Report on the MIE 2015 Workshop: Consumer Health Informatics – Barriers and Facilitators of eHealth Usage among Consumers

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ABSTRACT

In general, eHealth services offer numerous advantages, yet they cannot tap their full potential if they do not fit to the intended users' needs. Therefore, this workshop aimed at identifying barriers and facilitators of eHealth usage of consumers. It followed the idea of a Future Workshop and included three key note talks from experts of different scientific disciplines.

1. INTRODUCTION

In today's society the Internet plays an important role for seeking health-related information [1]. In this context, eHealth is a common term that refers to "health services and information delivered or enhanced through the Internet and related technologies" [2]. Many eHealth tools exist and eHealth resources are widely used: Santana et al. identified that the Internet influences the way people handle a consultation as well as their behavior towards health professionals [3]. In 2009, 86% of U.S. physicians used the Internet to gather health, medical or drug information [4]. According to a recent study by Philips in Germany, 66% of study participants used the Internet to answer health-related questions in 2015 [5].

Moreover, eHealth is predicted to become even more important due to several reasons: First, eHealth empowers patients by providing health information technology and thus allows for access to their own health-related data and information; according to an analysis, health apps will be used by 1.7 billion people by the year 2017 [6]. Furthermore, the number of chronic diseases – e.g., cancer or diabetes – is increasing steadily in all age groups causing much higher expenditure in the healthcare sector. Consequently, in the future, medicine is expected to be more personalized [7] and information technology is often considered as a mean to meet this goal.

According to [8], eHealth can improve or even change the health-related knowledge and behavior of many citizens. In addition, it enables patients to be an informed partner in the medical decision process [9]. Nevertheless, electronic health services cannot tap their full potential if they do not fit to the intended users' needs, competencies, and expectations. Those individual customers' backgrounds are closely related to ethical questions, e.g., data ownership, privacy and usability.

In this context, it is vital to identify factors that foster eHealth usage but also related barriers, which lead to the non-acceptance of electronic health services. Such services are used in a complex and dynamic field of (a) patients, (b) healthy citizens, (c) family members, (d) patients' friends and (e) medical professionals. For this reason, the examination of different viewpoints from social sciences, psychology, medical professionals and eHealth service designers can be helpful when identifying barriers and facilitators of eHealth usage.

2. THE WORKSHOP

The workshop *Consumer Health Informatics – Barriers and Facilitators of eHealth Usage among Consumers* brought together experts from different scientific fields to discuss factors that support a successful dissemination of electronic health services. The workshop applied core ideas of the future workshop method [10] using experts' key note talks as preparation for a subsequent critique phase. In this phase, the workshop participants were engaged in discussions to identify main barriers and facilitators of eHealth usage among consumers from their particular viewpoints.

The workshop was planned by the German working group *Consumer Health Informatics* affiliated with the *gmds*[1]. The duration of the workshop was 90 minutes.

2.1 Participants

In total, 23 conference attendees participated in the international workshop, including 15 contributers from Europe; 5 from the Middle-East, Asia and North America; 3 German workshop organizers.

2.2 Keynotes

We had the privilege of hearing from three speakers which gave a talk on their eHealth perspectives:

- Timotheus Kampik – Arctic University of Norway (Tromsø, Norway)
- Leili Lind – Linköping University (Linköping, Sweden)
- Gisele Roesems-Kerremans – European Commission eHealth (Brussels, Belgium)

[1]German Association for Medical Informatics, Biometry and Epidemiology, Cologne

