# Manusia Komputer Interaksi

IMK

Pertemuan 2

# Manusia

Information i/o …

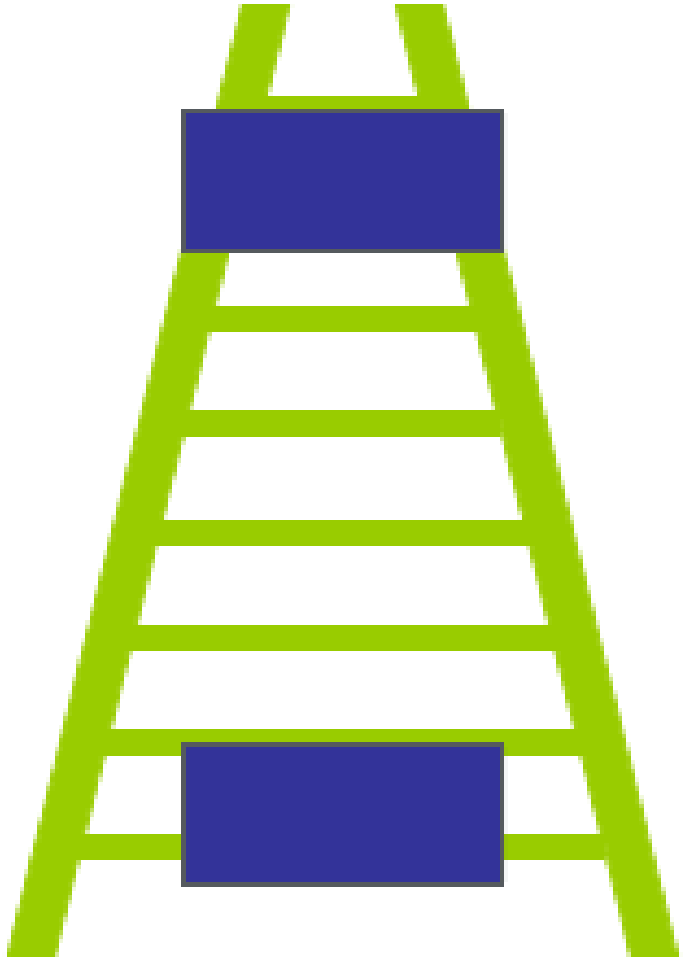
– visual, auditory, haptic, movement

# Information stored in memory

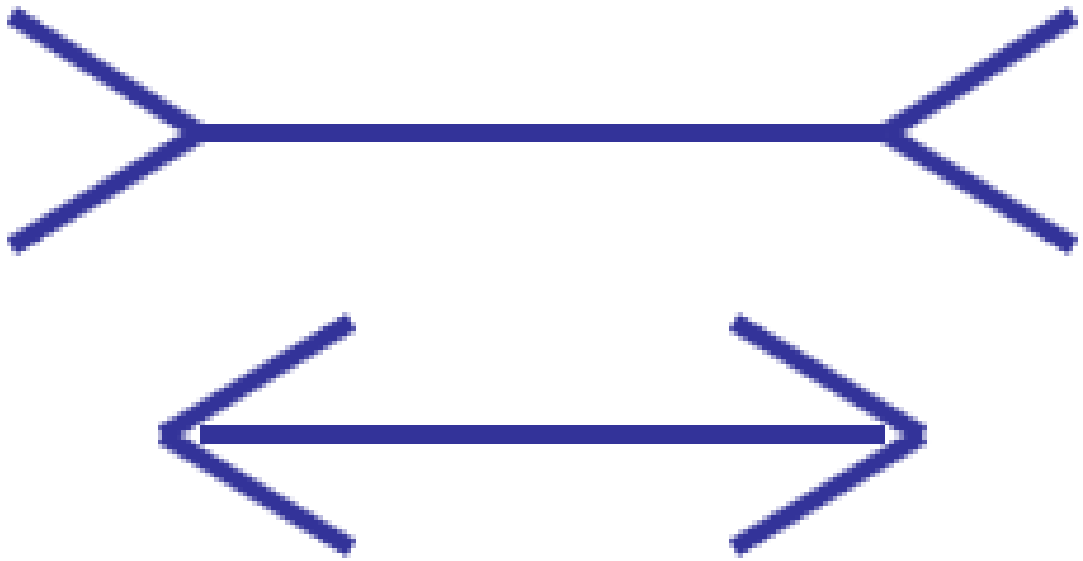
– sensory, short-term, long-term

Information processed and applied

– reasoning, problem solving, skill, error



the Ponzo illusion



the Muller Lyer illusion

Some direct applications

- e.g. blue acuity is poor
  $\Rightarrow$ blue should not be used for important detail

