

Konseptualisasi Desain Interaksi

IF3151 Human Computer Interaction

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Conceptualizing Design

Conceptualizing design:

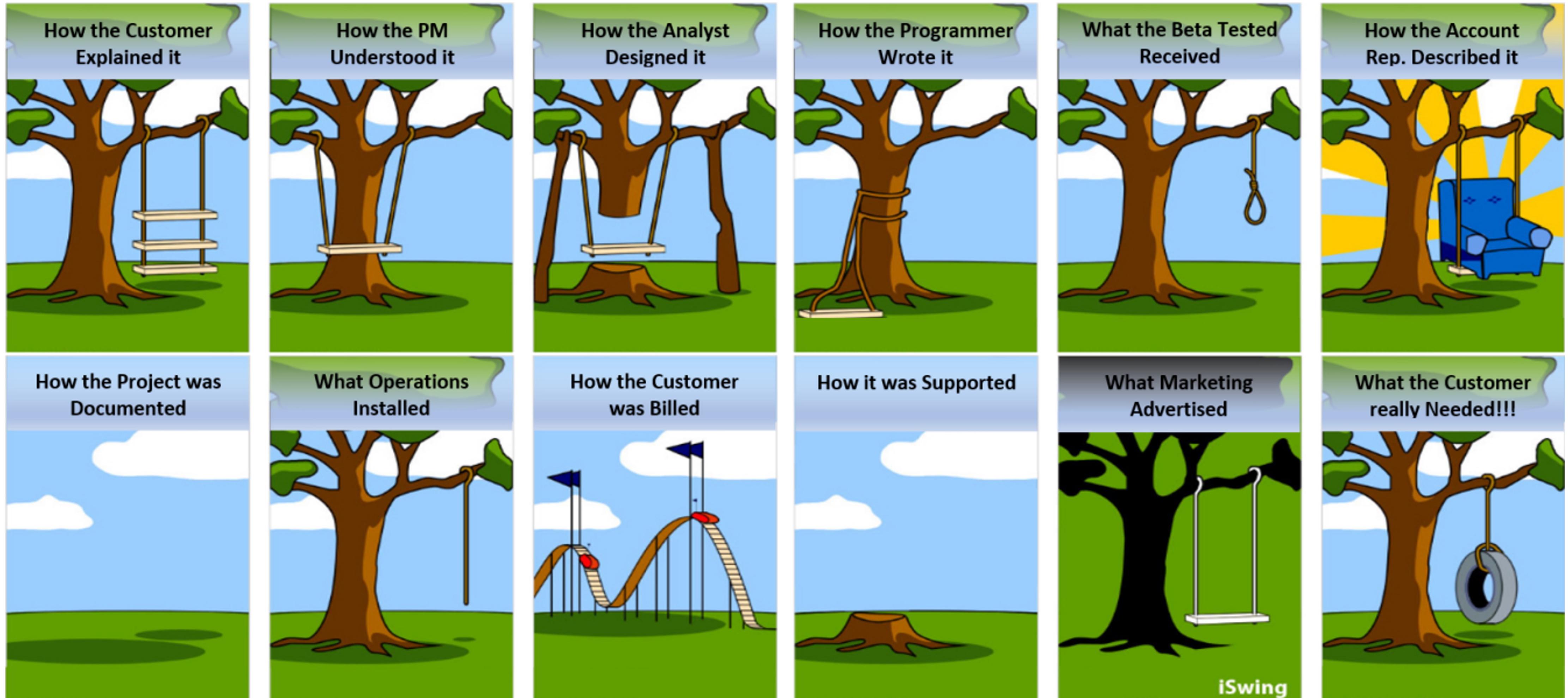
Proof of concept: Conceptualize what the proposed product will do

Conceptual model:

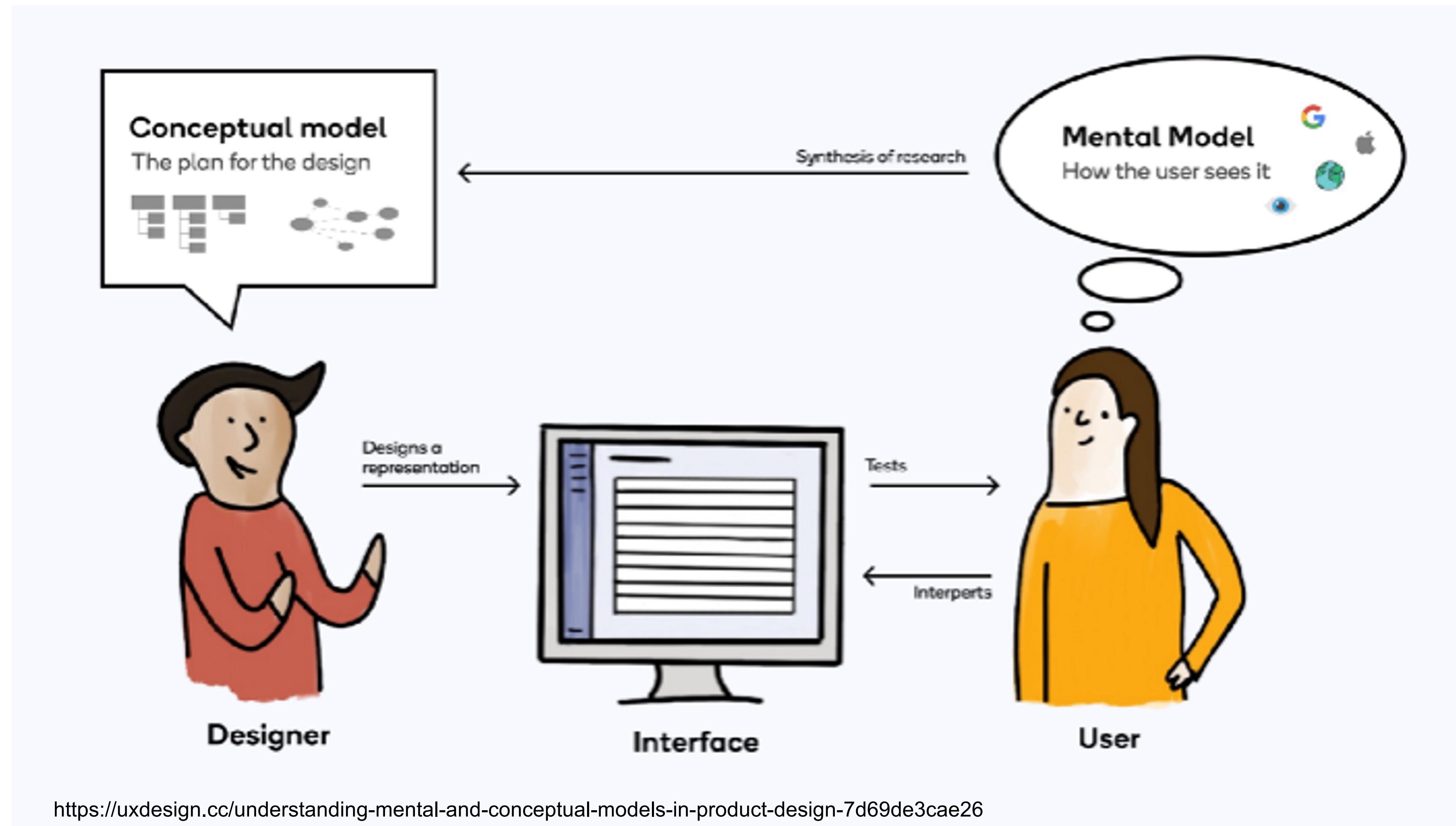
“...a high-level description of how a system is organized and operates” (Johnson and Henderson, 2002, p26)

