Human-Centered Web Interface Design

*2004 전국대학도서관대회, **Lee Kun-Pyo**, KAIST, Aug. 18. 2004*

Contents

Why Human-Centered?

The background of Human-Centered Design. The Nature of Human-Centered Design. Design Paradigm Shift.

What is user-interface design?

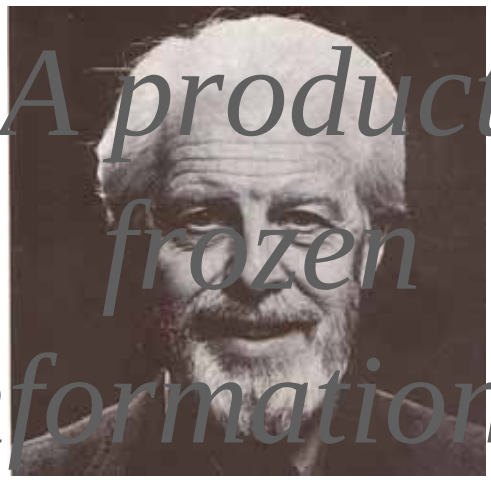
Definition of interface design, Advantages of interface design.

How we can approach?

Process, Methodologies for Human-Centered Web. Heuristics, Card Sorting, Task Analysis, Usability Testing, Mouse Tracking, Eye Tracking, Logfile Analysis.

01 Why?

Product as Information

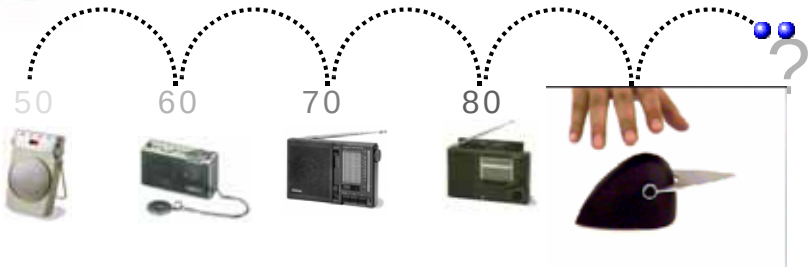


“ A product is frozen information. ”

Prof. Jay Doblin (1920-1988)

01 Why?

Development of Products



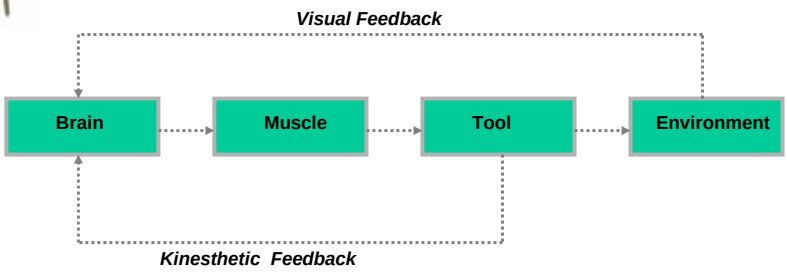
Hand	Head	Heart
Comfortable	Understandable	Satisfiable
Ergonomics	Cognitive Eng	Emotional Eng.
Form Follows Function	Form Follows Flow	Form Follows Fun

01 Why?

Paradigm Shift *Change of Nature of Works*

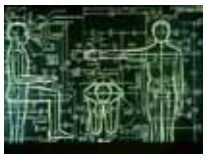
05 Why?

