

# Understanding touch screen mobile phone users by Taxonomy of Experience (ToE)

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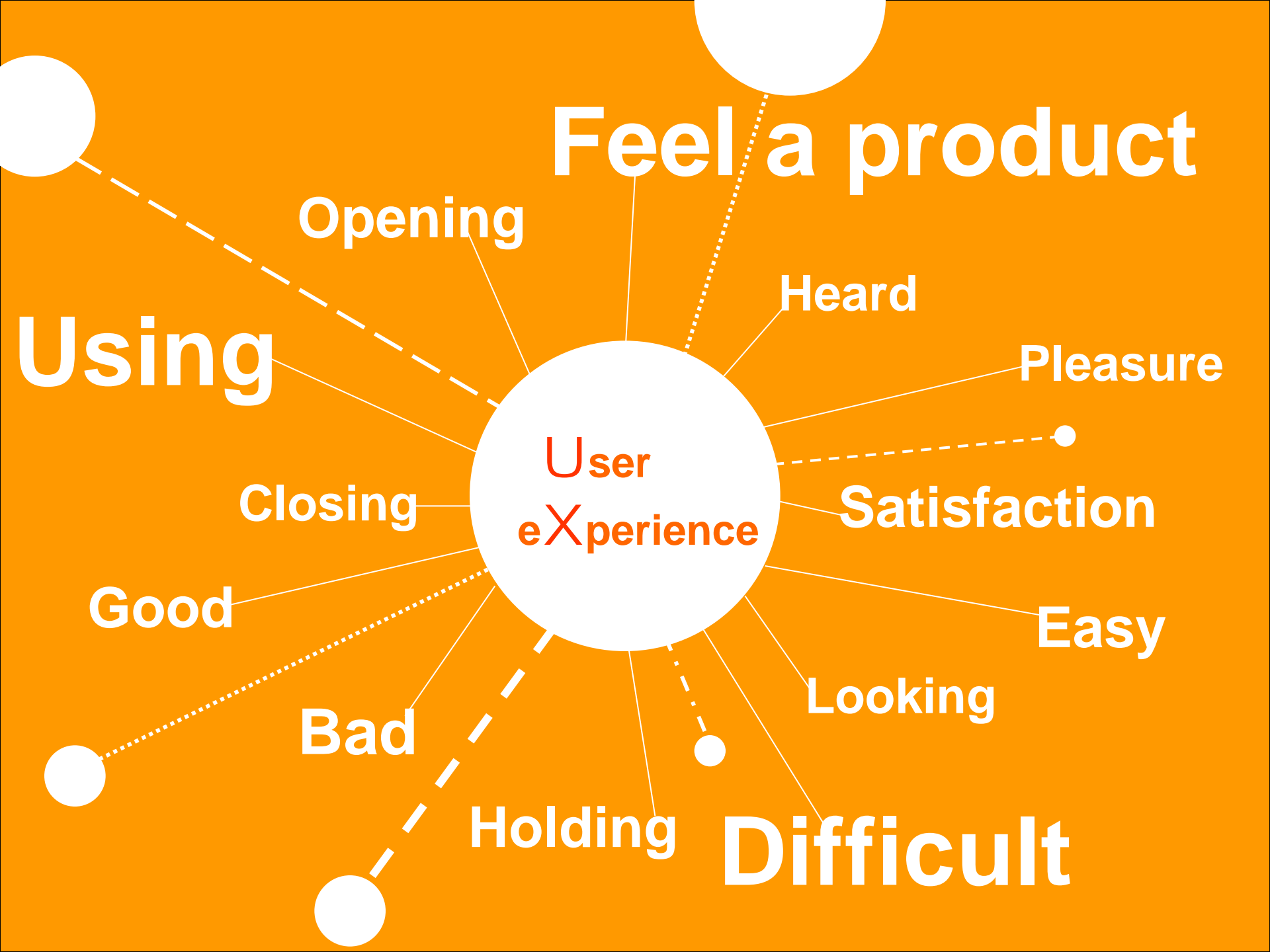
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# What is User Experience?

