AquA – A virtual aquarium to motivate digital actions

1. Team Description

Member	Faculty	*Role*
Mélanie Courtinat	Media & Interaction Design, écal	*CDO*
Yumeng Hou	Computer Science, EPFL	*CEO & CIO*

2. Project Background

2.1 Knowledge Sharing in NGOs

Médecins Sans Frontières (MSF), or Doctors Without Borders, is an international humanitarian-aid non-governmental organization (NGO) and Nobel Peace Prize laureate, best known for its projects in war-torn regions and developing countries facing endemic diseases. MSF actively provides health care and medical training to populations in about 70 countries and frequently insists on political responsibility in conflict zones. [1] In such cases, workers in MSF are intensively in need of knowledge sharing, due to the fact that they are always confronting various situations where they need to provide instant assistance while not necessarily hold relevant knowledge or experience. But relevant information and previous experience are significant to enhance the efficiency and decrease the cost of repeating errors. It is also the case that professionals with relevant knowledge don't always have access to whom they want to help. Thus they need a reliable channel to convey their knowledge to people at the scene.

Thus, such organizations like MSF are always knowledge intensive. But currently, as exacerbated by the high turnover, they are struggling with knowledge management. A lack of suitable and effective knowledge sharing approach leads to a waste of time and cost within the organizations. As a possible solution to fit collaboration into this context, Graspeo [2], an online knowledge-sharing platform has been proposed to relieve the gap of information. However, since to share the knowledge is not the major mission of the relevant people, how to motivate their actions stays a challenge.

2.2 Motivating Digital Actions

To remind the busy users and to motivate their engagement in the sharing actions and online interactions is the major issue we need to address in the context of MSF.

Based on some research and tryouts, we propose that making digital status physically perceptible to transition the virtual interactions to the digital realm is a potential solution. In the meantime, gamefication is supposed to be helpful in the process of transferring one's digital sociometric status into motivating perceptual elements. [3]

Driven by this purpose, we embarked on designing an effective tangible object to motivate digital actions and researching about what sociometric parameters are crucial to indicate online interactions

3. Our Proposal

3.1 Pre-design Survey

To better understand the mentality as well as behavior patterns of our potential users, we did a survey within MSF regarding to the usage of an online sharing platform. We surveyed about their needs and motivations in knowledge sharing, as well as their concerns and restrictions.

With the results, we firstly validated that people in MSF have various needs to be fulfilled by a knowledge-sharing platform. As shown in Figure 1(a), 58% of the participants in MSF are willing to frequently use a knowledge-sharing platform though they are still new to this concept. Most of them want to use the platform to share (91%) and find documents (93%), while a lot of them also want to collaborate (69%) and discuss (56%) via the platform. Beside, as indicated in Figure 1(b), they also agree with their needs in recommendation, personal connections and a helpdesk (with the agreement scale larger than 3.0).

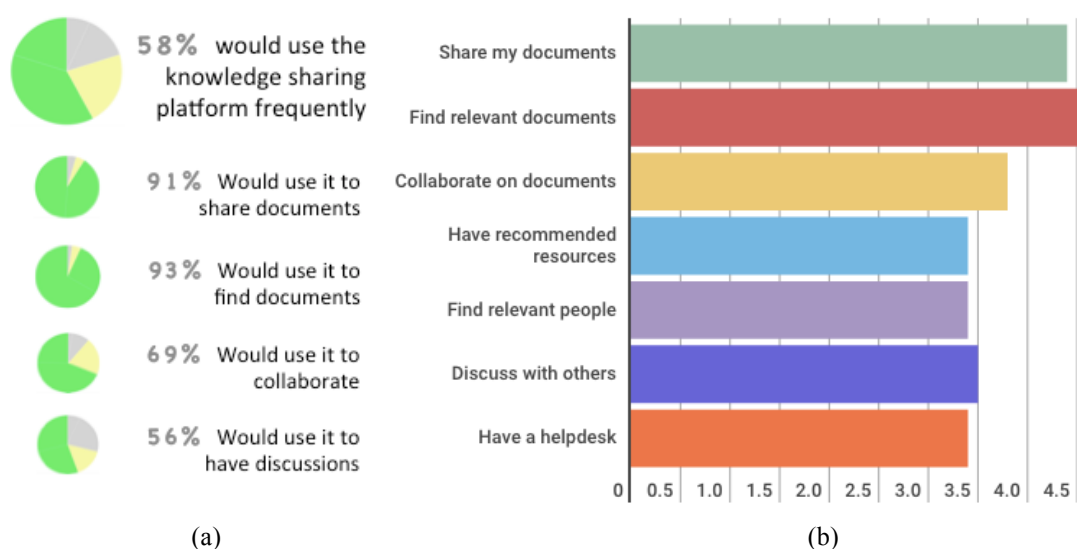(a)   (b)

Figure 1: A visualization of participants' results to partial questions in our pre-design survey. (a) "Would you like to use a knowledge sharing platform frequently? & What would you like to do on the platform?" (b) "What features would you like to like to have?"

