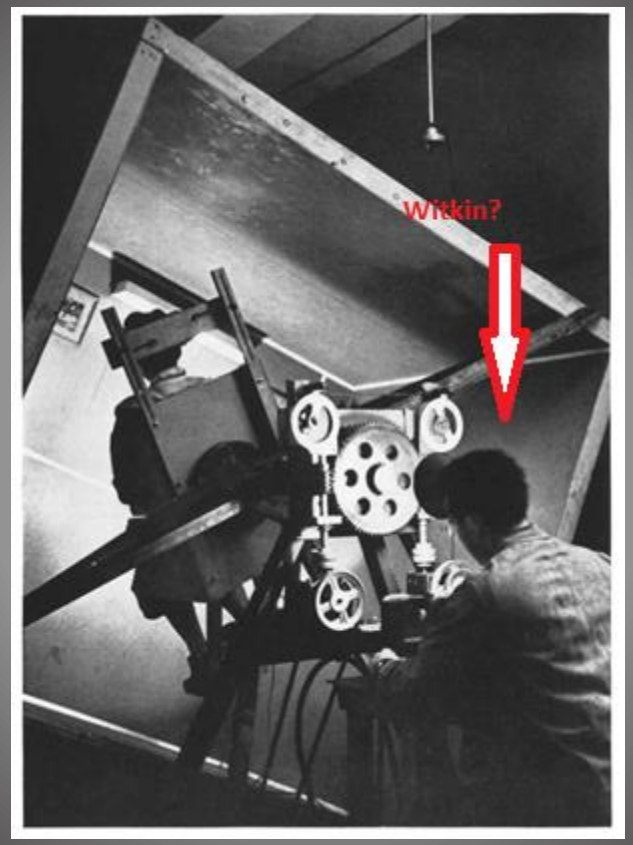
Unsolved mysteries of cognitive psychology