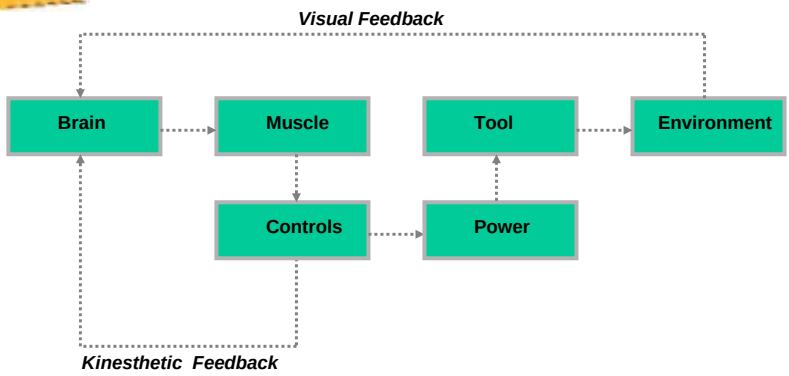
Tool for Physical Support



06 Why?

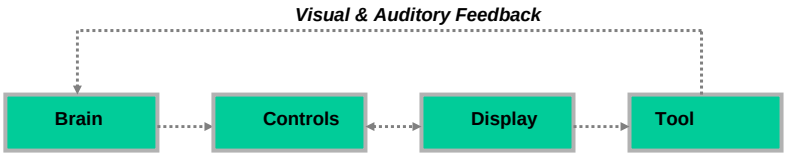
Machine for physical support





07 Why?

IT for mental support



08

Why?

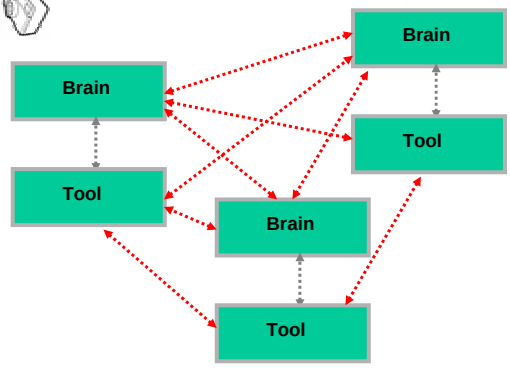
Web for supporting communication

Visual & Auditory Feedback

09

Why?

UC for supporting situations



02 Why?

User-Centered Design

Science Finds,
Industry Applies,
Man Conforms

Motto of the 1933 Chicago World's Fair

People even don't know what they want!

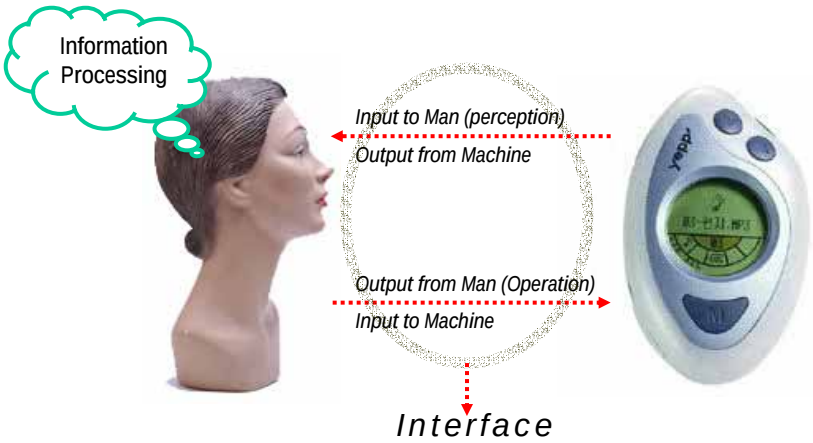
People Propose,
Science Studies,
Technology Conforms

A person-centered motto for the 21st century

01 Why?

What is Interface ?

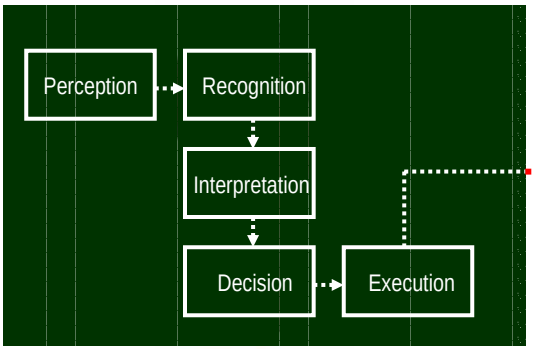
"Interface is the contacting point between two systems where an output from one system becomes an input to the other system.



01 Why?

What is Interface ?

"User Interface Design refers to an approach for creating easy-to-understand interface with the application of human being's cognitive characteristics, information processing process which is basis for man-machine interaction problems."



