Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

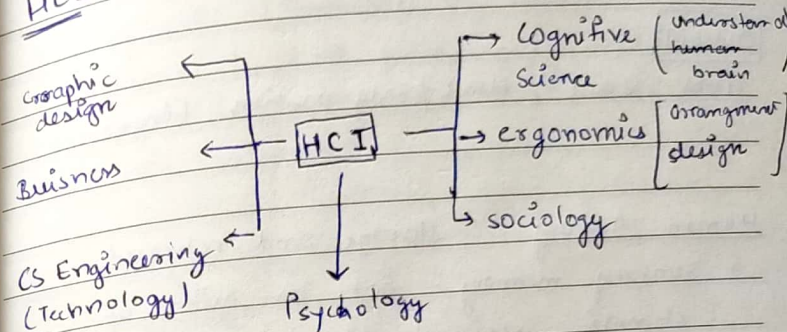
Notes

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

5 min engineering

Notes

HCI → Multi - disciplinery subject.

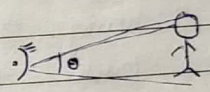


Human - Input - output channel:

Input : Sight Hearing Touch

~~Output~~

Sight : Visual Angle



Visual acuity: Ability of person to percieve fine details of product.

font - style 13 b, 13 ?

misinperseption

Object position / size / Angle / eye strain etc keywords.

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Hearing → listening, 75% pop up

Touching → keyboard, mouse click, touchpad.

Output

limbs, voice, Head / Body position, fingers.

Human Memory : Storage and retrieved

- Sensory memory : act as buffer of stimuli recieved from sensory organs. There exist a sensory memory for each sensory channel.
  - visual / sight → Iconic memory
  - hearing → Echoic
  - touch → heptic

[Sensory Memory] —Attention→ [Short Term memory]

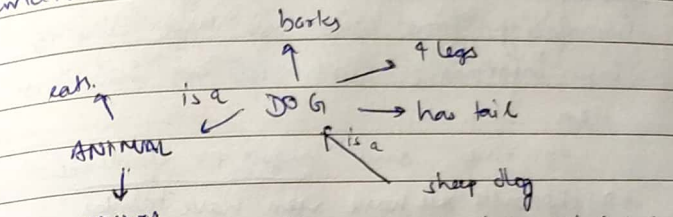
Short Term Memory : Temporary memory / recall
less capacity
small chunks to increase capacity

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Long term Memory — slow decay, unlimited capacity

→ episodic (memories in sequence)
→ semantic (all knowledge / facts / concepts)
semantic LTM derived from episodic.
(Semantic network)



(relationship b/w bits of info)

→ Information store : Repeated short term Memo
→ loss of info : Interference with new info (Retroactive Interference)
→ Retrieval of Info : Recognize and Recall. (Cues)

(Frame Network)
Info organized in data structure
DOG
Fixed : 4 legs
Default → bark
Variable : Size, color

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

insights.

Thinking: Reasoning and Problem Solving

→ **Deductive Reasoning** — derive logically necessary conclusion from given premises.

If it is sunday, then he will watch movie.

- logical conclusion not necessarily true.

→ **Inductive Reasoning**

Generalizing from cases we have seen to infer information about cases we have not seen.

positive and negative evidence.

- All elephants we have seen have trunks

→ **Abductive Reasoning**: reasoning from event to cause

Derive explanation for event happens

(Actions) → event

If win, kohli so ...

Norman's Model of Interaction

Entities → Human, computer

Execution ⟷ Evaluation

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Execution:
- → Establishing the goal
- → Forming the intention
- → Specifying the action sequence
- → Execution the action

Evaluation:
- → Perceiving the system state
- → Interpreting the system state
- → Evaluating the system state w.r.t to goals and intention

* **Gulf of execution**:

Difference b/w the user formulation of actions to reach goal and actions allowed by system.

* **Gulf of evaluation**:

It is a distance b/w the physical presentation of system state and expection of user.

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Ergonomics

→ Arrangment of controls / display
(grouping of apps [example])

→ Physical environment of interaction
→ Health issues
→ Use of color.
(battery dar, red light, etc, etc)

Interaction styles

→ Cmd line
→ Menu
→ Natural language
→ Question Answer & query dialog.

* Cmd → difficult to learn
→ easy for computer

* Menu GUI (WIMP)

* NLP → Alexa etc
Ambuity
Pura NLP likh do (context)

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

(4) ONA → computer ask question according [restricted / limited]
(SQL) Query language

(5) Form fills [Fields and domains] Name: Varchar
Roll: Int

(6) Point & click Interfaces
(Google map point and click into)
(wikk hyperlinks)

(7) 3D Interface (VR) (3D buttons) (depth)

WIMP Interface windows, Icons, Menu, Pointers.

Windows: Text graphics icon, image.
More than one window
Scroll down.
Min, Max, Close.

Icons: small picture, iconifying the windo
easy access, must be easy to interpret.

Menus: Pull down menu, cascading drop down menu, keyboard accelator

Pointers: Pointing selection icon, different type for different purpose

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Dialog box: Urgent decision, save or not, alert.

Toolbars: Vertical & Horizontal rows, Specific Function

KEYBOARD ACCELERTOR: Web browser, websites and word processing.

→ 7 Normad's principle for Transforming diff. tasks into simple ones.

