

COMPARING THE SELLING POINTS OF PRODUCTS WITH PROBLEMS OF PRODUCTS

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ABSTRACT:

In recently years usability problems of electrical appliances have increased with increase of product functions. Also the selling points of electrical appliances appear in a catalogue. The selling points mean new functions, fresh designs and as well as improvement of various problems. Therefore the selling points are very attractive for users. Additionally, we can guess the manufacturer strategy through the selling points. The purpose of this study is to compare manufacturer strategy with user thinking about electrical appliances. As a result of analysis it was found that common usability problems which extracted from selling points are “troublesome for taking a long time” and “bad layout”. Moreover it was compared user thinking with the manufacturer strategy through the format we made, then it was found the differences between manufacturer strategy and user thinking in usability.

The Keywords: selling points, user thinking, the manufacturer strategy

1. INTRODUCTION

Nowadays many manufacturers develop and produce new electrical appliances one after another and try to tell users the product features for appeal by using selling points. Also recently functions of electrical appliances have increased gradually. As a result the fact suggests that usability problems increased.

Users are attracted by selling points of electrical appliances when users purchase a product. Thus, users have an interest in electrical appliances. It means that selling points of electrical appliances are very important for both users and manufacturer. Also the research concerning selling points of electrical appliances has not been proposed. Then, the purpose of this study is to extract problems from selling points and to examine the differences between user thinking and manufacturer strategy. Also we only deal here with usability problems not design and function.

To begin with, it is essential to describe what selling point is. In next section, it is described about selling points.

2. SELLING POINTS

2. 1. DEFINITION

As a beginning we would like to define technical terms. We can define “selling points” as emphasized comments about a function and characteristics in a catalogue. Moreover, we can define extracted usability problems from task analysis as “user thinking” and also extracted selling points from catalogues as “manufacturer strategy”.

2. 2. TYPES OF SELLING POINTS

We extracted many selling points from a catalogue in accordance with the definitions. Moreover it was classified many extracted selling points into three categories. It was found that three categories are composed of “the latest function”, “fresh design” and “improvement”. Figure1 shows an example of selling points of digital camera.