- What users can do with it and the concepts they need to understand how to interact with it

Why to conceptualize



Conceptual Model vs User Model



Introduction
to Conceptual
Models - Intro
to the Design
of Everyday
Things

Don Norman



Why the need to conceptualizing design?

1

To make sure what we are going to build is what is expected

2

To scrutinize vague ideas and assumptions about the benefits of the proposed product

3

How realistic is it to develop?

4

How desirable and useful?

Developing a conceptual model involves:

1

Understanding the problem space

Having a good understanding of the problem space can help inform the design space (For example, what kind of interface, behavior, functionality to provide)

2

Being clear about your assumptions and claims

3

Specifying how the proposed design will support users (develop conceptual model itself)

A Framework for Analyzing the Problem Space

- **Are there problems** with existing product or user experience
 - if so, what are they?
- **Why do you think there are problems?**
- **How do you think your proposed design ideas might overcome these problems?**
- **If you are designing for a new experience, how do you think your proposed design ideas support, change, or extend current ways of doing things?**

Assumptions and Claims

When coming up with a new design: write down your assumptions and claims

Assumptions:

Taking something for granted when it needs further investigation

For example, people will want to watch TV while driving



Claims:

Stating something to be true when it is still open to question

For example, “a multimodal style of interaction for controlling GPS – one that involves speaking while driving – is safe.”

Activity: How will robot waiters enhance UX



Source: Xinhua, Guo Cheng

Activity: How will robot waiters enhance UX

The benefits:

- The robot could take orders and entertain customers by having a conversation with them
- The robot could make recommendations for different customers, such as restless children or fussy eaters



Assumptions

Thus, enhance the UX



Claims

The real problem being addressed:

“It is difficult to recruit good wait staff who provide the level of customer service to which we have become accustomed.”

Conceptual Model Components

01

Metaphors
and
analogies

02

Concepts

03

Relationship
and mappings
between these
concepts

Interface metaphors

Interface designed to be similar to a physical entity but also has own properties

- For example, desktop metaphor, and web portals

Can be based on activity, object, or a combination of both

Exploit user's familiar knowledge, helping them to understand 'the unfamiliar'

- Makes learning new systems easier

Examples of interface metaphors

1

What user are doing
(activities)

