



Games for Health: Exploring the Role Video and Computer Games Can Play in Improving Health and Health Care

Exploring the role of video and computer games as a medium for health and health care messaging

SUMMARY

From 2004 to 2007, [Digitalmill](#) (Portland, Maine), led a project called [Games for Health](#) to bring together video and computer game developers and health care professionals to discover what role games could play in improving health and health care.

In 2007, [Digital Innovations Group](#) (Richmond, Va., and New York), held a briefing for foundations and other funders on video games, with a focus on the work of [Games for Health](#).

Key Results

Project staff from Digitalmill reported the following results to the Robert Wood Johnson Foundation (RWJF):

- From 2005 to 2007, game developers and representatives of the health care industry came together at two conferences ([Games for Health 2005](#) and [2006](#)) and two regional meetings ([Games for Health Day](#) in 2006 and 2007).
- A 2007 [Games for Health Competition](#) encouraged game developers to develop health games that solved a health or health care problem. Digitalmill and [HopeLab](#) (Redwood City, Calif., an organization that sponsors research to improve the lives of young people with chronic illness) co-sponsored the competition.
- A white paper entitled *Games for Health: Current Achievements and Future Promise* (2007).

Project staff at Digital Innovations Group reported the following result to RWJF.

- Approximately 30 funders from a variety of foundations attended a briefing on video games, with a focus on the work of [Games for Health](#), on June 26, 2006, in New York. RWJF, the [MacArthur Foundation](#) (Chicago) and the [Surdna Foundation](#) (New York) co-sponsored the briefing.

See [Results](#) for a full listing of results.

Funding

RWJF supported the project with three grants totaling \$308,362 between December 2004 and September 2007. The project received \$43,000 in additional funding from the [Telemedicine and Advanced Technology Research Center](#) (Fort Detrick, Md.) (\$30,000); [HopeLab](#) (Redwood City, Calif.) (\$10,000); and [PopCap Games](#) (Seattle) (\$3,000).

Afterward

In 2007, RWJF launched *Health Games Research*, an \$8.25-million national program that supports research to enhance the quality and impact of interactive games used to improve health.

THE PROBLEM

By 2004, video and computer games were the fastest growing media form. The Entertainment Software Association reported that Americans bought more than 221 million computer and video games, or almost two games for every household in America, in 2002. Adults bought 92 percent of these games.

The Role of Games in Health

Several games that promoted health in some way existed before RWJF funded Games for Health, including "Dance Dance Revolution," a physical fitness game, and games to help health care providers improve their skills, such as virtual reality games that use controls similar to some surgical technologies that enable surgeons to build eye-hand coordination.

Games hold the potential to promote health and health care by:

- Reducing patients' pain and the burden of illness.
- Strengthening health care providers' and leaders' knowledge and skills.
- Informing the general public about maintaining and improving their health and supporting their efforts to engage in healthy behaviors.

But there was no established forum for people in the video and computer game industry and the health care industry to meet and discuss their needs and opportunities to collaborate.

Serious Games Initiative Launches Games for Health

The [Serious Games Initiative](#) at the Woodrow Wilson Center for International Scholars (Washington) focuses on the use of games in exploring management and leadership challenges facing the public sector. Benjamin G. Sawyer, president of Digitalmill (Portland, Maine), is co-director. Digitalmill is a software development firm that specializes in games.

In 2003, the Serious Games Initiative established [Games for Health](#), a project to develop a community (researchers, health care professionals and game developers) and best practices for the many health care games then under development. Sawyer is one of the founders of the project.

Among Games for Health's efforts was the launch of the first conference covering games and health care, which was held in Madison, Wis., September 16–17, 2004, with 100 attendees, and a listserv, which representatives of the health care industry and game developers used to communicate electronically about such issues as patient care, education, training, policy and management.

CONTEXT

RWJF funded Games for Health under its Pioneer Portfolio. As noted in the *2006 Annual Report*, "[t]he Pioneer Portfolio looks down the road toward future health and health care challenges, seeking and supporting innovative, often unconventional ideas that may lead to breakthrough solutions."

