

CREATIVITY Interface Design in UC

The Art of Crossing the Chasm

Introduction



“ The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.”

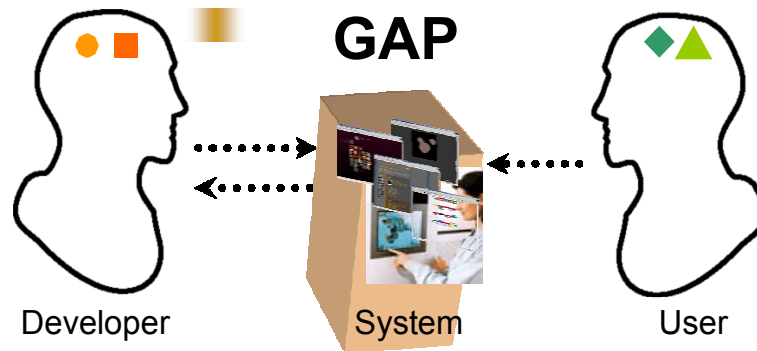
(Weiser, M.
1991) ”

But, technology driven, not user-centered

➤ Definition of UI

생성 배경

UI 디자인은 제품의 Black Box화, 인간의 지적 지원수단으로서의 제품등장, 디자이너의 디자이너 모델과 사용자의 사용자 모델간의 GAP의 심화 등을 그 생성배경으로 하고 있음



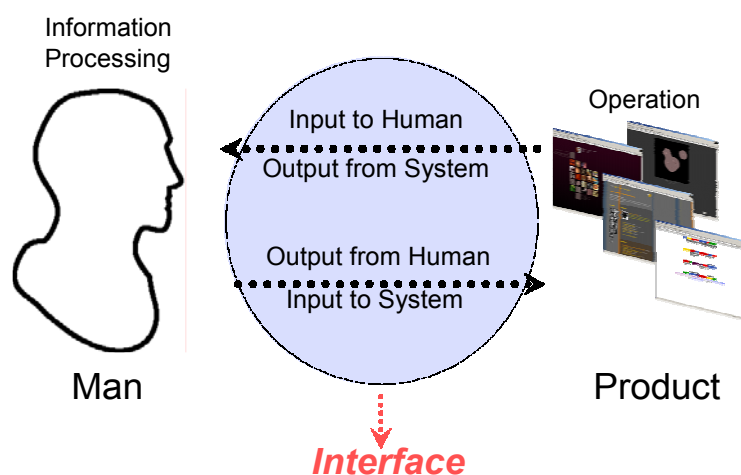
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➤ Definition of UI

정의

인터페이스란 두 시스템이 만나는 경계.

즉 한 시스템의 출력(output)이 다른 시스템의 입력(input)이 되는 접촉점을 말함



➤ Definition of UI

“Usability is variously defined according to the discipline and context.”

The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.(ISO9241-11)



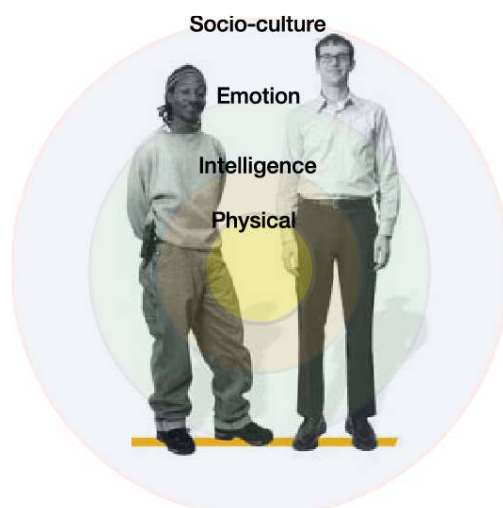
Effectiveness

Efficiency

Satisfaction

➤ Definition of UI

*“Four general design consideration should be taken into:
Socio-Cultural, Emotion, Intelligence, Physical.”*