Ex: Surfing the web

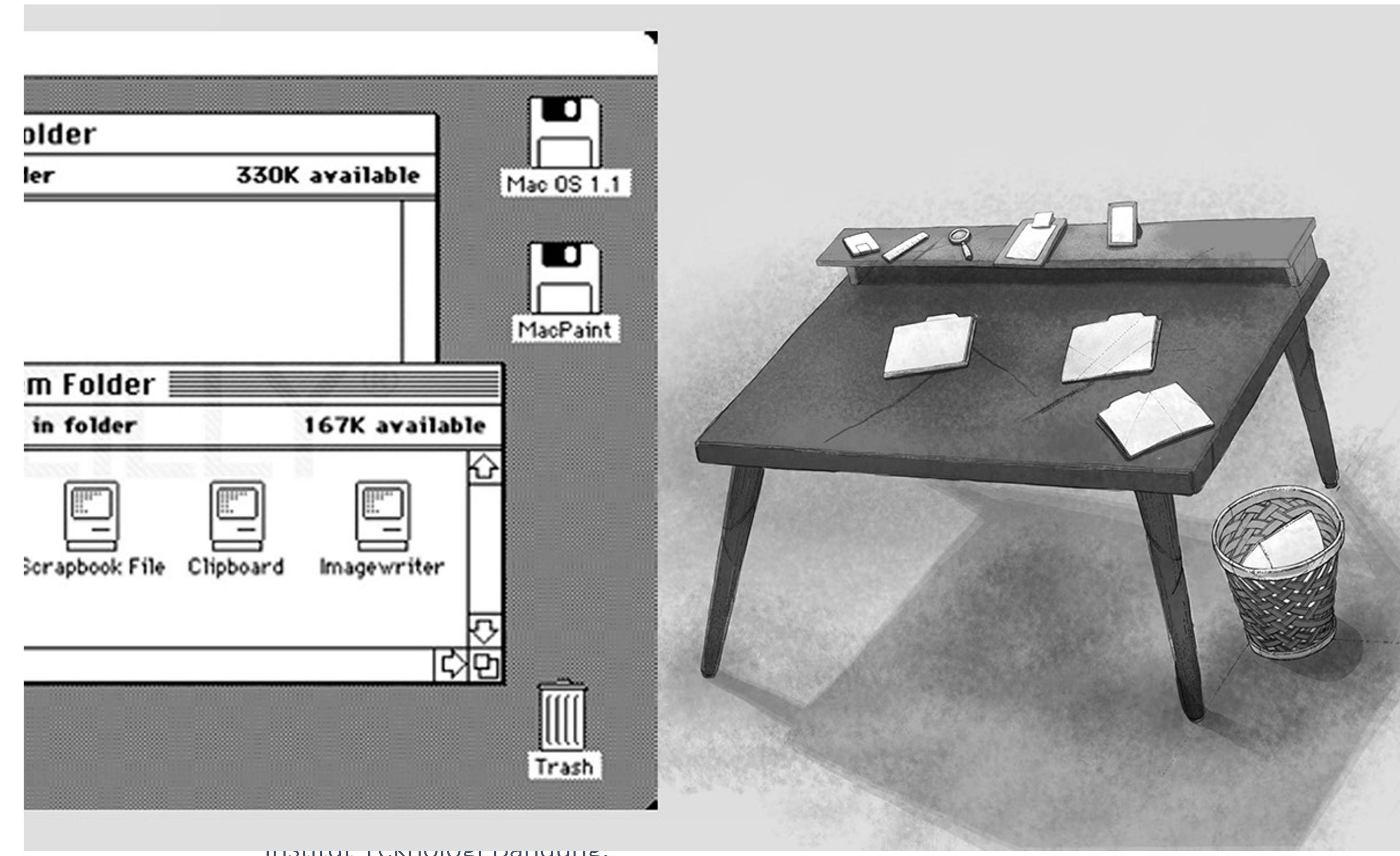


Examples of interface metaphors

2

Instantiated at the interface (Object)

Ex: the desktop metaphor



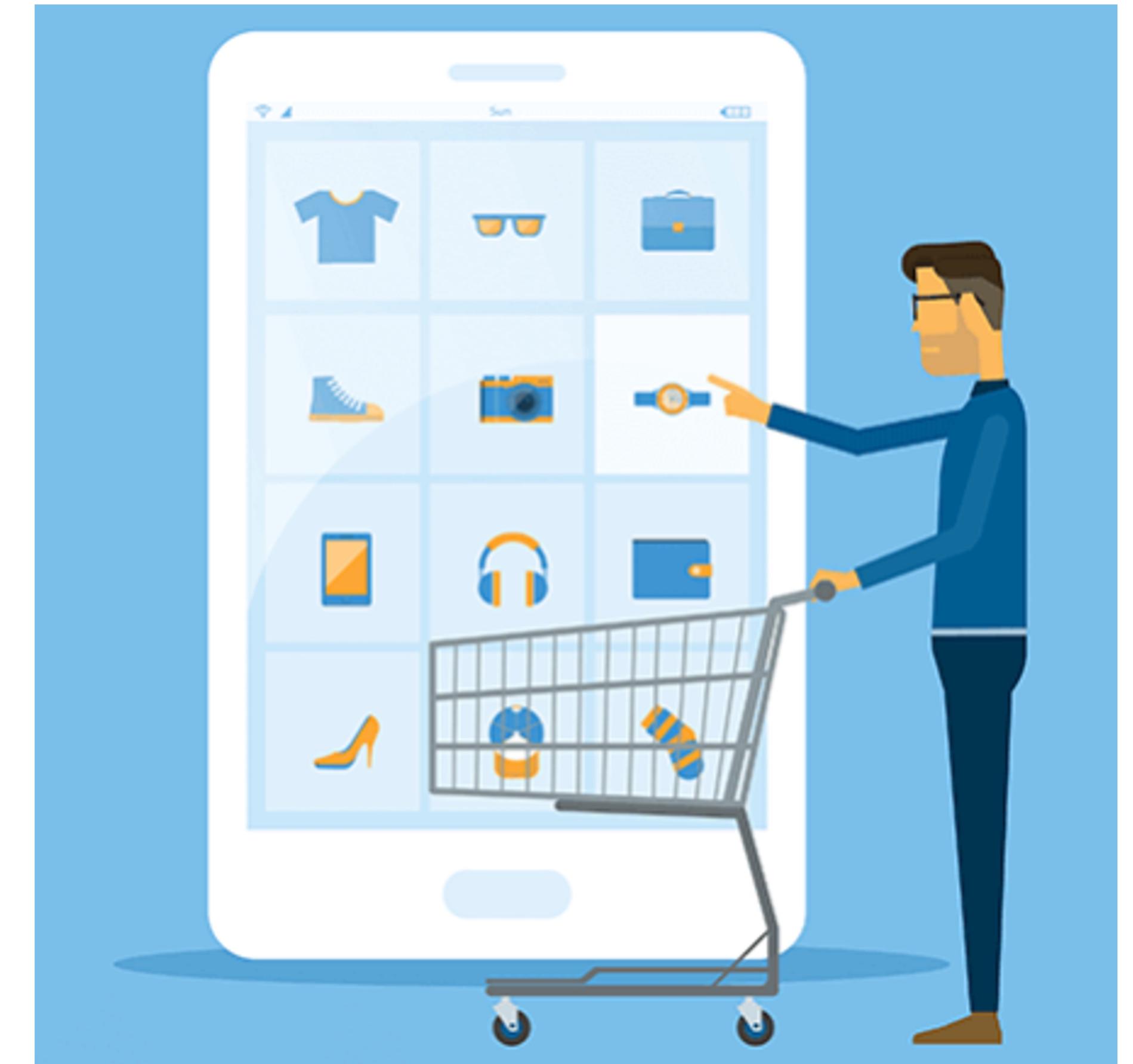
[https://www.behance.net
/gallery/40202533/Desktop-metaphor-example-%28June-2016%29](https://www.behance.net/gallery/40202533/Desktop-metaphor-example-%28June-2016%29)

Examples of interface metaphors

3

Visualizing an operation

- An icon of a shopping cart into which the user places items
- Drag and drop for items selection



