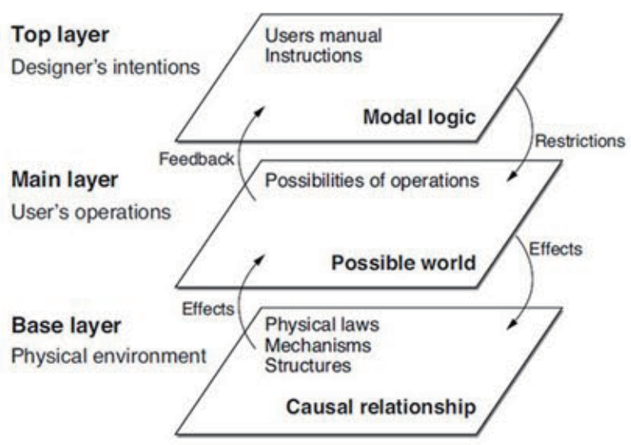
Abstract

Understanding the user's situation is very important in the design process. There are many ways to understand a user's situation – a designer might observe a user's situation or a user might record their own situation in Human Centered Design (HCD) file. However, the latter of these methods has not been very popular mainly because of the burden it place on the users. This research proposes a new smartphone-based design support application for creating value in design, named "NH camera", which can be used to record the users' situation, without any additional burden on them. This application is based on the 'Extended Alethic/ Deontic/ Temporal (ADT) model' concept. A user or a designer can understand and record the user's situation based on the Physical factor, the Kansei factor, and the Cultural factor using NH Camera. The application was used in visualizing and analyzing tourists' travel as a service design. Through this, the effectiveness of the proposed application was clarified.

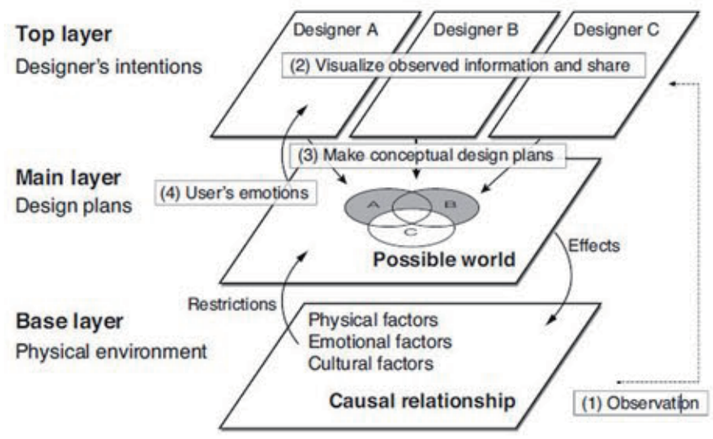
Proposal for Design Support Application Based on Extended ADT Model

What is Extended ADT model ?



ADT Model Concept

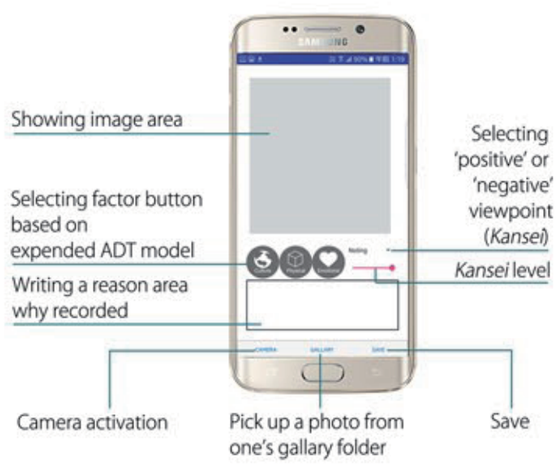
The user's behavior is affected by physical laws, and is restricted by designer's intention also. Designers need to observe the relationship between cause and effect in design. In other words, designers must observe the user's experience, based on the relationship with physical laws and the user's behavior.



The Extented ADT Model Concept

In the base layer, restriction from environment is described. These restrictions are based on three factors: physical, emotional, and cultural factors. The top layer represents designers' intentions. The outcomes of their work are shown on the main layer. The circles on the main layer indicate the set of possible solutions of each designer. Design works should convey designers' intention under restriction from environment.

