

A RESEARCH BASED ON SIGNAGE DESIGN EXPERIMENT TO TEST USERS' ENGAGEMENT

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ABSTRACT

This research was based on the signage system design experiment in College of Design & Innovation (D&I), Tongji University. The new building of D&I undertaking a multi-functional complex for students and staffs was built and put into use in 2014, which appearing to be fertile for promoting communication, collective activities, fostering design thinking and triggering interaction between users and the environment. As part of the design for the new building, our team designed the signage system, looking at how to encourage users' interaction and engagement in the co design process. With the theoretical research, we choose the following methods to testify the users' interactive behaviour and feedback: VERBAL COMMUNICATION, ENVIRONMENTAL VISUAL STIMULUS and PEER EDUCATION.

This paper examines how those methods could improve in the users' engagement within the scope of a three-month prototype research. After the prototype and research process, relevant and informative statistics have been collected and analyzed.

The findings so far have led us to conclude that properly and purposed stimulus and the sequence of stimulus phases can lead to a more dynamic, effective, and innovative user engagement in co-design process. Further more, the methods can make big difference according to difference users. Appropriate methods for specific users could lead to effective results.

Keywords: User's engagement, interaction, participatory design.

1 INTRODUCTION

Three renovated buildings from auto garage form a multi-functional complex for D&I. To meet the functions and spirits of the environment (Figure 1), our team designed a new signage system, with the co-design thinking aimed to prompting interaction between users and the environment. We leave a "window" for users to finish on the template (Figure 2) to trigger interaction and invite users to accomplish the content. After the first prototype (36 doorplates), the barely few responses motivate the following research in reflecting design process with several stimulating and intervening methods sequentially.

Meanwhile, the signage system was developed gradually to improve the way finding experiences and help create the space to place. At the end of the whole research process, relevant design improvement was developed under the result of analysis and conclusion.



Figure 1. Interior space of the buildings



Figure 2. The new set of doorplates

2 AIMS

User engagement in this project refers to the many ways in which more individuals, in this context of a design college, students and teachers with design-learning background can be brought into the whole process of design and then creating further interaction.

The aims of this research are as follows:

1. How to improve the design prototype?
2. Test Pattern of design propelling and user response or interaction with the design prototype.
3. Reflections on implementation phase of participatory design.

3 THEORITICAL SUPPORT

3.1 Uncertain outcomes and risks of user engagement

However, engagement activity in fields of design may not always achieve expected outcomes. Given the possible situation, in the aim of breaking down the abstract concept of user engagement into something much more manageable, it is necessary to pre-consider the following aspects:

Designing engagement activities with a particular outcome in mind, however still including an extra or additional benefit as a by-product of the process.

- For designers, new perspectives on and a better understanding of specific challenges, together with more appropriate and better targeted programs and responses will be attained, and access to a greater diversity of ideas will benefit design activity.
- For users, increased confidence and skills, along with new and stronger networks will be created.

There are few clear links between the practice of participation and the benefits it is supposed to deliver. And tracking the impact of participation is challenging because many of its goals, like 'capacity of creativity' or 'cohesion' - are often ill-defined and therefore difficult to measure or quantify. [1]

Risks of failure in terms of engagement activities needed to be taken into consideration include self-exclusion that not everyone wants to take part in participatory processes and that poorly practiced forms or negative experiences of engagement can also rise the risk of disengagement. [2]

In general, a set of key notes is supposed to be thoroughly considered before engagement[4]:

- Defining engagement activity explicitly with consideration of the context in which it operates.
- Select the appropriate group of users for engagement, through considering quality of interaction, methods of participation stimulus and taking account of barriers to engagement.
- Tolerating a certain amount of uncertainty outcomes – both positive and negative.

4 METHODS

4.1 Verbal communication with users

In participatory design situations, conversational behaviour of the facilitator and the way in which a project is introduced and explained verbally tend to have impact on users' engagement. Design occurs in conversation. [3]

A seamless expert conversation, consisting of relevance to users' lives thus prompting a positive engagement in the discussion of the subject. Verbally modifying and evaluating the merit of different design arrangements. Users become more engaged in the workshop, may even suggest alternative approaches to rationalize designs.

