GETUP: Health Gaming for "*the Rest* of Your Life"

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Abstract: This poster articulates the problem space of designing a game to address adolescent health and health-related behavior, and shares the particular approach that this team has come up with to address these critical questions. Through the examination of one exploratory study at an urban middle school on the West Coast, the poster also outlines some logistical challenges in research and game design involving personal activity monitors and limited computing resources in a low-SES after-school context, and describes some contributions around youth engagement with gaming, health, and identity.

Public Health as a Context for Game Design

Health during childhood is a critical predictor of disease onset in later adulthood. Given the current rate of chronic disease onset in the U.S., the present generation of children, on their current diet and lifestyle trajectory, is predicted to live shorter lives than their parents (Olshansky et al., 2005). Schools might seem like the obvious place to address these conditions among children and youth, but studies in health education have found that school-based attempts to impact children's activity levels and food choices have seen limited success (Ebbeling, 2002).

In recent years games have been vilified for their correlative relationship to childhood obesity, via studies wherein children who report playing videogames frequently are often also overweight or obese (Vanderwater, Shim, & Caplovitz, 2004). In response, a new wave of game systems that are based on sensors and kinesthetic controls (such as *Wii Fit*, *Dance Dance Revolution*, *Xbox Kinnect*) shift the nature of typically sedentary activity while gaming. Yet even if these kinds of games can increase players' energy expenditure while gaming (Leatherdale, Woodruff, & Mansky, 2010), there is still the question of how to positively affect the health behaviors of players during the times they are *not* playing—or, as a participant in our project put it, "There's games, and they're cool an' stuff, but then there's like *the rest* of your life."

Gaming with Personal Activity Monitors

GETUP stands for "Gaming to Educate Teens about Understanding Personal health." An approach that holds promise for connecting gaming behavior and learning with players' physical activity in their non-gaming lives is the use of physical activity monitors. Monitors such as the fitbit (see Figure 1) record users' steps walked, floors climbed, calories burned, miles traveled, etc.

Figure 1: The fitbit "One" activity monitor

While some game design efforts involving fitness devices have focused on making the act of exercise itself more game-like (see review of "exergames" by Oh, 2010), our approach is instead to make the synced data from these fitbit activity monitors available for use in a more traditional online game space. Together, researchers and professional game designers are creating *Terra*, a narrative-driven online game, playable on any internet-enabled device and browser, in which teams of astronauts travel to an uncharted planet to build a base, explore the terrain, and terraform it, along the way avoiding disasters and encountering new landscapes, unfamiliar food sources, and alien creatures. As the action unfolds in the game, and as players wear their activity monitors on a daily basis, personal activity data from previous device syncs become available in the game, on an individual basis and within collaborative colonies of players. Features in the game are designed to appeal to different styles of play (adventure, exploration, hard and soft collaboration and competition, etc.) and tap into users' varying motivations for both continued play in the game and continued physical activity outside the game.

Designing for (and with) an Urban After-School Program

Minority and low-income groups are even more at-risk for health and lifestyle chronic diseases than the general population (Calzada & Anderson-Worts, 2009; Skelton, Cook et al. 2009). Our team is working with an after-school program in a public middle school on the West Coast in a large urban area. The student population is 94% non-white, 41% limited English proficient, and 89% qualifying for free and reduced lunch, and the technology resources at the school and in students' homes are minimal. Home technology constraints are the main reason we sought out a device with an active display. Many wearable fitness devices are moving toward a zero-display model wherein visualization and information are offloaded to a Bluetooth smartphone application; however, the vast majority of our students do not own phones with this capability.

Results and Implications

Preliminary results indicate that the dual approach of monitoring activity via wearable devices and motivating activity via in-game rewards is highly promising. GET-UP students reported that they engaged in more frequent kinds of physical activities to "get more steps" than before they joined the project and received their fitbits, both recreationally and in terms of participating more during Physical Education (this was especially an issue for girls). Corroborating these claims with the database of fitbit syncs, we saw that most students' daily mileage did increase over their initial baseline (when they remembered to wear their devices, which was not every day).

So why is this approach unique? As youth wear their devices and play *Terra*, they are, in essence, gaming even when they are not gaming, and game-world activities are directly tied to their non-gaming choices and behaviors. In terms of identity, research on recreational gamers reveals that there exists an interesting dichotomy of user approaches, wherein users sometimes try to integrate aspects of their "real life" identities into the characters they play (Kafai, Cook, & Fields, 2010) and sometimes create alternative fantasy identities that are very different from themselves (Jenkins, 2006). In the GETUP program, player game data is directly tied to users' physical health characteristics, which may prove to motivate different kinds of learners differently. It may ultimately prove less motivating to those users in particular who value games for their escapist qualities. These issues around gaming, motivation, and identity—central concerns for the GET-UP project—as well as connections to players' physical bodies and physical health, have not been deeply investigated yet in the field.

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