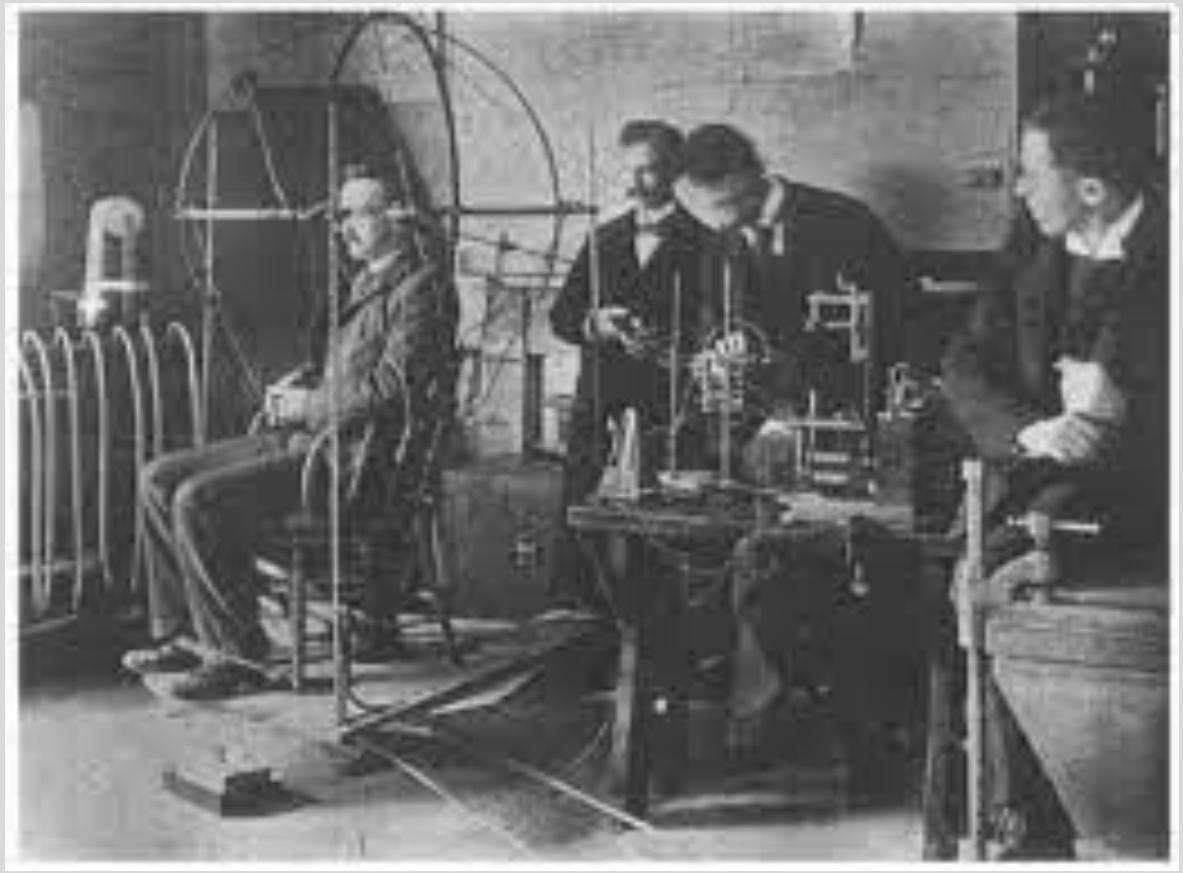


Who was Herman Witkin?

What did he measure?

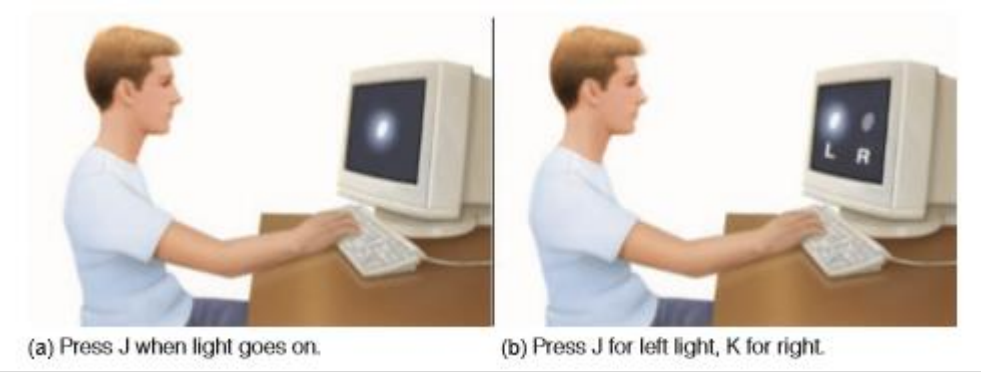
....and did he even know???

