

WHERE'S THE FUN IN SERIOUS GAMES?: KEYS TO DEVELOPING AN EFFECTIVE AND ENGAGING GAME WITH PLANNED POSITIVE IMPACT

Improving Health and Establishing Health Habits via Role Playing Game-based Exploration

Author: Bradley Tanner, Clinical Tools, Inc/Univ of North Carolina, Chapel Hill, Chapel Hill, NC; **Mary Metcalf**, Clinical Tools, Inc/Univ of North Carolina, Chapel Hill, NC; **Brian C Tanner**, Univ of North Carolina, Chapel Hill, Chapel Hill, NC



Where's the Fun in Serious Games?: Keys to Developing an Effective and Engaging Game with Planned Positive Impact

Improving Health and Establishing Health Habits via Role Playing Game-based Exploration

Author: Bradley Tanner, Clinical Tools, Inc/Univ of North Carolina, Chapel Hill, Chapel Hill, NC; Mary Metcalf, Clinical Tools, Inc/Univ of North Carolina, Chapel Hill, NC; Brian C Tanner, Univ of North Carolina, Chapel Hill, Chapel Hill, NC

Abstract:

“Serious games” and “games for health” often fail. Instead of the fun, challenging, and engaging experience seen in first-person, strategy, MOBA, MMO RPG, or cooperative games, players of “serious” games are expected to accomplish a “real” goal, say an educational or health outcome. The experiences are often lonely, passive, and isolating single-player experiences. They often deploy a “gamification” strategy focused on earning points, badges, and ranking on a leader board. Players quickly see the difference between a gamified education experience (“you ate the right food, you got 5 points!”) vs. a real immersive multi-player game - and reject it or complete it because it is required. Academic support for the effectiveness of “serious” games has been unimpressive and enthusiasm for developing such a game is fading.

This either/or state of affairs (fun vs. useful) is misguided. Outside of games we engage in a plethora of enjoyable activities which are also good for us. The list of activities from playing sports, to brainstorming new ideas, to cooking, to pottery, to running goes on and on. And that list also includes playing “fun” games which have been shown to impact memory, attention, connectedness, mood, and skills related to 3D modeling, collaboration, planning, and more.

Instead of the above “education first” strategy, the designer of a *game with planned positive impact* should first imagine a game WITHOUT an education, health or other serious objective. As the game design evolves the team identifies opportunities to inject meaningful impact into the experience. For example, since games already have objectives and goals; the goal can be aligned with acquiring a specific (and useful) skill or a healthy behavior.

As the design process proceeds, standard game design and development strategies are followed including user experience, and opportunities for choice, exploration, self-expression, and creativity. As design standards require, the game emphasizes a flow state matching challenge with skills, rapid feedback, and expansion of social connections through communication with other players. There is no reason a *planned positive impact* should interfere; instead, it should give the game focus. In the design, multi-player is essential for the game to tap the ability of multi-player to enhance enthusiasm and engagement, reinforce skills, engage emotions, and provide coaching and support.

Continuing the example, imagine a game *with planned positive impact* of health improvement through lifestyle change. Players practice lifestyle change by counteracting and replacing lifestyle choices contributing to excessive weight and poor cardiovascular health; specifically inactivity, decreased exercise, and nutritional choices. As the game avatar takes on challenges the real-world player is test driving difficult yet necessary lifestyle changes.

In the game, players succeed by practicing skills and countering unhealthy habits: They

1. navigate through the challenges to lifestyle change,
2. recognize food, environment, social situation cues, and npcs that challenge their avatar,
3. counteract those cues in themselves by rejecting some choices,
4. identify and implement changes in lifestyle to offset current lifestyle choices.
5. provide and receive advice and motivation as they collaborate with real life co-players.

Biography

Dr. Tanner is President of Clinical Tools Inc., Clinical Associate Professor Psychiatry at the University of North Carolina, Chapel Hill, and Board Certified in Psychiatry and in Obesity Medicine. He established Clinical Tools, Inc (CTI) in 1995 to develop and research products that alter the delivery of health care through enhancement of patient and providers' skills and communication. CTI is a small R&D company located in Chapel Hill, NC and has received over \$20 million in SBIR (Small Business Innovation Research) awards on topics including genetics, obesity, pain control, drug addiction, alcohol use, SBIRT Training, and buprenorphine. As the technological lead, he oversees game and user interface design, object oriented programming, and agile development. His research investigates the value of gaming and 3D immersive headset-based virtual reality technology to enhance educational best practice and improve health outcomes especially related to obesity medicine, pain control, addiction, and mental health.

