

# A Case Study of Internet Based User Participatory Design Method

Searching the possibilities of new approach of participatory design.

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**Abstract:** The new wave of the Internet technology that is called Web 2.0 has become a prevailing notion in the Web environment over recent years. However, while the designers have been able to gather participants' ideas and feedback through web applications, the participatory design methods have not been developed to the extent that it could properly collect the impact and outcomes of user participation in design process. This study aims to search for the possibility of utilizing Internet participation as part of alternative design methods. For that, I carried out a case study on 23 prominent websites which provides Web 2.0 technology to their user/participants. Recent Web 2.0 websites have implemented 5 main characteristics : Community, Publication, Openness, Connect, and Conversations. These are regarded as similar to participatory design's functional elements. Therefore, the research data retrieved from the users will be a valuable source for the development of design methods.

As the result of this study, I found two significant characteristics of the motivation triggered by Web 2.0 sites which induce user participation. Firstly, motivation to publish contents and to share their knowledge in the web environment is closely related to user's desire for emotional satisfaction. Secondly, web users are sharing and participating their ideas and feedback in pursuit of social connectedness.

In conclusion, the result indicates that using *Crowdsourcing* and *Opensource* websites for design methods either to improve design or to provide better products and services is possibly appropriate for such purposes.

**Key words:** *Participatory design method, Crowdsourcing, Opensource Web 2.0.*

## 1. Design Process Model

### 1.1 Design process model

Design process is considered as a sort of problem solving process. Especially, from the engineering viewpoint, it is true. [1] The definition of design includes the procedure and action of making solutions.[2] However, the term "problem" is not the same one used in the engineering field. Cross asserts that "problem" is ill-defined and it is hard to figure out.[3] Pahl, G. emphasized that typical design process could be defined as 6 step-model: **Goal Clarification, Solution Generation, Analysis, Evaluation, Decision, and Control**. He suggested such engineering viewpoint to approach dynamics of designers' work systematically. Although design work does

not systematically approach when it seeks for solution[4], his model presents a brief procedure of design processes from a macro perspective.

Basically, design process for interaction design is similar to that of conventional design process. Since problem solving process is the fundamental form of design procedure, both procedure are similar as they consist of defining, finding solution, and evaluating even though detailed term may vary. Alan Dix et al[5] defined that design is an activity which achieves goals within constrains. To achieve such goals, design process planning is based on experiment of possibilities and refinement of the result of prototype.

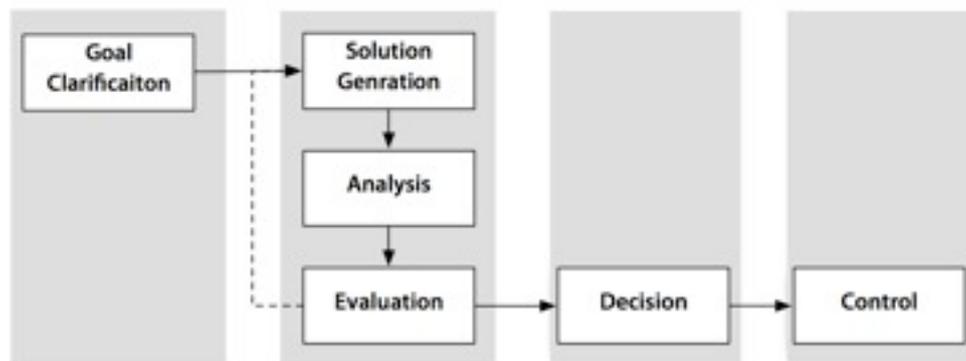


Figure.1 Design process model

Figure 2 shows the process of interaction design. **What is wanted** implies a project to collect information and figure out the main problems that the designer is aiming to solve. The documents for **What is wanted** are described after user research. It is also called "design brief" or "design statement." Throughout **Design and Prototype** process, designers make plenty of design solutions which fulfill goal statements. It is a cycling process of making available and successful design solutions. And in **Implementation and Deploy** phase, qualified design solution from evaluation is selected and prepared to implement a product or service for the real world. Figure 2 appears during the abstraction process. Comparing to Pahl's design process model, **What is wanted** of Alan's interaction design model can be overlapped on **Goal Clarification**. Also, **Solution Generation to Evaluation phase** can be a part of **Analysis and Design** process of Alen's. **Decision to Control** phase is similar to **Implement and deploy process** of interaction design. Since the purpose of this research is finding enhanced way of user participatory design with web, it would be adequate to consider the interaction design process model as a standard.