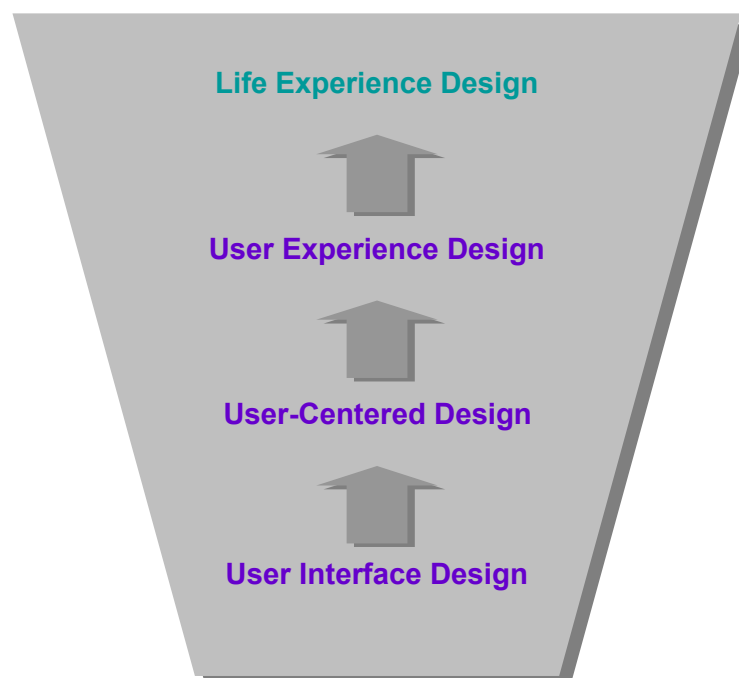


➤ Characteristics of Product / Service in UC

- Context-aware
- Proactive Service
- Personalized Service
- Distributed computing
- integrated Service

“Service from Computing Environment, not from a product”

➤ Paradigm Shift

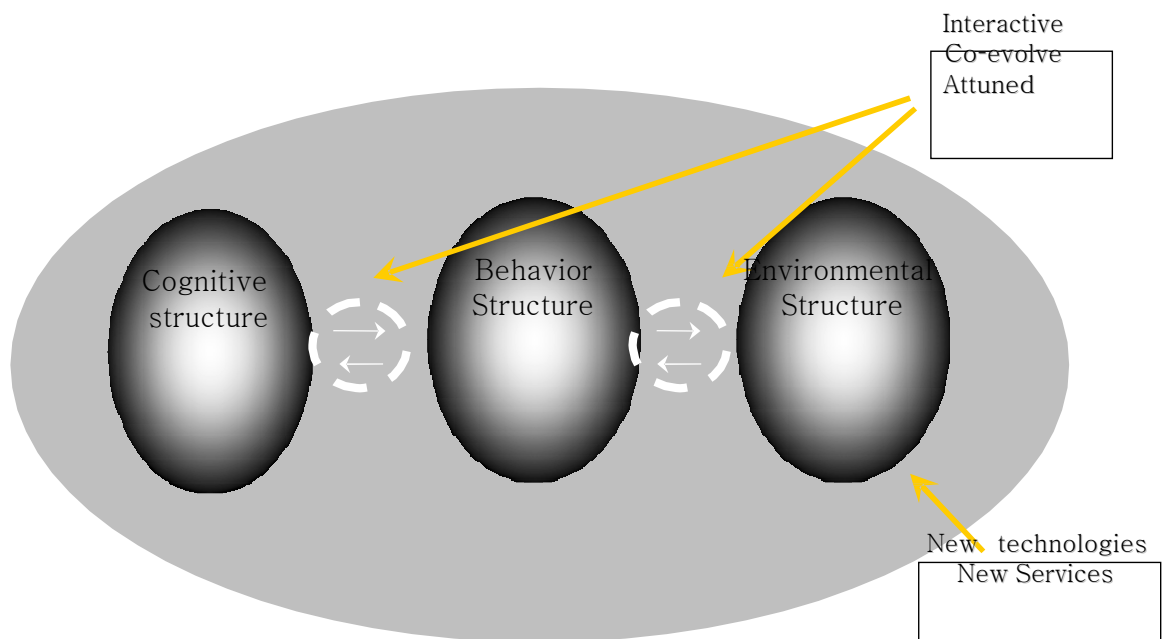


> The Concept of LXD(Life Experience Design)

UXD	LXD
• Product View	• Environment View(Shopping,Entertainment ...)
• Understanding User Through Context	• Identifying Structure among Process, Context, User, other domains
• Needs	• Value
• Problem Solving	• Developing New Life Paradigm
• Point View	• System View
• Product/Service	• Business

Domain Changing in UI Design

> “ There are three co-evolved structures (Park, M.-K., 2003).”