<https://www.justinmind.com/blog/shopping-cart-design/>

Problems with interface metaphors

- Break conventional and cultural rules
For instance, recycle bin placed on desktop
- Conflicts with design principles
- Designers can inadvertently use bad existing designs and transfer the bad parts over
- Limits designers' imagination in coming up with new conceptual models
- Forces users to understand only the system in terms of the metaphor

Interaction Types

“A description of what the user is doing when interacting with a system”

01

Instructing

Issuing commands and selecting options

02

Conversing

Interacting with a system as if having a conversation

03

Manipulating

Interacting with objects in a virtual or physical space by manipulating them

04

Exploring

Moving through a virtual environment or a physical space

05

Responding

The system initiates the interaction and the user chooses whether to respond

Interaction Types

01 Instructing

Issuing commands and selecting options

Where users instruct a system and tell it what to do

For example: Tell the time, print a file, or save a file

Very common conceptual model underlying a diversity of devices and systems

For instance: Word processors, home devices, and vending machines

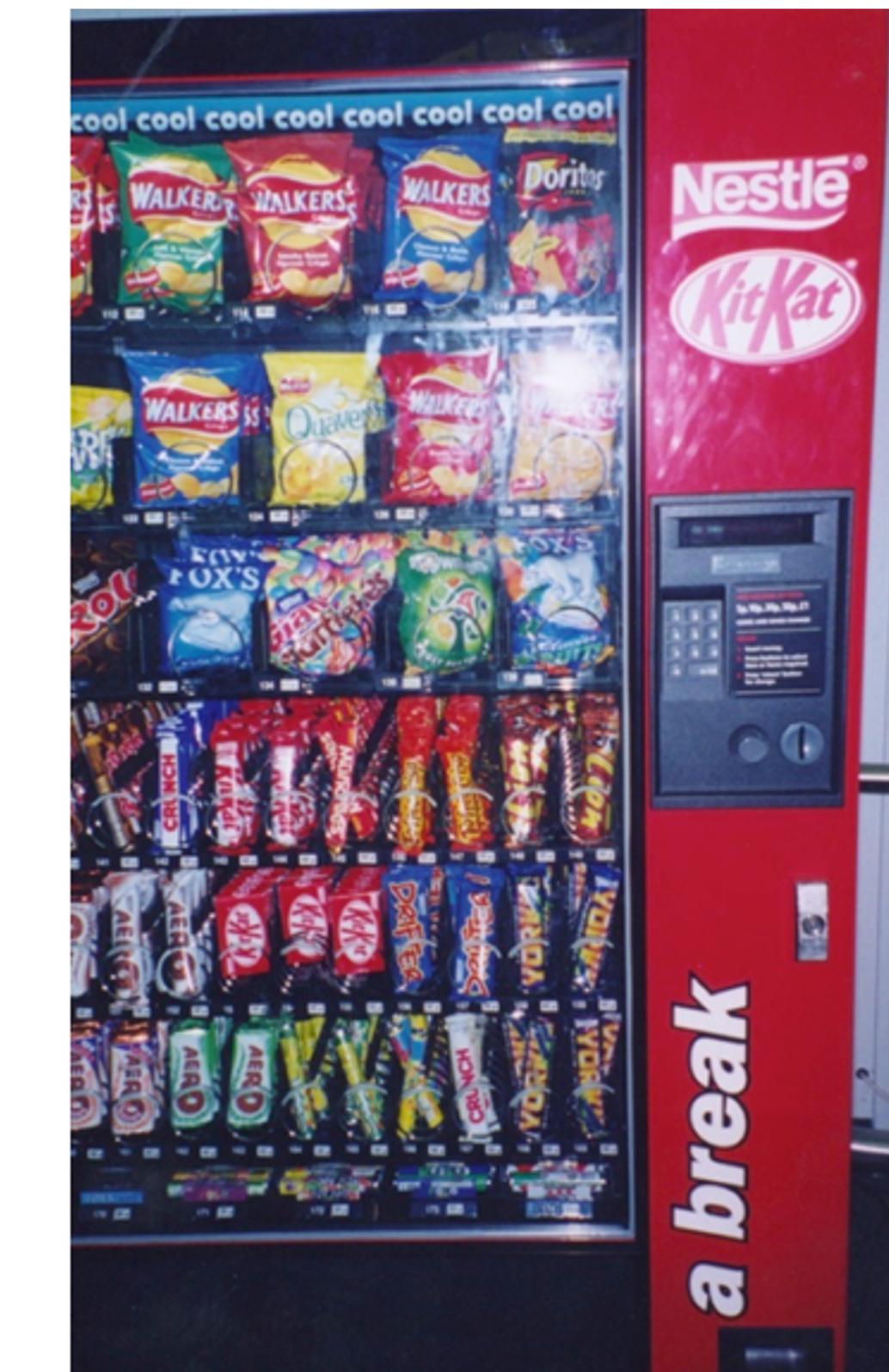
The main benefit is that instructing supports quick and efficient interaction