02 Why?

Why Interface? 04

"There are many benefits from usability and we can reduce diverse costs"

"We can increase"

Product Quality

02 Why?

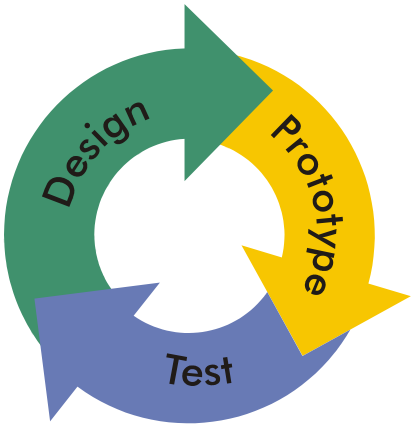
Change of Nature of Works

There may be no specific tasks in web usability whereas there are always tasks in product and software.

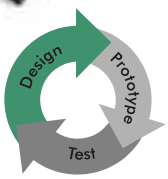
Just Surfing……

Process

"Design process comprises of three stages: Design, Prototype, and test."



Process - **Design**

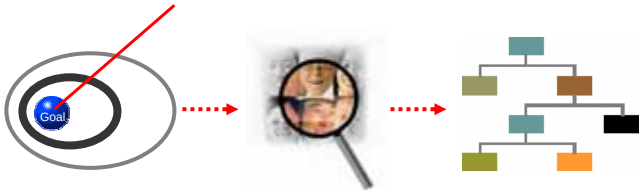


"This part of the process involves not only defining the objectives and features for product, but understanding who your users are and their tasks, intentions, and goals."

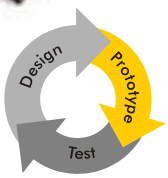
Definition of objectives, and features of product

Understanding users: their tasks, intentions, their background, their work environment, their current task organization.

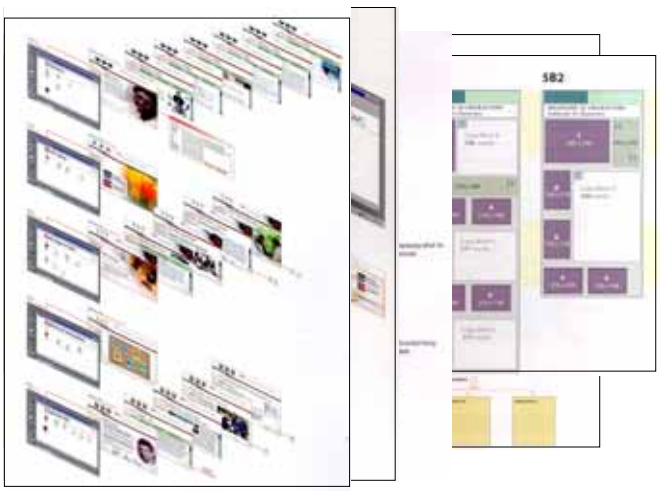
Development of design model with conceptual framework of product: the basic organization and different types of metaphors.



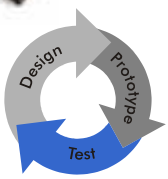
Process - **Prototyping**



"This part of the process involves prototyping some of the basic aspects of the design by various types of model."

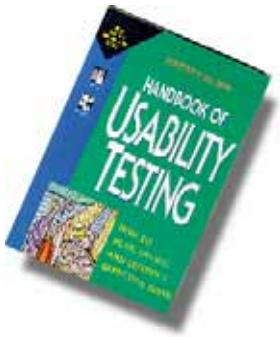


Process - **Testing**

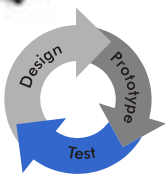


"This part of the process involves testing usability of prototype for identifying errors, the user's perceptions, efficiency, learnablity, meorability, or user's satisfaction.."

Depth Interview, Eye Camera, Mouse Tracking, Observation, Log file Analysis, Usability Testing, Think Aloud, Protocol Analysis, Semantic Differential Methods.