**‘Every product that is used by someone has  
a user experience’**

**Garrett (2003, p.10)**



**Feel a product**

**Opening**

**Heard**

**Pleasure**

**Using**

**User  
eXperience**

**Satisfaction**

**Closing**

**Easy**

**Good**

**Looking**

**Difficult**

**Bad**

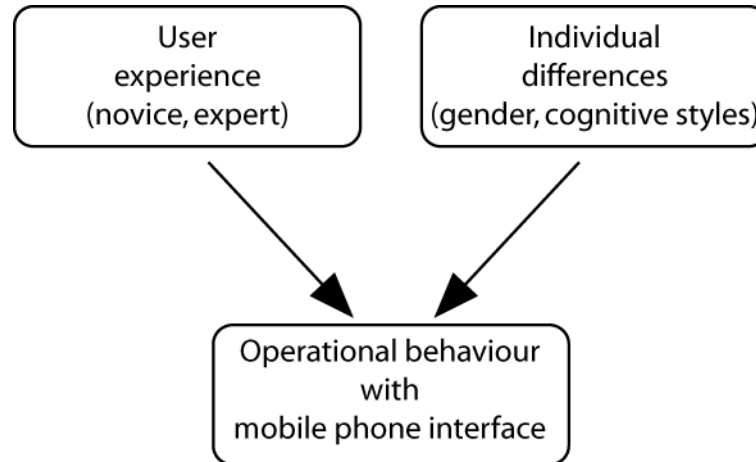
**Holding**



**It is tangible,  
Happening all the time,  
Cannot be designed,  
Tricky to capture & share**



# About the research study



- Categorise users by different operational behaviour with the mobile phone interface
- Establish the guideline for customising the mobile phone users based on the user's interaction with the mobile phone

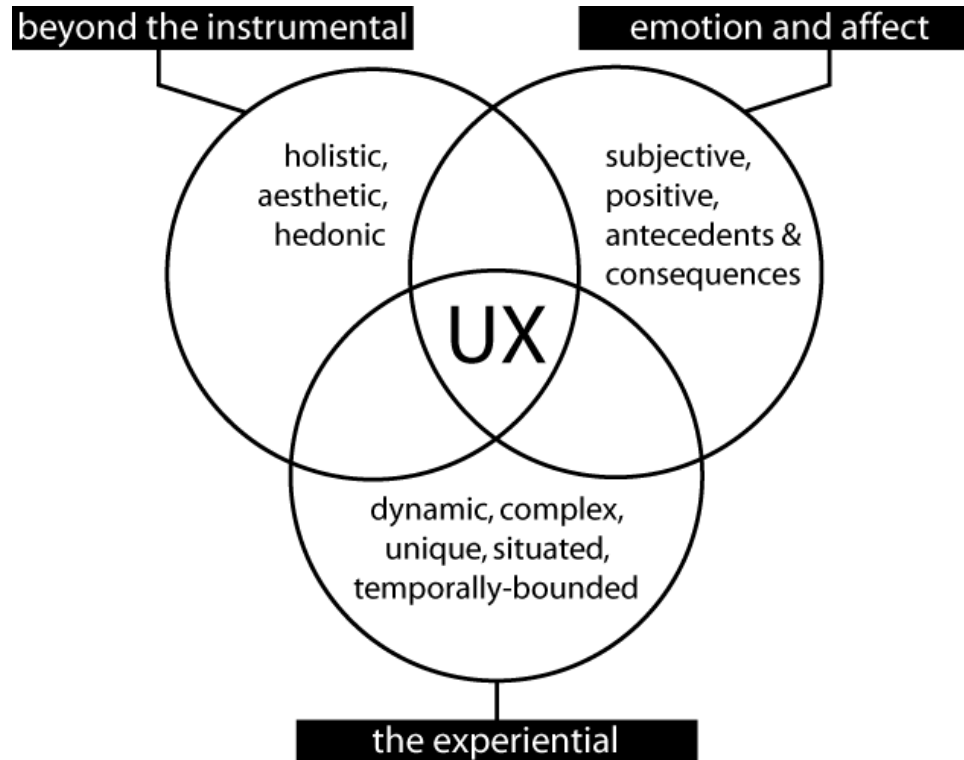
# Definition of user experience

- user experience is beyond usefulness and usability of a product
- it might be affected by the user's internal state, the context and perceptions of the product
- it is subjective, highly situated and dynamic in nature