# Komputer

each of these elements affects the interaction

- input devices – text entry and pointing
- output devices – screen (small&large), digital paper
- virtual reality – special interaction and display devices
- physical interaction – e.g. sound, haptic, bio-sensing
- paper – as output (print) and input (scan)
- memory – RAM & permanent media, capacity & access
- processing – speed of processing, networks

Computation bound

- Computation takes ages, causing frustration for the user

Storage channel bound

- Bottleneck in transference of data from disk to memory

Graphics bound

- Common bottleneck: updating displays requires a lot of effort - sometimes helped by adding a graphics co-processor optimised to take on the burden

Network capacity

- Many computers networked - shared resources and files, access to printers etc. - but interactive performance can be reduced by  slow network speed

# Interaksi

interaction models

– translations between user and system

ergonomics

– physical characteristics of interaction

interaction styles

– the nature of user/system dialog

context

– social, organizational, motivational

# Ketentuan Interaksi

domain – the area of work under study
e.g. graphic design

goal – what you want to achieve
e.g. create a solid red triangle

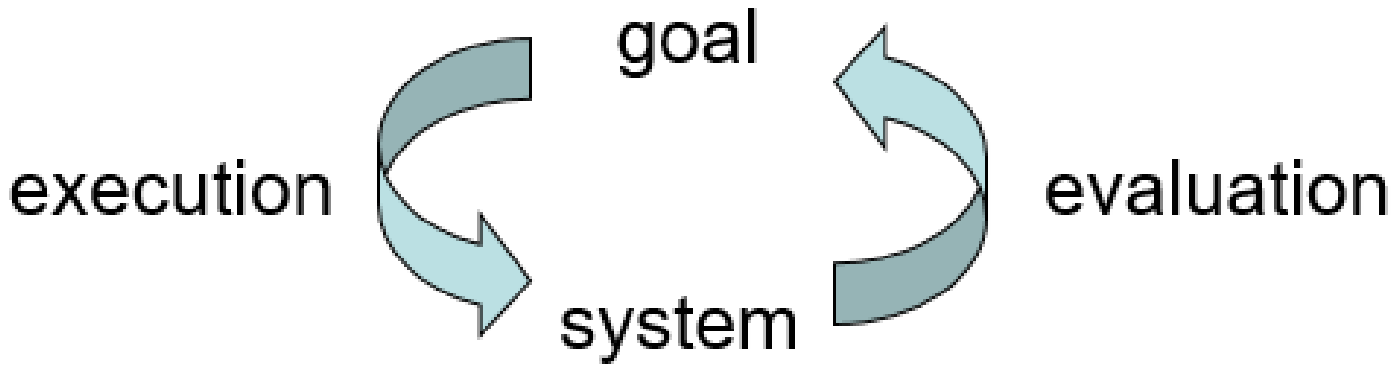
task – how you go about doing it
– ultimately in terms of operations or actions
e.g. … select fill tool, click over triangle

# Model Donald Norman

Seven stages

- user establishes the goal
- formulates intention
- specifies actions at interface
- executes action
- perceives system state
- interprets system state
- evaluates system state with respect to goal

