Successful Game Development Partnerships between Academics and Physicians: Two Case Studies

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ABSTRACT

This paper discusses the creation of two serious games developed by the Engender Games Group with the intention of meeting specific outcomes in the healthcare field. The processes and pitfalls of developing games of this kind are outlined with the intention of demonstrating how game developers and health care professionals can collaborate to produce compelling, fun games that meet specific goals. The Atendiendo el Parto en Casa (Home Birth), game is a collaboration with Drs. Dilys Walker and Carrie Rouse at the University of Washington Medical School to educate traditional midwives working in rural Mexico. The Flu Busters! game is a collaboration with a group of pediatric specialists at Winthrop-University Hospital on Long Island led by Dr. Leonard Krilov which explains how the flu vaccine works and encourages children to get vaccinated.

Keywords: Birth, Delivery, Flu, Game Development, Game Studies, Games for Health, Labor, Serious Games, Vaccine

INTRODUCTION

Videogames and other interactive digitally mediated products are now being used in many different healthcare environments. Their efficacy varies based on the quality of the product and the environment in which it is deployed (Lieberman, 1997). Great enthusiasm for such games has led to many being developed with insufficient validation of whether or not they actually achieve their stated goals (Kato, 2012). The Engender Games Group lab completed two games in 2013, Atendiendo el Parto en Casa (APC) (Bertozzi et al., 2013), a collaboration

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with Drs. Dilys Walker and Carrie Rouse at the University of Washington Medical School and with investigators at the National Institute of Public Health in Mexico and Flu Busters! (FB) (Krilov et al., 2013) with a group of pediatric specialists at Winthrop-University Hospital on Long Island led by Dr. Leonard Krilov. Preliminary testing in both cases demonstrates that the games were reasonably successful in achieving their stated goals. In the hopes that these two case studies might assist other teams in the development of digital game environments that promote positive health outcomes, the process of accomplishing them is described.

There are several problems with many games that are proposed and/or developed with the intention of achieving pro-social goals. These include:

1. The topic of the game is only marginally related to the intended outcome;
2. What is described as a “game” is neither fun nor engaging and thus not a game (Gullo, 2011; Malone, 1981);
3. Desired outcomes are too broad or not clearly defined which makes it impossible to build a game that actually accomplishes them (Bellotti, Kapralos, Lee, Moreno-Ger, & Berta, 2013);
4. The scope of the game is too broad so assessment of success/failure is impossible (Watt, 2009).

When consulting with hospitals and physicians who have ideas for how games might be deployed in health care environments, it is important to educate those involved about these pitfalls and how they can be avoided.

BACKGROUND

Over the past decade there has been increasing interest in the potential of videogames for pro-social uses, particularly in the field of healthcare (Bavelier & Davidson, 2013; Kato, 2010). Games are currently being used to train surgeons in robotic surgery techniques (Rosser et al., 2007), treat diabetes (Lieberman, 2012) and encourage exercise, among many other uses (Feldman, 2011). The best games avoid the pitfalls outlined above. They have a narrow focused goal, they ensure that the gameplay is enjoyable and intrinsically motivating, and they include rigorous outcomes assessment.

Clinicians can have other priorities and concerns. Dr. Ravi Komatireddy argues that, “…there are four main issues in physician adoption: efficacy, applicability, perception, and guidance” (Gullo, 2011, pg. 1). The first is already discussed above; the others are also important to consider:

1. **Applicability**: Can the game be effectively deployed in a healthcare setting?

Tables, computers and cellphones are increasingly common in healthcare settings, but it can be difficult to designate technology specifically for gameplay and monitor it so that the game goals can be accomplished. Additionally, different platforms have different software requirements so if a game is built to be delivered on a laptop, it would require different coding to work on a tablet or cellphone. There might also be issues with keeping shared hardware free of infectious agents:

2. **Perception**: How is the idea of a “game” perceived by medical staff and patients as a tool for modifying behavior?

Despite changes in the perceptions of games and videogames in particular, many still regard them as frivolous or actually damaging to children. It is important to package and introduce serious games so that staff and patients have an open mind about introducing games into a healthcare setting:

3. **Guidance**: Is there adequate help to ensure that the game technology will work and that all parties understand how to engage with it?
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