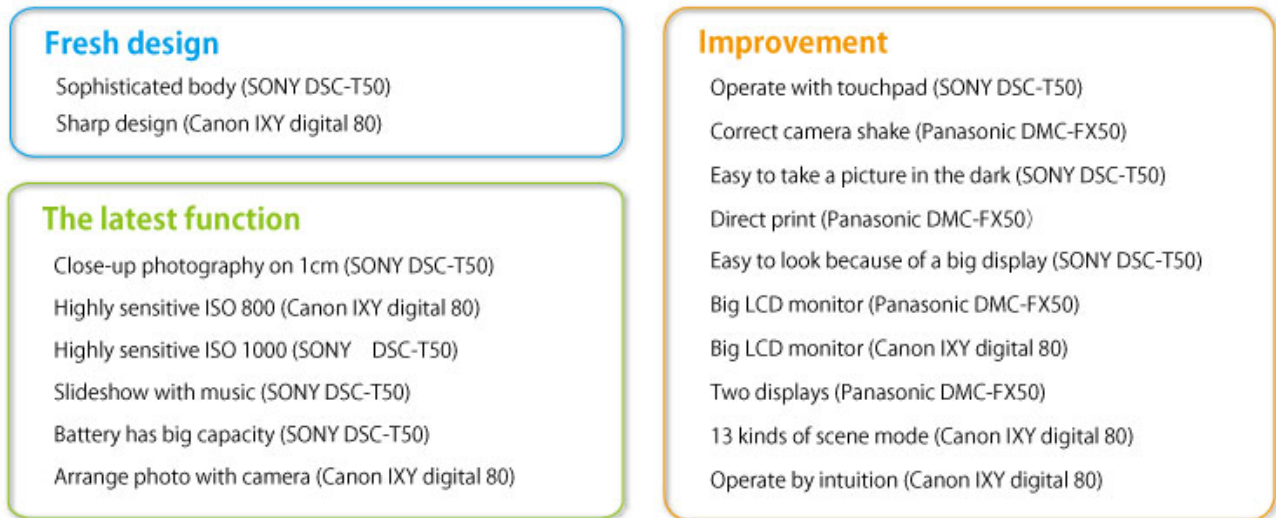


Figure 1: 3 categories of selling points and examples

2. 3. CONTENT OF SELLING POINTS

It was found that selling points are composed of three categories. But we wonder about “improvement” is whether improvement of a small problem or a big problem. Let us consider it. When consumers purchase electronic appliances, consumers are interested in price, design, function, etc. Therefore selling points clearly need to attract consumers. Also consumers react to “selling points” by improving usability problems and requests which people have in daily life. However if the manufacturer says an improvement of a small usability problem as a selling point, it is not attractive for consumers. It follows from this that selling points are approved of only improving a big usability problem which consumers have in a daily life.

To make an example, let us compare two selling points as an example, “bright display” and “appropriate layout of button”. In the case of “bright display”, it can be guessed that the previous problem is “not bright display”. Also in the case of “appropriate layout of button”, it can be guessed that the previous problem is “not appropriate layout of button and difficult to push button” By comparing two selling points, most users will be attracted by “bright display” because most people are more concerned about their eyesight than appropriate layout of button. Accordingly we can guess that “improvement” of selling points is improvement of a big usability problem not a small problem.

2. 4. THE WAY TO EXTRACT USABILITY PROBLEMS FROM SELLING POINTS

The way to extract usability problems from selling points is to change selling points into negative sentence. Therefore we can guess previous usability problems through selling points.

To make an example of DVD recorder, there is a function “User can record TV program by using cellular phone” as a selling point. In this case this function means to prevent human error which user can record TV program by cellular phone when user forgets to record TV program. Therefore it can be guessed that the previous usability problem of this function is “user often forgets to record TV program” Thus it can be guessed previous usability problems from selling points and interrogated previous usability problems into basic items which we made. Figure 6 shows the way to extract usability problems through selling points of washing machine as an example.

To sum up this section, it was found that selling points of electrical appliances are composed of “the latest function”, “fresh design” and “improvement of a big problem “. Also it is able to guess a previous problem from selling points by changing into negative sentences. Therefore it is able to understand the manufacturer strategy through selling points. For example, when a manufacturer sells electrical appliances, given that manufacturer emphasizes the latest function as a selling point. Consequently it is able to understand that the manufacturer strategy is to emphasize the latest function.

2. 5. STRUCTURING OF SELLING POINTS

We will turn to a discussion of popular usability problems. It was extracted many selling points from catalogues and guessed many usability problems. Moreover in this section, it was derived highest-conception from extracted many usability problems. As a result it was found that the most popular usability problems of electrical appliances are “troublesome for taking a long time” and “bad layout”. Figure 2 shows an example of two usability problems. Judging from this result, it was found that present trends of selling points are about ‘time’ and ‘layout’.

3. METHOD

In this section we describe the method how to examine selling points and usability problems.

Troublesome for taking a long time

- Start up by one push (DVD recorder, SHARP DV-ACW38)
- Direct print (Printer, canon MP600)
- Printed on both sides automatically (Printer, canon MP600)
- Input title automatically (Audio component, Panasonic SC-SX850)
- Forward to SDcard a random (Audio component, Panasonic SC-SX850)
- Download music not through PC (Audio component, SONY NAS-M70HD)
- Direct print (Digital camera, Panasonic DMC-FX50)
- Direct recording not through PC (Portable audio player, sony NW-S706F)
- Adjust volume and change setting as folding (Cellular phone, sharp PW-TC900)
- Adjust quantity of water by automatic (Washing machine, TOSHIBA TW-170VD)
- Most fastest transference in the world (Audio component, SONY NAS-M70HD)

Bad layout

- 2 way supply papers (Printer, canon MP600)
- Easy to set (Printer, brother DCP-750CN)
- Operate as closed (Cellular phone, Soft Bank 811T)
- Check time and information without seeking sidekey (Cellular phone, au W44K)
- There is a terminal in front (Audio component, VICTOR UX-QM7)
- Operate by remote controller without look (DVD recorder, TOSHIBA RD-XD92D)
- Operate by thumb without look (Portable audio player, iPod shuffle)

Figure 2: examples of “troublesome for taking a long time” and “bad layout”

3. 1. PROCEDURE

The following approach was employed in this study.