# Execution/Evaluation Loop

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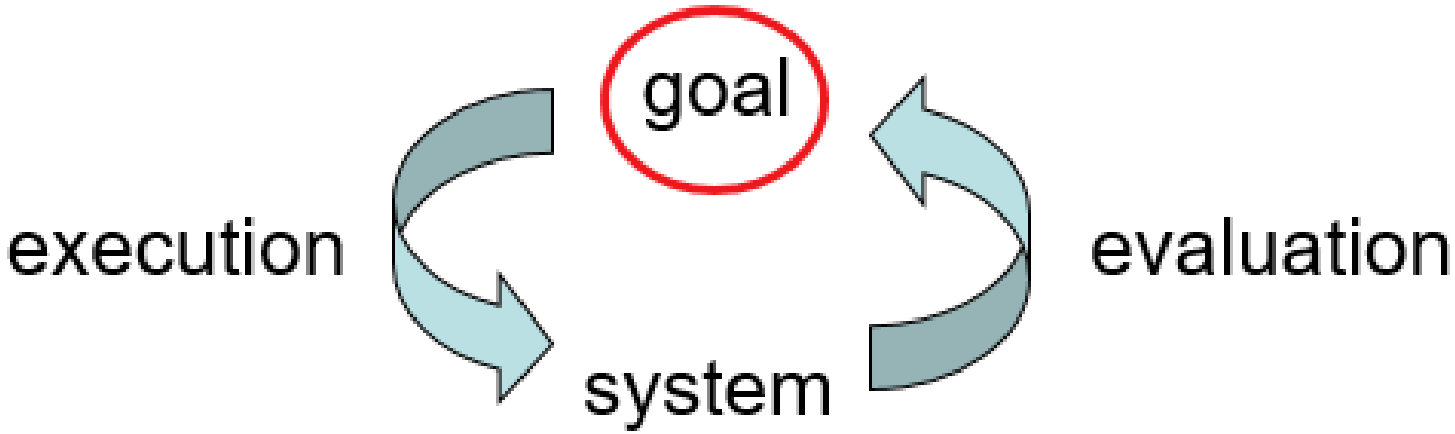


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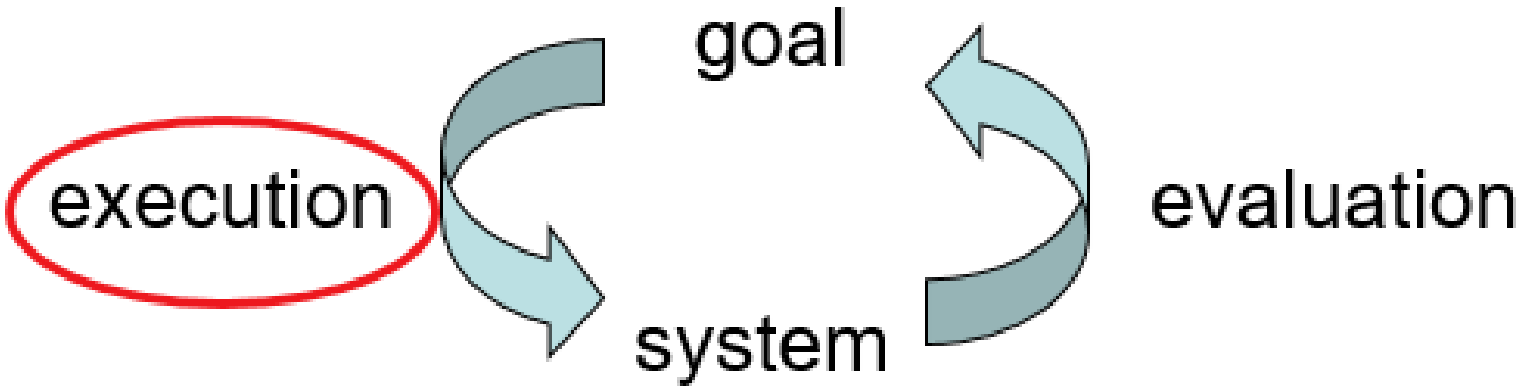