Good for repetitive kinds of actions performed on multiple objects

Which is easiest and why

01 Instructing

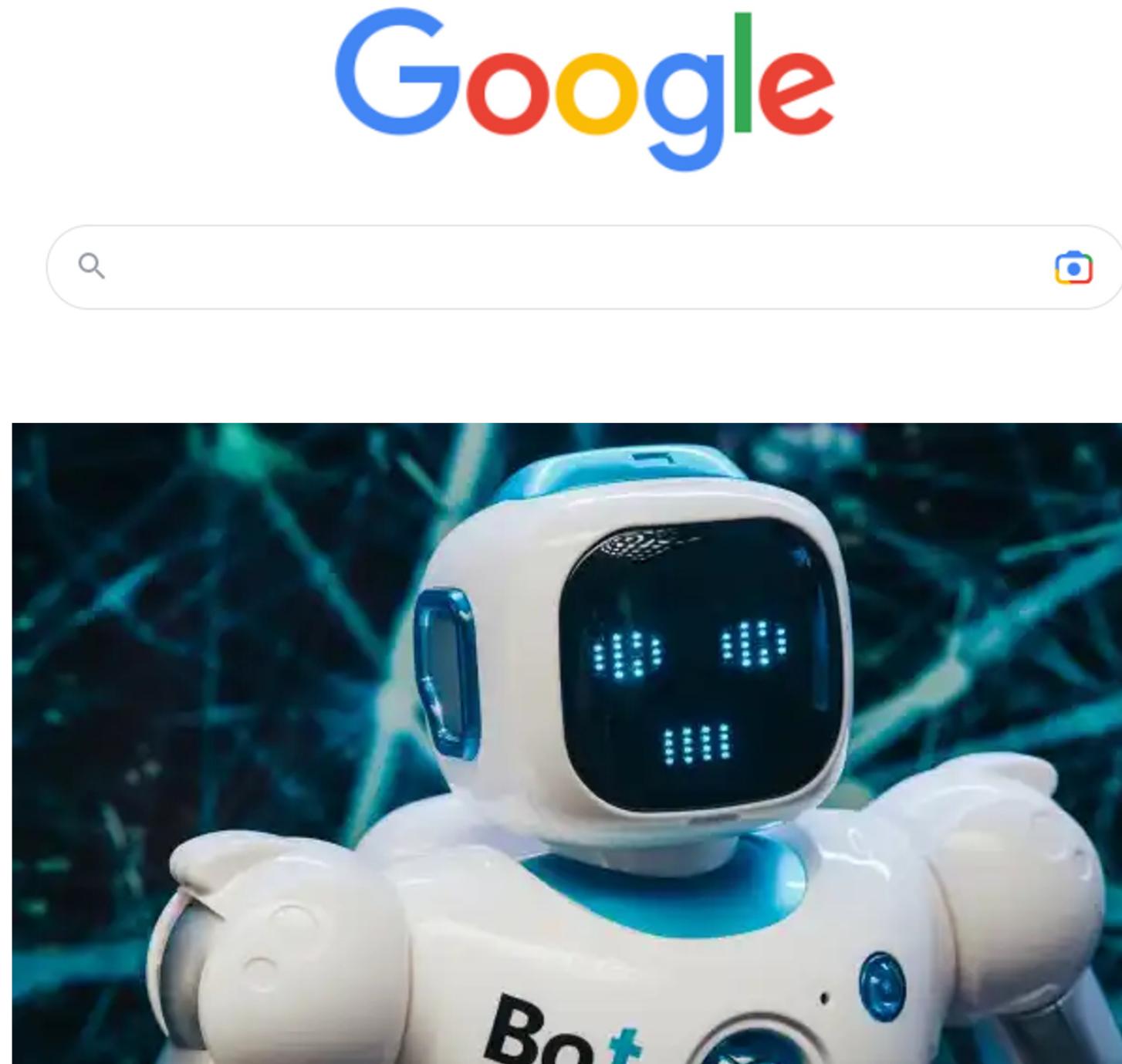
Issuing commands and selecting options



Interaction Types

02 **Conversing**

Interacting with a system as if having a conversation



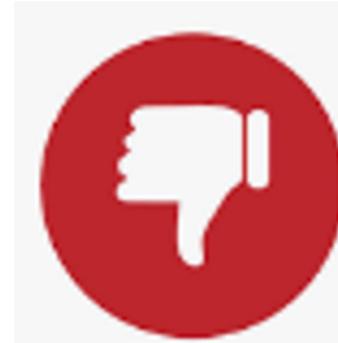
- From simple voice recognition menu-driven systems to more complex ‘natural language’ dialogs
- Examples:
 - search engines
 - advice-giving systems/ help systems
 - Virtual agents, chatbots, toys, and pet robots designed to converse with you

Pros and Cons of Conversation Model



Allows users, especially novices, to interact with a system in a way that is familiar to them

- Can make them feel comfortable, at ease, and less scared



Misunderstandings can arise when the system does not know how to parse what the user says

- For example, voice assistants can misunderstand what children say



**“If you’d like to press 1, press 3.
If you’d like to press 3, press 8.
If you’d like to press 8, press 5...”**

Interaction Types

03 Manipulating

Interacting with objects in a virtual or physical space by manipulating them

Involves dragging, selecting, opening, closing and zooming actions on virtual objects

Exploit's users' knowledge of how they move and manipulate in the physical world

Can involve actions using:

- physical controllers (Nintendo Wii)
- air gestures (Microsoft Kinect)

to control the movements of an on-screen avatar





Pros of Manipulation Model

- Novices can learn the basic functionality quickly
- Experienced users can work rapidly to carry out a wide range of tasks
- Intermittent users can retain operational concepts over time
- Error messages rarely needed
- Users can immediately see if their actions are furthering their goals, and if not, do something else
- Users experience less anxiety
- Users gain confidence and mastery and feel in control



