Reflection videos: an exploration of creating shared understanding of prototyping in remote collaborative design teams.

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Research Framing

Due to the COVID-19 pandemic and globalisation, the number of people collaborating remotely has increased enormously, although face to face meetings are still preferred [1]. This because face to face meetings allow for sharing of prototypes, sketches and motivations, thus conveying rational and the decision making process. The team is provided with a focal point around which a discussion can take place with the participants present [3]. The possibility for such discussions leads to expression of tacit knowledge, intent and especially reflection which is crucial for creating shared understanding [2]. When working as a remote collaborative team, the lack of shared understanding is perceived as a barrier, and how a similar level of reflection and shared understanding can be achieved through remote collaboration is still unclear [2].

Method

The study consisted of 2 iterations. The aim of both iterations was to gain insights into the influence of reflection videos on the shared understanding in a remote collaborative design process. In the first iteration, an additional goal was to optimize the research protocol for the second iteration.

Our group split up into 2; three of us became designers and three of us became observers. These roles were switched for the second iteration.

Week 1	Define research framing and set up video and data gathering protocol for iteration 1
Week 2	Iteration 1
Week 3	Evaluating and finetuning the video and data gathering protocol for iteration 2
Week 4	Iteration 2
Week 5	Thematic analysis on insights and observations, formulating insights and conclusion

Analysis

Over the course of the two iterations, the observers of the specfic iteration individually collected the data and insights produced by the different media. These insights were compared to the insights of the other observers of the iteration to filter out biased obervations.

Using thematic analysis, the observations and insights could be clustered into 6 categories:

Remote Collaboration   Practical Complaints
Reflection Video   Team Roles   Prototyping
Shared Understanding (of design process)

Thematic analysis allowed us to map data gathered to shared understanding and disregard insights that resulted from practicalities instead of shared understanding.

Underlying these themes, several insights were gathered which can be supported by the following quotes:

Unsuitable for discussion   "The strength of the reflection videos are really in showing what you did [...], but less so in giving critique or feedback on what others did"

Replaying of videos   "Having it [explanation] as a video, meant that you could watch it at any time, at any place…".

Videos are time-consuming   "Watching the reflection videos, sketches, suggested to do list etc. and making notes of it already took me 40 minutes".

Reflection Videos

The paper addresses the exploration of a new method to create shared understanding among remote collaborative design teams; reflection videos. The aim is to explore the protocol for a reflection video that it allows designers to show, explain and include sketches and low-fidelity artefacts in order to convey their design intention, motivation and physical manipulations.

Video protocol

A protocol was set up for recording the reflection videos to find out whether and how they can influence the shared understanding. The participants of the design case were only able to communicate trough the reflection videos. Requirements for the reflection video were:

Suggest next steps
Record in one take, no editing
Include a prototype (sketches, physical object, 3D model)
Explaing the activities audibly with use of the prototypes

Suggested questions were provided as well to stimulate reflection in the videos. During the iteration, the designers went through a daily cycle of watching the reflection videos of others > working on the project > recording a new reflection video.

Data Gathering

Multiple data streams were created over the course of the 2 iterations. The action cams were disregarded after the first iteration as they did not document design intent as expected. Instead, the protocol for the diary entries was altered to have these capture design intent.

Diary Entries   Reflection Videos
Action cam recordings (1st iteration)
Individual Interviews (semi-structured)
Group Interviews (semi-structured)

Throughout the process, the knowledge transfer crossed three phases: from designer's intentions to reflecting on actions, from reflecting on actions to recording the reflections, and from recording of the reflections to interpretation of the recipient designer. In each of these phases it was noted that the information could be lost, and a shared understanding could be influenced. By making use of various media from different perspectives to collect data, incinsistencies in communication could be captured.

Conclusion

Our findings suggest that the reflection videos could facilitate extra shared understanding in a small team by being a tool for the communication of argumentation behind individual design decisions and for the explanation of sketches and prototypes.

"It's a bit hard to explain this without anything physical", to which another participant responded that "it was super confusing to me when you told me, but when I just looked at the render you made, it was almost immediately clear"

This study adapted an explorative approach in researching the shared understanding of prototyping in remote collaborative design teams. Therefore, further research is needed to overcome the limitations and to validate the findings and that can be drawn from this study.

References

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