→ Use both, the knowledge in world and in head
→ Simplify the structure of task
→ make things visible.
→ Get the mapping right.
→ Exploit the power of constraints
→ Design for error
→ Standardise.

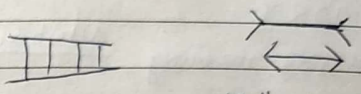
Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Boring Bhai!!

Notes

Vision: → Physical reception (eyes)
→ Interpretation and recognition
↳ size, depth, visual angle and visual acuity
↳ Brightness and color.

Ponzo illusion



Muller Lyer Illusion

Hearing: Info about env. 20Hz to 15kHz
pitch, loudness, timbre.

Touch: feedback about env. s
Stimulus recived via receptors.

Movement: Time to respond stimulus
reaction time + movement time

Fitt law describe time taken to hit a screen target.

$$M_t = a + b \log_2\left(\frac{D}{S} + 1\right)$$

D → Distance
S → size of target

target ape as large as possible
distance small —

Date: Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Fitts law is useful for web designer when deciding where to place the next button.

MEMORY

Sensory memory → Attention → Short term → Rehearsal → Long-term memory

Sensory memory: continuously overwritten

new info replaces old: retroactive interference
old may interfere with new: proactive interfer

Problem solving:

finding soln to unfamiliar task using knowledge.
draws insights and restructure of problem

Analogical mapping to previous same problem.

Date: Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Skill acquisition:

lot of info is chunked to optimize STM

Types of error:

slips: right intension, failed to do right
mistake: wrong intention

PERCEPTION: interpretation of what we take in through our senses.

→ The Environment Stimulus (many thing happening around)
→ The Attended Stimulus (the one on which focus)
→ Image on Retina (rods/cons, inverted image)
→ Transducing (brain to interpret)
→ Neural Processing (Processing of info)
→ Perception
→ Recognition/Action

Organization of Perception:

- Similarity
- Nearness
- Closure (tendency to close simple figures).
- Continuity
- Grouping

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

The computer

Various types of keyboard.

Speech regonition

pointing pointing drawing

Mouse / touchpad / Joystick

Touch screen

Cursor control, cursor keys

Display devices.

↳ bitmap → pixels

resolution etc

→ Raster CRT

→ LCD

physical control / sensors:

Printing: dpi image of dots

Fonts: Font, size, Pitch (width of char)

sans-serif H

Serif T

Screen and page:

WYSIWYG

what you see is what you get

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

need different design for screen and print

screen: 72 dpi : landscape

Print: 600+ dpi, potrait.

Scanners / OCR

Memory

STM: RAM

LTM: Magnetic disks, optical disks

Flash Memory

Virtual memory.

Compression

lose/less → recovers exacts text or images

lossy → recovers something like original.

Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Interaction : communication

Domain : Area of work under study

Goal : what you want to achieve

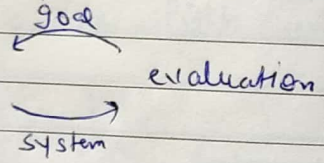
Task : How you would do it.

~~Normads~~

Norman's model:

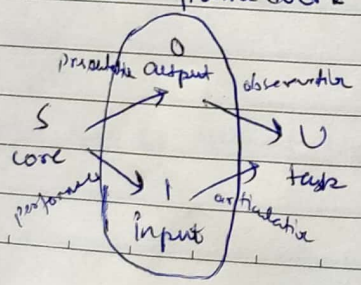
concentrates on user's view of interface

→ user establishes a goal
→ formulates intention
→ specific actions at interface
→ execute actions
→ perceive system state
→ interpret system state
→ evaluate system state wrt goal.



Abowd and Beale framework

→ User
→ input
→ output
→ system



Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

User intentions
→ translated as actions at interface
→ translated into alterations of system state
→ reflected in output displays.
→ interpreted by the user.

Ergonomics

→ physical aspects of interfaces.
→ industrial interfaces.

"fitting the job to the work"
work + laws

design in order to optimize human well-being and overall system performance at any work place

→ arrangements of control and displays
→ surrounding env.
→ health issue
→ use of colors

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Context depends on surrounding, organization

~~wrt~~ to use

understanding the values.

- If req doesn't match ~~the~~ context user lose motivation and can result in
  - → rejected
  - → user is unmotivated
  - → user will adapt the intended interaction to his own requirement.

Design focus? Computation

Experience, engagement.

Physical design

inverse action (yes / no / confirm / cancel)

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

Paradigm

The primary objective of an interactive system is to allow users to achieve particular goals in some application domain, i.e. interactive system must be usable.

How to ensure usability? How to measure?

→ Predominant theoritical frameworks or scientific world views.

→ paradigm shifts (examples):

- Batch process
- Time-sharing
- Networking
- Graphical displays
- WWW

Metaphor: relating computer to other real-world activity its effective technique effective.

Logo: turtle dragging its tail.

Direct manipulation:

- → visibility of object
- → incremental actions & rapid feedback

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes

language vs Action

Action → cut ~~copy~~ paste

language → smith at backend

(to delete file from original location)

(move to new location

programming is example by both action and language.

Hypertext : Non-linear browsing structure connected with each other.

memex machine → mechanic desk linked with external micro films and other accessories.

Date:
Mon. Tue. Wed. Thu. Fri. Sat. Sun

Notes