Regarding to their motivations and restrictions, as shown in Figure 2, we validated that people from MSF are motivated internally rather than externally. They are not so interested in money, rewards or recognitions. But an intuitive perception of helping others, an easy time-saving sharing method and a mutual beneficial interaction are possible to act as effective motivators in their knowledge-sharing actions.

78%
More motivated when they know they are helping others

61%
More motivated when they have time/it is not time-demanding

52%
More motivated if they can receive help in return

- -

7%
More motivated when being paid

10%
More motivated when being rewarded non-financially (e.g. badge)

29%
More motivated when being recognized as an expert

Figure 2: A summary of participants' responses s in our pre-design survey to the question: "What would motivate your actions in knowledge sharing?"

3.2 Value Proposition Canvas

Based on the pre-design survey results discussed above, we conclude that the major gains of people in the knowledge-sharing process lie in relevant accessibility and mutual assistance. We deduced that the major pains for them currently are the lacks of time to access resources or to share, of an easy and non-time-demanding approach, and of motivations.

According to their results to other questions e.g. "What do you like about Graspeo?", we found that they enjoy the features such as easy accessibility, ease of learning and use, which relieve their pains knowledge sharing. And they expect the improved features in collaborative social interactions, intuitive and pleasant visual design, and large amount of accessible resources which can enhance their gaining sense.

After summarizing these factors and matching them properly to the elements in a

value proposition canvas (Figure 3), we came up with our proposal of AquA. The idea of AquA is to design a tangible project connected with Graspeo, which is able to make the digital status on the platform physically perceptible in the real world. AquA is designed to be a virtual aquarium locating at the group office, where each member of the group is represented by a uniquely personalized fish in AquA.
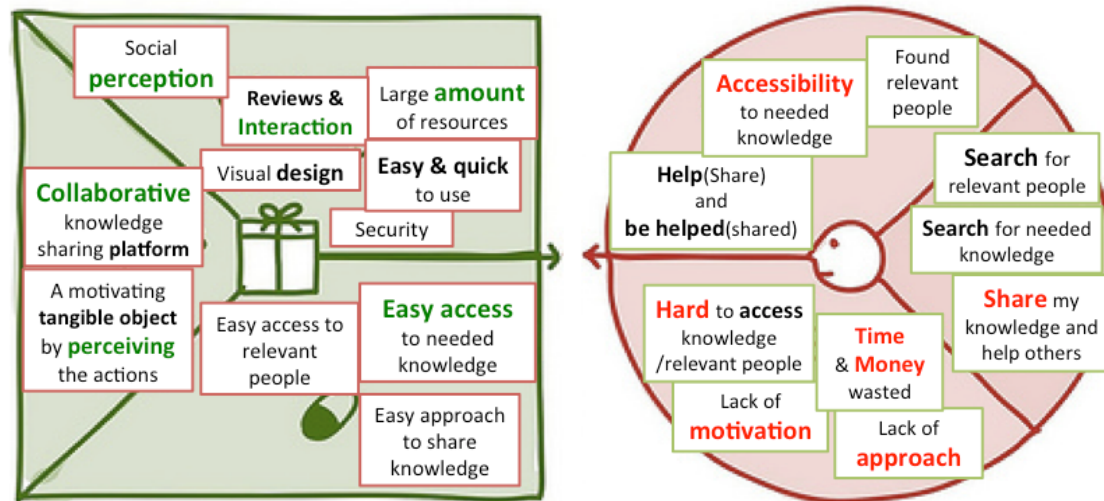

Figure 3: The value proposition canvas of AquA.

3.3 Design Story

Figure 4: The logo of AquA.

As one of the goals of our project was to find a way to catch people's interest, we started with thinking about what it could look like visually. So we asked ourselves: "Is there anything already existing that automatically catches your eyes? Something moving and something colorful?" An aquarium seems to satisfy these needs perfectly. Nana Jules, a supervisor at MSF, shared the same opinion with us, as he agreed during our evaluating interviews, saying "Aquariums, even if you don't like fishes, attract your eyes. We like to observe them moving".

