysis reduces variables to fewest explanatory factors.*

# View of Humanity

## Self-Consciousness

*Humans possess unique ability to report data about themselves.*



## Individual Differences

*Focus on variability and differences amongst individuals.*



## Genetic Emphasis

*Traits have strong biological components and are universal.*



## Environmental Role

*Environment shapes dispositions alongside genetic factors.*