Pioneer projects aim to engender potentially transformative change in addressing health and health care problems. Again, as noted in the *2006 Annual Report*, "Pioneer grants also explore out-of-the-box solutions to entrenched problems." Games for Health is one such funding effort.

THE PROJECT

From 2004 to 2007, Sawyer, of Digitalmill, led work as part of Games for Health meant to tap into the potential of games and discover what role games could play in improving health and health care. The project, conducted primarily under Grant ID# 051701, had two main components:

- Community building within the game industry around health interests. Project staff developed an active community of people interested in how games can improve health and health care.
- Exploring opportunities to enhance health through games. Project staff explored ways to create games with a health focus.

Project staff brought health care professionals and game developers together through conferences, meetings and a listserv. "There really wasn't a place for folks in the games and health industries to meet," said Chinwe Onyekere, a program officer at RWJF. "They were working in two distinct worlds. They weren't speaking the same language. They didn't understand the other industry's needs and values. This was an opportunity to build a bridge and for folks from two industries to talk with each other."

RWJF gave Digitalmill a second grant to finish work it had begun in the previous grant, including completing a white paper entitled *Games for Health: Current Achievements and Future Promise* (2007) that gave an overview of the potential of games to improve health and health care (ID# 061102).

A Briefing for Funders on Video Games and Games for Health

In 2007, RWJF made a grant to Digital Innovations Group, of New York, to hold a briefing for foundations and other funders on video games, with a focus on the work of Games for Health (ID# 057765).

Digital Innovations Group is the fiscal sponsor of [Games for Change](#), which provides support, visibility and shared resources to individuals and organizations using digital games for social change.

Challenges

Project staff from Digitalmill explored ways to place health messages in mainstream games, similar to previous efforts to place health messages in mainstream television shows. However, Sawyer discovered that this was complicated and "overly ambitious," and project staff members were unable to make progress on this front.

Staff members were also unable to attract the largest game developers, such as Nintendo, to the conferences during the grant period although they did arrange one-on-one meetings with such organizations.

Other Funding

The Games for Health project received \$43,000 in additional funding from the [Telemedicine and Advanced Technology Research Center](#) (Fort Detrick, Md.) (\$30,000); [HopeLab](#) (Redwood City, Calif.) (\$10,000); and [PopCap Games](#) (Seattle) (\$3,000).

Communications

Project staff subcontracted with [Burness Communications](#) (Bethesda, Md.) and [Pyramid Communications](#) (Seattle), to generate press coverage for the project conferences and meetings. Articles or newscasts appeared in the *Wall Street Journal*, *New York Times*,

Game Developer magazine, *Edge* magazine, *Los Angeles Times*, *National Public Radio*, *CBS Evening News* and others.

Project staff created a [Web site](#), which contains information on the project and conferences. Staff also created a Games for Health [trailer](#), which they posted on YouTube and Google Video. People viewed the trailer more than 5,000 times.

RESULTS

Results About Games for Health

Project staff at Digitalmill reported the following results to RWJF.

- **From 2005 to 2007, game developers and representatives of the health care industry came together at two conferences and two regional meetings of Games for Health.** Attendees included health care providers; representatives of health insurers, hospitals, pharmaceutical companies and health-related federal government agencies; game developers; and consultants, including the Centers for Disease Control and Prevention, GlaxoSmithKline, Maine Medical Center, the National Institutes of Health and Pfizer.

The two conferences featured case studies, product demonstrations, panel presentations, lectures and discussions that covered a range of topics. They were:

- "Games for Health 2005 Conference," held September 22–23, 2005, in Baltimore, with 220 attendees and 20 speakers. Among the presentations were:
 - The story of building Ben's Game, a Make-A-Wish Foundation effort that uses a game to show the biological battle inside children who are fighting cancer.
 - The state of exergaming (games in which players get exercise) and rehabilitation projects and products.
 - The experiences of Health Media Lab, which has used games to teach nutrition and first aid to young learners.
- "Games for Health Conference 2006," held September 28–29, 2006, in Baltimore with 260 attendees, 46 speakers and 28 project demonstrations. Among the presentations were:
 - How to use games to deliver key health messages.
 - How to address Post-Traumatic Stress Disorder, psychotherapy and stroke rehabilitation with games and game rehabilitation.
 - Ways that games such as Game Boy can help children reduce their anxiety before going into surgery.