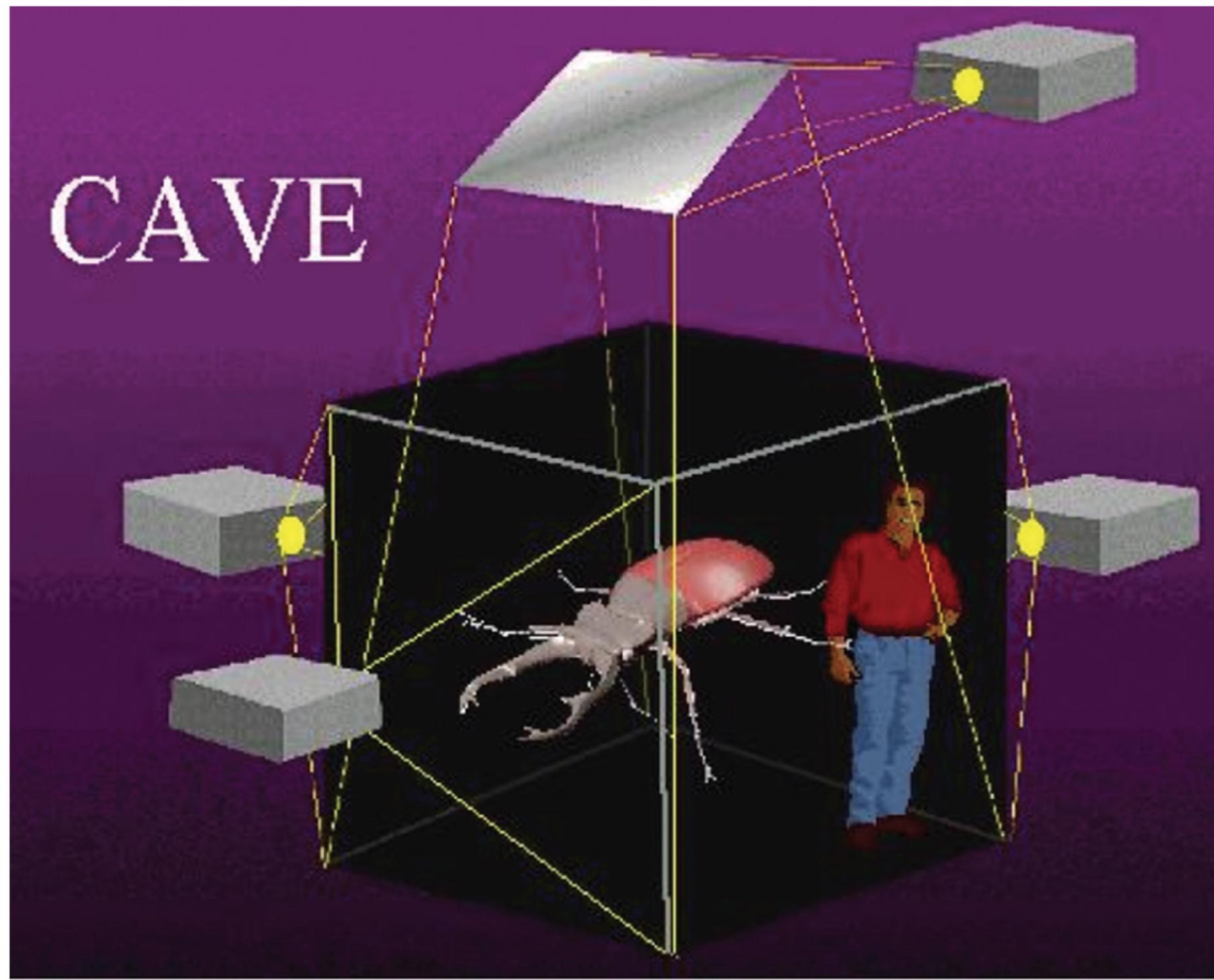
Cons of Manipulation Model

- Not all tasks can be described by objects
- Not all actions can be done directly
- Some tasks are better achieved through delegating, for example, spell checking
- Can become screen space ‘gobblers’
- Moving a cursor using a mouse or touchpad can be slower than pressing function keys to do the same actions

Interaction Types

04 Exploring

Moving through a virtual environment or a physical space



Cyber-Insects in the CAVE Source: [Alexei A. Sharov](#)

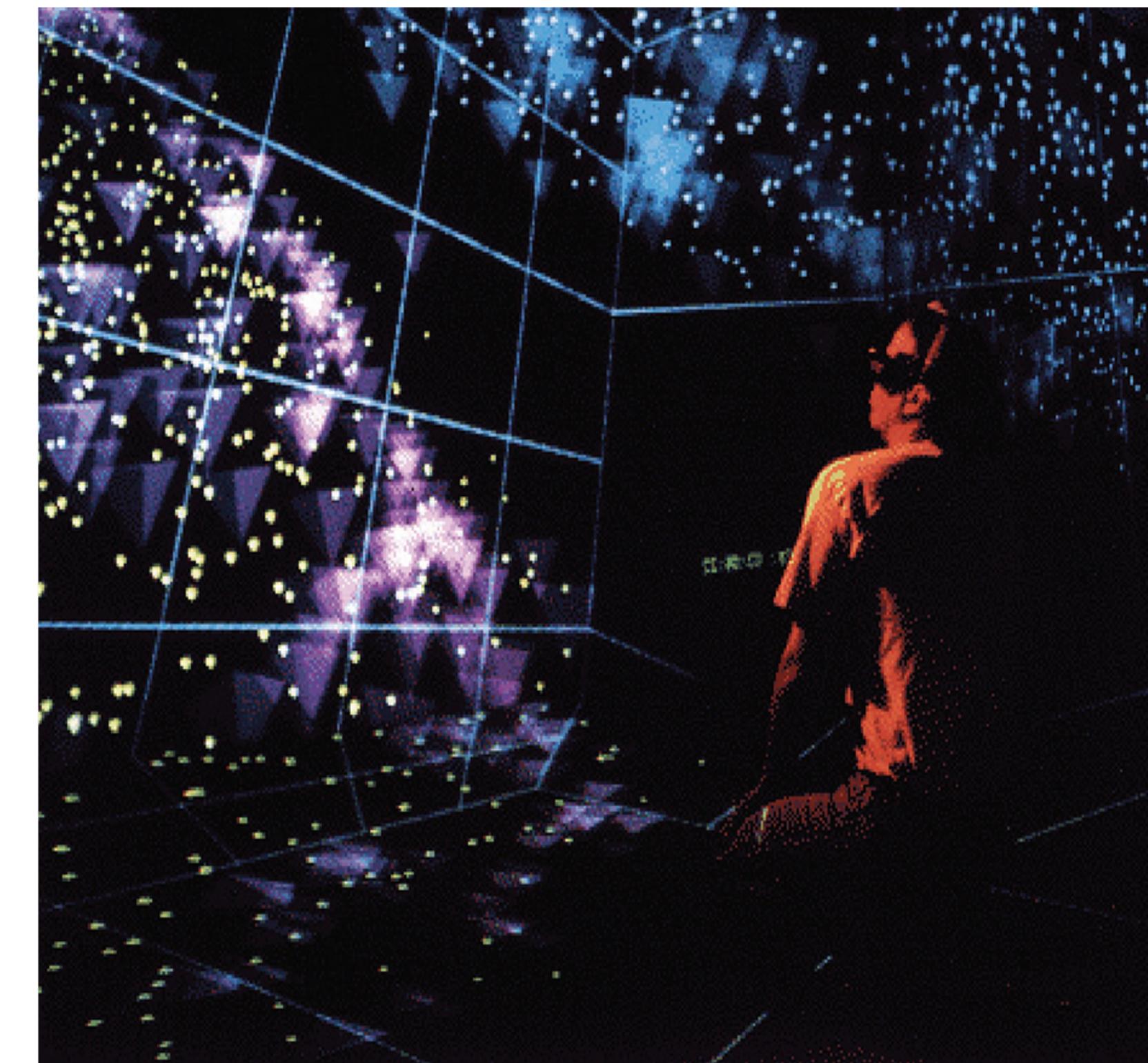


Image courtesy of Kalev Leetaru, National Center for Supercomputing Applications, University of Illinois.