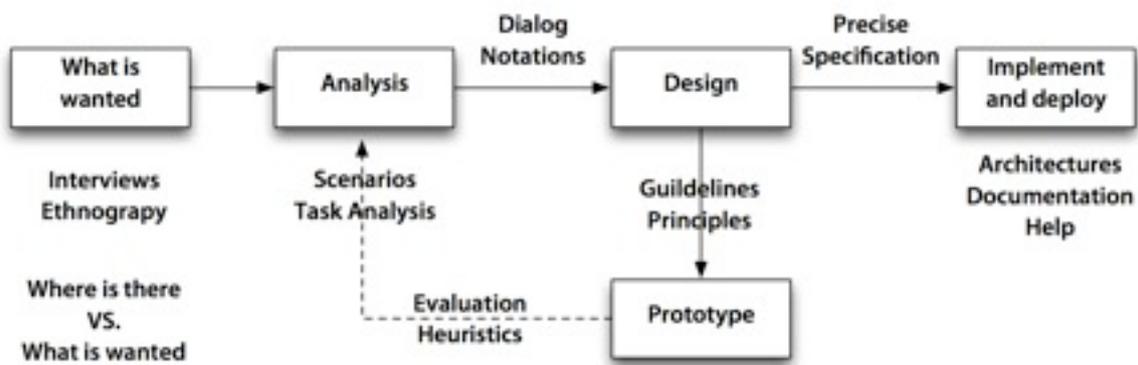


Figure.2 Design process on Interaction Design

## 1.2 Participatory design method

The first phase of design process is knowing *What is wanted*. It is most important part of design process, because quality of clarification leads last phases all. Therefore, for making better *Goal Clarification*, various researches to find the goals matching end users' needs has been initiated. Major topic for enhancing *Goal Clarification* is to avoid misunderstanding of end users' situations and contexts related to product and service. Document communication has limit to share what enduser needs. Thus, for avoid that problem, designers have to be deeply involved to comprehend users context.[6] One of the most popular approach is *Participatory Design*. Participatory design is an approach to design that attempts to actively involve the end users in the design process to help ensure that the product designed meets their needs and it is usable.[7].And it helps cooperation with end users for enhancing design outcome. As similar meaning, Co-Design or Empathic design can be a part of it.[8]

The main characteristics of participatory design is end user involves into several phases of design process. Participants contribute to discuss design goal in their point of view such as when user feels satisfaction while using product and service. And they involve into process for finding an appropriate solution among various design outcomes.

But, it is not enough to make an adequate design goals to let them participate. Sanders emphasize the way of collect user experience is not simple as interview.[9] So, Sanders suggests several anthropological approach to collect user experience with ethnography, in-depth interview, observation and generative session. Figure 3 shows the architecture of user research approach by Sanders. Also, because understanding user context is not easy, creative approach to user context has been suggested by B.Gaver called Cultural Probes which is developed to collect creative evidences by user themselves.[10] Consequently, participatory design has been developed for collecting rich user data and melt it into adequate design goals that leads design outcome to be a successful product or services.

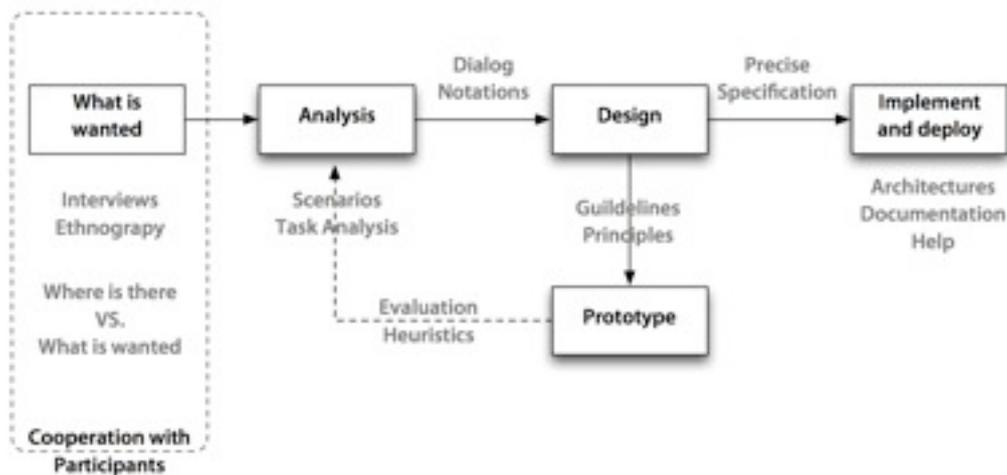


Figure.3 Design process of participatory design

### 1.3 Weakness of Participatory Design Method

As the participatory design method is working with several groups, cooperating is a priority issues for quality. However, practitioners face problems they don't have enough time to hire enough people to do participatory design method. Also, participants who has extreme characteristics and does not identified as representation of wanted group can be a bias for research. Those issues are have relevance to qualitative research. Qualitative research has advances for researching deeply and coherence context, but number and quantity is consequence matters to research result. Therefore the Internet space which has mass collaborative data and expression of participants by their own is considered as overcome those problems.