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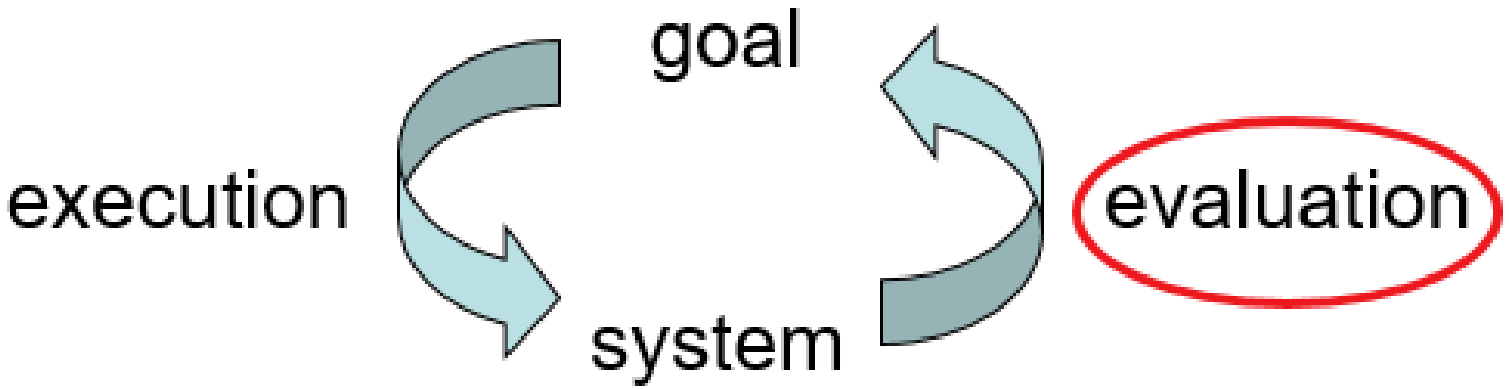


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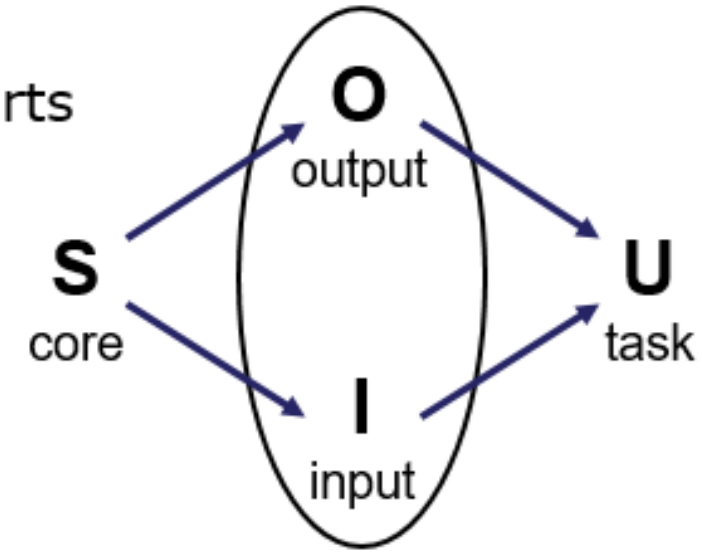
# Framework Abowd and Beale

extension of Norman…
their interaction framework has 4 parts

- user
- input
- system
- output




each has its own unique language

interaction ⇒ translation between languages

problems in interaction = problems in translation

# Ergonomics

Study of the physical characteristics of interaction

Also known as human factors – but this can also be used to mean much of HCI!

Ergonomics good at defining standards and guidelines for constraining the way we design certain aspects of systems

- arrangement of controls and displays
  - e.g. controls grouped according to function or frequency of use, or sequentially
- surrounding environment
  - e.g. seating arrangements adaptable to cope with all sizes of user
- health issues
  - e.g. physical position, environmental conditions (temperature, humidity), lighting, noise,
- use of colour
  - e.g. use of red for warning, green for okay, awareness of colour-blindness etc.

# Interaction Style

command line interface
menus
natural language
question/answer and query dialogue
form-fills and spreadsheets
WIMP
point and click
three–dimensional interfaces

Windows

Icons

Menus

Pointers

… or windows, icons, mice, and pull-down menus!

# Context

Interaction affected by social and organizational context

- other people
  - desire to impress, competition, fear of failure
- motivation
  - fear, allegiance, ambition, self-satisfaction
- inadequate systems
  - cause frustration and lack of motivation