We think it is important for us to present something that looks alive, as we also want to make Graspeo looks like something alive, as a place where a lot of movements and interactions happen, where information is being shared and discussed.

When thinking about how to attract people to concern more about it, we came across the concept of "empathy" and thus think of to build a personal link between human and the aquarium. Being able to personalize your own fish is an effective way to achieve this, so that the fish is like an avatar of yourself. In this way, people feel empathetic towards their own fish and thus more involved in the whole process. As a result, their actions on the online platform should get motivated automatically.

Figure 5: A presentation - AquA in the real-world scenario.

4. Features and Use Cases

4.1 Indicated Digital Actions

The most basic feature of AquA is indicating, in the way the changing effects of the fish reflect the digital status and actions of team members.
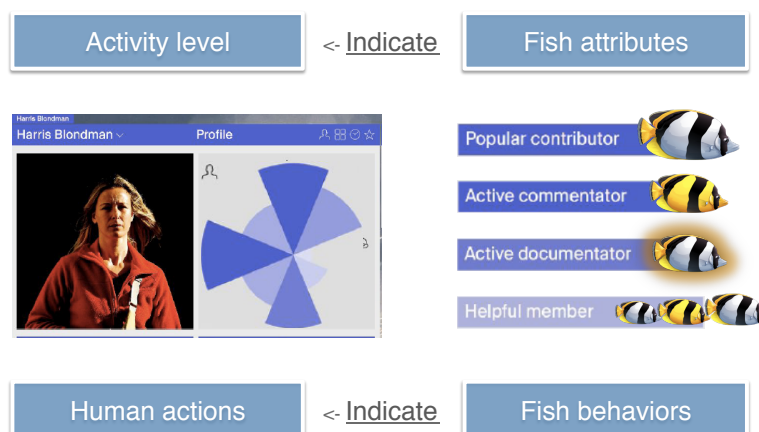

Figure 6: Fish indicators of human action status.

As shown in Figure 6, the following sociometric parameters are possibly indicated in

AquA. On one hand, the activity level of each person in different aspects on Graspeo is indicated by the attributes of fish. For example, the size of the fish is linked to the contribution level of the person. On the other hand, the current behavior of a fish can indicate one's instant actions. The fish is going to move excitedly when the person is actively online. We stick to being simple and perceivable in the indications. In the meanwhile, we try to make the behavior design realistic (Figure 7).

Figure 7: Fish moving around in AquA with realistic behaviors.

4.2 Personalization

The crucial idea of personalizing your own fish could be achieved directly on the platform of Graspeo (displayed Figure 8), simply by adjusting the relevant parameters. You have a variety of options in designing its appearance, as illustrated in Figure 9, or you can even draw it by yourself.
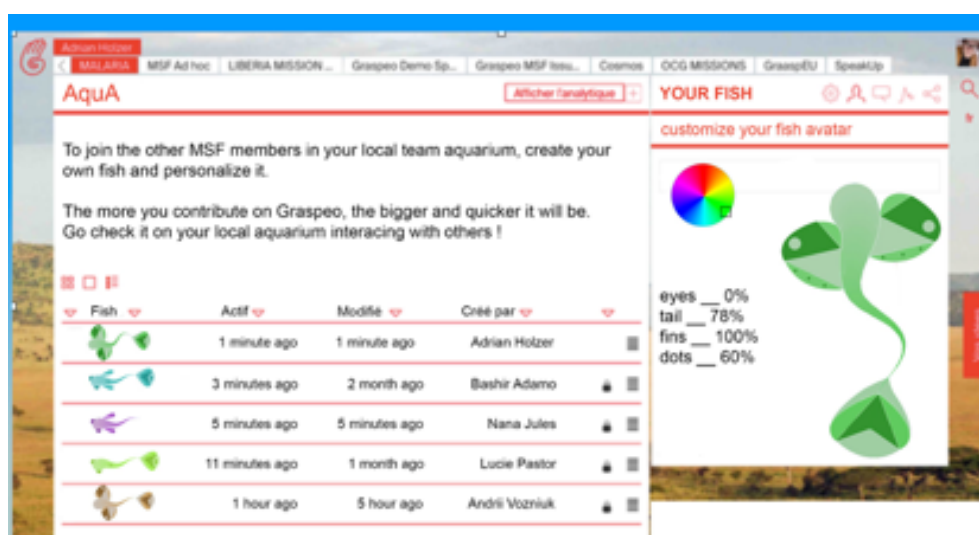

Figure 8: The interface where you personalize your fish on Graspeo.

Figure 9: Various possibilities to personalize the fish's appearance.

