

Breathing Games: Promoting Respiratory Health Through Co-Creation

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One in five individuals worldwide is affected by a chronic respiratory disease. These diseases are under-recognised, under-diagnosed, and under-treated. While global trends also indicate that healthcare costs are on the rise (WHO in Smith-Nonini, 2006), the move toward a common pool of health sciences resources has shown to further knowledge, improve efficiency and decrease research and development costs (Cook-Deegan, 2007). Breathing Games is contributing to this latter effort, by mobilising a community of patients, clinicians, interdisciplinary researchers and technology professionals to co-create respiratory games and devices (see Figures 1 and 2); and making all aspects of its design **freely available** so that it can be adapted, and further developed by communities worldwide.

This research incorporates literature from the health commons and participatory action research with a focus on 'collective intelligence.' How do collaborative models of creation produce knowledge? And how are these rendered visible?

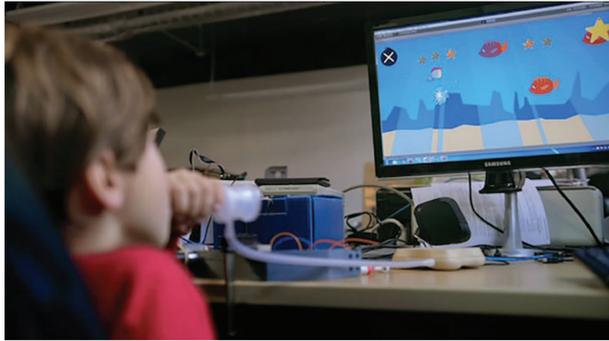


Figure 1. A child playing Héritage, one of the games developed at a Breathing Games game jam. Image source: "A New Economy"

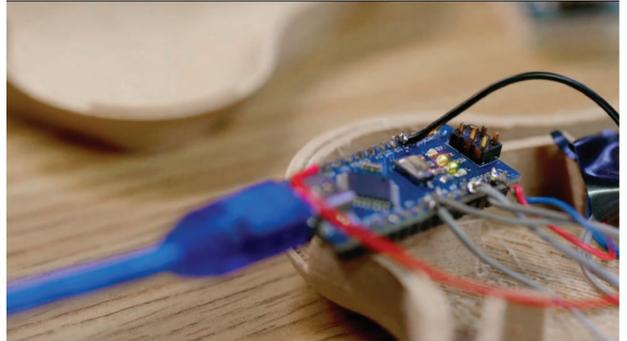


Figure 2. Detail of flow metre with pressure sensor developed in collaboration with Sensorica. Image source: "A New Economy"