1. Decide which electrical appliances we will analyze
2. Conduct a questionnaire to narrow down electrical appliances
3. Conduct task analysis¹ and extract usability problems from task analysis data
4. Make basic items based on task analysis data
5. Extract usability problems from selling points
6. To compare extracted usability problems from selling points with extracted usability problems from task analysis data through basic items

It means that comparing user thinking with manufacturer strategy.

3. 2. DECISION ABOUT ELECTRICAL APPLIANCES WE ANALYZE

Firstly it is essential to decide the electrical appliances we analyze in this paper. Hence it was picked about 50 products which we usually use in daily life. Moreover it was narrowed down 50 products to 16 products on condition that it is considered to have usability problems by brainstorming². However we can't examine 50 products whether to have usability problems. Therefore we narrowed down 16 products judging by our past experience. Consequently, it was found that 16 products are microwave, DVD recorder, portable audio player, rice cooker, printer, refrigerator, cleaner, TV, electronic dictionary, air conditioner, audio component, digital camera, cellular phone, washing machine, phone with facsimile and heater.

3. 3. QUESTIONNAIRE

We used the following questionnaire to collect products which user regards usability as important. Figure 3 shows content of a questionnaire. The number of subjects is 34 people who are university students (17 men, 17 women). Average age is 20.94 years old and standard deviation is 1.65.

Please answer this questionnaire about electronic appliances.

sex : male • female

age : _____

● Question

How important is usability for you when you purchase electronic appliances?

Please describe a circle on number which you think reasonable.

5 : very important 4 : important 3 : normal 2 : not so important 1 : not very important