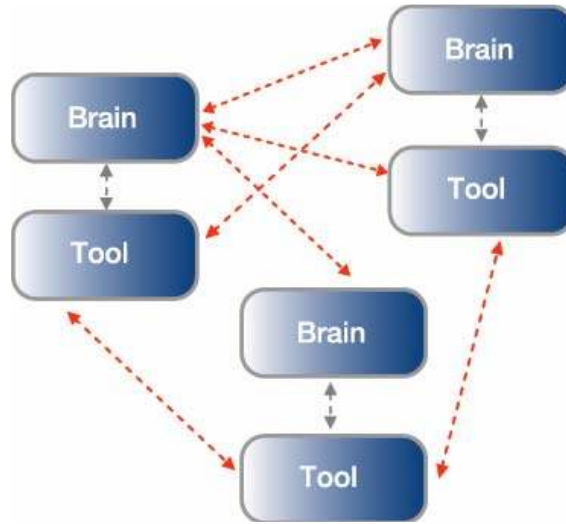
➤ Change of Process of Interaction/Interface in UC



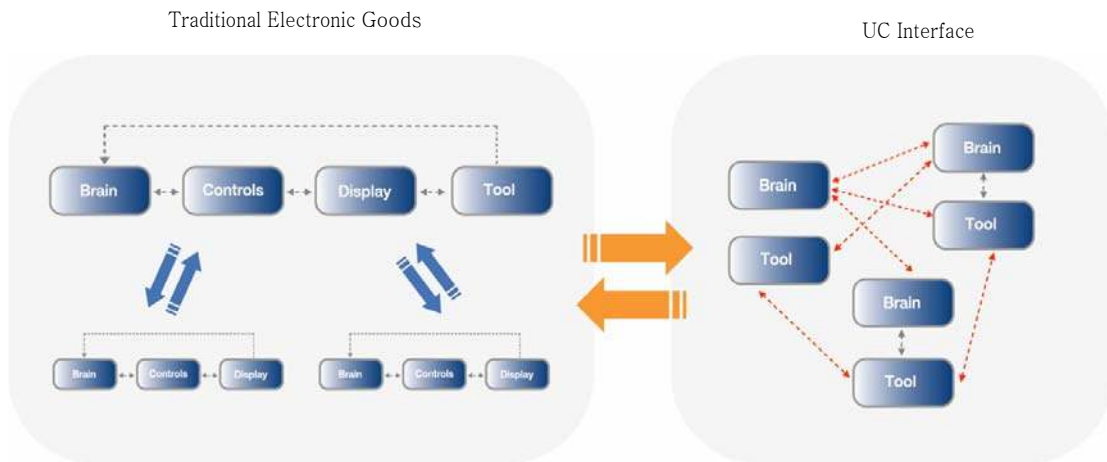
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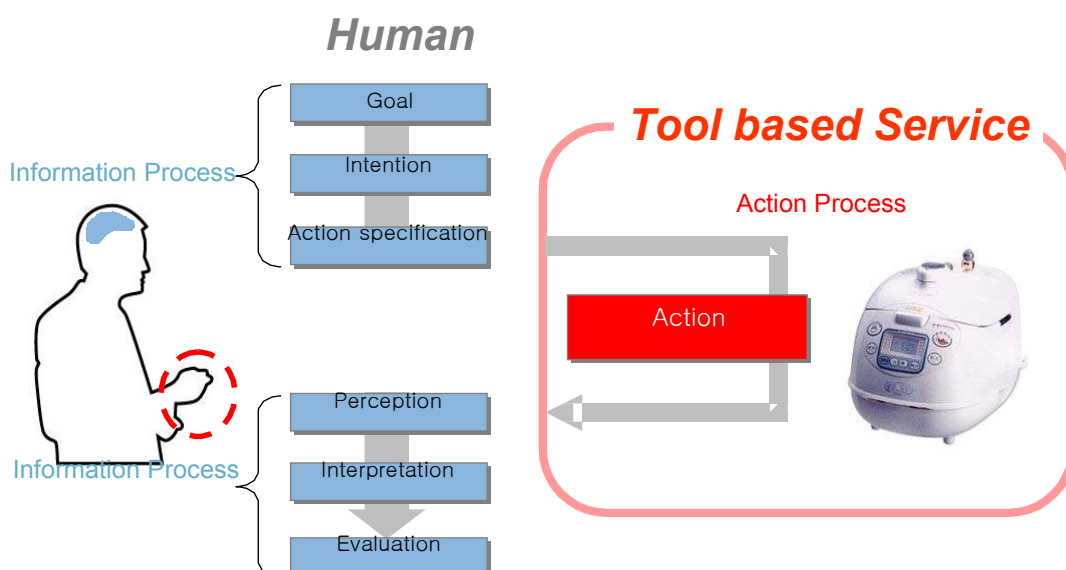