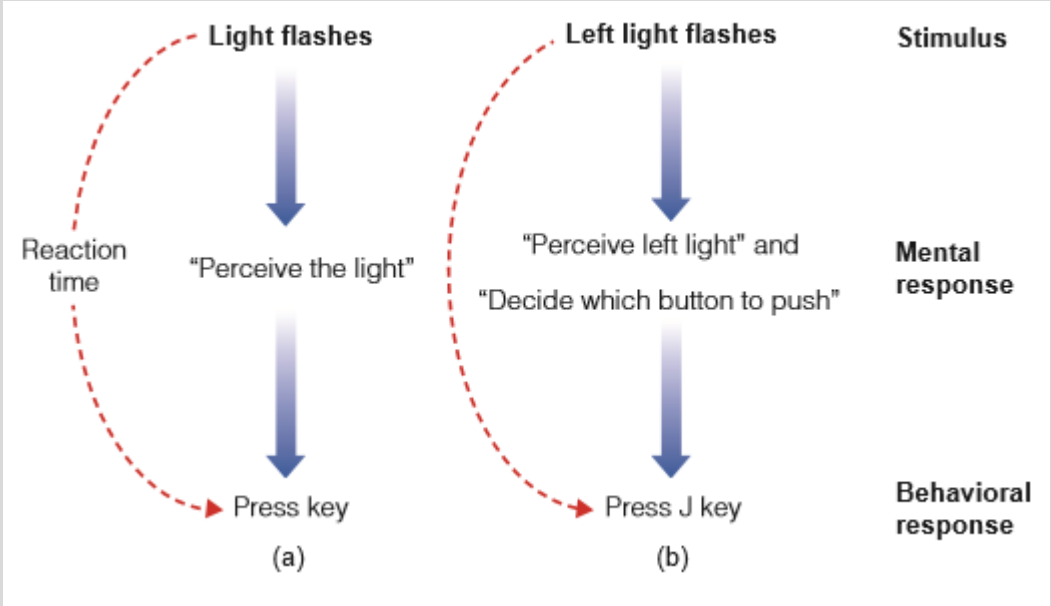
CONTEXT: Birth of cognitive psychology



1868

- Donders´ experiment

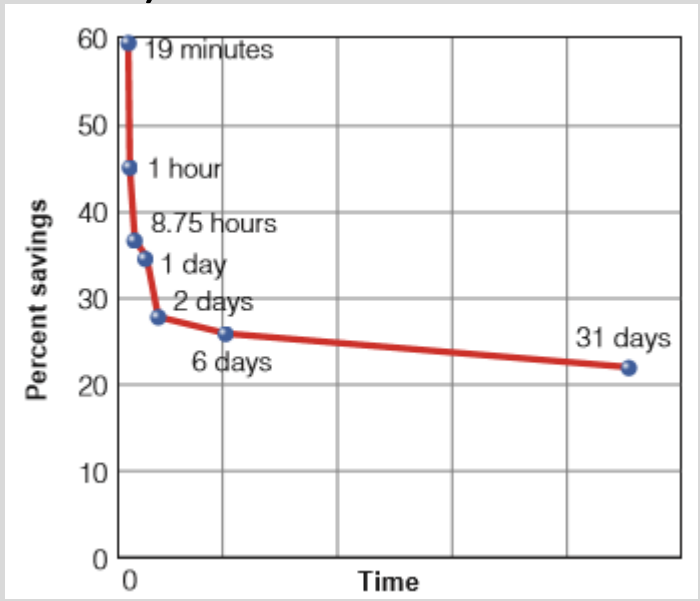




Goldstein, 2014, pp. 6-7

1885

- Ebbinghaus (forgetting curve)



Goldstein, 2014, adapted.

1890

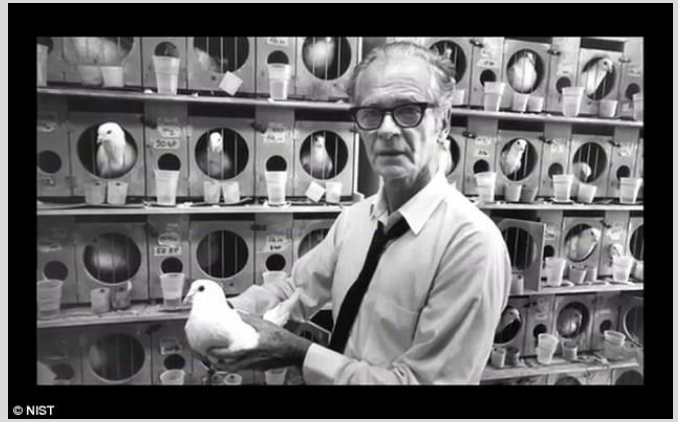
William James (Principles of Psychology):
„stream of consciousness“

1879

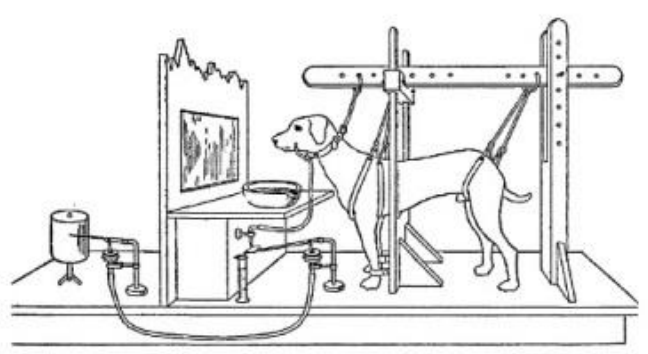
Wilhelm Wundt: first experimental psychology lab.

