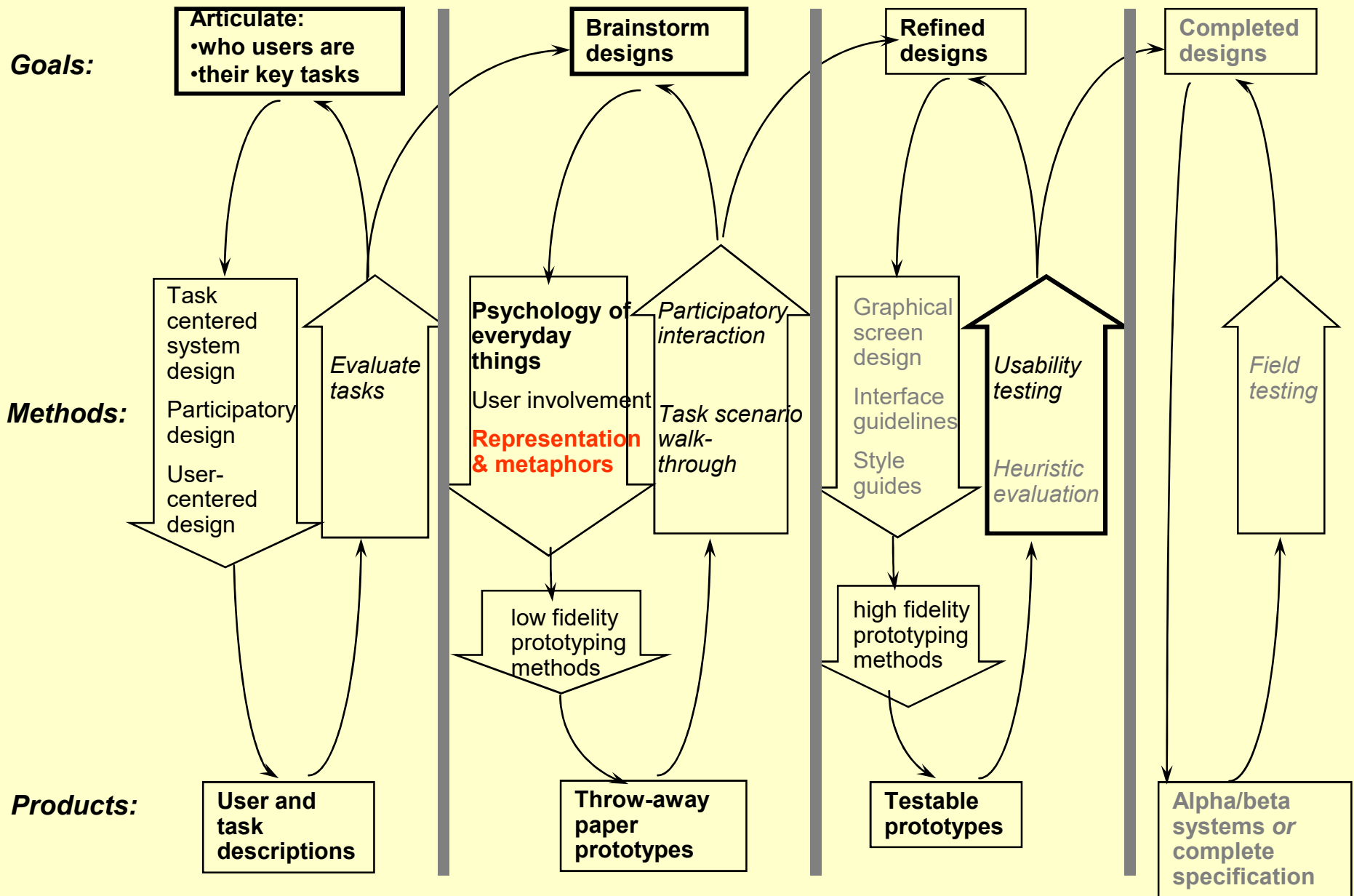Human Computer Interaction

Creating and developing interface ideas

By: Nguyễn Công Hoan

Reference

Edited from teaching tutorial of Professor **Saul Greenberg**, University of Calgary

Interface Design and Usability Engineering

Goals:

Articulate:
- who users are
- their key tasks

Brainstorm designs

Refined designs

Completed designs

Methods:

Task centered system design

Participatory design

User-centered design

Evaluate tasks

Psychology of everyday things

User involvement

Representation & metaphors

Participatory interaction

Task scenario walk-through

low fidelity prototyping methods

Graphical screen design

Interface guidelines

Style guides

Usability testing

Heuristic evaluation

high fidelity prototyping methods

Field testing

Products:

User and task descriptions

Throw-away paper prototypes

Testable prototypes

Alpha/beta systems *or* complete specification

- Where do ideas come from?
- Are there any methods that will help me create new ideas?