➤ Change of Process of Interaction/Interface in UC

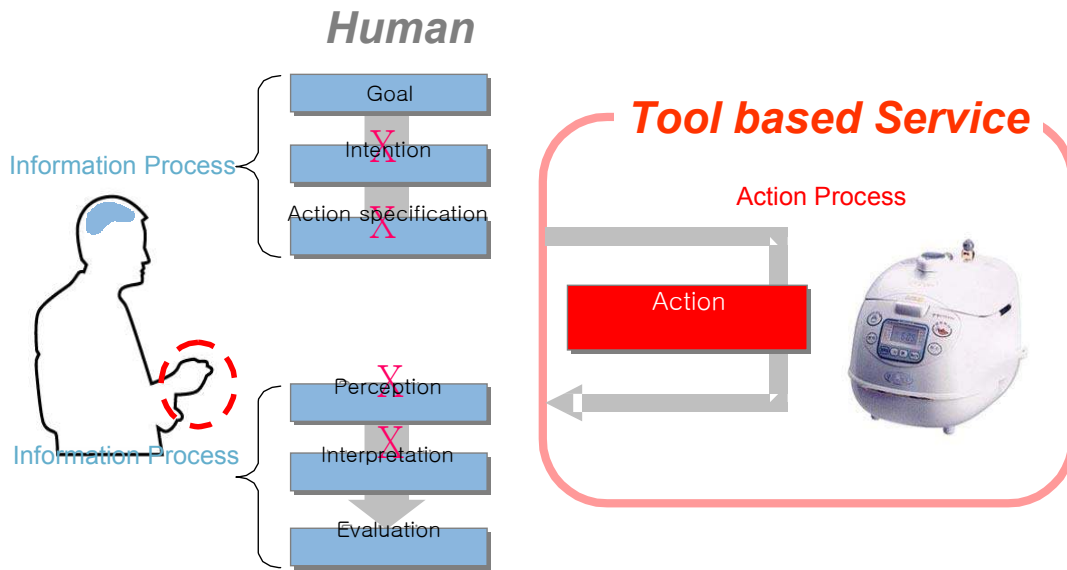
Behavior of Work = Interaction Itself

¹ Trackara, J.(2001). The Design Challenge of Pervasive Computing. Interactions, Volume 8, Issue 3, May/June 2001, pp46-52

➤ Issues in Norman' s Model



➤ Issues in Norman's Model



Issues & Challenge

➤ Issues of Interaction/Interface in UC

Accidentally Smart Home

-New technologies will be brought piecemeal into the home; unlike the "lab houses" that serve as experiments in domestic technology today, these homes will not be custom designed from the start to accommodate and integrate these technologies.

-"accidentally" smart home, a home that contains an accretion of technological components embedded in an environment that has not benefited from a holistic, ground-up approach to design and integration.

-Ignoring for a moment the implications when disparate (and potentially conflicting) technology is meant to interpret and act on the behavior of its occupants, we can envision plausible problems with even the most mundane smart home technologies.

-The general question, is Particularly when these complex technologies offer fewer physical affordances than we are used to?

-The challenge for ubiquitous computing is to help homeowners understand their accidentally smart homes by providing insights into what these devices can do, what they have done, and how we control it.

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➤ Issues of Interaction/Interface in UC

➤ Impromptu Interoperability

-Connectivity problems arise due to the rampant diversity of devices and networks This leads to complicated and proprietary interfaces between two unlike devices. Connectivity problems require 'impromptu interoperability'.

-Such disparate components will be able to interoperate at all.

-Impromptu interoperability not just the simple ability to interconnect, but the ability to do so with little or no advance planning or implementation

-The chief obstacle limiting such impromptu interoperability now is that, in general, every device or software service must be explicitly written to understand every other type of device or software that it may encounter.