## 2. Web trends on Design collaboration.

### 2.1 Case study

I have surmise that the World Wide Web system can be an alternative approach to weakness of Participatory Design Method. I am curious on what can be the trend of web supported design method after Web 2.0 wave. I've searched example websites with keyword '*design*' and '*participation*' in delicious.com the web tag searching website. As a result, delicious.com shows over 1880 websites are related to those keyword. The result lists reduced after I have filtered advertisement, magazine, articles and web blogs, it shows only 23 websites have relevance with those two. I filtered website also well known as representative of issues such as Wikipedia, Flickr etc.

I grouped those websites with it's functional characteristics with a relation to participate in design process. Basically, they has homogeneous fashion that web sites follows the characteristics of Web 2.0 and Social Network service. Some of them shows their specialty as addressing inquiries from user.

Especially discussion with several product and services what they experienced. Also, some of websites are sharing their experiences and phenomenon what they considered as important issue for alternative product and

system design. On the other hand, there are the other websites which supports new design result contributed by participants. They are cooperating for one system and support idea and prototype and sharing it.

I distinguished websites which support idea together as '*Crowdsourcing*' and the other one as '*Opensource*'.

Also, there are some websites which supports both.

Table 1. List and type of websites

No	Websites	type of website
1	innocentive.com	crowdsourcing
2	sporepedia.com	opensource
3	senseworldwide.com	crowdsourcing
4	betavine.com	crowdsourcing
5	ideastorm.com	crowdsourcing
6	uservoice.com	crowdsourcing
7	spreadtshirt.com	both
8	thredless.com	both
9	makenangry.com	both
10	cafepress.com	both
11	zazzle.com	both
12	make.com	both
13	micropledge.com	both
14	photosynth.com	opensource
15	dotherightthing.com	crowdsourcing
16	ff0000.com	both
17	ratemydrawings.com	both
18	thoughtandtheory.com	crowdsourcing
19	99designs.com	crowdsourcing
20	37signals.com	both
21	tutorialblog.org	crowdsourcing
22	visualcomplexity.com	both
23	etsy.com	both

## 2.2 Characteristics of websites which related to design process

I define the common findings from 23 websites as two groups. One group is named as the collective user needs and the other one is named as the collaboration with crowds. The collective user needs implies the requests and inquiries for enhancing product and service by websites. And It is running for collecting needs from crowds. The collaboration with crowds stands for work with the Internet system for collaboration with each participants. Major characteristics of Web 2.0, and social network service are consist of the web sites. Therefore, participants are smoothly join in the process of design.

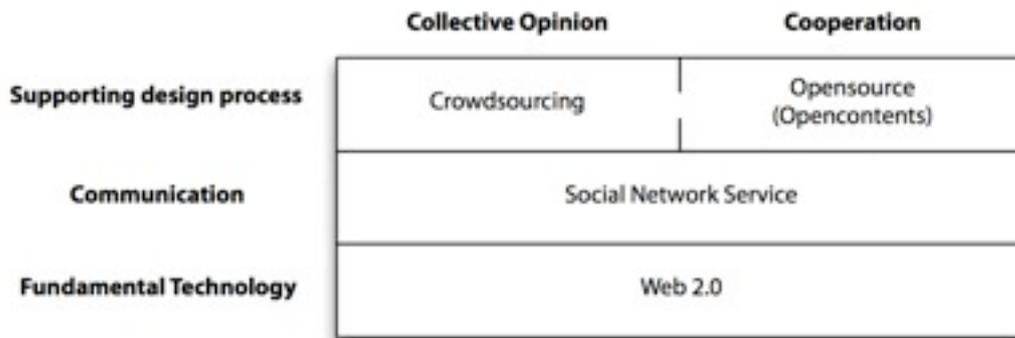


Figure.4 Architectures of websites characteristics.

### 2.2.1 The Collective User Needs

23 websites are designed on Web 2.0 trend. All websites have functions of **SLATE** which are representative characteristics of Web 2.0. **SLATE** stands for major function of Web 2.0, Search, Link, Authorship, Tag, Extensions, and Signals. **SLATE** is one of adequate standard of function which can distinguish which website is Web 2.0 or not. [11, 12] Then why those 23 websites based on Web 2.0? Because Web2.0 is a suited technological basement to establish the other parts of web system above which is easy to participate.