4.3 Physical Interactions

We add touch interactions with the fish to make AquA more realistic. As shown in Figure 10, when someone touches the screen, fish will immediately swim around his finger. This real perception makes users feel more concerned and thus motivated.
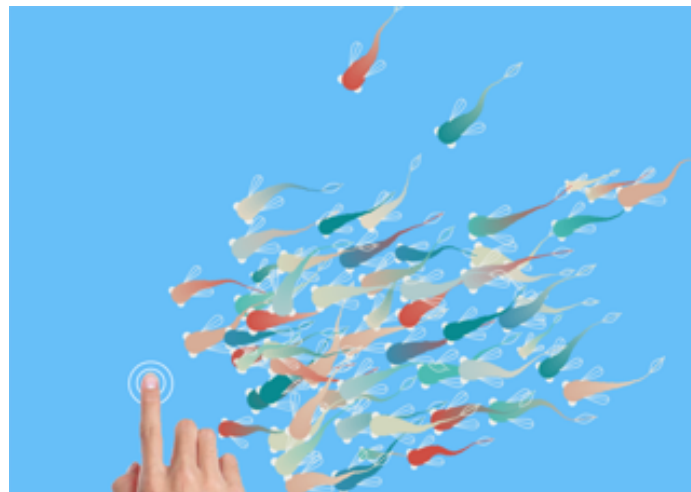

Figure 10: Touch interactions with swimming fish in AquA.

5. Evaluation Results

After generating the whole design, we did the evaluation by interviewing people from MSF. The interviews start with questions on knowledge sharing, both online and offline. Then we describe Graspeo and their personal experience with such a platform. Afterwards, we ask about the incentives in knowledge sharing. And in the end, we introduce our idea of AquA and ask for their feedbacks.

Overall, we got a positive recognition of the design in the evaluations. We also got several new inspirations. As demonstrated in Figure 11, all of the interviewees like the idea of AquA and they are satisfied with the fish representation as their avatar.

They believe that their actions to contribute on Graspeo will be motivated in this way and even more than moneys or rewards. They like the feature that they can personalize their own fish, and they feel curious to see others' avatars. In addition, one of the interviewees values game features very much, which drives us to consider add this dimension in future work.
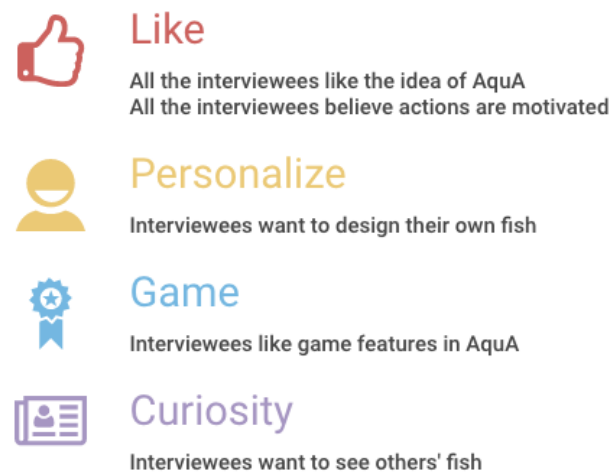

Like
All the interviewees like the idea of AquA
All the interviewees believe actions are motivated

Personalize
Interviewees want to design their own fish

Game
Interviewees like game features in AquA

Curiosity
Interviewees want to see others' fish

Figure 11: Evaluation results of post-design interviews with MSF.

6. Conclusion and Self-reflection

This project was a great opportunity for us to confront us to a real project, instead of just a school exercise. We learnt a lot about how to design the "practical" and how to iterate and manage the project, which are quite valuable for us.

Also, since the project is about doing help for good persons, we feel it super meaningful. It was very GRATIFIANT to hear from MSF people in the interview that our project is interesting, and they are wiling to test it when a first version is ready. Moreover, it's super inspiring when hearing that they would prefer AquA related to their contributions over earning money.

All in all, we enjoyed the project and the time we worked together!

Reference

[1] "Médecins Sans Frontières." *Wikipedia: the free encyclopedia*, Wikimedia Foundation, Inc., May 2016. <https://en.wikipedia.org/wiki/M%C3%A9decins_Sans_Fronti%C3%A8res>
[2] Vozniuk A, Holzer A, Govaerts S, et al. Graspeo: a social media platform for knowledge management in NGOs[C]//ICTD. 2015: 63.
[3] Deterding S, Sicart M, Nacke L, et al. Gamification. using game-design elements in non-gaming contexts[C]//CHI'11 Extended Abstracts on Human Factors in Computing Systems. ACM, 2011: 2425-2428.