The GUI Design for the Products of Business Use by Using the Business User Model

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Abstract. The products of business use mean the instruments for office work, the machine tools, the medical instruments and the other instruments for professional use that are delivered to offices, factories, hospitals and other facilities. Because the user uses it for occupation, the context of use is confined or restricted. If we would like to design the GUI with good usability logically, we have to specify the context of use of the products of business use. Therefore, we propose the method to clarify the context of use by using the Business User Model (the persona for the products of business use).

Keywords: GUI, Persona, Business use.

1   Background

The products of business use mean the instruments for office work, the machine tools, the medical instruments and the other instruments for professional use that are delivered to offices, factories, hospitals and other facilities. The user of the products of business use uses the instruments for occupation. Therefore the context of use is confined or restricted.

For example, in the case of the electronic medical records (EMR), there is the context of use such as "The doctors look at the screen carefully about five hours each day in the examination room of the hospital". When we consider the GUI design of the EMR, the designer designs the GUI and we make the checklist (Ex. Structured Heuristic evaluation method [1]) for usability evaluation. After the design of GUI, we try to find usability issues on the GUI by using the checklist.

The checklist is very useful to evaluate the usability of the GUI design of products of consumer use that are not specific the context of use. But, it is difficult to find problems of the products of business use by using the general usability evaluation method. Because the user uses instruments only for their works, the context of use is confined or restricted.

For example, the doctors look the EMR screen carefully for a long time. If we use the generally checklist for usability evaluation such as "Contrast is too low?",

"Characters are too small?" and "A step-by-step guide appear?". The general usability evaluation method judges the low contrast screen have bad usability. And, we will select the screen that separated by vivid color. But, does the high contrast screen really have good usability for doctors? With such a design, doctors will feel the pain in their eyes.

If we sale the products that have such a problem, user will say the claim to us. So, customer satisfaction will be down and we have to change the design of the products by using our man-power and cost. That is big demerit for company that develops the products of business use.

2   Purpose

In this way, we cannot improve the usability of GUI design by using generally checklist for usability evaluation. If we would like to improve the usability of GUI design of the products of business use, we have to clarify the context of use such as "User looks at the screen long time". If we understand the context of use, then we will not select the screen that distinguished by color. Therefore, we propose the method for select the GUI logically by using the context of use of the products of business use in this paper.

3   Issue for Clarification of the Context of Use of the Products of Business Use

We have to consider the method in order to clarify the context of use. The "Persona" is the concrete person image which set up name, mug shot, role, goal, etc. supposing a typical user of the products. The technique for planning and development of the products which satisfies the persona's goal by always using the persona is called "Persona method". The persona method is often published in technical books and magazines. Then, a lot of products planners and designers know the methodology and effectiveness of the persona method as very effective user centered design method to improve customer's satisfaction on their products. [2]

However, the examples shown in the technical books and magazines are almost only about the end user of the products of consumer use like home electronics, food, etc. Of course it is important that we understand the end user for the products of business use too. But, in the case of the products of business use that is purchased by facilities budget, there are additional important factors such as the relation between end users and purchasing decider, the stakeholders of the facility, etc. Thus, the persona for the products of consumer use is inapplicable to the products of business use. [3]

## 4   Construction of Persona for the Products of Business Use

We gathered the well-informed people of our company and carried out brainstorming to extract the user's peculiar to the products of business use. We show the example of

the EMR. We were able to extract the following attributes. "place to use, way of the setting, doctor(end user), purchasing decider, nurse, patient, number of patient, how to learn, frequency to use, purpose to use, favorite design, etc." Then, we arranged the attributes and made the flow of the user interview. And, we investigated elements in every attribute by the user interview.

The model of the target user for the products of business use is completed by performing a classification of the result of the user interview by KJ method. This model is the new type of the persona for the products of business use. We call it the "Business User Model" in distinction from the conventional persona.