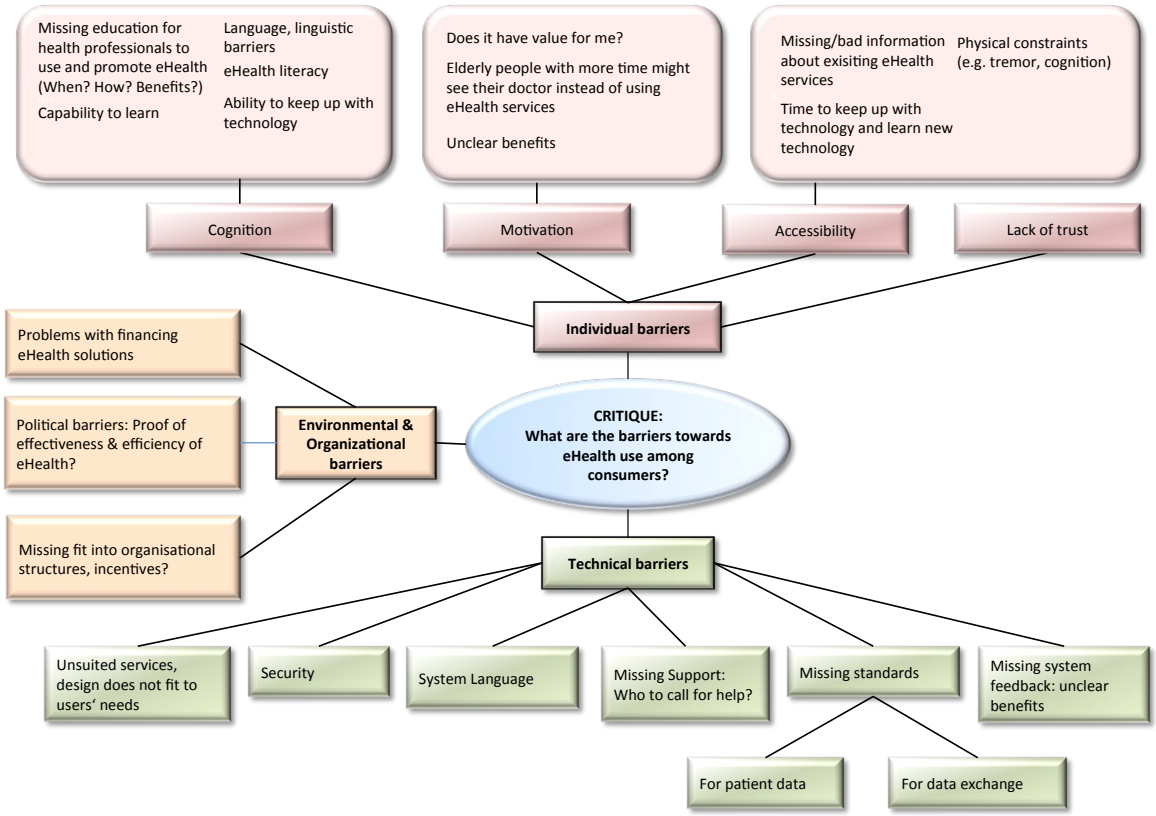

Figure 1: Barriers of eHealth usage among consumers

Timotheus Kampik. In his talk, entitled "Towards browser-based remote consultations in universal primary care", Timotheus gave a brief introduction how emerging web technologies can be used in primary care. He stressed national differences, i.e., patients in Norway are more likely to plan their consultation with a general practitioner (GP) via the Internet in comparison to German patients. However, there is a slightly positive attitude towards using eHealth services among both patients and GPs.

Furthermore, he presented first experiences with a real-time consultation system which received positive feedback from all involved patients and GPs. He emphasized that digital remote consultation software needs to address data security and privacy concerns. However, potential time and cost savings were identified as key arguments to use the related eHealth solution.

Leili Lind. elaborated on the digital divide in European countries and different age groups. In her presentation "Barriers of e-health use - elderly, severely ill patients' perspective" she outlined that the number of digital illiterates is gradually shrinking. However, only 39% of the population worldwide uses the Internet (77% in developed countries vs. 31% in developing countries), of which most users are under 25 years. In today's society, lack of experience with computers or the Internet poses a barrier in everyday tasks, e.g., it gets complicated to book an appointment, order your lunch or renew drug prescriptions online.

Elderly sometimes are scared of or disinterested by technology and therefore avoid using it. One solution might be "hiding the technology", e.g., by digital pen technology. Leili presented findings from a study with patients (cancer, heart failure, COPD) who reported their symptoms, medication and measurements on a daily basis with such a digital pen. According to her findings, it was easy to use for them as they did not realize they were in fact using the Internet underneath. Patients reported a "sense of increased security". Moreover, in the outcome analysis she found that pain treatment was improved.

Gisele Roesems-Kerremans. In her talk "Eurobarometer on digital health literacy" Gisele presented results from the *Flash Eurobarometer 404 (EB 404) survey* on European citizens' digital health literacy[2].

In total, 25,566 respondents from different social and demographic groups were enclosed. EB 404 assessed the extent to which Europeans use the Internet and online resources as a mean to manage their own health. In addition, the survey also provides an overview of the level of Internet usage among Europeans, the "health of European citizens and other health-related issues" (e.g., doctor visits).

More than half of the respondents searched for health-

[2]EB 404 can be found online: `http://ec.europa.eu/public_opinion/flash/fl_404_en.pdf`