The importance of experiencing a product is 'the entire experience, from when I first hear about the product, to purchasing it, to opening the box, to getting it running, to getting service, to maintaining it, to upgrading it'

Norman, 2000

# User experience-interactions with technology



User experience of users' interactions with technology is composed by the experiential, emotion and affect, and it is beyond the instrumental.

Hassenzahl and Tractinsky (2006)



# The problem in evaluating user experience

- Experimental pilots (Isomursu, 2008)  
user's attitudes and expectations
- Emotion (Hole & Williams, 2008)  
emotion sampling
- Concept of the object (al-Azzawi, Frohlich & Wilson, 2008)  
multiple card sorting
- Judgment of the product (Karapanos & Martens, 2008)  
repertory grids

Diary, focus groups, surveys, competitive analysis...and so forth

Whilst researchers attempt to transform UX to quantitative data,  
ToE-SEEing, uncover an understanding of the UX through qualitative analysis.

# About this study

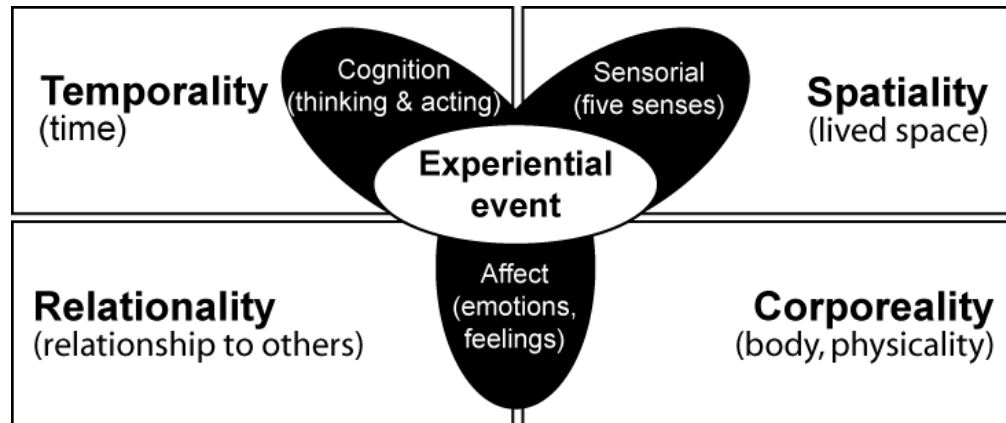
- Introduce the methodology of Taxonomy of Experience (ToE) & its analysis process of SEEing
- Apply ToE-SEEing to understand user experience of operating touch screen mobile phones and the priority of the using experiences

# Taxonomy of Experience (ToE)

Definition of taxonomy: the science or technique of classification

Taxonomy of Experience: categorise experiences into themes

- to understand the user's experience with a product via analysis of their verbal commentary to find the deep meanings
- based on philosophy, methodology and design theory
- to understand an experience by four aspects



# SEEing-the analysis method of ToE

- SEEing is the analytic process of ToE
- the term 'SEEing' attempts to differentiate from the processes of thinking, but still associates with the thinking processes
- uncover an understanding of the user's experience through qualitative analysis

# Experimental Design

# Experimental design

**Task:** 5 minutes free trial, use the phone as they wanted

**Participants:** Twelve participants were recruited from Brunel University  
6 currently use a touch screen mobile phone  
6 currently use a 12 keypad mobile phone