1913

- Watson and the raise of behaviorism („Psychology As the Behaviorist Views It“)



Burrhus Skinner



Classical conditioning (Pavlov, cca 1903)

1920

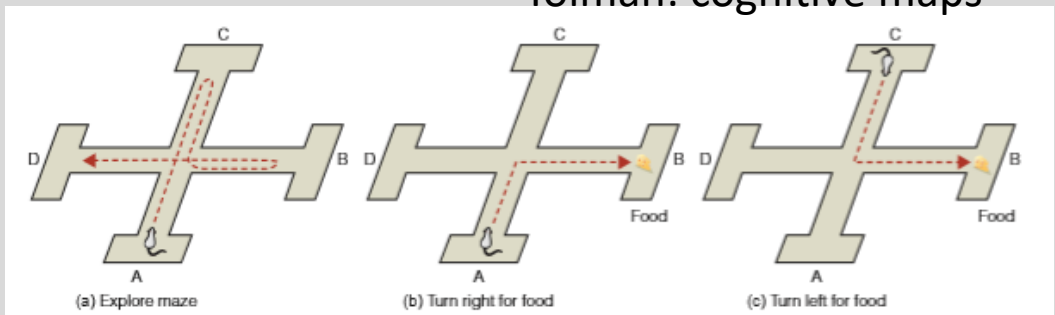
Little Albert study

cca 1938

Operant conditioning (Skinner)

1948

Tolman: cognitive maps

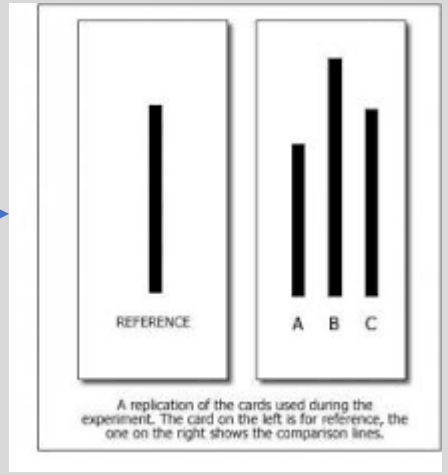


Cognitive revolution (1950s)

- From „stimulus-response“ approach to „information processing“ approach
- Cherry´ experiment (1953) with dichotomic listening (cocktail party phenomenon) → Broadbent model of attention (1958)
- Introducing „available“ computer IBM (1954)
- Conference on AI: Newell and Simon introduce „logic theorist“ (1956)
- Conference MIT, where Miller introduced the paper on the „Magic number 7 +/- 2“ (1956)
- First book on cognitive psychology (Neisser, 1967).

Who was Herman Witkin…

- What has he started…thinking of cognitive styles



Cognitive styles

"[…] identifying individual differences in cognition that are stable, value–free and related to personality and social relationships" (Kozhevnikov, 2007, p. 464).

"*[…] dimensions of individual differences involving the form of cognitive functioning, with expressions in a wide array of content areas including perceptual, intellectual, social, interpersonal, and personality–defensive processes.*" (Goodenough, 1976, p. 1).

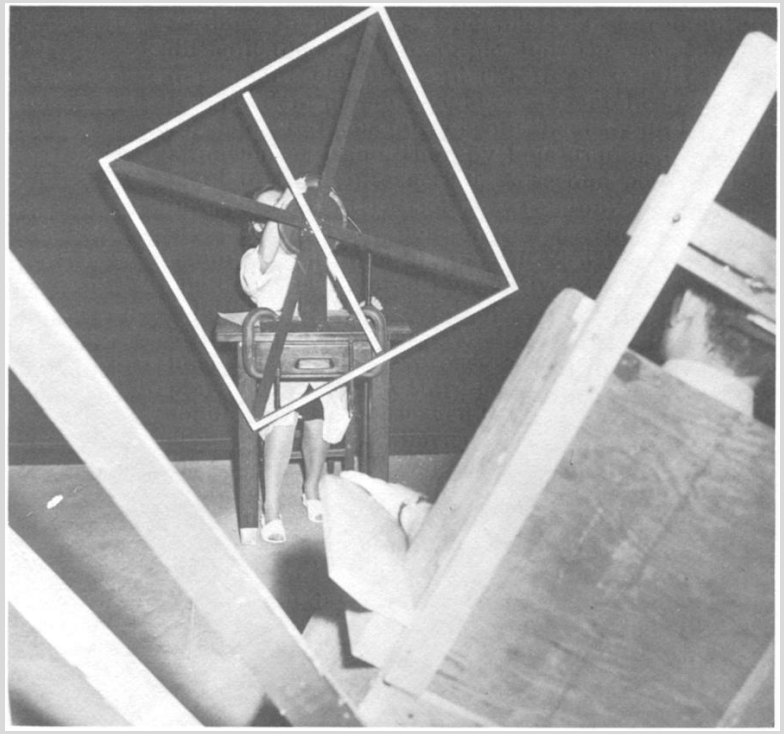
- measuring cognitive styles is difficult because other cognitive functions or general intelligence often overshadow them.