4.2 Environmental visual stimulus

Research in cognitive psychology and in design thinking has shown that the generation of inner representations in imagery and external representations via sketching are instrumental in design problem solving [5]. Architectural design patterns were specifically designed to give non-professionals the power to create good design [6]. Thus, the D&I college buildings, a renovation project, can spare space for innovation. Designers think visually, thus, external visual representation in design present in the designer's working environment can be regarded as stimuli or prompts as strong cognitive resources. Accidental features of the environment or random encounters with external stimuli might direct problem solving in a particular direction. Creating conditions with cues suggesting useful that can potentially motivate the most effective design performance may benefit user engagement greatly.

4.3 Cases as forms of facilitation

Designer as facilitator ought to enable collaboration between diverse users within the design process. Forms of facilitation within the co-design work as a ‘design device’ affording certain functions that opens up ‘new ways of thinking and behaving’, aiming to deliver public and collaborative services. Representative case references proves to be educational in improving independent thinking and analysis, as well as capability of solving problems, thus creating reproduced knowledge or active knowledge.

4.4 Peer education & implantation of mobile media

D&I college buildings appear to be fertile for promoting opportunities for dialogue, collective activities, and mentorship among peers from all disciplines or different grades .In comparison to those weaker in designing, students with advanced experience will enthusiastically engage in, and will soon dominate by enabling themselves to provide significant peer-to-peer support. [7]

Nowadays, implantation of social mobile media increases the viscosity of social audience and fostering the spread of information. Social mobile media are involved into design process especially among young students due to its popularity and educational or directive influence.

5 RESEARCH

In the design process of this set of doorplates, we leave one segment to users through leaving clues on the template(Figure 3). In addition to engaging users into finishing the whole design, we conceive of promoting this interaction at a better level.



Figure 3. Prototype of the doorplate

5.1 First-phase research

After the first-phase design—36 doorplates were installed. Within two weeks, only two of thirty-five doorplates were actually “used”.

The feedback turned out that some of the users found it difficult to get the exact clue, others described their doubt of the doorplate function. As a result, we need to figure out the reasons for the lack of participatory action, as well as further research methods to “nudge” highly engagement from the user.

5.2 Second-phase research

Three steps are used to test the effects of design propelling methods to increase users’ engagement.

1) Verbal communication--Explain the erasable material of the doorplate, and demonstrate the special design purpose.

We choose two groups of users, the administrative staffs and undergraduate students, to give verbal communication separately. Users gave some immediate feedback of the functions and questions on the interaction content through this “window”. Two of the former group of users are appealing to functions, and they give response instantly with some simple information, such as working hours. Some of the latter groups are more interested in our design intention, and they draw some graphic patterns along with unique information such as slogans.

At the end of this step, two of these three tested administrative offices participated in the interaction part by showing useful office information. At the meantime, two of six tested classrooms have their own design of the doorplates showing unique characteristics. During this step, conversational skills are important in aiding users to better understand the intention, which was interpreted as applying accomplished facilitation skills of encouragement.

2) Case reference—Engage users into creating several case as reference for others.

We invited several design-based students from two classrooms, who had nothing in response to the first step, to participate in this case reference workshop. These students got instructions of the intention of the doorplate design (Figure 4). They separated into two groups, each for one classroom, discussing class spirits and their attitudes to design. Afterward, they put information like “Multi funny guys—home for class three” onto the doorplate decorated by using different fonts and colours.



Figure 8. Ways to encourage better interaction and to create atmosphere of innovative design

6 DATA AND FINDINGS

6.1 Statistical data

After the whole design and research process, we analyzed the statistical data in the sequence of research steps, and compared the data collected from different users (Figure 9).

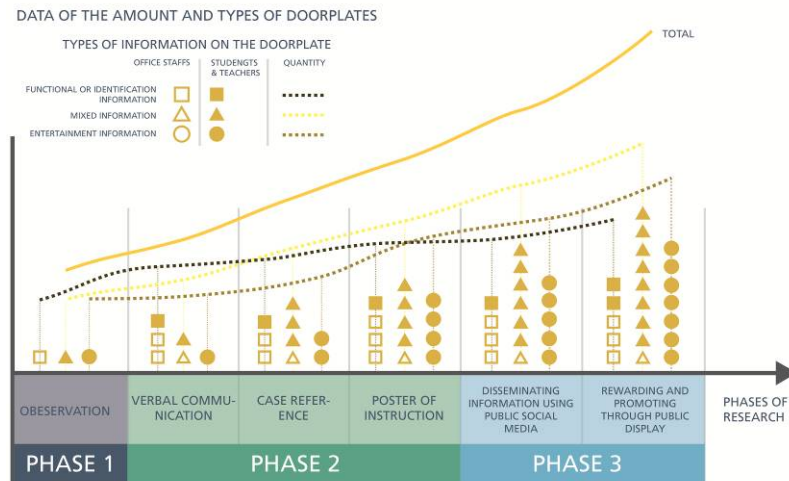


Figure 9. Chart of data collected from users in the sequence of research steps.