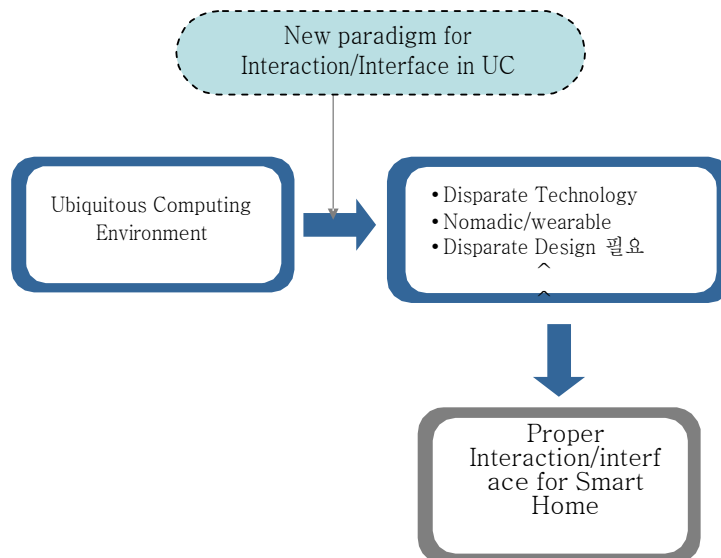
➤ Issues of Interaction/Interface in UC

Administrating In Ubiquitous Computing

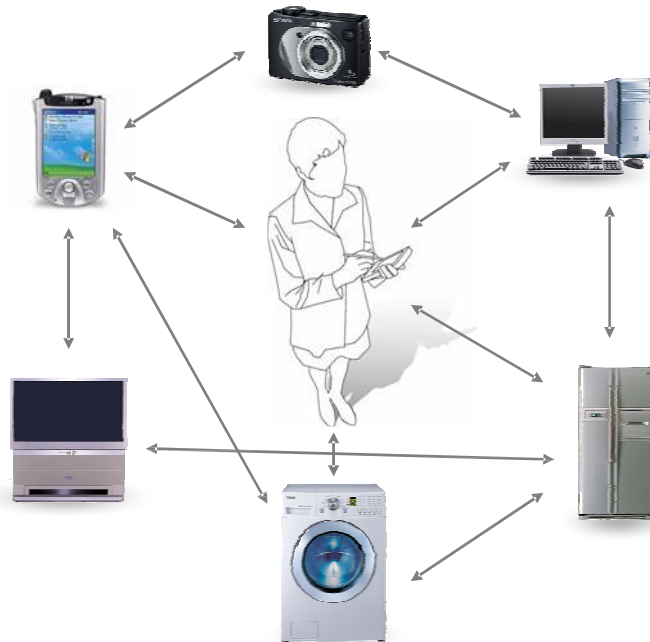


➤ Issues of Interaction/Interface in UC

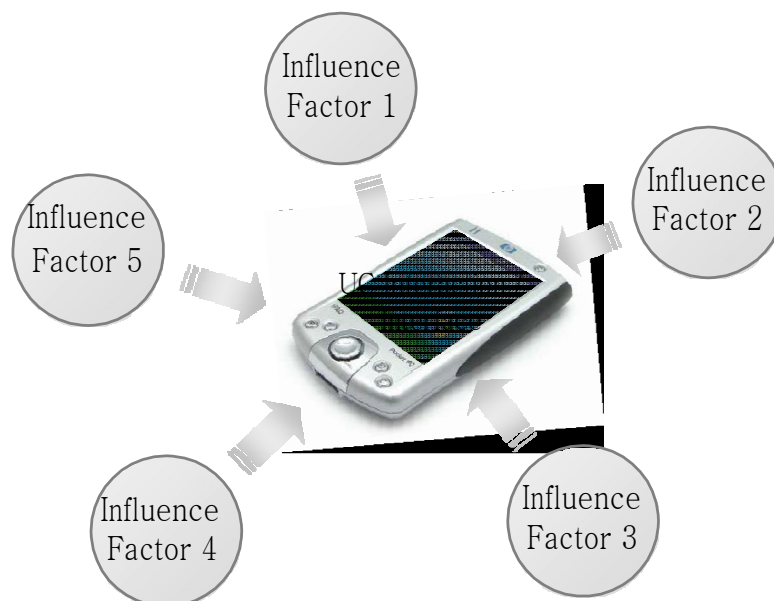
Many researches have performed actively related to ubiquitous computing. However, most of these researches have focused on the technological aspects



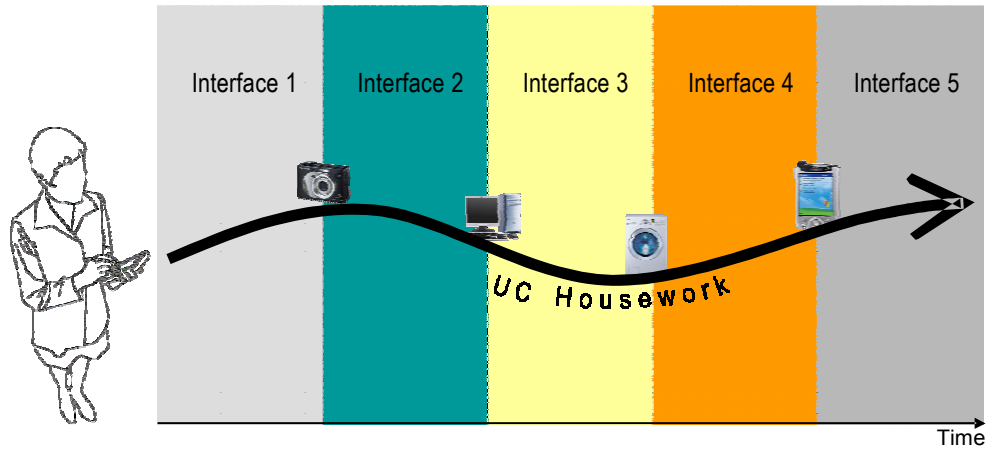
- To define the characteristics and types of Interaction/Interface in smart space