- Comparable useful strategies of information processing
- Usually it´s unidimensional style with two ends, non of which is more advantageous than the other
- They are learned (culturally conditioned)
- Specific for certain tasks (*transfer of a training effect*; Ludwig & Lachnit, 2004)
- Training does not affect performance (Wright et al., 2008)

One–dimensional style with two poles is represented by two different approaches of processing information with both being equally beneficial for the individual. Cognitive styles are simply different but equally beneficial approaches towards perceiving and processing information. In line with this statement, Berry (et al., 2002, p. 137) also state that ***"[…]cognitive styles refer more to "how" (stylistic) rather than "how much" (ability) aspects of a person's cognitive life."***

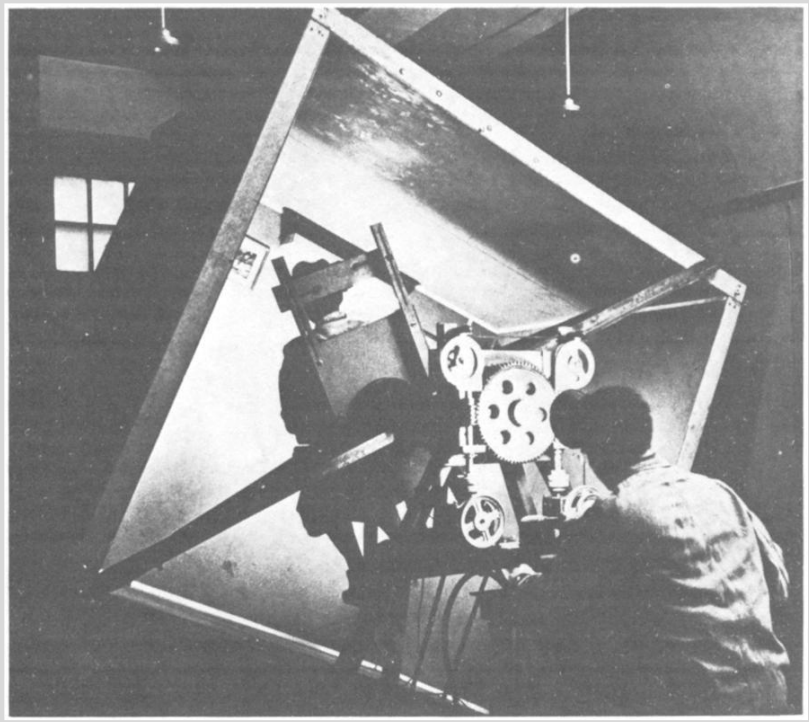
Field dependence/independence

Rod-and-Frame test

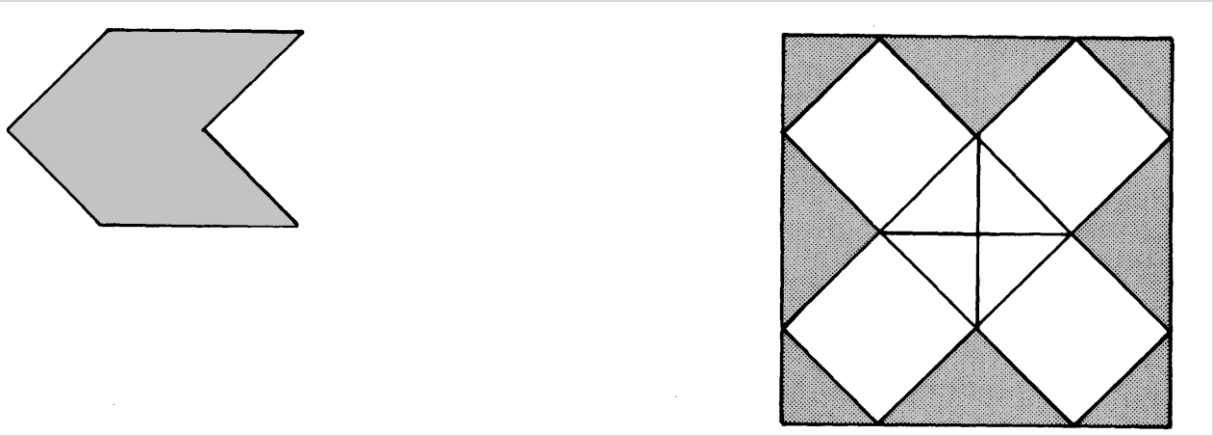


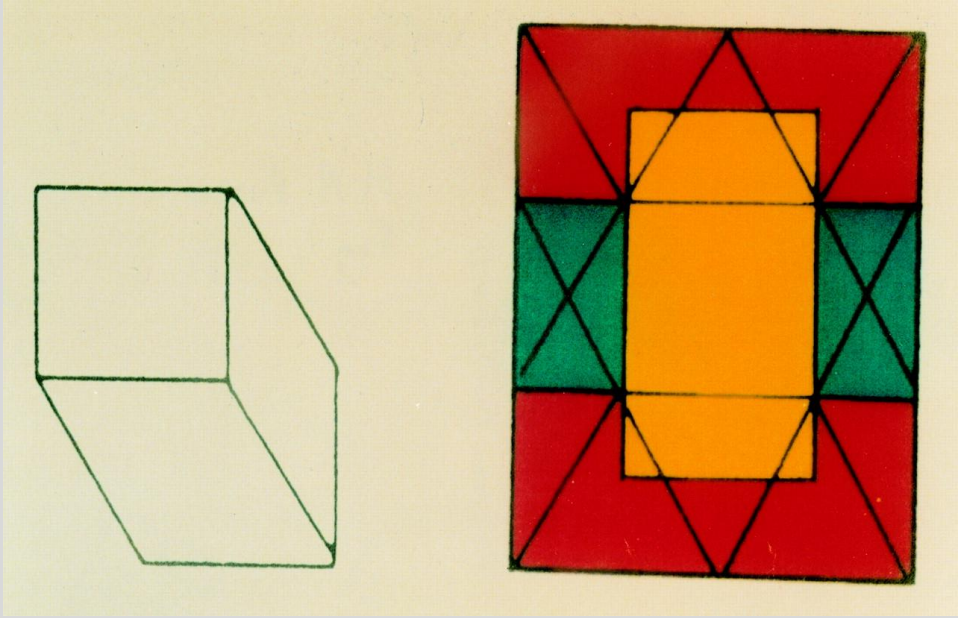
Source: Witkin et al., (1977).

Body-adjustment test



Embedded Figures test





Source: Adapted from Witkin et al., (1977).

Style vs. ability: that´s the question!

Miyake (et al., 2001) – working memory capacity if a strong predictor of the EFT performance
Tinajero a Páramo (1997) – general intelligence and EFT performance
Zhang (2004) – geometry tests performance and EFT performance
Guisande et al. (2007) – attention tests performance and EFT performance
MacLeod (et al., 1986) – spatial cognitive ability and EFT performance

} in the direction of field independence being advantageous

Culture and cognitive styles

The effect of upbringing

- Families supporting individuality, autonomy– field independence,
- Families that are authoritative, where conformity is valued– field dependence (Witkin, 1979).

Cultural influence

- To what extent the society is liberal...
- society's adaptation to the environment – way of getting food and society's "mobility" (e.g. Witkin & Berry, 1975)
- Individualistic hunter-gatherer societies (field independence)
- Collectivist agrarian societies of fishermen and farmers (field dependence)
- Social class (Grossmann & Varnum, 2010)
- Individualism, analytical thinking and field independence of higher soc. class
- collectivism, holistic thinking and field dependence of lower soc. class

Take-home message

- The concept of cognitive styles is paradoxical in a way that, although it has been around for decades, no one knows exactly what it is and how to measure it.

- Beware of boxing individuals and simplification,

- the spillover into "learning styles" is particularly problematic,

- tests designed to measure styles may be useful otherwise/elsewhere.