**Instrument:** Vodafone 541



# ToE-SEEing process

*Step 1: Gathering data and establishing structures*

*Step 2: Descriptive narratives*

*Step 3: Sorting fragments into themes*

*Step 4: Developing meaning(s)*

*Step 5: Essential elements*

*Step 6: Super-ordinary elements*

*Step 7: Weighting of super-ordinary elements*

*Step 8: Super-ordinary summary words*

*Step 9: Summary word descriptions*

# ToE-SEEing process

## ***Step 1: Gathering data and establishing structures***

- researchers have to immerse themselves in the experience completely
- collect the information for writing the descriptions for later steps (e.g. images, sounds, samples)

## ***Step 2: Descriptive narratives***

- transform the data collected in Step1 into a textual format for analysis



# ToE-SEEing process

	A	B	C	D
	Step 1: GTK	Step 2: Data gathering		Step 3: ToE Meta-Themes / Sub-themes / themes
1				
3				<b>THE BODY-SOMATIC EXPERIENCE</b>
4				sensorial
5				sound
6				touch/feel
7				sight
8				smell
9				taste
10				comfort (ergonomics)
11				appearance (aesthetics)
12				
13				<b>THE HEART-AFFECTIVE EXPERIENCE</b>
14				positive emotions
15				negative emotions
16				
17				<b>THE HEAD-COGNITIVE EXPERIENCE</b>
18				conation-reflective thought-external-doing
19				cognition-reflexive thought-internal-thinking
20				
21				<b>OUT THERE-CONTEXTUAL EXPERIENCE</b>
22				environmental factors
23				regulatory factors
24				social factors
25				
26				<b>EXISTENTIAL FACTORS</b>
27				time
28				space
29				corporeality/body
30				relationship to others
31				
32				<b>CORPORATE, ECONOMIC FACTORS</b>
33				
34				<b>OTHERS</b>
35				

## Step 3: Sorting fragments into themes

- Meta-themes  
(higher level theme configurations)
- Sub-themes

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# ToE-SEEing process

	B	C	D	E
	<b>Step 2: Data gathering</b>		<b>Step 3: ToE Meta-Themes / Sub-themes / themes</b>	<b>Step 4: Meanings (all)</b>
1				
2				
3			<b>THE BODY-SOMATIC EXPERIENCE</b>	
4			sensorial	
5				
6			sound	
7				
8			touch/feel	
9				
10			sight	
11		168	let me see the message	checked the familiar function
12		106	hum! Can I scroll it up?	curious about how to operate the scroll bar
13		1	(took a look of the phone,	curious about the phone
14		39	what image inside	curious the content of the phone
15		26	browse what is inside	curious the functionality of the phone
16		24	at least I found out the menu, and...try to..	good to see the menu
17		47	I found out actually the button blue sense working	happy to know how to operate the unfamiliar function
18		21	uhhh...it's...ahhh...it's really doggy	he didn't like it
19		76	(the pop up dialogue box disappear quickly)	it will be good to close the pop up dialogue box by pressing an icon
20		126	I can do picture	knew what he can do
21		28	I'm going to the applications	knew what to do
22		14	(but it didn't work)	might have to tapping the screen harder
23		94	kinda very slow, then it stopped	needed explanation
24		107	Can I scroll down?	needed instruction
25		103	(but it didn't work,	no feedback on the screen, might need to tapping the screen harder

## Step 4: Developing meaning(s)

- to find the deeper meanings behind the fragment
- to 'tease out' the text into different meanings
- to accept all 'possible' meanings that are contained within the fragment

# ToE-SEEing process

	E	F
	<b>Step 4: Meanings (all)</b>	<b>Step 5: Essential elements</b>
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11	checked the familiar function	checked the familiar function
12	curious about how to operate the scroll bar	curious about how to operate the scroll bar
13	curious about the phone	curious about the phone
14	curious the content of the phone	curious the content of the phone
15	curious the functionality of the phone	curious the functionality of the phone
16	good to see the menu	good to see the menu
17	happy to know how to operate the unfamiliar function	happy to know how to operate the unfamiliar function
18	he didn't like it	he didn't like it
19	it will be good to close the pop up dialogue box by pressing an icon	it will be good to close the pop up dialogue box by pressing an icon
20	knew what he can do	knew what he can do
21	knew what to do	knew what to do
22	might have to tapping the screen harder	might have to tapping the screen harder
23	needed explanation	needed explanation
24	needed instruction	needed instruction
25	no feedback on the screen, might need to tapping the screen harder	no feedback on the screen, might need to tapping the screen harder