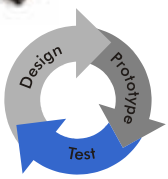
Testing Web Usability



"The effectiveness (accuracy and completeness), efficiency (relative resources expanded), and satisfaction (comfort and acceptability) with which specified users achieve specified goals in particular environments."

Learnability
Efficiency
Satisfaction
Errors
Memorability

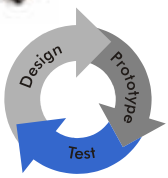
Testing Web Usability



"There are various methods for testing web usability: Heuristics, Card sorting, Eye tracking, Log file analysis, Mouse tracking, Task analysis."

- *Heuristics*
- *Card Sorting*
- *Task Analysis*
- *Cognitive Modeling*
- *Log file Analysis*
- *Mouse Tracking*
- *Eye Tracking*

Testing Web Usability



"Employ a team of usability specialists to identify problems in the design against a list of guidelines or heuristics."

- *Heuristics*
- *Card Sorting*
- *Task Analysis*
- *Cognitive Modeling*
- *Log file Analysis*
- *Mouse Tracking*
- *Eye Tracking*

Consistency

Efficiency

Error Management

Simplicity

Feedback

Visibility of System Status

"The User should always know what state the Web site is in at any given moment."

The users needs to know where they are in terms of process and structure.

Provide the user with some way of knowing what is going on..

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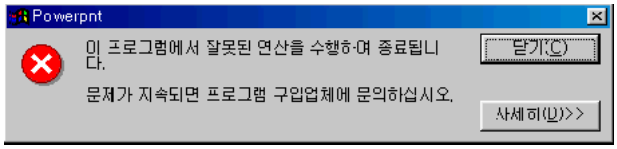
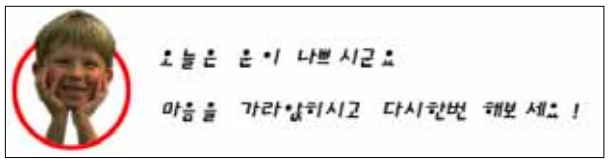
Match the System to Real World

"The system should speak the user's language, with words, phrases and concepts familiar to the user; rather than system-oriented terms."

Use the natural language of the user, not jargon or system terms.

Follow real-world conventions; provide natural mappings.





Match the System to Real World

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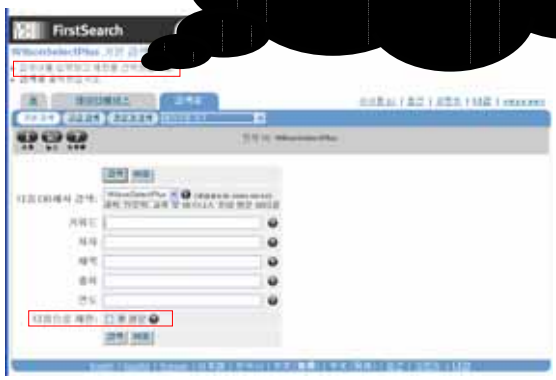
검색어를 입력하고 **제한**을 선택하십시오

Use the natural langua

Follow real-world conve



User-Control and Freedom

"Allow the user, not the computer, to initiate and control actions. People learn best when they are actively engaged."

Do not let the computer "take care" of the user, offering only those alternatives that are judged "good" for the user or that "protect" the user from having to make detailed decisions.

Create a balance between providing users with the capabilities they need to get their work done and preventing them from destroying data.

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Consistency and Standards

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Consistency in the visual interfaces, behavior and versions helps people learn and then easily recognize the graphic language of the interface.

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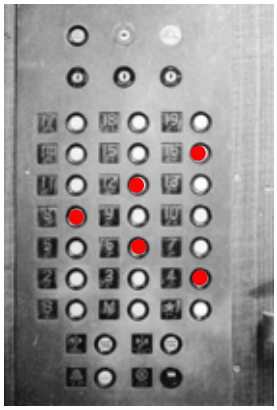
Help Users Recognize, Diagnose, and Recover from Errors

"Let actions on the computer be generally reversible. Create safety nets for people so that they feel comfortable learning and using your product.