One of the two regional meetings was held the day before a game convention; the second the day before a game festival. The meetings were:

- "Games for Health Day," held May 9, 2006, at the University of Southern California in Los Angeles with 100 attendees and 13 presentations. The meeting was held a day before the opening of the Electronic Entertainment Expo, a major convention on games. Topics included ways that games are addressing health and health care issues including:
 - Combat and emergency medicine.
 - Cancer treatment.
 - Coping with family ailments.
- "Games for Health Day," held August 23, 2007, in Seattle with 65 attendees and 11 presentations. The meeting was held a day before the opening of the Penny Arcade Expo, a game festival. Presentations included:
 - Biofeedback & Videogames.
 - Games for Health Japan—More than BrainAge.
 - Turning Health in Games into Health With Games.
- **The Games for Health Discussion Listserv enabled representatives of the health care industry and game developers to communicate via email.** The listserv, started before the grants began, focused on patient care, education, training, policy and management exploration initiatives. Approximately 150 people participated.
- **Digitalmill staff met with representatives of the Centers for Disease Control and Prevention, Intel, Kaiser Permanente, KidsHealth.com, Maine Health, Microsoft Research, National Institute on Drug Abuse, National Institutes of Health, Nintendo, Revolution Healthcare and WebMD to discuss potential ways to collaborate on games in health.**
- **A 2007 Games for Health Competition encouraged game developers to develop health games.** Digitalmill and HopeLab co-sponsored the competition. Each game developer was required to state and define a problem in health or health care and then create a solution to that problem. The winners were:
 - *Neuromatrix*, submitted by Morphonix of San Mateo, Calif.: *Neuromatrix* is designed to teach adolescents ages 11–14 about the brain. The game shows adolescents that the brain is not an abstract topic and aims to inspire more students to enter the field of neuroscience. Prize: \$20,000.

Neuromatrix was funded by research grants from the National Institute of Health's Small Business Innovation Program.

- *Food Finder*, submitted by Erin Hoffman of Albany, N.Y.: Designed for the Nintendo DS system, *Food Finder* shows children ages 8–14 how to make healthy eating choices through an interactive quest to find nutritious food groups. Prize: \$5,000.
- *Bizarro Olympics*, submitted by Team Fun of Indiana University (Bloomington, Ind.): Designed for the Nintendo Wii™, *Bizarro Olympics* is an exercise video game that takes players through a series of futuristic Olympic-style events while educating them about important lifestyle choices to maintain good health and win the game. Prize: \$5,000.
- **The white paper entitled *Games for Health: Current Achievements and Future Promise (2007)* defines the concept of games for health, explains the Games for Health project, describes ways to develop a Games for Health community and lists notable health-related games.** For more information about the contents of the white paper, see the [Appendix](#).

Results From the Briefing for Funders

Project staff at Digital Innovations Group reported the following result to RWJF.

- **Approximately 30 funders from a variety of foundations attended a briefing on video games, with a focus on the work of Games for Health, on June 26, 2006, in New York.** The purpose of the briefing was to educate and inform funders about video games and to start networking and planning for longer term field-building.

Games for Change coordinated the briefing, which was sponsored by RWJF, the [John D. and Catherine T. MacArthur Foundation](#) (Chicago) and the [Surdna Foundation](#) (New York).

Attendees included representatives from Ashoka Innovators for the Public (Arlington, Va.); Carnegie Corporation of New York; Federation of American Scientists (Washington); Ford Foundation (New York); Kaiser Family Foundation (Menlo Park, Calif.); Kellogg Foundation (Battle Creek, Mich.); and the Open Society Institute (New York).