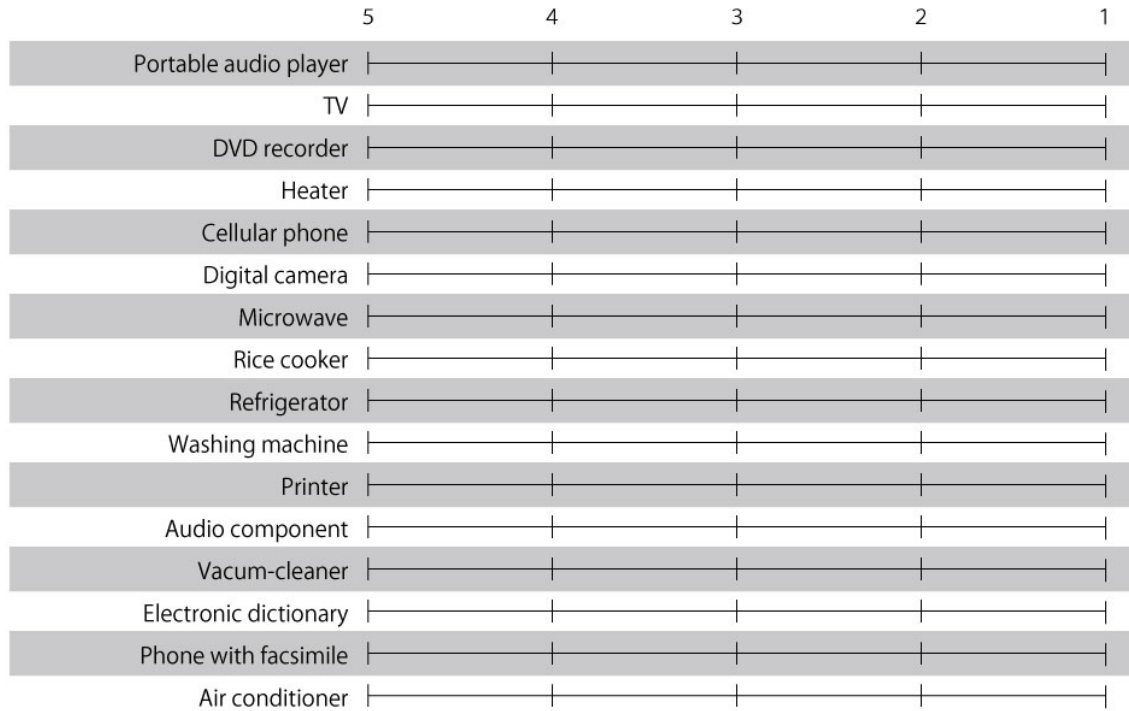


Figure 3: questionnaire about electronic appliances

3. 4. TASK ANALYSIS

We made university students do task analysis about selected electrical appliances to extract the usability problems. Then we made a format (Figure 4) on the basis of the data which we extracted from task analysis. When this format was made, it was referred 70 basic items by Yamaoka¹. It was classified data which we extracted into three categories. Three categories are “perception”, “cognition” and “operation”. They mean human information process system. In this research, we can define extracted usability problems from task analysis as “user thinking” and also extracted selling points from catalogues as “manufacturer strategy”.

Basic items

Perception	Cognition	Operation
A1 Not best layout	B1 Unknown Icon	C1 Need force
A2 Difficult to look screen	B2 No affordance	C2 Uncomfortable position
A3 Bad mapping	B3 Misleading	C3 Difficult to adjust
A4 No clues	B4 No feedback	C4 Duplicate tasks
A5 Not be emphasized	B5 Not best terms	C5 Trouble to move
A6 Short display time	B6 Not understand procedure	C6 Lots of tasks
A7 Difficult to look display	B7 No consistency	C7 Long waiting time
A8 Much information	B8 Not accord with mental-model	C8 Labor of maintenance
		C9 Not best layout
		C10 No fit
		C11 Not respond to error
		C12 Dangerous

Figure 4: the data we extracted from task analysis

4. RESULT

4. 1. ELECTRONIC APPLIANCES

As a result of questionnaire, we extracted 8 products from 16 products on condition that above average. Extracted 8 products are DVD recorder, cellular phone, digital camera, washing machine, printer, electronic dictionary, portable audio player and audio component. We defined selected 8 products as "A group that user regards usability as important when user purchase electronic appliances." Figure 5 shows selected 8 products.

4. 2. EXTRACT USABILITY PROBLEMS FROM SELLING POINTS

We extracted selling points about only usability problems from each catalogue about 8 elected products by questionnaire. We extracted selling points from 3 products per 3 manufacturers. Also we guess the usability problems from selling points and then extracted them. Moreover we interrogated selling points into basic items.