The main idea of Web 2.0 website is which it has a set of economic, social, and technology trends that collectively form the basis for the next generation of the Internet. And it is a more mature, distinctive medium characterized by user participation, openness, and network effects. (O'Reilly Radar, Principles and Best Practices, 2007) As this definition mentioned, it is specially developed system to sharing of data. Therefore the collective opinion can be possible with web 2.0 characteristics. And sharing data and opinion, adding new ideas to original one is working better then conventional websites without troubles. So, website which has direction to sharing and collecting data from user, naturally following to the advantage of web 2.0.

On the other hand, 23 results showing the characteristics of Social Network Service. Original idea of Social Network Service (SNS) is managing human connectivity and network stronger while people who cannot meet each other.[13] Recently, SNS is in progress to support connections between someone knows each other or not. The web services of web 2.0 is basically integrate the function of network service. Basic functions of SNS are As huge growing of this service, connecting with designer's website or weblog is possible. There is still growing consensus in the definition and major functions of SNS. Community, Publication, Openness, Connect, and Conversations are part of deliberated list of functions for SNS.[14] Since SNS is adequate for communication and publication, the number of user is increased greatly. By the way, SNS has various advantages for cooperation. It helps communication basically, and helps evaluating contents also. The openness of this system, it is easy to extend users own SNS websites with evaluation plug-ins.

In addition, there are some websites collecting user's needs indirect way. Based on Social network service and Web 2.0 trend, there are problem discussion and solution sharing websites. theuservoice.com and dotherightthing.com have several discussion bulletin boards for sharing idea. Those sites have plenty members who are arguing on problems of product and service they ever experienced. And they discuss the solution with their own perspectives. Also wefeelfine.com and newsmapi.com show new approach to collect emotion data from all around world. wefeelfine.com represents user emotions into artistic graphics and active motions from 2006. Mechanisms underneath those websites are collective API and analysis algorithm. API is the most representative signal technology that share the data following Internet standard such as RSS. Collecting APIs from personal web blogs and microwebblog like twitter.com, analysis the linguistic data into graphics. It is simple approach to making macro insight from publics, it shows the possibilities of collective emotion can show on one website. If we consider the working process of it, we can imagine what people wanted from collection of data.

### **2.2.2 Cooperation with participants : Crowdsourcing and Opensource**

Another trend of innocentive.com, thoughtandtheory.com and dotherightthing.com is collaboration with participant for whole design process. I called it as the collaborate with crowds. Idea sharing and discussion websites are *Crowdsourcing* websites and collaboration of prototyping are *Opensource* websites.

*Crowdsourcing* is a distributed problem-solving and production model. Problems are broadcast to an unknown group of solvers in the form of an open call for solutions. Users-also known as the crowd-typically form into online communities, and the crowd submits solutions. The crowd also sorts through the solutions, finding the best ones. These best solutions are then owned by the entity that broadcast the problem in the first place-the crowdsourcer-and the winning individuals in the crowd are sometimes rewarded. In some cases, this labor is well compensated, either monetarily, with prizes, or with recognition. In other cases, the only rewards may be kudos or intellectual satisfaction. *Crowdsourcing* may produce solutions from amateurs or volunteers working in their spare time, or from experts or small businesses which were unknown to the initiating organization.[12,13] Essential advance of *Crowdsourcing* is finding solutions with anonymous crowds and it contributes plenty of ideas from them.

*Open source* means sharing information of program developing codes. Recently, it means developing program with anonymous people who have specialty of computer program. Representative projects are Linux operating system and Firefox web browser etc. Open source is an approach to the design, development, and distribution of software, offering practical accessibility to a software's source code. Some consider open source as one of various possible design approaches, while others consider it a critical strategic element of their operations. Before open source became widely adopted, developers and producers used a variety of phrases to describe the concept; the term open source gained popularity with the rise of the Internet, which provided access to diverse production models, communication paths, and interactive communities. The open source model of operation and

decision making allows concurrent input of different agendas, approaches and priorities, and differs from the more closed, centralized models of development.

Open content, a neologism coined by analogy with “open source”, describes any kind of creative work, or content, published in a format that explicitly allows copying and modifying of its information by anyone, not exclusively by a closed organization, firm or individual. The largest open content project is Wikipedia.