- To define the influence factors for deciding appropriate interaction/interface in smart space

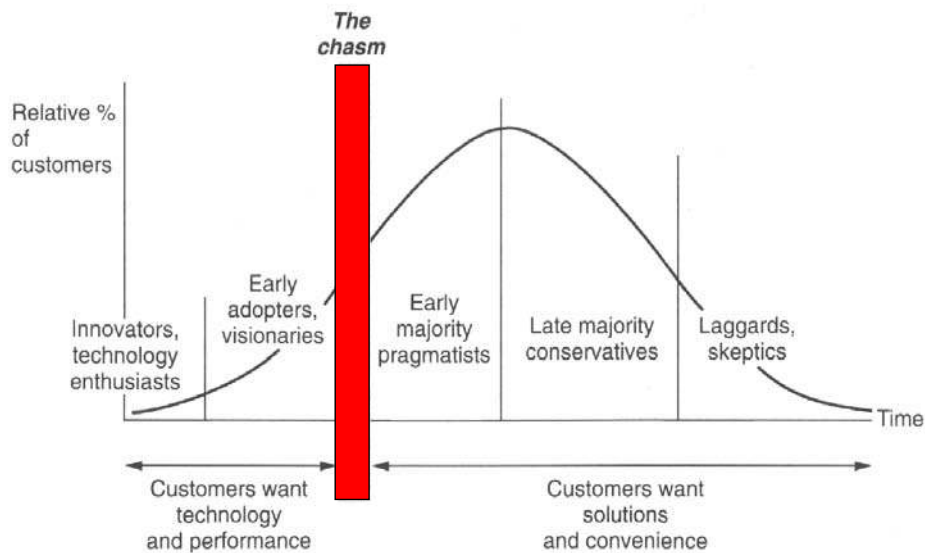


- To define the housework of smart home and to propose a housework behavior model



- Crossing the Chasm (by Jeff Moore)

A Journey from Technology to User – Interface/Usability



Countermeasure for UI Design

Countermeasure for UI Design

Interface Design in UC?
:The art of Crossing the Chasm



What do we see?

Engineers see

Performance

UI Designers see

WORK!

Research Issues in UI

Issue 1 : Human Life Modeling

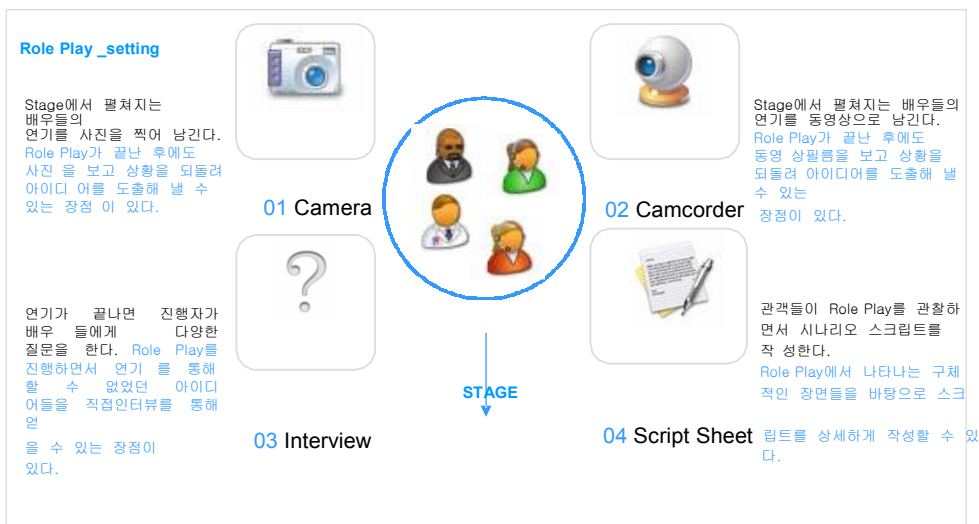
1) How to extract Human Life elements(Process/Context)

