Video Games as a Mental Health Intervention Tool*

84 percent of boys 13-17 and 59 percent of girls and play video games
Pew Research Center (2015)

Technology generates both new opportunities and problems.

In reaction to all the negative concerns related to young people's involvement with video games, Ka Lai Ng (Gary), a student working at the Center,* raised the question: *Can video games help address mental health problems?*

Given that the ongoing discussions about the negative effects of video games has overshadowed the literature on potential positives, it seemed worth preparing this brief answer to that question. The following in no way discounts the concerns about pathological gaming/video game addiction (e.g., see Gentile, Choo, Liau, et al., 2011). Our intent is to highlight some evidence indicating that appropriate use of video games may be a positive intervention tool for some mental health concerns.

Categorizing Video Games

Video games generally are categorized by genre and platform, and the classification varies with purpose (e.g., marketing, sales, research). Wikipedia provides a useful table that categorizes *Video Game Genre* (e.g., action, adventure, massively multiplayer online games, role playing, simulations, strategy games) and provides examples of the games related to each category (https://en.wikipedia.org/wiki/Video_game_genre#cite_note-7).

Fleming, Bavin, Stasiak, et al. (2017) highlight six major categories of tested applied games for mental health (exergames, virtual reality, cognitive behavior therapy-based games, entertainment games, biofeedback, and cognitive training games),

Research Support for Positive Outcomes

A quick survey of the literature indicates that researchers are finding evidence of ways video games can help with respect to promoting social and emotional learning, preventing problems, and providing another tool to aid in treatment.

Here are the conclusions from a 2017 review article by Fleming, Bavin, Stasiak, et al.:

> Computer games are ubiquitous and can be utilized for serious purposes such as health and education. "Applied games" including serious games (in brief, computerized games for serious purposes) and gamification (gaming elements used outside of games) have the potential to increase the impact of mental health internet interventions via three processes. First, by extending the reach of online programs to those who might not otherwise use them. Second, by improving engagement through both game-based and "serious" motivational dynamics. Third, by utilizing varied mechanisms for change, including therapeutic processes and gaming features.

As part of their review, Fleming and colleagues explore promising evidence on the impact of serious games in responding to mental health problems and discuss how the engagement qualities of gaming may be exploited. They also illustrate how traditional evidence-based interventions can be translated into computer gaming formats and how features of computer games can be used therapeutically. At the same time, they caution about the limitations of available research,

Examples of studies of mental health related gaming interventions are offered in the following Exhibit.

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*The material in this document reflects work done by Ka Lai Ng (Gary) as part of his involvement with the national Center for MH in Schools & Student/Learning Supports at UCLA.

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Exhibit

Examples of Studies of Mental Health Related Gaming Interventions

>*Ching-Ching story:* For purposes of research, Li, et al (2013) developed a web-based, role-playing game by adapting content from a school-based, mental health enhancement program for adolescents. The game provides information about mental health disorders, such as depression, and about practical skills to deal with symptoms (e.g., management of stress and negative thoughts). The story "consists of 10 topics: (1) identifying stressors and how to handle stress, (2) understanding the relationship between stress and coping, and the consequence of depression, (3) understanding what goal-directed thinking is, (4) affirming existing strengths and acknowledging the concept of "self", (5) cognitive restructuring, (6) advanced cognitive restructuring, (7) understanding others' feelings, (8) communication skills, (9) conflict resolution based on a problem-solving approach, and (10) anger management." The game uses a narrative, problem-based approach to keep players engaged. Players train their characters to get points and skills by finishing different missions using mental health knowledge to solve real life problems. Acknowledging limitations, the researchers concluded that for the undergraduates sampled "the fully automated Web-based intervention was effective in enhancing young people's mental health literacy. Intrinsic goal orientation was the primary factor in learning motivation, whereas test anxiety was successfully alleviated in the game setting. No gender differences were found on any outcome measures. Moreover, self-efficacy for learning and performance positively influenced learning outcomes, whereas test anxiety negatively affected them.

>Schoech, et. al (2013) reported on the challenges experienced in developing an online, multiuser, substance abuse, and relationship violence prevention game for youth. The game is scenario-based, asking players to construct a fun and risk-free weekend for the main character by choosing options in various situations. Different options trigger different story development and different consequences. When players choose an option with negative consequences, corrective advice is provided at the end of the situation. The main goal is to clarify negative consequences of behaviors such as substance abuse and relationship violence and engender learning to prevent such behaviors. In concluding their discussion of gamification, the researchers stress that for their test sample of middle schoolers "gamification fostered engagement, motivation, self-disclosure, colearning, and detailed delivery of a curriculum. Most ... test students preferred the game delivery format to all other prevention formats they had experienced. However, computer games pose additional problems due to the technology needed for game play, the difficulty of development, and the fact that games are a new format where established research, conceptual frameworks, and protocols have not yet been developed."