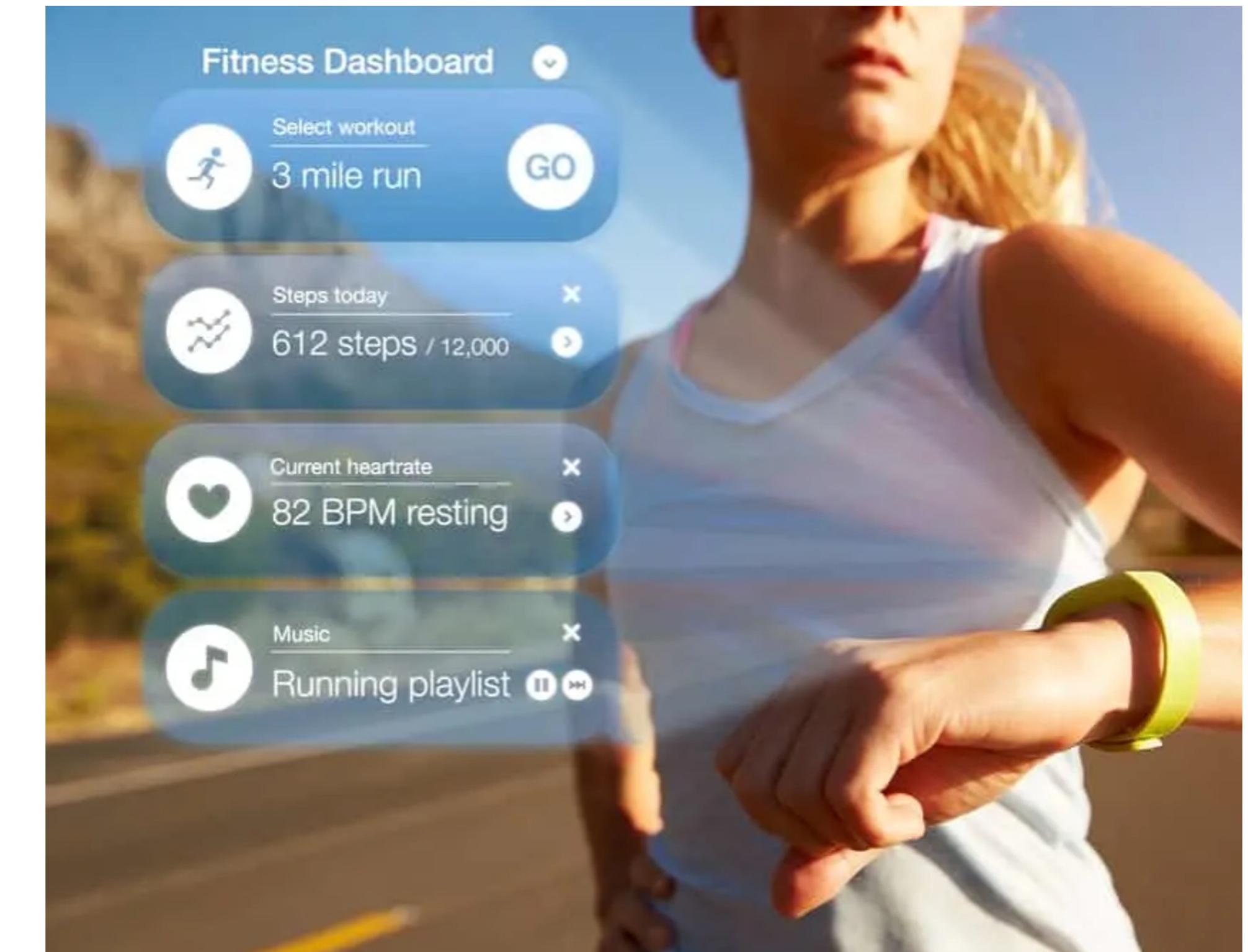
Interaction Types

05 Responding

The system initiates the interaction and the user chooses whether to respond

System takes the initiative to alert user to something that it “thinks” is of interest

