COMMUNICATION FRAMEWORK AND EMOJIS-DANMAKU APPLIED TO COOPERATION WORKSHOPS

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Abstract. When different fields work together, like the designers and engineers, many problems may arise. The interaction and communication between team members are important factors that affect success. This study proposes a service design: The Emojis-Danmaku framework as a communication medium to assist planners and participants in inter-disciplinary cooperation and optimization of the workshop processes.

Keywords. Interdisciplinary collaboration; Communication; Emoji; Danmaku; Communication framework.

1. Introduction

While interdisciplinary is the key factor of computational design, there still are many unresolved communication issues, especially in the process of organizing interdisciplinary workshops. The interaction and communication between multidisciplinary team members are the important factors affecting success of workshop. In this paper, we propose an interactive framework that can be used in workshop programs, such as a warm-up activity, design thinking, teaching feedback for overcomes the initial stage of collaboration. In the interdisciplinary collaborative design issues, there are many works done by through the cooperation of their own disciplines problem countermeasures (Carroll 2000, Tang and Lin 2011). Nigel and Anita (1995) summarize several key issues for the team members: (1) Roles and Relationships; (2) Planning and Acting; (3) Information gathering and Sharing; (4) Problem Analyzing and Understanding; (5) Concept Generating and Adopting; (6) Conflict-Avoiding and Resolving.

1.1. ROLES AND RELATIONSHIPS IN THE WORKSHOP

Adapting the key issue proposed by Nigel and Anita (1995), the roles of people involved in the workshop are defined into three groups: (1) Organizers-including organizer, director, coordinator, staff and teaching assistant; (2) Lecturers-including keynote speaker, lecturers, and teaching assistant. (3) Participants-including native and overseas participants (Figure 1).
As can be seen from Figure 1, everyone acts at least one role in the workshop. Some has multiple roles, such as students who might only participate in workshop, or are teaching assistants to support the learning as well. If we explore the role of learners at in a bit more details, we can find that learners have more conversions of their own (Figure 2): Design professional learners, architectural professional learners, engineering professional learners, or other professional learners; Immersive learners in the learning situation or learners who are coming out of the learning situation. The relationships between tutor, facilitator and learners.

Figure 1. Roles and relationships in the workshop.

Figure 2. Switching roles in different situation.
1.2. PARTICIPANT FEEDBACK
Through the 2018 Symbiotic international workshops, a total of 32 student questionnaires were collected that their many feedbacks were received. This study shows the participants’ suggestions through the word cloud (Figure 3). The first layer is: clearer, content, course, information, lecturer, need; the second layer is: much, official, website, communication; the third layer is: better, confirm, payment. After the workshop, the lecture’s advice was also inconsistent with the student’s suggestion.

![Figure 3. The word cloud in 2018 Symbiotic international workshop.](image)

According to the background of 1-1 and 1-2, a specific event will cause the role to be converted, we think that the learner or facilitator coming out of the situation when they are teaching or learning. That times that may are the point of the problem. Therefore, how do we know there is a problem event, and their emotions. We will carry out a series of processes and interactions.

2. Communication case study
There are many ways to communicate those different ways leads to a series of different effects. Here we explore a variety of communication tools, methods and processes in an attempt to find the best way to communicate in the workshop.

2.1. INFORMATION CAN BE VISUALIZED
With the development of the internet of things (IoT) and the smart industry, the ability to acquire data has been significantly improved. At the same time, information visualization has been widely used in the trans-mission and assistance of data messaging (Heer, et al. 2008). Information can be visualized in many different ways, and users can choose different tools based on the imported data, such as providing reports to managers or sharing their own behaviours on social networks (Mei, Ma et al. 2018).
According the crowd flow in the park, and various other factors linked to the crowd dynamics and human behavior. By insight into visitor behavior can help theme parks devise competitive strategies for improved customer experience (Steptoe et al. 2018) (Figure 4).

Figure 4. System overview. (2) shows a map of DinoFun World and the trajectories of selected visitors. (3) shows a calendar which represents each attraction in the park and displays the count of visitors in 30-minute intervals.

2.2. EMOJIS, THE NEW LANGUAGE

With the constant growth in information and communication technology (ICT), electronic communication has become part of the present day system of living (Jibril, 2013). Since the written form was replaced by electronic communication, people lack face-to-face (F2F) situation attributes. Emoticons are seen as socio-emotional suppliers to the computer-mediated communication (CMC). Emojis, like the older smileys or emoticons, today adopted by almost any social media service and instant messaging platform (Barbieri, 2016).
The project of Salling Lights was shortlisted for the Danish lighting award 2017 (Kollision, 2017). The facades are using Kollision’s player software to control a number of lighting designs, and the facade is interactive allowing users to paint with light or emojis on the large canvas (Figure 5).

2.3. BULLET SCREEN. COMBINES VIDEOS WITH TEXT MESSAGING

Recently, a new type of social network called Daamaku (Danmu, Bullet Screen) is becoming increasingly popular on video sharing sites in Asia. The Japanese term danmaku (danmu in Chinese) literally means barrage - “a curtain of artillery fire”. It enables real-time commentary and serves as a valuable source for further analyzing social networks. Also, danmaku offers an entertaining and interactive way of expressing ideas anonymously and openly (Tang, 2017). For instance, a movie called “Moon in the Qin Dynasty” puts two large screens for users to send danmu while watching the movie (Figure 6 left side).