## Step 5: Essential elements

- to filter out the less important meanings
- if the element is essential to the experience, or the experience might be different without the element

# ToE-SEEing process

## Step 6: Super-ordinary elements

- to distil the super-ordinary essence of the experience, i.e. the unexpected, novel and hidden aspects of the experience
- to isolate those elements of the experience that might not have been seen as an important part of the original design
- this process searches for the surprising elements, the unintended impacts of the experience.

	H	I	J
	Step 6: Superordinary elements	Step 7: Weighting	Step 8: Superordinary summaries
1			
11	clear content	7	understanding
12	clear instruction	7	understanding
13	clear instruction for next step	7	understanding
14	clear/easy to understand feedback	7	understanding
15	consistent icons for the same purpose	7	understanding
16	instruction	7	understanding
17	instruction/same gadget with PC, same way to operate	7	understanding
18	let the user dominate the phone	7	understanding
19	show the operation process clear as the web site: menu1=>phonebook=>contact list	7	understanding
20	the button of turning on the phone should be emphasized	7	understanding
21	the function of messaging is really important, most of users might trial the function on an unfamiliar phone	7	understanding
22	the icons & titles have to consistent and present the functionality precisely	7	understanding
23	the menu seems the best guide to the user	7	understanding
24	the phone should be easy to operate and spend less than 10 second to decide what/how to do	7	understanding
25	the sensitivity of the screen should be improved	7	understanding
26	the way to show extra functions is clear	7	understanding
27	understood what is the next step to achieve his goal	7	understanding
28	using habits might vary individually	7	understanding
29	correct/point out the mistakes	6	guide
30	good adaptability of the user	6	guide
31	has clear goal when operating the phone	6	guide
	if any function can help out more in every day life	6	guide

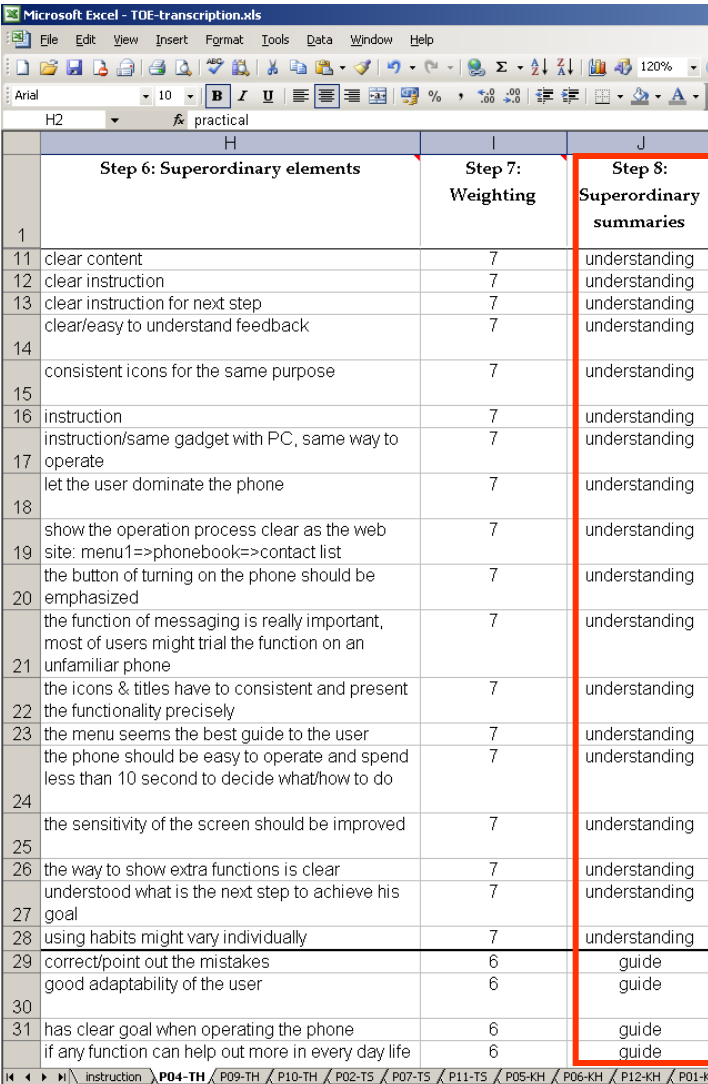
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## Step 7: Weighting of super-ordinary elements