Author Disclosure Information: **B. Tanner:** A. Employment; Significant; Clinical Tools Inc. B. Research Grant; Significant; NIH. F. Ownership Interest; Significant; Clinical Tools Inc. **M. Metcalf:** A. Employment; Significant; Clinical Tools Inc. B. Research Grant; Significant; NIH. **B.C. Tanner:** None.

Title: Where's the Fun in Serious Games?: Keys to Developing an Effective and Engaging Game with Planned Positive Impact

Engage the Audience

- Who thinks that this talk is going to be the most fun thing they did today?
- Who expects that this talk will be as engaging as most recent video, tv show or movie you watched?
- Who wants to go back to life as it was in high school with scheduled classes, test and homework?

So here I am talking about how we need to engage people and be more effective and I'm using a strategy that isn't terribly fun, engaging or one that you will likely want to repeat years from now.

Ok, now let's say I am going to give out a fireball to whoever raises their hand

- Who thinks that this talk is going to be the most fun thing they did today?
- Who expects that this talk will be as engaging as most recent video, tv show or movie you watched?
- Who wants to go back to life as it was in high school with scheduled classes, test and homework?

Even if you raised your hand, did it change anything about your real attitude. In short extrinsic rewards hold little value. The reward must be intrinsic to the activity.

Introduction

- Name
- Company

Start with a question - a story would be better.

- How can I make education more interesting?
- How can I use games to keep people involved?
- How do I reward people for gaining knowledge or a skill?

This answer is often "Education/Training First"

- Make the Krebs cycle a puzzle to be solved and give points to whoever finishes first.
- Ask questions during a lecture and reward participation / correct answers. Highlight the leaders.
- Teach bone anatomy and muscle function by putting them in matched pairs, allowing learning through a concentration-type game.

Questions

- Will understanding the Krebs cycle be as much fun as Shadows of Mordor?
- Will attending a lecture be as engaging as League of Legends?
- Will the thrill of mastering bone anatomy and muscle effects on the body be as uplifting as mastering a level or gaining access to a new weapon?

Probably not.

It is tempting to perk up education and training by adding game elements. Similarly, reward programs in business attempt to engage employees or customers via activities where they compete for limited rewards either due to the challenge or competition associated with earning them.

My message today is clear. Good enough gamification either isn't good enough or won't be good enough for longer. The educator or trainer interested in implementing game-like functionality is competing against entertainment games. Such games are getting more engaging, innovative, and immersive. They are outpacing movies costing millions to produce. And users who play games know what a "real" game is like.

Of course, educators do have the upper hand, as they control academic degrees and the grades required to earn those degrees. They set the rules and can enforce requirements. So, as an educator, one could force learners to play the game and earn rewards. But if your goal is to excite learners, to challenge them and make them life-long learners, then this strategy is unlikely to succeed.

This talk is about implementing a framework that uses the power of gaming to achieve a planned positive impact by making it a "Game First"

The Challenge

Here is a set of questions I recommend you ask your audience before you talk to them about serious games. Collect some data on game expertise and game enthusiasm of the audience to guide how you communicate. Done by a simple showing of hands

1. Who has ever played a contemporary game? Raise your hand if the only recent game you've played is Pokemon Go or a game on a smartphone.
2. Who has used games and learned something and explored something tangible?
3. For those of you with ties to an institution, who belongs to an institution that uses games?
4. I'd like to understand enthusiasm for games before you participate in this panel discussion. There are 3 categories. Very enthusiastic, somewhat enthusiastic and not very enthusiastic.
 1. Raise your hand if you are in the first group, very enthusiastic?
 2. Ok, second group, somewhat enthusiastic.
 3. Third, not very enthusiastic

First off what do I mean by planned positive impact?

The first myth that we need to dispel is that having fun is bad. We may see struggle as beneficial for growth, but few see value in suffering, anger, boredom, or other negative emotions. People tend to seek out fun and positive emotions. We create brackets for basketball, watch plays or movies with happy endings, and play video games in order to achieve an end goal. It's okay to have fun, and we can do so while also gaining knowledge.