As can be seen from the chart, doorplates of rooms for teachers and students with design education background far outnumbered those of office staffs. Meanwhile, the number of doorplates co-designed by students or teachers showed a trend of sharp increase while that of those co-designed by staffs rise smoothly.

From this chart, the magnitude of the increase revealed a trend of fluctuations in different steps of research. In detail, user engagement increased steadily under the steps of verbal interaction and disseminating information using public social media, however, under the steps of case reference and poster of instruction, as well as rewarding and promoting design participation through public display, users' engagement was proved to undergo a comparatively sharp increase.

A much higher proportion of entertainment and mixed information (totally 15) than functional information (totally 2) in context of doorplates co-designed by students or teachers while functional information took up a larger proportion in terms of doorplates co-designed by staffs.

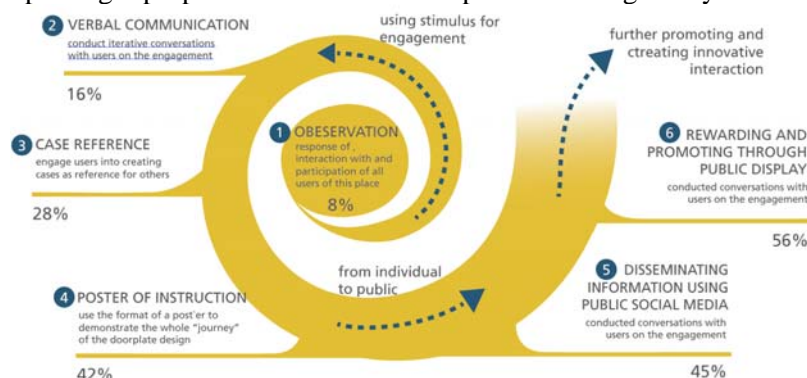


Figure 10. Chart of data collected from users in the sequence of research steps

In the diagram (Figure 10), the relationship among the whole three research phases and the sequence of each step are clearly revealed. In detail, user engagement increased as the steps executed gradually, among which we witnessed the highest increase rate in the second phase with three different stimuli for promoting better participatory actions.

As can be concluded from the diagram (Figure 11), environmental stimulus and peer education, as theories, actually has great impact on all the methods we used in the user participatory action research. Meanwhile, implantation of mobile media plays an increasingly significant role in triggering and promoting user actions.

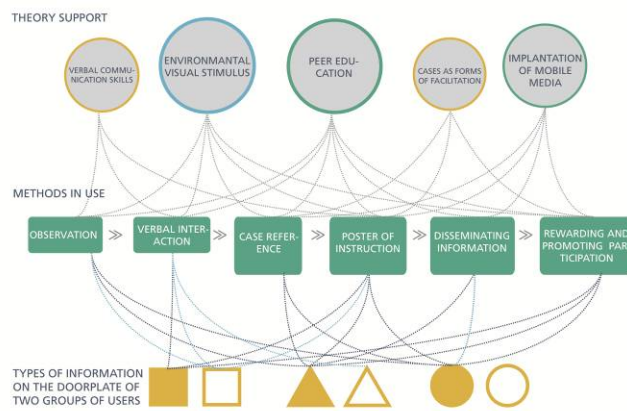


Figure 11. Connections and relationship patterns



Figure 12. Improvement of the design

7 CONCLUSION

With the context of a design college, this research has helped to induce and analyze students' cognitive behaviour in design. In addition, design research based on real project inside learning environment can actually have impact on students' behaviour and design thinking and can be cases for teaching and learning.

The research of user engagement in co-design process is still in progress. The research, data and findings set out in this paper have led us to conclude that properly and purposed research stimulus and the sequence of research phase can lead to a more dynamic, effective, and innovative user engagement in co-design process.

Statistics have shown that the differences between participatory actions of two different user groups in this research actually have profound impact on final result. Due to less attention to behaviour and thinking patterns of the people without design background, only a few useful responses are eventually collected from this group of users. In the process, peer education is helpful for almost all the phases, which can be a positive reference for future research involving user interaction.

Thus, the methods can make big difference according to difference users. Appropriate methods for specific users could lead to effective results. With this result, the design was improved after the three research phases according to different users (Figure 12).

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