-Video Ethnography

Place	Situation Image	Situation Story
<p>Before</p> <p>구리 집 11:00</p> <p>동네 학원 11:10</p> <p>LG백화점 12:20</p> <p>After</p>	<p>옆집 아줌마와 함께 강자를 듣기 위해 출발</p>  <p>동네 상가로 향함</p>  <p>LG 백화점 지하 주차장에 주차하고 매장으로 향함</p> 	<p>오늘 상가에서 향만들기 강좌가 있어서 앞집 아주머니와 외출하였다. 밤에 비가 내렸는지 차에 물기가 있고 앞쪽 문짝이 축먼지로 지저분했다. 평소보다 조금 늦게 강의를 들어갔다. 가까운 거리지만 강의 끝나고 백화점을 가야하기에 차량을 이용하였다. 상가 주차장은 늘 혼잡하여 항상 불편하다. LG 백화점 주차장은 오늘은 현지 무료주차로 개방을 하였다. 1층 여성 전용 주차장에 자리가 없어 지하 주차장을 이용하였다. 오늘은 동승자가 있어 음악을 틀지않고 운행하였다. 옆좌석에 사람이 타면 핸드백 풀매가 적당하지 않다. 앞집 아주머니는 백화점에 놀일이 더 있다고 해서 나만 혼자 돌아왔다.</p> <p>어제 만간 필름을 찾으러 근처 상가에 나갔다. 걸어가던 조금 먼거리라 차를 이용하였다. 저녁에는 주차장이 한가하겠지만 지하에 있어 도로변에</p>

Research Issues in UI

Issue 1 : Human Life Modeling



배우들은 Scenario Outline을 바탕으로 자신의 역할에 맞게 즉흥적인 연기를 한다. 배우의 즉흥적인 연기는 기존에 생각지 못한 신선한 아이디어를 도출해 낼 수 있다.

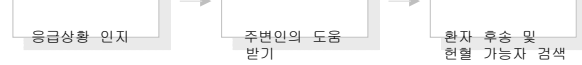


Research Issues in UI Issue 1 : Human Life Modeling

Role Play _Set up the Situation

Building Role Play

Role Play를 위해, Scenario Outline을 2-3개의 기본적인 Scene으로 나눈다. 각 Scene에 필요한 Role을 정의하는데 등장하는 사람 뿐만이 아니라, 제품, 시스템 등에도 Role을 부여한다.



Objective	U-city Scene
인적이 곳에서 탈출하는 방법을 찾는다.	사용자의 상황을 파악하고, 주변인의 도움을 받는다. 상황을 알려주어 쉽게 찾을 수 있도록 한다.
응급상황에 대처할 수 있다.	상황을 파악하여, 주변인의 도움을 받는다. 상황을 알려주어 쉽게 찾을 수 있도록 한다.
드문드문도움을 받을 수 있다.	상황을 파악하여, 주변인의 도움을 받는다. 상황을 알려주어 쉽게 찾을 수 있도록 한다.
이 상황으로 인해 발생할 수 있는 문제를 해결할 수 있다.	상황을 파악하여, 주변인의 도움을 받는다. 상황을 알려주어 쉽게 찾을 수 있도록 한다.



Experience Sampling Method (ESM)

Context-Aware Experience Sampling for the Design and Study of Ubiquitous Technologies(MIT)



What are you doing physically?

Sitting

Walking

Standing

Going up stairs

Answers 1-4 of 8

More answers, touch arrow

Are you running or jogging?

Yes

No

Select answer

What are you doing physically?

