References

Declarative Knowledge

fact & rules

Procedural Knowledge

how to
Car Ignition switch
Keys
Keyless Ignition

"Push-button keyless start couldn't be simpler"
Improved Version

Photo http://www.edmunds.com/ownership/audio/articles/106651/article.html
Psychopathology of Things

Affordance
Conceptual Model
Make Things Visible
Mapping
Feedback
Affordance
Affordance
Conceptual Model
Make things Visible

![Power Button]

Start
Stop
Mapping
Feedback

0.1 seconds

0.1 to 1 seconds

More than one second
Psychology of Everyday Things

oops I make a mistake
Seven Stages of Action

Goals

Intention to act

Sequence of actions

Execution of actions

Evaluation of interpretations

Interpreting the perception

Perceiving the world

World
How Easily Can One

Determine the Function of the device

Tell what actions are possible

Tell if System in in the desired state

Determine mapping from intention to physical movement

Determine the mapping from the system state to interpretation

Perform the action

Tell what state the system is in
Memory for arbitrary things
Memory for meaningful relationships

My Freshman humanities course
Memory through explanation

Xerox repair people
Three Conceptual Models

Designer's Model

User's Model

How the system appears to operate
3.1 Which Is the U. S. One Cent Coin—The Penny? Fewer than half of the American college students who were given this set of drawings and asked to select
Power of Constraints

How does someone remember a 50,000 line story
Types of Constraints

Physical constraints

Semantic constraints

Cultural constraints

Logical constraints
Forcing Functions

Make sure it is done right
Reminding
Over Reminding
Constraints and Forcing Functions
The lost Soviet Space probe

A technician uploaded the wrong instruction
Evolutionary Design
Why designers go Astray

Aesthetics
Why designers go Astray

Designers are not typical users
Why designers go Astray

Clients may not be the users
Why designers go Astray

Creeping Featurism

Microsoft Word
User Centered Design
7 Principles

Use knowledge in the world & knowledge in the head
Simplify structure of tasks
Make things visible
Get mappings right
Use constraints
Design for error
When all else fails, standardize
Paper Prototype