Provide people with "Undo" functions.

Always warn people before they initiate a task that will cause irretrievable data loss.



Help Users Recognize, Diagnose, and Recover from Errors

"Reduce the alternative ways of operation so that user has the only one way of doing right."

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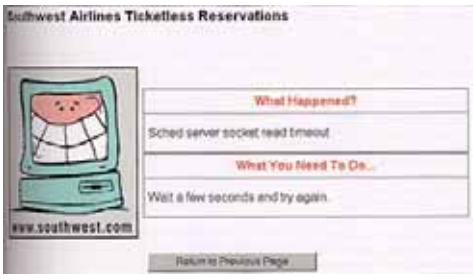

Recognition Rather Than Recall

"Do not let users rely only on recalling (knowledge in he head) but on recognizing(use knowledge in the world)."

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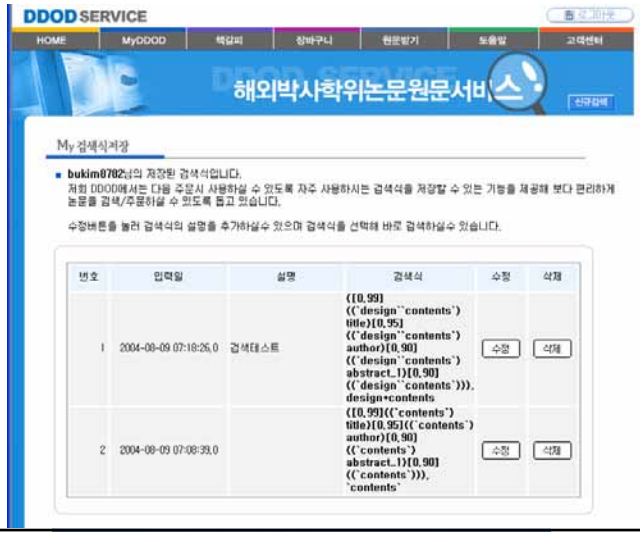
Flexibility and Efficiency of Use

"Make your Web site customizable, so that users can make thins the way they feel is most efficient for them. "



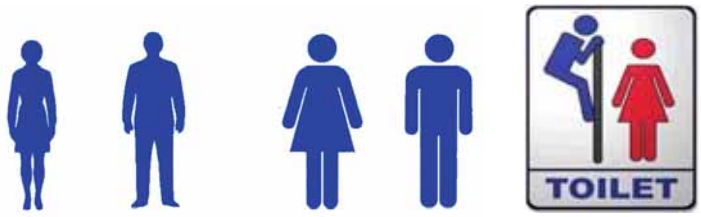
Aesthetic and Minimalist Design

"Information should be well organized and consistent with principles of visual design.

Keep the graphics of the display simple. Don't clutter the screen with too many windows, overload the user with complex icons, or put dozens of buttons in dialog boxes.

Make sure to follow the graphic images to represent concepts and don't change the meaning of standard items.

Don't use arbitrary graphic images to represent concepts.

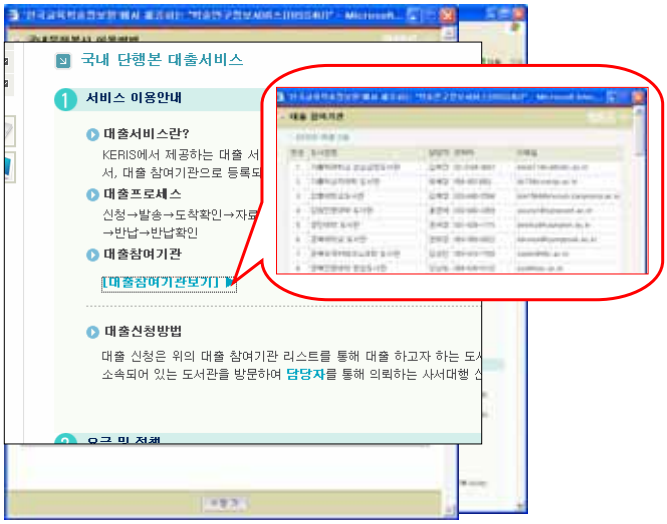


Aesthetic and Minimalist Design

"Information should be well organized and consistent with principles of visual design.