Methods for creating and developing interface ideas*

- **Where do ideas come from?**
  - imagination
  - observations of current work practice
  - observations of current systems

- **Borrowing from other fields**
  - insights and techniques from other fields and media that deal with creativity:
    - animation
    - theater
    - architecture
    - information visualization and graphical design (already done…)
    - …

  *This talk is mostly based on a paper by Joy Mountford, Apple **Tools and Techniques for Creative Design***

Borrowing from Animation

- Animation
  - special animation effects give visual continuity and realism
  - e.g.
    anticipation by exaggerating the way bodies move forward by
    backwards beforehand

  - a few current examples:
    - "open" animation on the Mac (zooming out window)
    - continuous rather than discrete movement of objects on display...
    - animated icons for help...
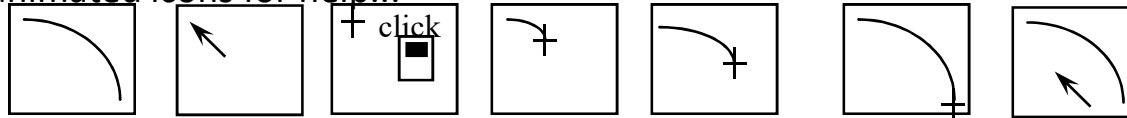
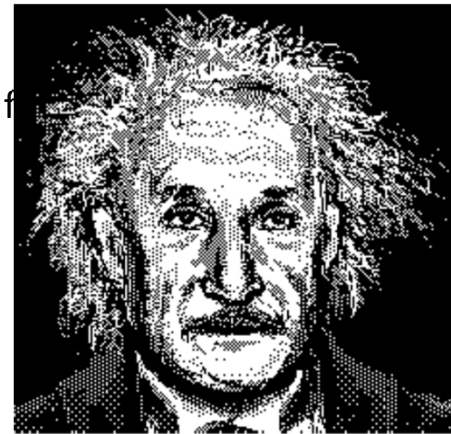# Borrowing ideas and approaches from other fields

- Theater
  - drama used to engage audience members
  - now have interactive plays and novels
  - theater techniques can be used to increase audience involvement
  - Macintosh
    sent an information database f

Religious perspective

Science perspective

The idea of "self aware" computers should be immediately abandoned, because it is essentially tied up with the idea of a computer having a soul.	Self-awareness is something that every person knows they have, but is impossible to prove. If I programmed a computer to behave as if it were self aware, does that mean it is? How do I measure it?

Borrowing ideas and approaches from other fields

- architecture
  - creates livable, workable, attractive environments
  - gave the principle "form follows function"
  - architectural principles can be applied to interface
  - e.g. ROOMS, from Xerox

A simple rooms-style system, by Dashboard
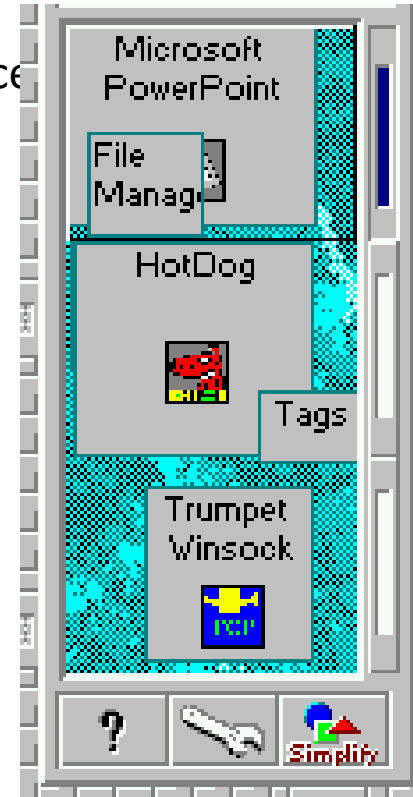
Generating new ideas

- Techniques for generating new ideas
  - new ideas usually recombinations of old ones in novel ways
    - "lateral thinking" to bring together unusual associations