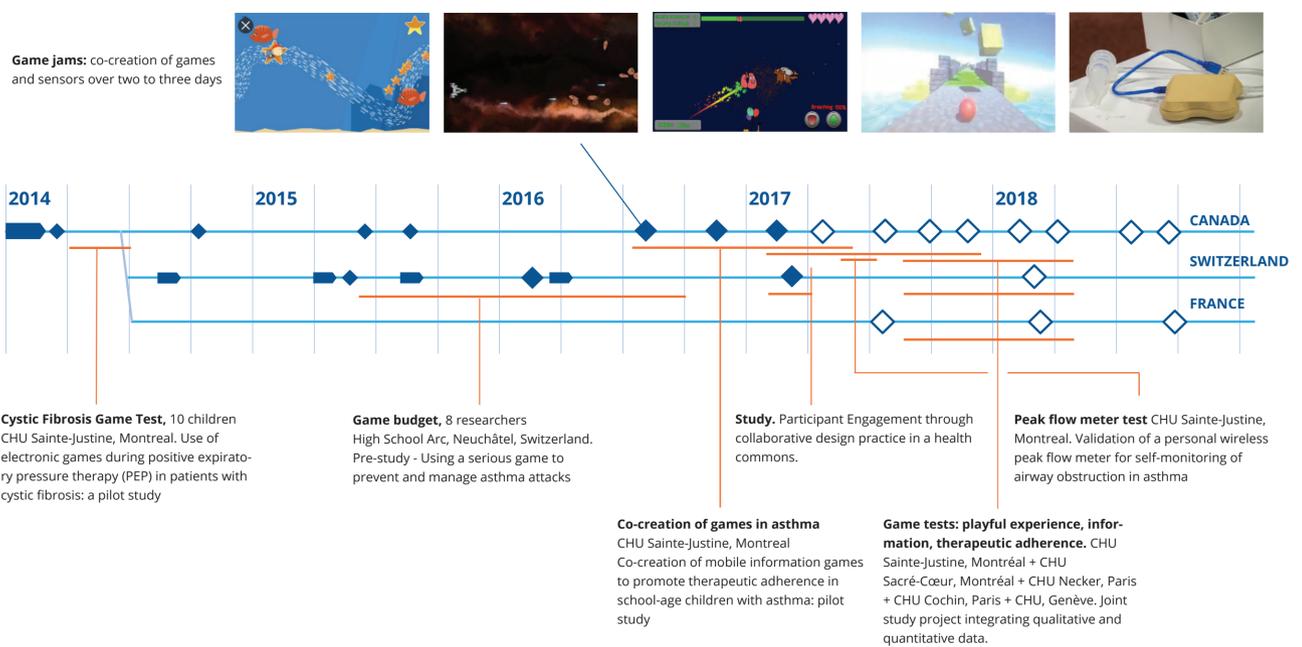
Methodology

This project employs participatory action research (PAR) – an approach where knowledge is co-produced by researchers and participants through a cycle of reflection and action. The aim of PAR is to achieve social transformation **with** participants rather than **for** them (Balcazar, 2004; Kindon, Pain & Kesby, 2008). According to Bergold & Thomas (2012, para 12), this requires "a great willingness on the part of participants to disclose their personal views of the situation, their own opinions, and experiences."

Results

Through game jams, hackathons, workshops and other participatory approaches (Decker, Eiselt & Voll, 2015), Breathing Game technologies are co-created by passionate people from a variety of backgrounds. The project's aims are to educate people about respiratory health, make treatments fun, and inform clinical research. Over the last three years, more than **200 people** from **seven countries** have contributed over **4500 hours** of work to the project, with **6 games** and **3 devices** currently in development, **23 media articles**, **13 academic publications**, conferences and poster presentations, and an appearance in the **documentary "A New Economy."**

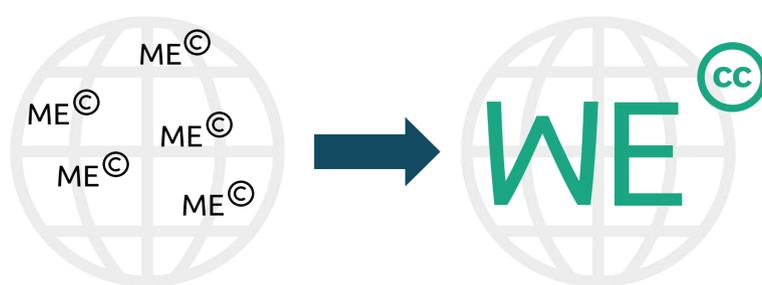
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Discussion: From "Design for Next Health" to "Co-design of our own Health"

The emergence of collaborative models of production and distribution are shifting healthcare from short term, top-down disease management to **community-driven health prevention** and design of care by users. Collaborative design of fun learning tools by interdisciplinary communities extends beyond patient care, as it empowers everyone to manage their own health and that of their communities, while building collective intelligence.

As social initiatives, **knowledge commons** such as Breathing Games provide alternatives to competitive and proprietary systems that limit access to innovation; challenge dominant legal frameworks through the free/libre production and distribution of designs, software and hardware; incorporate a whole-systems approach with shared responsibilities and innovative design processes that encourage citizens to value health throughout their life.



By inviting everyone to contribute to freely accessible knowledge and technologies, we are drafting a solution to meet the United Nations goal of Healthy Lives for All by 2030.

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