Help and Documentation

"If everything fails, provide nice help and documentation."



Who are users?
Worldwide Compatibility

"Support for multiple script systems and muticultural sensitivity to your target audience."

- *National Language*
- *Visual Language*
- *National Formats*
- *The Physical World*
- *Symbols and Taboos*
- *Cultural Aesthetics*
- *Basic Assumptions*

Who are users?
Worldwide Compatibility

"Provide the correct language and physical variations should be taken into account."

National Language
Visual Language
National Formats
The Physical World
Symbols and Taboos
Cultural Aesthetics
Basic Assumptions

Trash Can

Wastebasket

Rubbish Can

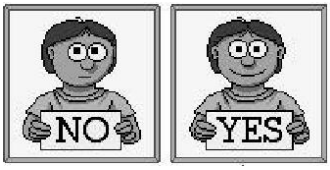
Who are users?
Worldwide Compatibility

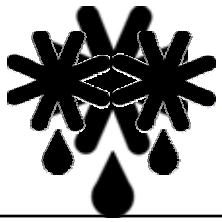
"Translate visual components of the target language."

National Language
Visual Language
National Formats
The Physical World
Symbols and Taboos
Cultural Aesthetics
Basic Assumptions

"Do you have something to declare?"

☒ Yes ☐ No

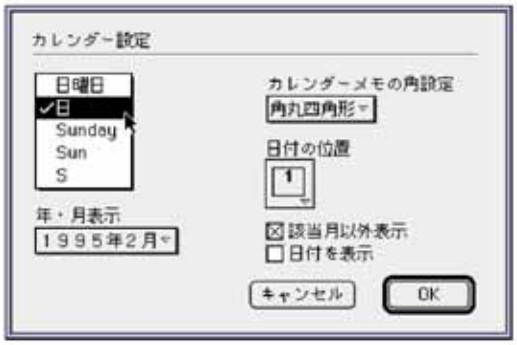




Who are users?
Worldwide Compatibility

"Support native formats."

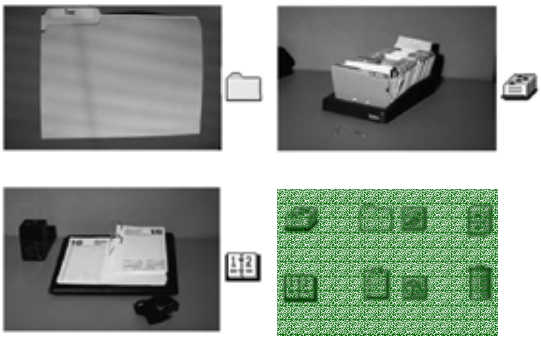
- National Language
- Visual Language
- **National Formats**
- The Physical World
- Symbols and Taboos
- Cultural Aesthetics
- Basic Assumptions



Who are users?
Worldwide Compatibility

"Use appropriate and familiar objects."

- National Language
- Visual Language
- National Formats
- **The Physical World**
- Symbols and Taboos
- Cultural Aesthetics
- Basic Assumptions



Who are users?
Worldwide Compatibility

"Remove taboos from interface and use appropriate symbols."

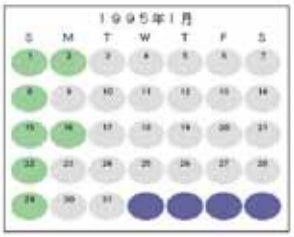
- National Language
- Visual Language
- National Formats
- The Physical World
- **Symbols and Taboos**
- Cultural Aesthetics
- Basic Assumptions

Word	Meaning	Language
bollo	vagina	Spanish
bufo	homosexual(derogatory)	
goma	condom	
joda	@#&%ed up	
nabo	penis	
paja	masturbate	
pito	penis	
mona	vagina	Italian
sega	masturbation	
bite	penis	Frence
chat	vagina	
con	vagina	
pet	flatulate	
pine	penis	

Who are users?
Worldwide Compatibility

"Present the user with culturally appropriate aesthetics."