- to weight which super-ordinary elements are more 'powerful' of the essential elements of the experience by Likert rating 1-7

# ToE-SEEing process



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## Step 8: Super-ordinary summary words

➤ to use word metaphors to synthesise ‘what is the collective meaning behind these elements’?

For example:

The super-ordinary element of ‘no risk means no fun’, could essentially be a statement about ‘freedom to enjoy danger’

# ToE-SEEing process

## Step 9: Summary word descriptions

- to summarise Steps 6-8
- to present the understanding of the experience to someone who does not understand the meaning of the super-ordinary words by 1-2 narrative paragraphs

Step 8: Superordinary summaries		Step 9: Summary descriptions
1		
11	understanding	<b>Understanding-from the head</b>
12	understanding	'Clear content, feedback, icons, buttons' are the proity elements of the phone. To understand how to lock the phone, how to get the further functions on the phone and to recognize the progress of the operation would help to make the operation easier.
13	understanding	
14	understanding	The sensitivity of the screen should be improved, slow reaction of the phone made the series operation confused the user.
15	understanding	
16	understanding	Users might have different habits to operate the phone, letting the user to dominate the phone is important.
17	understanding	
18	understanding	Sending message is one of the most used function on the phone, users might test the phone with this function.
19	understanding	
20	understanding	
21	understanding	
22	understanding	
23	understanding	
24	understanding	
25	understanding	
26	understanding	
27	understanding	
28	understanding	
29	guide	<b>Guide-from the thinking</b>
30	guide	Good adaptability from the user will guide a smooth operation. If the system can 'correct/point out the mistakes', it will help to understand the logic of the phone, to save the time to achieve the goal.
31	guide	
	guide	



### *Understanding-from the head*

Users expected to understand how to operate the phone before using it

- show instructions
- demonstrate the phone



**Others: comfortable, intimacy and so forth.**

# Result

## elements of user experience with Vodafone 541

### *Experienced and familiar- from daily life and history*

Users compared the phone with previous experience

- same way as using computer
- detect mistake & help



### *Understanding-from the head*

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## elements of user experience with Vodafone 541

### *Experienced and familiar- from daily life and history*

Users compared the phone with previous experience

- same way as using computer
- detect mistake & help

### *Specific-from the physical*

Information from the physical phone; different position might only for operating specific tasks



### *Understanding-from the head*

Users expected to understand how to operate the phone before using it

- show instructions
- demonstrate the phone

### *Freedom-from the operation*

Small size, cross functions without starting from the main menu

### *Share-from the data & mind*

Link to the internet affect users' pleasure to share information

- easy to carry with
- show off the phone



Others: comfortable, intimacy and so forth.

# Conclusion

- ToE-SEEING helps this study to discover users' experience step by step whether the experience comes from history or was produced whilst using the object;
- The elements of this study not only reflect the user's expectation of the product, but also highlight **the components that the user cares about most;**  
**such as: instructions on the phone, able to dominate the phone, size of the phone, share life with friends and so forth.**
- The elements expose the lack of the interface design;
- ToE-SEEing helps to improve design guidelines;
- Understanding user experience should take place before conducting DESIGN

**Thanks for your attention**

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**any questions?**