- 1. New uses for the object
  - What is a computer form be used for?
    - conventional: form-filling for data base entry
    - unconventional:
      - email exchange
      - procedures associated with form that triggered events, control communication, etc

- 2. Adapt the object to be like something else
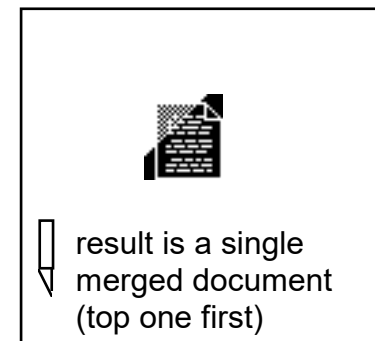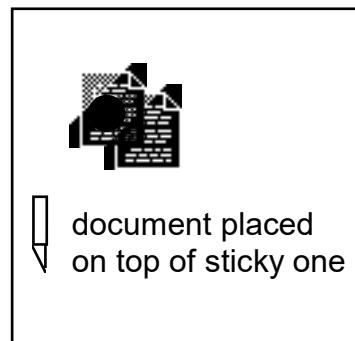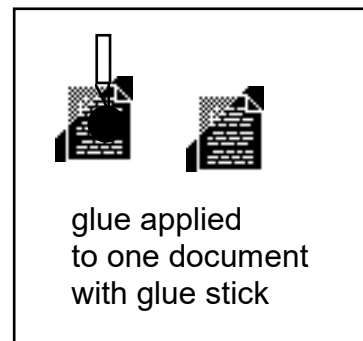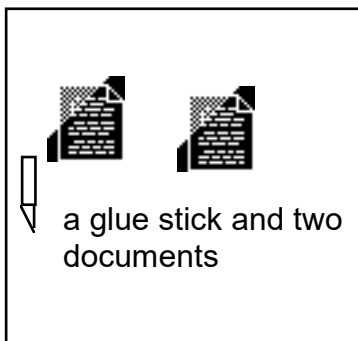 - change the office desktop metaphor to be a kitchen counter metaphor

Generating new ideas

- 3. Modify the object for a new purpose
  - connect our desktop to the outside world via sound
   - hear outside events that may be important to us, e.g. meeting begins

letter dropping through slot
rustle of people coming into meeting
lunch bell...

- 4. Magnify—add to the object
  - add features to the computer desktop to extend its functionality
    - e.g. what would scissors, glue, tape, staplers, do?

a glue stick and two documents

glue applied to one document with glue stick

document placed on top of sticky one

result is a single merged document (top one first)

Generating new ideas

- 5. Minimize—subtract from the object
  - bring interface down to its bare essentials
    - e.g. Wang Freestyle:
      how far can we push the paper/pencil desktop?
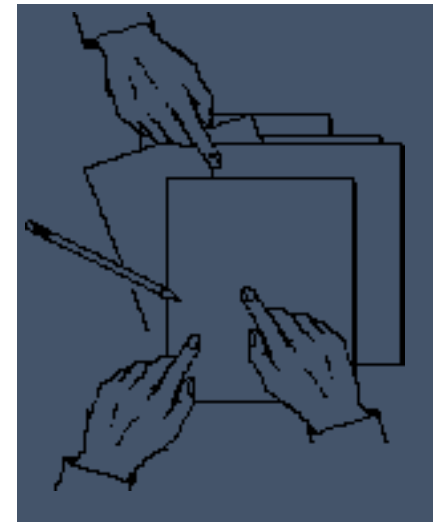
- 6. Substitute something similar
  - for different users, a similar object may be more appropriate
    - e.g. delivery service instead of desktop
    - trucks, routes, ordering systems, dumpsters instead of files, folders, trashcans

Generating new ideas

- 7. Rearrange aspects of the object
  - reorganize the basic layout
  - e.g menu bars on bottom, pop-up scrollbars...

- 8. Change the point of view
  - imagine seeing/presenting the information from a different perspective
  - e.g. view desktop from high above-> overviews!

- 9. Combine the data into an ensemble
  - what larger metaphor might the object be part of?
  - e.g. desktop -> room -> building->city
    - different rooms for different tasks
    - communications metaphors between rooms and buildings...

You know now

- Ideas can be developed by borrowing approaches from other fields
- Many new ideas can be developed by recombining of old ones in novel ways