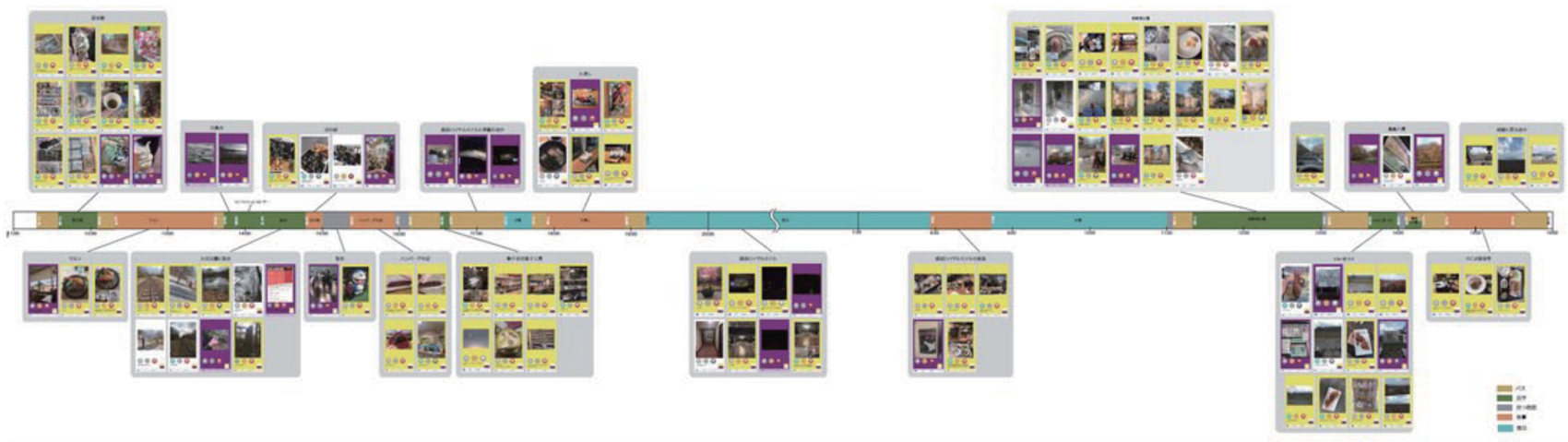
Proposal for Design Support Application Based on Extended ADT Model



A user is easy to use without any special experiences, can record repeatedly, and offer the convenience of connection to SNS using the internet. By using a mobile photo printer, the recorded information is printed out immediately, the printed photos are easy to use for the KJ method for creating design concepts as well.
If a user notices some information when conducting an observation, he/she can record this information, evaluating the physical, emotional and cultural factors immediately. When the user does not have enough time to record the information, he/she can later pick up photos from gallery folder of smartphone and record it slowly.

Summary

Understanding the user's situation is very important in the design process. Actually, user's needs in the service design field such as travel was said to be harder to visualize and clarify than product design, using only questionnaire method. However, it is easier to understand and grasp the user's situation or various needs by using HN Camera application based on the extended ADT model. Especially, taking a photo during travel is a very natural behavior for users, so participants did not feel any additional burden in recording some information using HN Camera in evaluation experiment. As a result, the effectiveness of the proposed application was clarified. In the future, our proposed application will be developed through further experiments.



Introduction

As users' situation with various products and services become more complicated, it is all the more difficult to clarify the user's potential needs through some questionnaire surveys alone.
Understanding a user's situation is very important in the design process. There are many ways to understand a user's situation – a designer might observe a user's situation, or a user might record their own situation in a Human Centered Design (HCD) file. According to Matsunami, our needs are divided into overt needs and potential needs. Overt needs are clarified (or verbalized) with a questionnaire survey. However, potential needs are difficult to clarify through such a questionnaire survey [1].
Consequently, many studies about the possibility and value of observation have already been conducted in HCD design field, and the significance of this observation process increases not only in the design education but also in the work process in design companies [2].
Previous researches about idea-creation in the design field have reported that a designer's living experience abroad as an internal factor that has positive influence on interpretation and use of information as an external factor [3]. This means that these learned experiences in different environments are related in finding and interpreting some problems, and were involved in the idea-creation process. For these reasons, there are many cases where the observation process based on the user's viewpoint is incorporated into the design process. In the service design process, the way of finding and interpreting of problems various, depending on the perspectives of the service provider and the service user.
Based on this background, Kang's research team has been working to improve the quality of observed information by incorporating the Alethic/ Deontic/ Temporal (ADT) model [4, 5]' into the design process. In addition, NH Camera, which is an application to support the observation process using smartphones, has been developed by Kang's research.
The purpose of this research is to examine the effectiveness of this application for creating value in the observation process, based on consideration of the case study where the proposed NH Camera application was used for visualizing user's various needs during a tour of Southern Hokkaido in Japan.

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