LESSONS LEARNED

1. **Make plans at the beginning of the grant to obtain press coverage, either by hiring a consultant or public relations firm or handling the work in-house.** For various reasons, it took Digitalmill several months to hire a firm to help with their press outreach, which delayed their work. In hindsight, it would have been better to hire a firm at the beginning of the project to help guide them and make a plan for press coverage. (Project Director/Sawyer)
2. **Use events as critical organizing tools.** Events where people meet face to face, such as the conferences and meetings of this project, brought together people from

different cultures, enabling them to share innovation and to network. Project staff also used these events to push the community to form and implement initiatives. (Project Director/Sawyer)

3. **Encourage press coverage by hosting events.** Events such as the conferences conducted as a part of this project created opportunities for general press coverage of this work. (Project Director/Sawyer)
4. **Focus on the matchmaking when bringing different groups of people and industries together, and then get out of the way.** Project staff brought people together and then let them take the next steps. Staff did not need to be part of every interaction or take credit for what happened after introducing people. (Project Director/Sawyer)
5. **Spot and nurture talent to build a community.** Project staff identified and nurtured emerging talent and worked with community leaders to identify and create new stars that helped expand the community. This was especially important since games for health is an emerging field, and talented community members were often young people who needed to build their leadership skills. (Project Director/Sawyer)
6. **Consider the political skills of project participants when trying to merge different cultures as well as presenting a unified political face.** Games for Health brought together many diverse groups. Project staff involved people who had strong political perception skills that enabled them to be sensitive to the needs of these groups as they worked with them. (Project Director/Sawyer)

AFTERWARD

Digitalmill and Games for Health Partner with RWJF in National Program

In 2007, RWJF launched *Health Games Research*, an \$8.25-million national program that supports research to enhance the quality and impact of interactive games used to improve health. The goal of the program is to advance the innovation, design and effectiveness of health games and game technologies so that they help people improve their health-related behaviors and, as a result, achieve significantly better health outcomes.

Digitalmill and Games for Health are program partners in Health Games Research. Digitalmill is continuing to hold conferences and other meetings and to manage the listserv. More than 300 people attended the May 2008 Games for Health conference, which attracted mainstream health organizations, including co-sponsor [Humana](#), a large health insurer in Louisville, Ky.

In October 2008, Digitalmill sponsored an experimental game jam to foster rapid development of prototypes for games to help people learn about and improve their personal health.

Games for Change Continues Funders Briefings

Staff at Games for Change has begun holding regular funders briefings in conjunction with an annual [festival](#) that it holds—a direct outgrowth of the original RWJF-funded briefing, according to Suzanne Seggerman, the project director of the first briefing.

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APPENDIX

Games for Health: Current Achievements and Future Promise (2007)

Defining Games for Health:

The three key components are:

- Interactive games (or projects using technologies and tradecraft from commercial gaming) designed to improve people's health or to enhance health care delivery.
- The games for health community, which includes health care professionals, academics, game developers and customers who work collaboratively to create health games that are fun, compelling and effective in improving consumer health or in advancing the professional development and training of people who work in the health care industry.
- The Games for Health project, which explores, fosters and supports the creation of games and game-influenced projects to provide or improve health care.

Uses of Games for Health:

- Healthy lifestyle and prevention.
- Exergaming and rehabilitation.
- Disease self-management.
- Pain distraction.
- Therapy.
- Education and training for health care professionals.
- Surgical skill development.
- Health campaigns and mass market messaging.
- Health policy exploration.
- Epidemiology.
- Medical imaging.
- Health product advertising.
- Personal health records.

Developing a Games for Health Community:

Web-based social networking systems (e-mail listservs, blogs and collaboration networks such as LinkedIn.com and Orkut.com) and the annual Games for Health conference provide the best way to connect a wide variety of people interested in games for health.

Building the community also includes public relations to draw new people to the community and projects, including:

- Defining a research agenda.

- Building a knowledge base of projects, information, past research and general development resources.
- Cataloging previous games for health and summarizing them in case studies.

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