According to Ma and Cao (2017) preliminary danmaku usage survey, it was an information seeking and emotion venting channel for users (Figure 5 right side). The researchers discussed four topics: (1) why do people use the danmaku social sharing feature; (2) whom do they interact with; (3) what do they share; and (4) how do they adapt to this “fragmented, grammatical and interactionally disjointed”. Ma and Cao through the archival analysis of real-world data of videos, they
learned danmaku messages are rich in emotions and together create an immersive, engaging illusion of group viewing.

3. Related work

As discussed above, we take advantage of the features of emojis and danmaku, extracting their advantages to design communication framework that can be applied to cooperation workshop. As discussed above, we take advantage of the features of emojis and danmaku, extracting their advantages to design communication framework that can be applied to cooperation workshop.

We build interactive devices and methods to explore users’ emotions, thinking and level of participation through time. Emojis-Danmaku inter-action makes users to give feedback to the organization without knowing it. When the learners are in the course, the learner coming out of learning situation, they press the Emojis-Danmaku button through the mobile phone. At this time, the facilitators will receive feedback from the emotions. When the feedback of the emotions reaches a certain level, the facilitator will inform the tutors of these feedbacks, and the tutors will be able to trigger the learners return the learning situation. This creates a mutual trigger mechanism that is fed back by three parties (Figure 7).

![Figure 7. The mutual trigger mechanism.](image-url)
3.1. WHERE CAN USE EMOJIS-DANMAKU

There is a lot of information that often appears on official websites (Figure 8). For instance, about organization, topic, course proposal, schedule, course introduction, schedule, traffic, hotels, location, contact and registration.

In the process of preparation and the end of the workshop, in addition to teaching, there are many processes. Based on 1-2 learner’s feedback, we place Emojis-Danmaku interaction where the process needs to be optimized: course proposal, course introduction, schedule, hotels and registration. We will also be placed in the course of teaching, middle presentation and final presentation.

![Figure 8. The information in the official websites.](image)

The design of the interface is divided into two folds: (1) placed on the official website; (2) placed in the course group. Placed on the official website is presented in a straight-line operation, users often place their phones in an upright position when searching for information. The Emo-jis-Danmaku interaction is designed in
a way that can be transmitted separately (Figure 9 left side). The feedback is not presented to all participants and is sent to the page of the facilitator only. In the course group, there may be more text feedback situations, and learners will discuss classroom questions through this page, so the page is presented in a horizontal operation (Figure 9 right side).

Figure 9. The Emojis-Danmaku interface. (left side) On the official website. (right side) In the course group.

3.2. EMOJIS-DANMAKU VISUALIZATION

To post Emojis-Danmaku comments, users need to sign in, specify the emojis, and then click the submit button. So we were able to collect questions from different roles of learner’s ideas, thinking and feedback. After collecting Emojis-Danmaku comments, the facilitator will be able to get information and further assistance:

- **Through Emojis-Danmaku comments, the facilitator can clearly know what the user cares about.** When the user browses the official website, the user can immediately give back, that the facilitator can correct it.

- **Emojis-Danmaku comments can show which group have the problems.** At the beginning of the workshop, the role of learners is different, so there are different learning needs, although they will give advice, if the problem is not immediate feedback, then facilitator have no way to know or help, so it is necessary to display the demand immediately.

- **Which topic is attracting learners.** There are many topics in the workshop, and Emojis-Danmaku comments can reflect the participation level of learners. With the group Emojis-Danmaku comments, it is possible to advise the tutors and the facilitator which topic is to attract learners.
Through the visualization of Emojis-Danmaku comments, the organizers can see people, things, time, place, and as discussed above (Figure 10).

Figure 10. The Emojis-Danmaku visualization. (1) display the user’s emotional when the user browses the official website’s information. (2) shows the emotions of each scattered classroom learners, indirectly showing participation level.

4. Conclusion

This paper proposed a communication framework and Emojis-Danmaku comments. This framework can help organizing interdisciplinary workshops get information and further assistance: (1) more clearly know what the user cares about; (2) display which group have the problems; (3) Which topic is attracting learners; (4) trigger mechanism of tutor, facilitator and learners that increase the frequency of their communication.

There are many communication issues that haven’t yet been resolved in the process of organizing interdisciplinary workshops. Therefore, we propose a framework to help participants, this framework can be used in workshop programs. In the first, we define the roles of the people involved in the workshop, everyone has multiple roles in the workshop. We create a mutual trigger mechanism that is fed back by three parties: tutor, facilitator and learners. We conclude that (1) when learners coming out of learning situation; (2) when users (tutors and learners) coming out of the situation of browsing the official website. That times that may are the point of the problem. Therefore, Emojis-Danmaku comments can know there is a problem event, and their emotions by.

In the next workshop experiment, we will adjust the way to receive Emojis-Danmaku comments. In addition to this, the number of Emojis-Danmak comments is also our concern. When the quantity of comments is very small, does it mean that learners are concentrating on the workshop? There are more details that we want to explore.

References