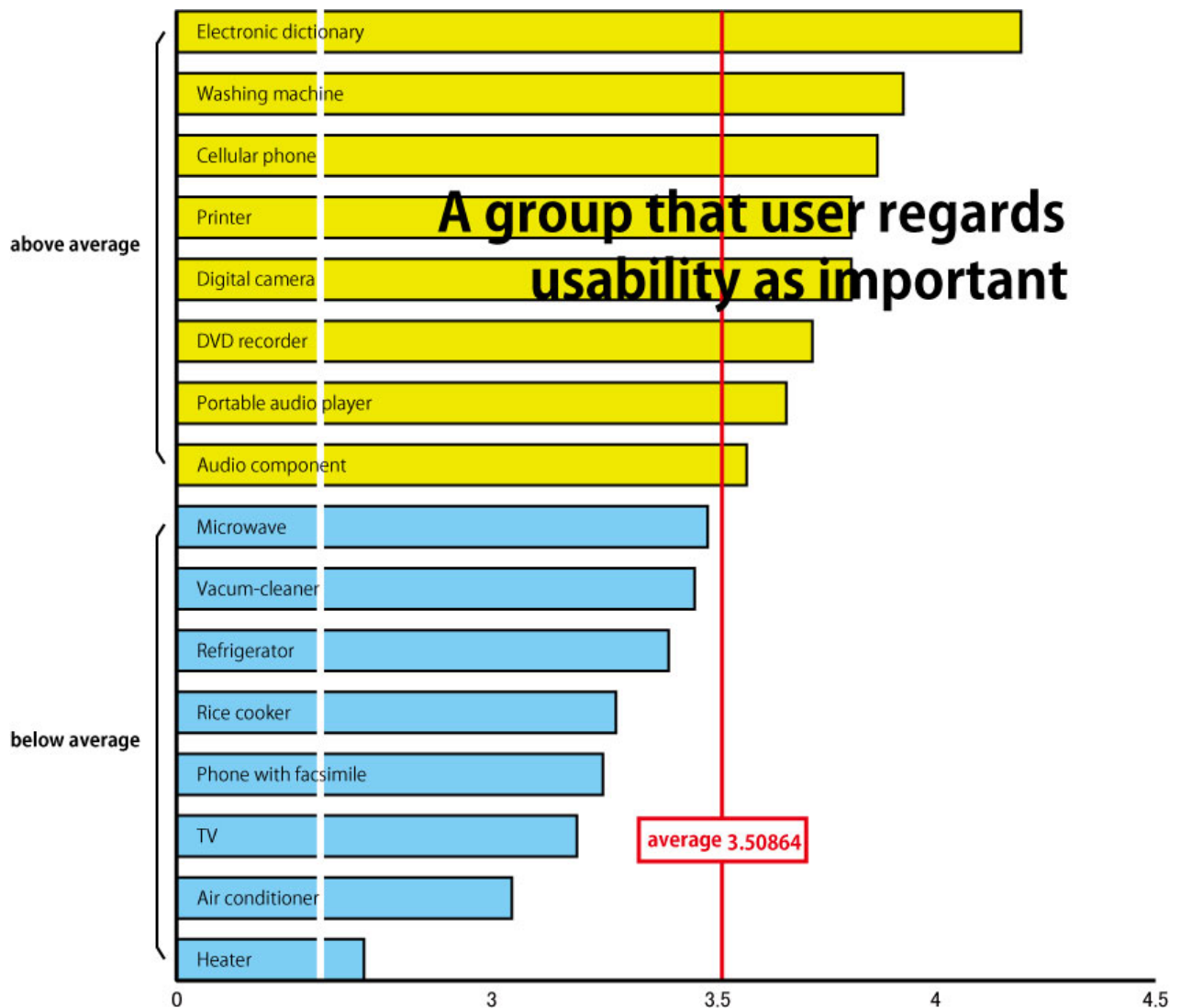


Figure 5: selected 8 products

The way to extract previous usability problems from selling points is to change selling points into negative sentence. Figure 6 shows an example about a washing machine. In this example, there is a selling points “big LCD monitor” in perception. We changed this item into negative sentence and it was found that previous usability problem is “difficult to look display”. In the same way, there is a selling point “easy to use” in cognition. We changed “easy to use” into negative sentence and it is able to guess that previous usability problem is “not understand operating procedure”. Hence it is able to guess previous problems through selling points.

