

## eHealth Game Jams provide prototypes for health care

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### Abstract

Digitalisation and Information and Communication Technologies (ICT) for health and wellbeing are crucial today for providing high - quality care. Gamified solutions can be used in health care to promote health of the customers or to train health care professionals.

Games for Health Finland network activates co-creation workshops, Game Jams, for creating prototypes for more efficient health care. These events bring together people with different backgrounds with a spark of innovation and to get a break from their normal routines and working environment.

During the eHealth2018 conference a short Game Jam that lasted only 18 hours was organized, with 20 jammers from across the Finland. As a result we got 5 prototypes that was introduced at the end of the conference to the conference audience.

**Keywords:** Telemedicine, video games, health promotion, social participation

### Introduction

Digital technology has been transforming the way services are created, delivered and consumed. Digitalisation will benefit people, health care systems and the economy. Digital technologies such as virtual reality, artificial reality, artificial intelligence and gamification offer new opportunities to transform the way we receive and provide health and care services. They enable innovative approaches to independent living or integrated health and social care. [1]

Games for Health Finland –network was established in the year 2014 to provide a framework for SME’s innovation activities and growth and to generate start-up companies. The network supports SME’s product and service development and utilization of new commercial technologies in order to meet the public health chal-

lenges. Games for Health Finland provides ongoing multidisciplinary experiment culture as well as the new development together with entrepreneurs, the educational and research institutions, students and other professionals. [2]

Games and gamification is not a solution only for the customer. They can be used to train the health care providers. Virtual reality (VR) and Augmented Reality (AR) offers new possibilities for example to train situations rarely occurred or to learn to use new equipment. [3].

### Methods

The Games for Health Finland network promotes the development of products and services and organizes

networking events and education. Co-creation workshops like Game Jams or Hackathons are solutions for crowdsourcing this innovation process. In these events prototypes are created for given theme and often results are gamified applications or even games. Game Jams bring together healthcare professionals and game makers to create new ideas and ways to use eHealth technology and promote health with gamification.

Gamification is used because when we achieve new levels in games, the brain releases dopamine which prompts excitement, encourages exploration to try new things, and helps combat the stagnation caused by failure. In games there are elements like clear goals, proper challenges, interaction and rules for engagement, motivation, participation and inspiration. Gamification is about applying these game-design elements and game principles in a non-game context. It offers users to perform activity that is completely immersed in a feeling of energized focus and enjoyment. Gamification can also improve individual's ability to comprehend digital content. [4]

During the eHealth2018 conference, Games for Health Finland organized eHealth2018 Game Jam. eHealth2018 conference was the 23rd Finnish National Conference on Telemedicine and eHealth with a theme "Health communities facing cyber transformation". It was held 15.-17.3.2018 - Cruise on the Baltic Sea between the capital cities Helsinki, Finland and Stockholm, Sweden.

eHealth Game Jam was exceptional in few aspects. Normally Game Jams last 24 or 48 hours, but during the conference the time for making the solution was only 18 hours. For the first time Games for Health Finland organized a Game Jam on a cruise that caused problems with internet connection. Many of the game developer are used to find help for programming from the internet.

## Results

eHealth2018 Game Jam gathered 20 jammers across the Finland. These jammers formed five different teams that worked tightly during the conference. The jammers

had a possibility to create an application or a game. There were no restrictions on a technology or for a platform the solution was created. At the end of the conference all the teams presented their work for the conference audience.

### Results were:

- "Good me": The purpose of the game is to help poorly performing children and to prevent them feeling bad by collecting data related to well-being. The data is collected when a child is playing on the educator's side. This data monitors the well-being of the child and addresses possible warning signals. The game was made for mobile phone.
- "Team Shaker": A clicker game for stress relief, social gaming and active play. This was made for mobile phone.
- "VR trainer": Usage of Virtual Reality based solutions (ASUS Mixed Reality Headset) for orientation and retraining. How to recognize risk elements while working in hospital environment.
- "Hospital Manager: The patient guidance": Designate the patients to the correct locations and give them treatment as soon as possible. The game was played with computer.
- "Lake View Resort: Secure Patients" You work in the mental hospital and try to protect your patients from harming themselves. The game was played with computer.

The conference audience, about 250 participants over 30 nationalities, got a chance also to vote the best solution created. Conference audience selected "Good me".

## Discussion

Health care sector should be seen as a living lab, a platform, where new, open, agile and user-friendly services are brought to life with a twist of gamification to engage the users. By opening the true needs of the health care sector, Game Jam or Hackathons offers new proto-

types and solutions for health care sector. Without new ideas and innovative partners it is hard to create technologies that increase people's possibilities to act themselves, improve self-care or digitalize the processes between patients and professionals.

Open innovation challenges like game jams bring customer focus, imagination, collaboration, courage, expertise, inclusiveness, multidisciplinary thinking and transparency to the fundamental health care sector. The best way to get novel solutions is by crowdsourcing the innovation process. Where ever the innovative ideas come from, we might have a solution in our hands that solves the toughest problem in the blink of an eye. However, the innovation process needs expert support and advice from the field. With crowdsourced open innovation challenges we help the conservative health care sector get more customer orientated solutions in an agile and effective way.

Game Jams and Hackathons lead to functional and useful solutions. These co-creation workshops bring the mad scientist out to the innovators and breaks their routines and working environment. These type of intensive innovation challenges have provided many usable prototypes to be developed further.

Games and application can travel with us anywhere in our pockets, they can be played and used by everyone and they have a social aspect as well. While using them, they involve, motivate, inspire and commit people for better health.

### Acknowledgements

The main funders of the Games for Health activities described in this paper are the European Regional Development Fund and the Regional Council of Northern Savo.

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