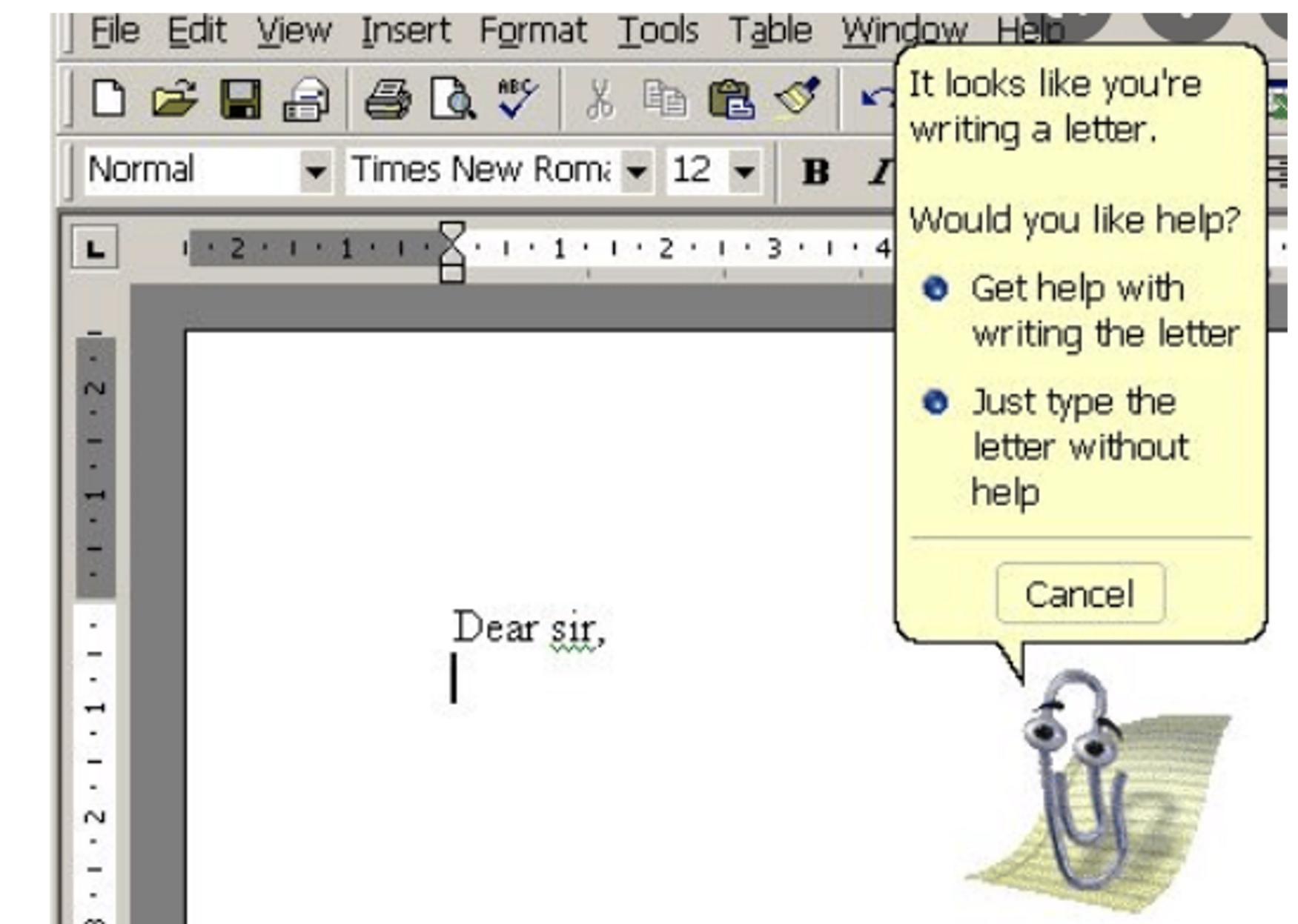
- Alerts the user of a nearby coffee bar where some friends are meeting
- User's fitness tracker notifies them of a milestone reached



Cons of Responding Model



- Can get tiresome or frustrating if too many notifications or the system gets it wrong
- What does it do when it gets something wrong?
Does it apologize?
Does it allow the user to correct the advise or information?



Choosing an Interaction Type

Direct manipulation

For certain tasks:

Designing, drawing, driving, sizing windows

Issuing instructions

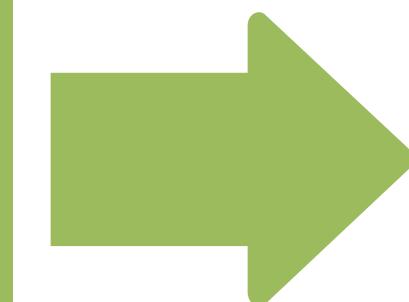
For repetitive tasks:

Spell-checking and file management

Having a conversation

For certain services:

Finding information or requesting music



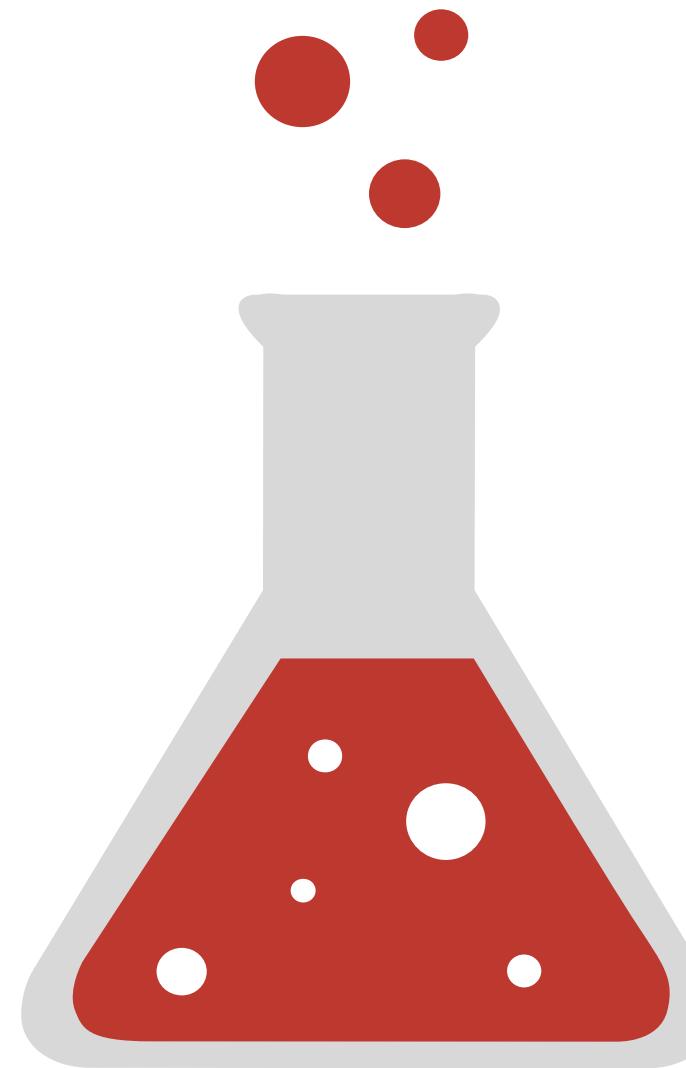
Hybrid conceptual

For supporting multiple ways of carrying out the same actions

Interface Types

“The kind of interface used to support the interaction”

- 01 Command**
- 02 Menu-based**
- 03 Gesture**
- 04 Voice**
- 05 etc (Chapter 7)**



*Creativity is the key to success
in the great education*

Terima Kasih