- National Language
- Visual Language
- National Formats
- The Physical World
- Symbols and Taboos
- **Cultural Aesthetics**
- Basic Assumptions



Who are users?
Worldwide Compatibility

"Provide appropriate contents for cultural basic assumptions."

- National Language
- Visual Language
- National Formats
- The Physical World
- Symbols and Taboos
- Cultural Aesthetics
- **Basic Assumptions**

External Adaptation
Relationship with nature control
- *Uncertainty avoidance*
- *Nature of human activity*
- *Nature of reality and truth*

Internal Ingegration
Human nature
Basically good/ evil
- *Nature of human relationships*
Social vs. task orientation
Particular vs. universalism
Hierarchical
Individualism vs. collectivitism

Linking assumption
Space
Personal and physical
- *Language*
High-low context
- *Time*
Monochronic and polychronic
Past, present, furture

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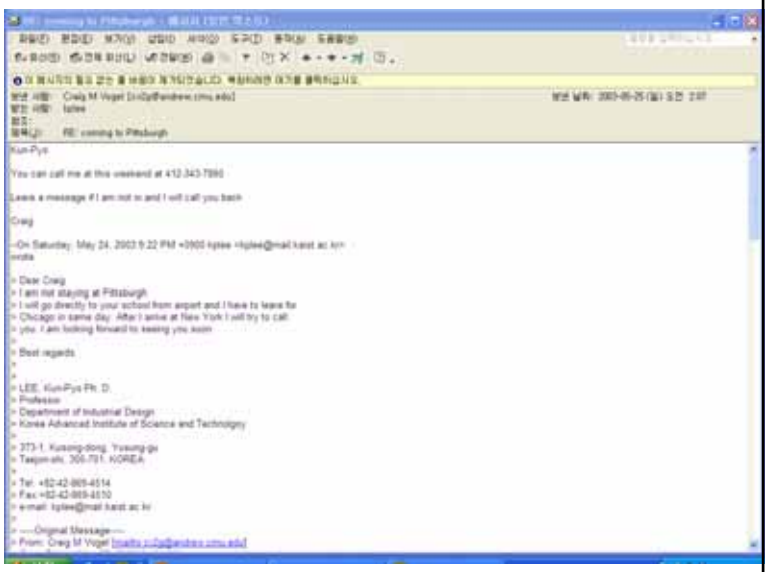
What?

Worldwide Compatibility
Problem Solving Approach



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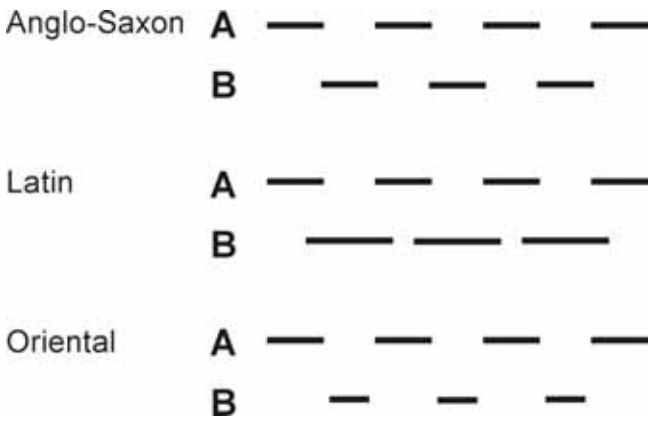
Worldwide Compatibility

Conversation



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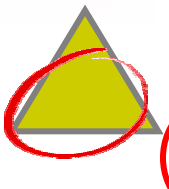
Worldwide Compatibility