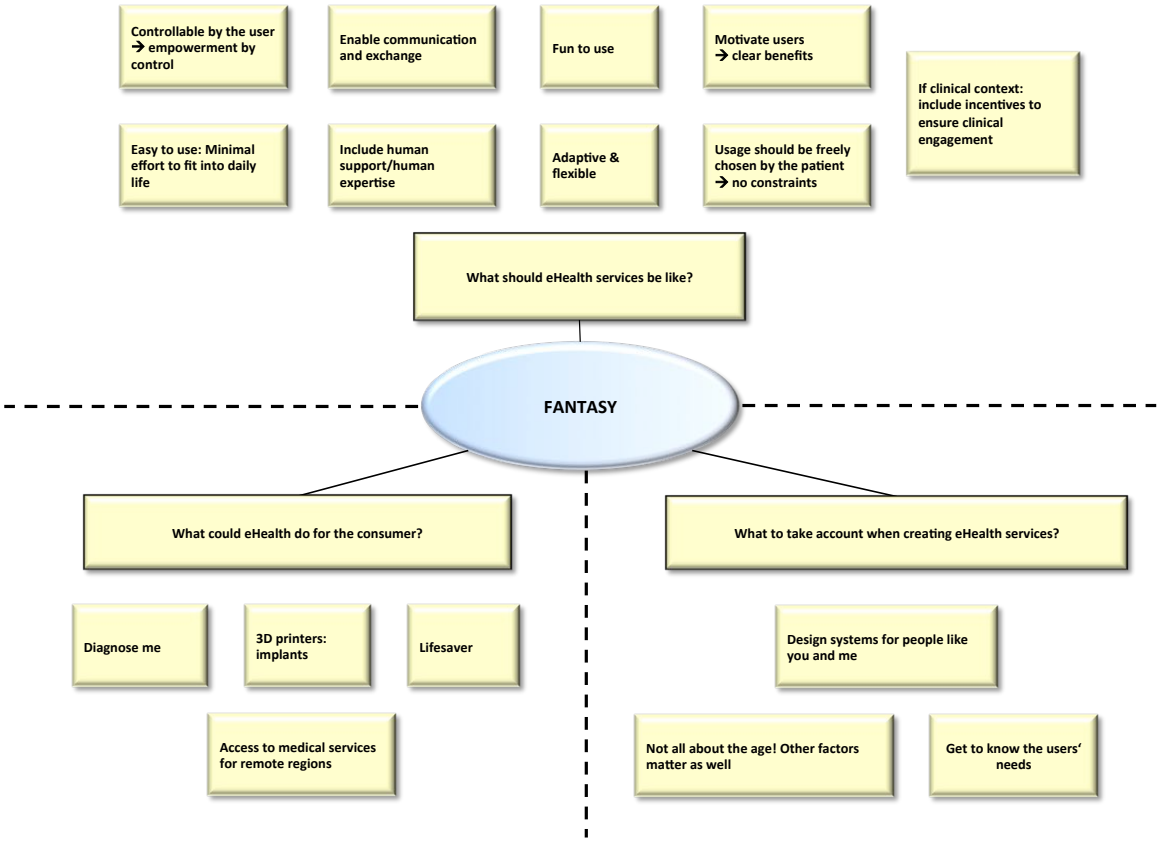

Figure 2: Important aspects for successful eHealth usage among consumers

related information online within the last 12 months. Citizens searched for general health information (59%) or specific injuries, diseases, illnesses or conditions (54%). Search engines were the most frequently used sources of information. Most users stated that they find the information useful (80%) and satisfactory (89%). As outlined by Gisele, EB 404 will be used as a baseline for future surveys. In general, European initiatives aim to improve citizens' digital health literacy (H2020 WP2016-17).

2.3 Future Workshop & Discussion

Subsequent to the three short key notes, we conducted the critique and fantasy phase of the workshop. Participants were divided into three discussion groups with one moderator each. People were encouraged to freely discuss opportunities in which situations eHealth services are particularly useful and what poses a barrier for successful eHealth implementations, e.g., health apps, online health informations and forums, tele-consultations, etc.

Each moderator captured the outcomes on sticky notes which were later grouped together in a final discussion round with all attendees. The following major topics emerged:

- Health literacy, computer literacy, linguistic barriers, willingness to keep up with latest technology, unclear motivation and limited time pose **individual barriers** for patients and physicians to use eHealth services.
- **Technical barriers** such as lack of trust, security issues, bad usability, no interoperability/standards for patient generated data, unsuited services, insecure communication channels and tools were identified.
- Open questions in terms of financing eHealth services or political circumstances were discussed as **environmental/organizational barriers**. Some participants mentioned missing incentives for physicians or hospitals to integrate eHealth services into working routines.

The results of the critique phase are depicted in Figure 1. However, eHealth services for consumers might help to alleviate access to medical services in remote regions, help in diagnosing people or as one participant put it "be a lifesaver". Yet, such a lifesaving eHealth service should

- be easy and intuitive to use,
- enable communication and data exchange,
- motivate and engage users,
- be freely chosen by the patients.

As illustrated in Figure 2, the fantasy phase yielded several other important aspects as well.

Some participants emphasized that many factors need to fit for the intended target users. Therefore, successful deployments of technology in the healthcare domain need to not only consider the age of patients and users, but – more importantly – their needs, expectations and technological affinity.

3. CONCLUDING REMARKS

Overall, the workshop was an enjoyable, open-minded and an engaging event. The feedback from the participants was positive. The concept of a small Future Workshop was very beneficial, as it was easy to engage with every participant in lively discussions.

We thank all attendees for investing time and thoughts during the workshop and in discussions afterwards. We envisage close collaboration with international researchers and other stakeholders in the field of Medical Informatics - especially consumer health informatics. Moreover, health literacy and health services research communities could be involved in future projects.

As a next step, we aim to create an eHealth acceptance meta-model including barriers and facilitators as identified in this workshop. It is our intention to publish the results in at least one scientific journal. Furthermore, the results will be available via the PG's Wiki[3] and could thereby trigger further discussions among experts in the field of eHealth.

4. ACKNOWLEDGEMENTS

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