### **2.3 New wave of participatory method with web.**

This research tried illustrate how web is moving into new design wave from collective information. Collected websites show how they can collect user's opinion effectively. Also, these websites tell how cooperate with crowds into significant direction to achieve public design goal. Collective intelligent is observed in several websites. '*Meta-blog*' and '*Meta-trend*' web sites show the new possibilities of collecting user opinion as democracy. As the *Goal clarification*, those websites can contribute suitable problems and hints for design needs and problems. In addition, '*Crowdsourcing*' websites show possibilities of new way of mass innovators share and develop ideas together without barrier of specialties. It works as '*Solution Generation*' of design procedure. Open source works the same process of '*Analysis*', '*Evaluation*', and '*Decision*'.

### **2.4 Cooperation with participants : Crowdsourcing and Opensource**

In the participatory design, designer are searching an adequate people to their design target group. However, user are participating in web activity spontaneously. Then, what is the main reason that attract people?

I suggest two major reason for answer that. Those are explained attraction of Web 2.0 and Social network service systems. First, motivation to publish contents and to share their knowledge in the web environment is closely related to user's desire for emotional satisfaction.

welikeit.com and makeit.com support a popular function named as 'rate it' or 'like it'.With this function, user can recognize how people like user's contents with numbers. Danah asserts it is one of basic function of Social network service.[13] When people aware the diffusion of his or her contents and rated as a issue through Internet, they participate into activity enthusiastically. Satisfaction from the others' reaction is main reason why people keep participating.

Secondly, web users are sharing and participating their ideas and feedback in pursuit of social connectedness.

The report from Forrester group refers that there are 6 ladders of degree for spontaneous activity.[15] 3 of those ladders are the group of people who is active user authoring their contents. Those ladders have an inclination to share their experiences through web. Characteristics of 3 ladders users are active to their work on website, what ever site is for public or not, and they have their influences to the web communities. Shuneiderman suggested people tend to work for success in 4 steps-Collect, Relate, Create, and Contribute.[16] So, people of 3 ladders are eager to create and contribute to networks. It seems that the action for fulfill their emotional wishes causes contribution to the others benefit. Also it works to design method, design work is supported by those active

groups. They have eager to contribute for design solutions and they involves into idea suggestion and discussion spontaneously.

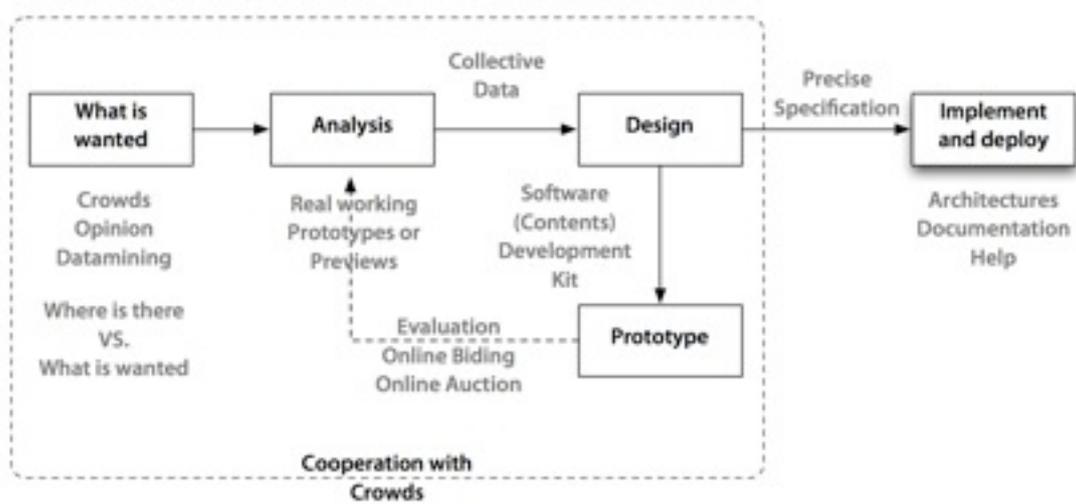


Figure 5. Design Process of web based participatory design

### 3. Conclusion

Web 2.0 system has been disseminate to web environment, it is getting easier to contribute and collaborate with participant to design process. As the result of case study, it predicts the change of design process as follow.

Firstly, the characteristics of design goal is expended to sufficient outcomes for mass users from collaborative user needs. Secondly, the design work can collaborate with anonymous participants overcome time and location limitations. Thirdly, the chances are given to participants who may use outcomes of design process, are involved into design problems to find solution. Finally, the position and role of designer and engineer might be changed. Conventional role of designer is generating idea and evaluate solutions. The new position of them to conduct and examine ideas from user and make decision. For further research, collecting more web cases for figure out huge movement of change.

### 4. Acknowledgement

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