Designing a Simple Decision-Making in a Convergence Way

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Abstract

Modern society requires integrated and innovative application services for our better lives, but excessive complicated service is often hard to understand. We especially consider a poll service for gathering opinions and decision makings of a group. This paper suggests an innovative poll service which is extremely simple and moreover optimized for users, based on psychological theory. We put making user’s accessibility higher and developing eidetic user interface at first. Next we present analysis results of the interesting elements in our service and enthusiastic use of cognitive and behavioristic psychology. Moreover, we create a novel algorithm which information is most significant to user for the service. As this paper suggests innovate and integrated novel poll service, from now on, developing service in convergence way will be increasing and more advanced.

Keywords: Design application, Poll service, Psychology, Convergence, Cognitive User Experience

Introduction

In modern society, application services are required to be more integrated and innovative. Nowadays, smartphone is regarded as a fast-growing communication device due to the fact that it is always connected to the internet [7]. Because of that, the number of smartphone users and mobile applications are increasing. Due to its small display size, some advanced but excessive complicated services are hard to understand [9]. In order to develop innovate application service, we suggest a novel development process.

In this paper, we especially consider an application service specialized for poll which is defined as the process of finding out what people think about something to make decision. Various people have a demand for asking opinions for diverse purposes. However, there is no intuitive online voting service beads on human behavior that fill the demand of users due to the lack of accessibility. This paper suggests an innovative poll service which is extremely simple and moreover optimized for user.

Our development is focused on making application in convergence ways. Particularly, the service is based on psychological theory. As a preliminary process, we applied psychological application element and incorporated Human Computer Interaction (HCI) strategy. This application is designed for both web and a mobile as the platform, but much optimized for the mobile. In order to find the best application elements and interfaces, we actively try prototype process.

Related Works

Since HCI emerged successfully as area of convergence applied psychology in computer science, the area significantly advanced until these days. Also, in this connection, lots of actual studies have proceeded. Especially, by applying cognitive psychological theory, researchers can improve performance of user. By studying and analyzing user’s behavior with cognitive model, human-centered design accomplished higher outcome that are becoming conscious, easier to learn [8].

Meanwhile, designing process was also interesting keyword of human-centered design [2]. In the process of developing application, various processes can be discussed as early phase. Slightly difference in process can cause distinction in the usability of the product, so design process also becomes as a primary role that should be discussed.

Theory

In this section, we review theories and related research about developing the application in psychological way. We especially deal with ‘rank algorithm’ which is one of our main features.

First, usability can be used as users’ convenience about products or services generated by enterprises. However, various opinions from numerous users cannot be measured obviously [3], so the result of usability test may be subjective and hardly analyzable. To overcome the issue, usability goals that are divided from the factor can be used for the test. These sub factors are very efficient for taking measurements, observing phenomenon, and charting the test results. Some of usability goals that we used in this study are entertaining, accessibility, simplicity, motivating, and so on.

Second, HCI is an area of study to improve interactions between user and computer-based service. Most HCI researches are based on both cognitive science and computer science [10]. Nowadays,
distribution rate of computer science technology was rapidly increased, which leads users more demand for visual factors and study of HCI. In addition, drastic advance of computing performance make possible for applying cognitive psychology into HCI research.

Third, ranking algorithms determine the standing with two ways: globally and personally [11]. Global indexes are used with approaches by receiving anonymous user’s items and their ratings, so this way applied when the service share most individual’s items. On the other hand, personalized indexes reflect individuals’ own set-up and factor, so user can personalize diverse elements and the system can affect differently by individuals. Algorithms with these approaches have been applied for delivery of information in limitations. In recent days, Social rank takes center stage and is utilized in social network services such as Facebook and Twitter.

System Feature

Most parts of our service are designed contextually with psychological theory. We especially focused on the recognition of user’s own poll list, so we arranged individual’s poll onto the main page to make users confirm their own poll list as soon as user employs the service. It shows huge improvement in terms of accessibility, in comparison with existing group-based poll service such as Facebook which is in use globally. In this section, we examine some major features which we consider as psychologically important.

User wants to see the most necessary information first and it is directly related with usability and accessibility. We recognized that important polls should be appeared on top of the page, so we adopted poll-ranked algorithm in the main page. We discussed about choosing poll-ranking factor for a long time. We analyzed the behavior of individuals who uses social networking services and referred behavioral studies. Based on these backgrounds, we applied remaining time as the first factor fundamentally. In addition, we used the time of participation in each group as a second factor. This factor instructs how much other members think it is critical, so it suggests the importance of each poll indirectly. Moreover, we added customizing group importance, so user can set importance of each group and apply this as one of the factors.

This service also contains time-based importance notification feature. Each poll has a colored tag line which is related to the time remaining to close. The color turns into red when there is few time to complete the poll, based on the theory of cognitive psychology that urgency and emergency can be associated with red for most people. Users can get an impression of rush and motivation to participate for poll with red-colored tag line, even though the poll is low-valued in the ranking algorithm. Figure 1 shows priority tendency of each poll based on different color that we used.

Self-motivation for using same application again is very important for the rise and fall of the service. The motivation is directly connected to the number of people who uses the application, so we went to great pains with finding how to each user gets the motivation. In the service, there is an event after user participates in a poll to increase the motivation. When the user completes a poll, the application shows current results of the poll visually as a graph with pop-up form. This pop-up looks like a high-end interactions, so it gives user an impression like receiving rewards. Moreover, we designed the pop-up window that the part participated by the user is shown with different color on the graph to make the user to feel his or her belonging. As a result, users can satisfy their desire and get self-motivation.

Experiments

After developing major features of our service, we did a pilot test about the implementation of the functions. Functions tested are ‘Poll-ranked algorithm’ and ‘Pop-up total’. Testers rated with seven-point scale for each evaluation item which is related with usability such as simplicity, motivation, and entertaining. The result of the test is showed in Figure 2. Test participants usually received a positive impression, which suggests nice usability of the service. Evaluations about ‘motivating’ have specially got good scores, which mean that this application service has fine value for maintaining and increasing the number of users.

Conclusion

Making novel application in convergence way requires long study process in various directions. Putting contextual design study as a preliminary process
is clearly effective to apply innovative process. In this paper, we focused on psychological theory above all by using some integrated ways that can make some conceptual major features first. After that, we can develop entire process according as the main features, so it helps designing various functions which are based on psychology and also linked naturally with flow of entire application. Moreover, the functions with this developing are more optimized with user and these kinds of application services have more worth to attract users. As this paper suggests innovate and integrated novel poll service, from now on, developing service in convergence way will be increasing and more advanced.

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