Going down stairs

Running or jogging

Lying down

Other

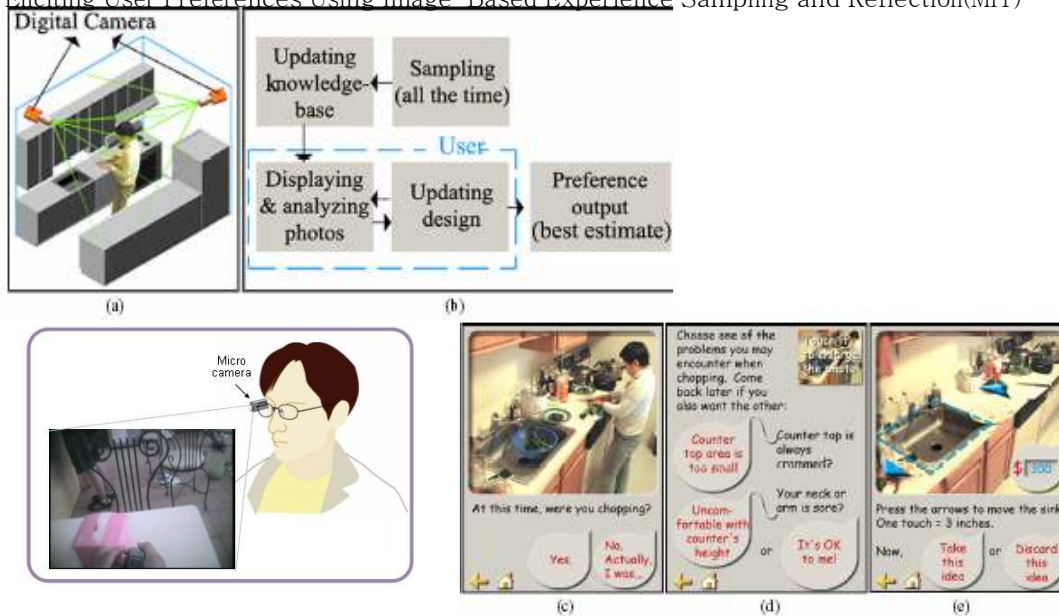
Answers 5-8 of 8

Ok



Experience Sampling Method (ESM)

Eliciting User Preferences Using Image-Based Experience Sampling and Reflection(MIT)



How to make Human Life Model

User Process Based Product Architecture

S. Teeravarunyou, K. Sato

Institute of Design, Illinois Institute of Technology, Chicago, USA

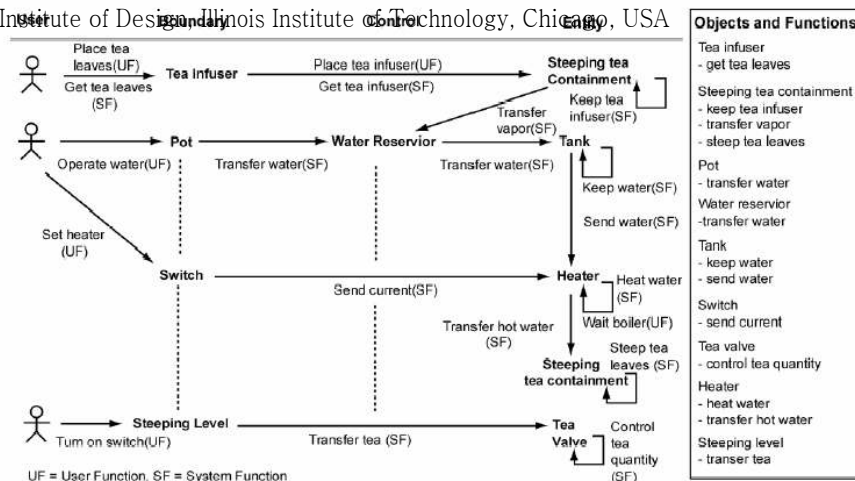
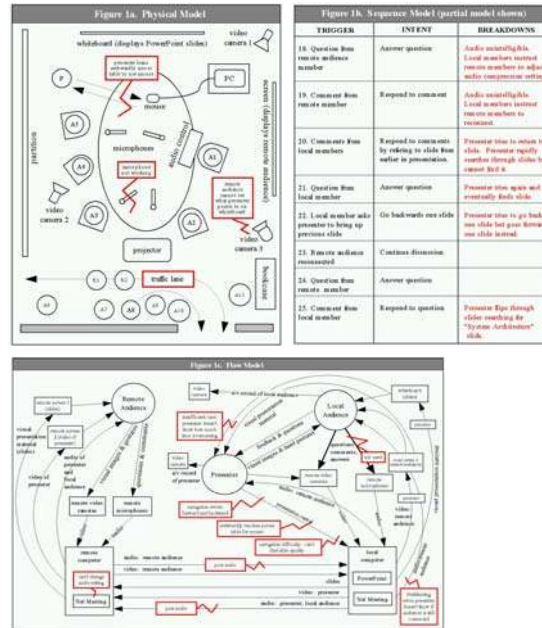


Figure 10: Function flows and Object discoveries

Contextual Design (In Context enterprises)

- Physical Model
 - Layout of work environment as it affects the work.
- Flow Model
 - Communication and coordination necessary to perform task
- Sequence Model
 - Detailed work steps
- Artifact Model
 - Physical things used and created
- Cultural Model
 - Constraints on work due to policy, culture, or values



UI for UC 전문 인력의 양성

- Multi-disciplinary, Inter-disciplinary한 Co-work이 필요한 영역
- 여러 학문분야를 모아 놓는 것은 의미가 없음
- 전문가 및 전문 교육이 절대적으로 부족하며 적절한 교육도 부재
- 여러 분야를 이해하는 Specialist들이 필요

Usability	Emotion & Social
Quantitative	Qualitative
How	What & Why
Solution-focused	Problem-focused
Implementor	Conceptor

➤ So, Designer in UC...

- Gives Life Vision
- Makes Hi-Life Experience
- Propoes New Life Behavior
- Makes people use it
- Gives The Art of Crossing the Chasm

Thank you

— Handong University — | Lee Eun Jong