>Merry, et al (2012) developed a self-intervention game (SPARX) for clinical depression. SPARX is a cognitive behavioural therapy-based fantasy role-playing game with both first person instruction and interaction. The player creates an avatar as the main character and restores the balance in a fantasy world dominated by GNATs (Gloomy Negative Automatic Thoughts). Similar to the common RPG game, a player's decisions on each dialogue and scene determines the development of the story. Each mission offers some kind of advice or skill for the players to apply in real world setting. The storyline and graphics of the game are more sophisticated and well-developed than many created for research, making it more like marketed video games. Participants for the study were those seeking help for depression from youth clinics and school-based counseling services. The researchers conclude that SPARX is "an effective resource for help seeking adolescents with depression at primary healthcare sites. Use of the program resulted in a clinically significant reduction in depression, anxiety, and hopelessness and an improvement in quality of life. The results are more impressive when it is considered that SPARX was entirely a self help resource. The only

contact with a clinician was at recruitment, and the only input from health professionals during the course of treatment was a brief phone call after a month. The intervention was at least as good as treatment as usual in primary healthcare sites in New Zealand (mainly comprising a high level of face to face counselling by trained and experienced staff) but would be cheaper and easier to disseminate. The treatment effects persisted to three months after the completion of the program. SPARX was more effective than treatment as usual for those who were most depressed at the start. Adherence rates were high. We did not find any differential effect across different ethnic groups in New Zealand or for males and females, although we were underpowered to detect differences for these subgroups. Most participants found SPARX useful, believed it would appeal to other teenagers, and would recommend it to their friends."

>Several studies have focused on the potential of games such as Tetris to reduce the impact of traumatic events and addictive cravings (see Lyadurai, et al., 2017). Tetris involves aligning irregular polygons and makes high visuospatial demands on the player. With respect to a recent traumatic event, playing the game is seen as disrupting processing, storage, and consolidation of sensory elements of trauma memory. Data suggest that this reduces the likelihood of distressing flashbacks and PTSD. Some findings also suggest that the cognitive impact of playing. Tetris also is reported as having potential for countering unhealthy dependencies (Skorka-Brown. Et al., 2015) by decreasing craving for drugs (alcohol, nicotine, caffeine), food and drink, and excessive activities (sex, exercise, gaming).

>With respect to promoting mental *health* (e.g., positive social and emotional development), research suggests that prosocial games can promote helping behavior, social skills, empathy, etc. (Craig, Brown, Upright and DeRosier, 2016; Gentile et. al, 2009). In doing so, such games may aid in reducing bullying and violence.

Based on his reading of the positive research findings, Gary was impressed by the potential of gaming as a cost-effective, wide-reaching prevention strategy that requires less monitoring or leading from health professionals. As a current personal applied example, he noted a "game-type" intervention program for freshmen at UCLA to learn about alcohol, sexual behavior, and wealth management skills throughout college life. He also noted a report that the Yale School of Medicine received $3.9 million to design a video game to teach adolescents sex, drug, and alcohol negotiation and applicable skills (Schoech, Boyas, Black, & Elias-Lambert, 2013).

Concluding Comments

In general, gaming as an intervention can be viewed as part of the growing use of electronic and communication technologies as therapeutic aids in providing healthcare. This is commonly referred to as telemedicine or eHealth. The trend is seen as a path to enhancing availability, accessibility, effectiveness, and affordability of mental health interventions.

As a specific type of intervention, gaming is akin to a self-help program. As such, it has the same benefits and risks, and its use is more appropriate for mild mental health concerns than for severe problems. Gaming can be highly engaging across age groups, is relatively inexpensive, and requires less professional time involvement. It also frees resources up for use with those with more severe and pervasive problems. All of this has particular relevance for schools.

With respect to our Center's mission, clearly, a brave new world has emerged for addressing barriers to learning and teaching and re-engaging disconnected students. There is much for all of us to learn about technological interventions. We continue to struggle to grasp the big picture and develop a plan and an agenda for integrating such applications into our daily work.

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