Table 1. Contents of the Business User Model

Item	Contents
Facility model	location, scale of facility, basic principle, culture, external environment, etc.
Organization model	scale of examination room, philosophy, role, the number of staffs, etc.
Personas	doctor, nurse, patient
Communication flow	flow of examination, consultation between employees, etc.
Communication scenarios	events of each communication
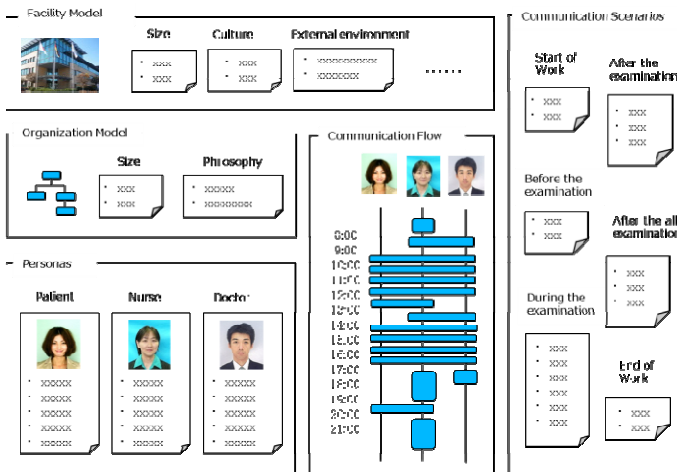
Fig. 1. The Business User Model

## 5   Clarification of the Context of Use by the Business User Model

We clarify the context of use by background information obtained from the Business User Model and issue of user obtained from the voice of user such as results of the user interview, claim, etc.

Table 2. The Business User Model + The voice of user   = The context of use

No.	The Business User Model	The voice of user	The context of use
1	Communication flow: The doctors use 5 hours total to patient examination	I want to explain the results carefully to the patient.	The doctors look carefully the EMR screen for a long time.

2	Organizational model:
	  Philosophy of hospital accountable to the patient.
	
	Communication scenario:
	  The nurse attends a medical examination.
		When I show a test result and a policy of the medication on the EMR screen, I am hard to talk with a patient.	The doctors operate the EMR screen while talking with a patient.
			A patient and a nurse varying in quantity of knowledge about the medical care watch the EMR screen at same time.

6   The Logical Design of the GUI

We consider the GUI design with good usability by clarified context of use by the Business User Model. If there is context of use such as "The doctors look carefully the EMR screen for a long time.", we can understand that the screen elements separated by group boxes or space is better than screen elements separated by high contrast.
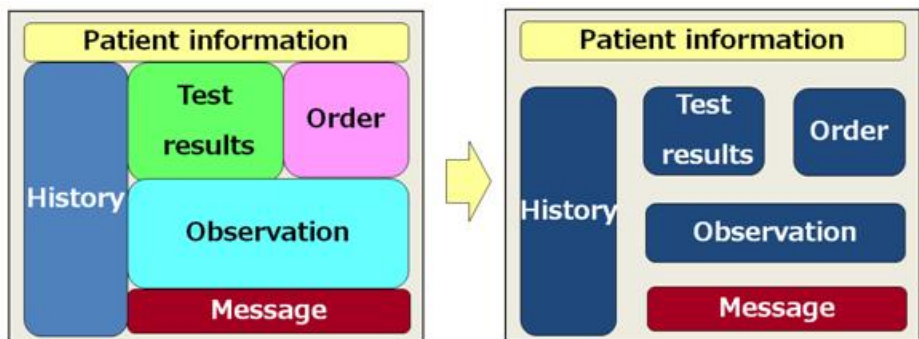
Fig. 2. Case studies - 1

And, if there are contexts of use such as "The doctors operate the EMR screen while talking with a patient.", "A patient and a nurse varying in quantity of knowledge about the medical care watch the EMR screen at same time.", we can understand that the EMR displays the information on screen in parallel is better than the EMR displays the information on screen consecutively.

Fig. 3. Case Studies - 2

7   Conclusion and Perspectives

If we clarify the context of use by the Business User Model, we can design the GUI with good usability logically. In the next step, we will collect more examples and we would like to show the relationship between the context of use and the GUI design.

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