Temporal Perception



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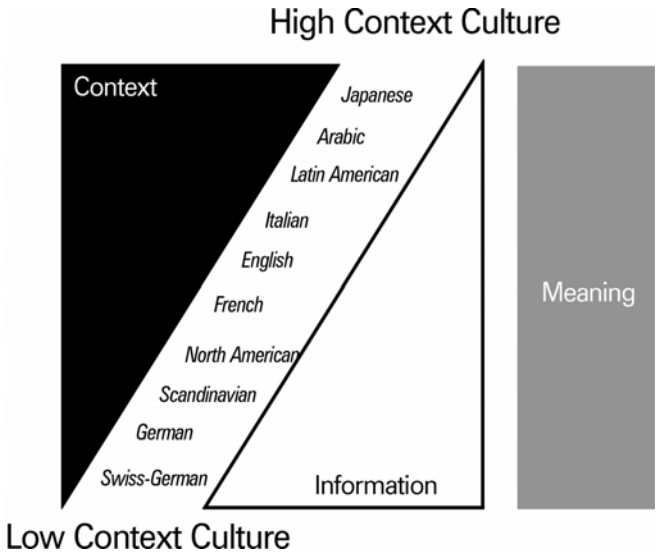
What?

Worldwide Compatibility

Message Contexting



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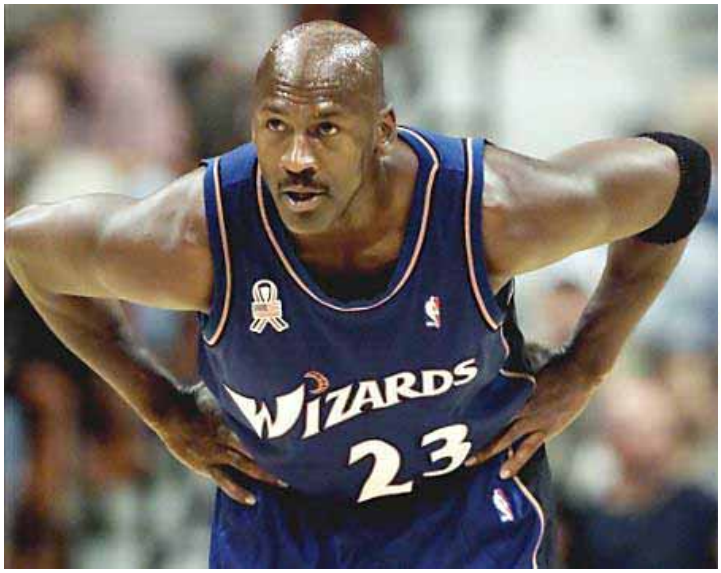
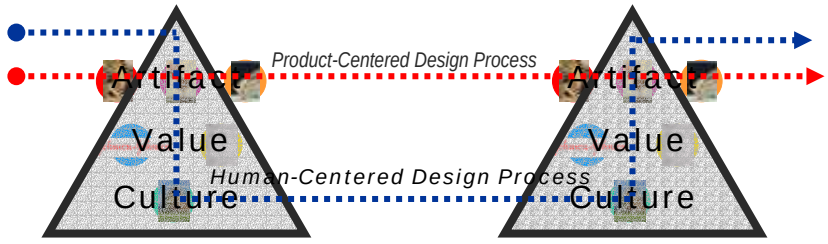
Why?

Emergence of Dream Society



Culture-Centered Design



Socially responsible Design

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Contents

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Personal

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1985 MS. In Product Design, Institute of Design, IIT, USA
1982 BA. In Industrial Design, Choong-Ang University, Korea

Design Methodology, Design Planning, User-Centered Design, User-Interface Design, Cultural Design,

Professional Activities

1998-1999 Consultant for Johnson & Johnson
1993-1998 Consultant for Product Planning, Samsung Electronics Co. Ltd.
1991-1993 Consultant for User-Interface Design , LG Electronics Co. Ltd.
1998- 2001 General Design Editor, Journal of Design Studies, KSDS
1998- 2001 Vice President, Korea Society of Science of Design
2002- Vice president, Ergonomic Society of Korea
2002- Vice president, Korea Society of Emotion and Sensibility
2001- Chair of Program Committee for 5th Asian Design Conference
1995-1997, Chairman, Research Committee, Korea Association of Industrial Designers
1996-1997, Visiting Professor, Institute of Design, IIT
1994, 1996, Judge, Good Design Competition, Korea