

A Study on Content and Interaction Types on Smart-phone

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Abstract. This study includes literature investigation on interactions and information perception of users in order to clarify interaction types for different contents. It turned out that information perception of users was in close relation with content types. UI factors for different contents and those for different interaction types were examined, and it turned out that UIs most frequently used for contents were navigations and table lists, and that Tab, Drag, and Flick interaction types were most commonly utilized.

Keywords: smart-phone, smart-phone contents, interaction types

1 Introduction

Since there are a wide range of formats, contents, and services, types of interfaces that function to connect devices and users also have repeated evolutions. Recently, for example, the 'multi-modal' interface has been firmly established as a mainstream. From keyboard and mouse touch for pen, voice, and motion controls, various interface types are applied to one device, which has contributed to more intuitive communication with devices. In addition, interactions between humans and machines have advanced into a more natural type of communication. Hence, artificial devices are necessary to help the cognitive process in a touch-screen environment.

Users are already familiar with these smart-phone interfaces, and the platform environment has already entered the step of maturity. Thus, no additional learning is necessary for using them. Accordingly, smart-phone contents approach users with a series of rules. The objective of this study, therefore, is to grasp specific rules of such contents, analyze existing interaction types, and provide new interaction types that will enhance the value of user experience.

2 Interaction and Information Perception

According to Sharma (1998), humans recognize environments by means of senses such as sight, hearing, smell, and taste, and communicate through external elements

such as hands, bodies, faces, and voices[1]. This is basically an interaction between humans, and interaction at the interface between a human and a system emphasizes cognitive aspects of a user with the focus on the behavior that a human utilizes computers. In this respect, designing an interaction involves not only elements visible on the screen such as simple buttons and images but also elements that are invisible on the screen but affect behaviors of humans and devices.

Information processing of humans include perception, processing, and behavior in order. Stimulation from outside are recognized by sensory organs, and the information is sent to and processed by the central nervous system. Kantowitz(1989)[2] presents a human information processing model, which is also divided to the steps of perception, central processing, and behavior. This model is designed to grasp interactions among decision-making devices while they are carrying out tasks.

3 Touch Events and Contents

A feedback provides the user with information of how the task has been carried out and what has been the result[5]. In other words, a feedback presents a reaction to a certain action taken, information of a successful task implementation, and whether a certain behavior may continue[6]. Thus, this is a very important concept in terms of usability and sensibility, and it includes all types of reactions while a user communicates with devices or media.

However, it is not always necessary to provide multi modal feedbacks in every task: Users may have different preferences in feedback elements depending on the touch events, and the level of satisfaction also may be different depending on the situations[10]. Furthermore, multi modal feedbacks may decrease the level of satisfaction. In the process of examining feedback elements, therefore, it is vital to analyze user preferences and take into account the given situations. In a touch-screen environment with physical characteristics little involved, smart-phones pursue user-centered designs of visual perception. In the smart-phone environment that has entered the step of maturity, however, feedbacks seem to show regularity, and the corresponding tasks on the part of users are already decided. This is a type of interaction.

Basically, touch events result from tap inputs. Dragging over an object or the entire plane is another way. Other expressions such as flick also may be utilized in application of the base technology such as accelerating sensors. Touch events are divided mainly to basic and active events although there are various combinations of inputs in addition to them.

4 Contents and Interaction Types

Users rely mainly on the visual sense to obtain information. In a conscious state, visual feedbacks become the most important indicator of a task success or failure, but in an unconscious state, it is unable even to recognize the execution of a task.

However, auditive and tactile senses can inform the user of task execution even in an unconscious state through physical sensory organs, and it is possible to predict or present the next behavior of the user. Thus, feedbacks need to be provided in reflection of the use context. A user is likely to have a regular pattern of use, and related UI elements include such items as spring board, icon, navigation, searching, table list, feedback, controller, sliding menu, etc. Most frequently used interaction types are 'basic' and 'active.' User tasks and UI elements depending on the 6 types of touch events.

5 Proposal & Conclusion

Unlike analogue keypads, smart-phones have no physical borders between buttons that can be unconsciously recognized. Because of the touch-screen environment with few physical characteristics, smart-phones pursue user-centered design of visual perception. A major clue of indicating the success or failure of a task action in a smart-phone environment is feedbacks. Repeated and lasting feedbacks result from touch events of fingers on the smart-phone screen, and these events maintain a series of rules. Touch events are most frequently used in a familiar user environment, and they are divided to several types: static feedbacks such as tap, double tap, and long tap; active feedbacks such as drag, flick, and multi-touch; and combinations of different types of feedbacks. Interaction types involve user tasks such as click, screen transition, zoom-in/out, and icon movement. UI elements include springboards, icons, navigations, controllers, table lists, etc. It turned out that the same interactions might be used among different UI elements.

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