The second myth that some believe is that games aren't having a positive impact. Not too long ago games were evil, so the positive association was missing. Here are a few beliefs that are being dispelled:

- Games are going to turn you into a monster or a killing machine. - They didn't. See the turnaround in 2005 - [Breeding evil?](#) The Economist. August 4, 2005.
- Games will rot your brain and books are better. – Games actually enhance memory and attention by teaching how to scan environments for clues and quickly make decisions based on them.
- Games will keep you sedentary. – Pokemon Go showed us that people can be active while playing.
- Games will isolate you. – People play games with their peers, both in person and online, making social connections despite the distance.
- Games will rob you of your creativity. – Minecraft showed us that people can be creative, and enjoy sharing their creations with others.
- Games will enforce a competition-biased "winning is everything" mindset. – Losing in games makes people more determined to try again, exploring other avenues in order to succeed.
- Games are antisocial. – When approaching a game, players coordinate and utilize their combined skillsets in order to achieve a shared goal.
- Games make you passive. – In reality, games require leadership and team-building, which can be achieved by both extroverts and introverts alike.
- Games are just eye-hand coordination tools without any additional benefits. – Improved eye-hand coordination leads to better drivers and the ability to better visualize 3D objects.



So the keyword for this talk is “planned.” Much of the positive impact of the game is the benefit of the game. You don't need to plan that part, just design a good game. Then you will get

- socialization
- enhance cognition in terms of memory, attention, focus, data collection, analysis and decision making
- creativity
- resilience
- action
- communication and cooperation skills
- leadership skills and subsequent confidence
- eye-hand coordination, quick assessment, decision making skills, and reactivity,
- 3D visualization skills

Case Examples

Examples are helpful, so I will outline 7 games we are producing this summer and how we are going about creating a wide variety of prototype games with planned positive impact (PPI) utilizing a variety of approaches. These are still concepts we are working on. These are not products and I am not asking you to purchase anything.

1. Immersive Virtual Reality

1. Standing active and movement focused VR – e.g. Oculus or Vive

1.PI: Recreate real world to enable modeling behavior and extending virtual gains to real world environments

2.PPI: [FoodBlast/Opioid Blast](#) – Reject unhealthy choices such as unhealthy food choice or addictive medications. You can check out this game in its early stage of development in our booth. It isn't for sale and I am not asking you to buy it.

3.PI: Comprehend 3D spaces by manipulating objects and creating objects in a virtual environment

4.PPI: [BrainPilot](#) – Understand neuroanatomy and neurophysiology of CNS mechanisms in obesity or drug addiction by intervening inputs, closing gates and opening up others

5.[contrast with story about first version].

2. Sitting cockpit-style “move by controller” Playstation VR - Dual Player with differing views that are not shared

1.PI: Develop skills associated with communication and collaboration, data review, focus, and analysis. Improve decision making in terms of quickness, strategy and confidence. Skills associated with evaluating and implementing input from external players

2.PPI: [MindControl](#)

3. understand the dual concept of the brain in terms of collecting and evaluating information and applying that information to action. Specifically how the brain responds to cues that impact behaviors that are associated with addiction or obesity

4. Experiencing the impact of medications on that process.

5. [like Inside/Out but done with accuracy and user control]

2. Visual Novel or Role Playing Game

1.PI: Gain experience, skills and confidence for ability to complete an activity. Practice communication with non-player and player based game elements.

2.PPI: [BurntOut](#) – explore challenges in responsibilities associated with clinical care, develop coping strategies and longer term resiliency. Share group experience with institution to guide changes in services. Practice peer support

3. Hunting Game - first person experience tracking down living resources and capturing them.

1.PI: Take on challenges, understand weaknesses, build strengthening skills,

2.PPI: [Grocery Hunt](#) – assess food choices, make accept/reject decisions, build a winning strategy for healthy food choices

4. Cooperative Game

1.PI: Communication and collaboration skills, understanding that problems are best solved with outside input, weighing value of and utilizing outside input

2.PPI: [MedTeam](#) – working together with other team members to enhance medical assessment, diagnosis, intervention and disposition

5. Arcade Game

1.PI: Engage in a simple puzzle/challenge game with clear mechanics and easy accessibility

2.PPI: [SwipeAway](#) – push away addictive medications or unhealthy food choice. Between levels gain insights into successful strategies that work in the game and in reality