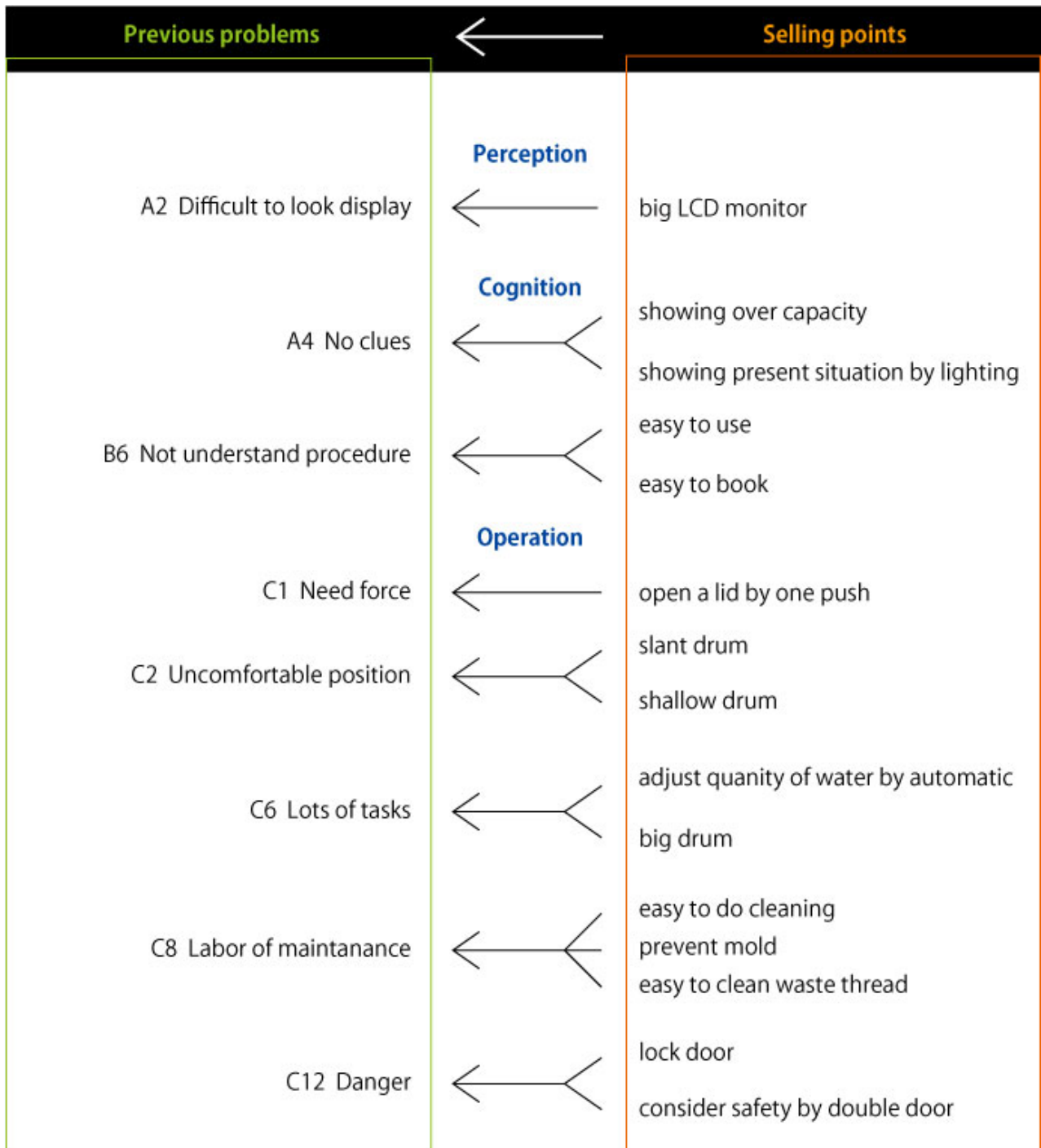


Figure 6: guess previous problems from selling points in washing machine

4. 3. AHP

AHP(Analytic Hierarchy Process)³ is one of decision-making methods.

Firstly, it was found usability problems by data of task analysis. However we can't understand which problems are important. So it is essential to find important problems. Then, we conducted AHP to find important usability problems. It was conducted in three categories "perception" "cognition" and "operation". Figure7 shows an example of cellular phone in perception.

Basic items	Importance
Not best layout	.2561
Difficult to look screen	.0439
Bad mapping	.1631
Not be emphasized	.0478
Difficult to look display	.1145
Much information	.3746

Figure 7: example of AHP

We see from Figure 7 that most important items of cellular phone in perception are "Not best layout" and "Much information". Likewise we conducted AHP on 8 selected products. Figure 8 shows important items in 3 categories of all products.

Washing machine	Digital camera	Portable audio player	DVD recorder
<p>A. Perception A4 No clues A7 Difficult to look display</p> <p>B. Cognition B4 No feedback</p> <p>C. Operation C2 Uncomfortable position C8 Labor of maintenance</p>	<p>A. Perception A2 Difficult to look screen</p> <p>B. Cognition B6 Not understand procedure</p> <p>C. Operation C10 No fit C3 Difficult to adjust</p>	<p>A. Perception A4 No clues A7 Difficult to look display A8 Much information</p> <p>B. Cognition B6 Not understand procedure</p> <p>C. Operation C10 No fit</p>	<p>A. Perception A8 Much information</p> <p>B. Cognition B6 Not understand procedure</p> <p>C. Operation C10 No fit</p>
Audio component	Electronic dictionary	Printer	Cellular phone
<p>A. Perception A1 Not best layout</p> <p>B. Cognition B6 Not understand procedure</p> <p>C. Operation C3 Difficult to adjust C9 Not best layout</p>	<p>A. Perception A2 Difficult to look screen</p> <p>B. Cognition B3 Misleading B6 Not understand procedure</p> <p>C. Operation C9 Not best layout</p>	<p>A. Perception A1 Not best layout</p> <p>B. Cognition B6 Not understand procedure</p> <p>C. Operation C8 Labor of maintenance C9 Not best layout</p>	<p>A. Perception A1 Not best layout A8 Much information</p> <p>B. Cognition B6 Not understand procedure</p> <p>C. Operation C9 Not best layout C10 No fit</p>

