Things That Make Us Smart

Defending Human Attributes in the Age of the Machine

Book by:

Donald A. Norman

Presentation by:

Stefani Dawson

Allison Wyatt

Sharon Russell

We often say that technology has brought “us” human beings far; however, it is “us” as human beings that has brought about technology...

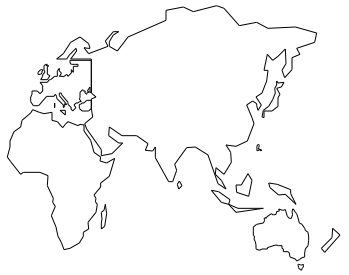
“Things That Make Us Smart” is a book explaining how the human mind coinsides with technology over the debate of ‘Who is smarter!’

Pros and Cons of Technology

- Pro: Technology makes people smart
  - There is a limit to how much humans can learn and remember. However, humans are intelligent enough to adapt to our own limitations with the use of technology.
  - Con: Technology makes people stupid
  - Norman says that technology for creating things has far outstripped an understanding for these things.
  - E.g. Commercial television

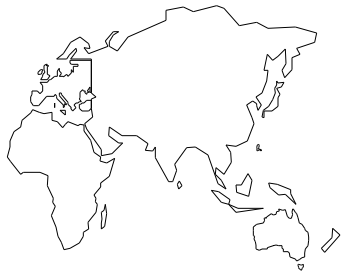
Machine and Human Intelligence

- Machines work well when combined with human intelligence
- The characteristics that limit humans can be an advantage to a machine, such as being:
  - Ungrammatical
  - Illogical
  - Error full



Machine and Human Intelligence

- Machines lack characteristics that are important such as:
  - Machines cannot be attentive to their surroundings
  - They lack the ability to have feelings

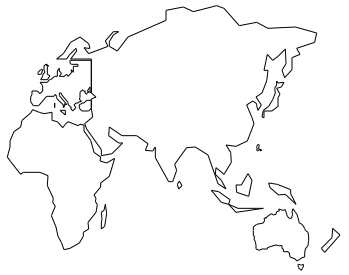


Cognition

This book discusses how the human mind works and thinks - Cognition.

There are two types of cognition according to Norman:

- Experimental Cognition
- Reflective Cognition

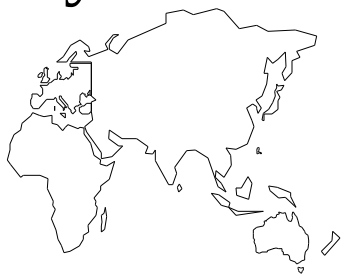


Experimental

- Human cognition is a multidimensional activitiy which involves all of the senses, internal activities, and external structures.
- Experimental thinking is at one extreme of the spectrum.
  - It involves looking, seeing and responding.
  - It is rapid, effortless and there is no need for planning or problem solving

Reflective

- The two thinking patterns are not completely independent of each other and they do not capture all ways of thought.
- Reflective is at the other end of the spectrum.
  - This type of thinking is greatly aided by systematic procedures and methods.
  - We learn by being taught.

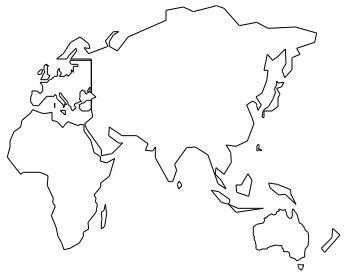


Stages of Development

According to Norman, Human intelligence has evolved through a series of evolution and not from apes, allow we had common ancestors 6 to 8 million years ago.

There are 4 stages to the development of human cognition:

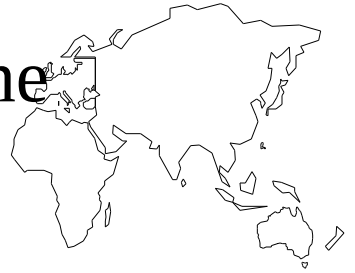
- ✦ Episodic Memory
- ✦ Mimesis
- ✦ Mythic
- ✦ External Representation



- Episodic Memory is the limited ability to form a mental representation of the world
  - Difficulty in remembering things
- Mimesis is also known as the Mime stage. Here a person forms an internal representation including desires and wants
  - The person also acts out their wants
- Mythic stage is the language development period
- External Representation represents the modern human.
  - Shows through the use of writing and the use of tools to express our language and feelings

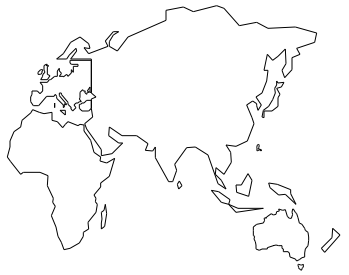
Humans Vs. Machine

- As humans, we drive by patterns and events
  - Emotional, pass judgement, reason, interpret, & understand
- Humans have intellectual abilities and use social intervention
- A computer can do none of these activities
  - Can perform complex operations by the command of a human



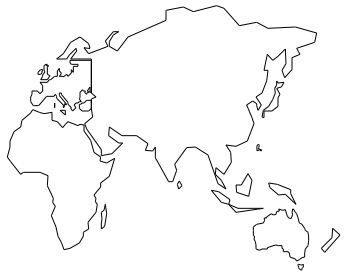
Predicting the Future

- No successful method
- Reasonable scenarios
- Anticipate problems
  - Dividends and problems
- Failure in prediction
  - e.g. Private helicopter



Social Impact of Technology

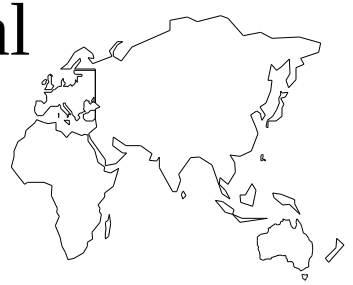
- Problem Areas
  - Privacy
  - Society Access to Technology
  - Sociopaths
  - Personal Interaction
- Potential Benefits
  - Creativity & Imagination
  - “Group Think”



Machine Centered Vs. Human Centered Views of Technology

The Machine Centered View

People	Machines
✦ Vague	✦ Precise
✦ Disorganized	✦ Orderly
✦ Distractible	✦ Undistractible
✦ Emotional	✦ Unemotional
✦ Illogical	✦ Logical



Machine Centered Vs. Human Centered Views of Technology

The Human Centered View

People

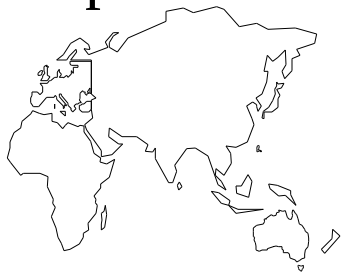
- Creative
- Compliant
- Attentive to change
- Resourceful
- Decisions are flexible and are based on both qualitative & quantitative methods

Machines

- Dumb
- Rigid
- Insensitive to change
- Unimaginative
- Decisions are consistent because they are based on quantitative variables

Soft Technology Vs. Hard Technology

- Soft Technology
  - Compliant, yielding systems that informate and provide a richer set of information and options than would otherwise be available
  - Systems that acknowledge the initiative and flexibility of the person
- Hard Technology
  - Systems that put technology first with inflexible, hard, rigid requirements for the human
  - E.g. The Telephone System



In Conclusion...

- Technologies are not neutral
- Technologies affect the course of society
- Technology has both physical and mental side effects
- Technology can aid as much as detract
  - It is up to the individual and society to decide which course to take...

The End