Figure 8: important items of 8 selected products

4. 4. COMPARISON

We compared the extracted problems from selling points (manufacturer strategy) with the extracted problems from task analysis (user thinking). Here “user thinking” reflects the result of AHP. As a consequence it was found some items accord with each other and the other mismatched items. Here “according items” means that user thinking accords with manufacturer strategy. Furthermore “disaccording items” means that user thinking exist but manufacturer strategy doesn’t exist. Here we don’t deal with reverse pattern (manufacturer strategy exists but user thinking doesn’t exist).

Washing machine

according items: A4, C2, C6, C8, C12 disaccording items: A7, B4

Digital Camera:

according items: A2, C10 disaccording items: B6, C3

Portable Audio Player:

according items: A7, C10 disaccording items: A4, A8, B6

DVD recorder:

according items: A8, B6 disaccording items: C10

Audio Component:

according items: B6, C6 disaccording items: A1, C3

Electronic Dictionary:

according items: A2 disaccording items: A1, B3, B6

Printer:

according items: B6, C9 disaccording items: C8, A1

Cellular Phone:

according items: A8, C10 disaccording items: B6, C9

5. STUDY

We made an interpretation about comparison as to 8 products.

Washing machine:

It was found that the items which correspond to user thinking and manufacturer strategy are about maintenance of cleaning, position of doing a washing, danger of lid, troublesness of setting and clue of present situation. It was found that number of according items of washing machine is larger than the other products. Also the disaccording items are about feedback and display. In my understanding it follows this that users may be concerned about feedback and display when users use a washing machine.

Digital Camera

It was found that the according items are about display and fit to a product. Also the disaccording items are about operating procedure and adjustment. This result means that users may be concerned about operating procedure and adjustment when users use a digital camera. The manufacturer of digital camera tells users “design” and “function” as selling points. Therefore it was found that the manufacturer doesn’t appeal “usability” about operating procedure and adjustment etc very much.

Portable Audio Player

It was found that the according items are about easy to look display and fit to earphone. Also the disaccording items are about operating procedure, information and clue. My interpretation of the results is that users may be concerned about procedure of operation, information and clue when users use a portable audio player. Most manufacturers of portable audio player tell “design” not “usability”. It follows that the manufacturers don’t regard “usability” as important.

DVD recorder

It was found that the according items are about a lot of buttons of remote controller and procedure to record. Also the disaccording item is about fit. As a result it was found that the manufacturers tell “usability” as selling points. So there are a lot of the according items.

Audio Component

It was found that the according items are about procedure to record and quantity of tasks. Also the disaccording items are about adjustment and layout. In my understanding, most manufacturers tell “function” as selling points. Hence there are a lot of the disaccording items.

Electronic Dictionary

It was found that the according items are about easy to look display. Also the disaccording items are about layout, operating procedure and misleading. Most manufacturers tell a lot of function as selling points. It means that manufacturer doesn't regard "usability" as important.

Printer

It was found that the according items are about procedure and layout. Also the disaccording items are about maintenance and setting of detail. In my understanding, most manufacturers appeal "usability" as selling points. But also users are concerned about maintenance. Manufacturers should note that point.

Cellular Phone

It was found that the according items are about quantity of information in GUI and fit to buttons. Also the disaccording items are about layout of buttons, operating procedure and layout. Most manufacturers tell "design" and "function" as selling points. It means that most manufacturer don't appeal "usability".

To sum up, the products which number of according items is large are washing machine, printer and DVD recorder. This result means that these products are groups which products are used as a family. In the same way, the products which number of disaccording items is large are electronic dictionary, portable audio player, audio component, digital camera and cellular phone. This result means that these products are groups which products are used as individual.

6. CONCLUSION & FUTHER DEVELOP

In concluding, it was found that manufacturer strategy don't always accord with user thinking. We propose that manufacturer take this point into consideration in telling selling points. In this research, subjects are students. Hence in the next it is essential to examine people without students.

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