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Games and Culture 2013 8: 289

DOI: 10.1177/1555412013496891

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Games for Persuasion: Argumentation, Procedurality, and the Lie of Gamification

Games and Culture

8(4) 289-304

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John Ferrara¹

Abstract

The greatest threat to the success of serious games is inattention to the quality of the player experience. The gamification fad endorses a canard that games can be strip-mined for “useful” bits that, when tacked onto conventional applications, should be expected to have the same effects as true games. This lie exposes a disdain for play and an incapacity to perceive games themselves as useful and worthwhile endeavors. Creating games that achieve great things in the real world while remaining enjoyable experiences instead requires working with the prodigious strengths inherent to the medium. This presentation explores how the native procedurality of video games makes them a potentially ideal way to persuade people to adopt a particular point of view. It will cover the history and modern theory of persuasive games, offer guidelines for crafting arguments based in gameplay, and present a case study of the design of a persuasive game.

Keywords

games, video games, persuasion, gamification, player, experience, design, fitter critters, bogost, procedural rhetoric

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Introduction

This article is an adaptation for print of a game industry professional keynote talk by John Ferrara, which he presented at the Meaningful Play 2012 conference in East Lansing, Michigan. Meaningful Play keynotes feature a rich mixture of industry professionals and scholars. John Ferrara is the creative director of Megazoid Games, a User Experience Designer at Vanguard, and author of *Playful Design: Creating Game Experiences in Everyday Interfaces*. John's professional experience includes creating conventional software, websites, and since 2001 video games. His nutrition education game, *Fitter Critters*, was a prizewinner in the 2010 Apps for Healthy Kids contest sponsored by Michelle Obama's "Let's Move!" campaign. In his book and this keynote address, John brings his user experience design perspective to the realms of game design and gamification.

*Games Can Achieve Great Things in the Real World** (*If They Are Well-Designed Experiences)

I believe that games can achieve great things in the real world. One of the intrinsic risks of serious games is the temptation to prioritize the serious objectives of the designer above the player experience. We are told that serious games leverage the medium of gaming to be more engaging and effective than other media. But a serious game that fails to incorporate careful attention to player experience obviates the benefits of going to the trouble of making a game.

One of my favorite examples of a serious game gone awry appeared on Charles Schwab's website and was titled "It's Your Life." It presented players with a series of decisions to make over the course of a simulated life span. Each step of the way, the objective was to select the option that will allow you to save the most money, while spending the least money. At the end, it sums up all of the responses you gave and assigns you a letter grade to represent how well you did.

For example, on the first step you have just graduated high school, and the game asks what kind of a job you want to get. Do you want to be a babysitter working 10 hours a week? A lifeguard working 15 hours a week? A salesperson working 18 hours a week? Or do you just want to stay home and play video games all day like a loser?

The winning choice is of course to be a salesperson working 18 hours a week, because that will allow you to earn the most money. The game proceeds like this for level after level, asking players to choose on the basis of similar criteria—to a fault.

The result is that you get the best possible outcome if you skip college, never move out of your parent's house, never get married, never have any children, never travel or take any vacations, work indefinitely past age 65, and then die alone in a nursing home with lots of money and no one to leave it to. If you make these selections, the game comes back with a letter grade: "A+, Great Job!" Even better, it provides a link to Schwab's financial advisors so that little Timmy can find out how he too can lead this dream life.

I am beating up on Schwab, but it has to be said that there was a worthwhile message at the heart of this serious game. People do not save enough money for retirement, and they should think more about long-term savings from a younger age. The problem is that the designers of “It’s Your Life” never committed to the idea that they were creating a game. They never thought about the game through the lens of the actual player experience, and instead prioritized their own serious objectives. But players are not invested in the designers’ serious objectives; they are invested in playing the game. As a result, in games with poorly developed player experiences, the message is ineffective. Failure to design engaging player experiences is an intrinsic risk in the design of any serious game.

Gamification, Ugh

Around 2009, something really bad happened: Gamification.

It is important to realize that this term has no formal definition. It has been applied so broadly as to include everything from Farmville to LinkedIn’s profile completeness bar. Gamification is not a useful term because it cannot make meaningful distinctions between meaningfully dissimilar things. Depending upon who is saying it, “gamification” may refer to something that I very much support or something that I very much reject. Its most common use, however, it usually serves to institutionalize a big lie: that games can be strip-mined for their “useful” elements, disregarding the rest of what makes a game a game.

Those useful elements are typically some form of extrinsic reward—points, leaderboards, badges, and such.

The lie goes on to say that these elements can be tacked onto things that are not games by any stretch of the imagination, and as a result, you should expect people to react to the extracted elements the same way they react to games. This is great news, because you do not have to worry about doing any actual game design.

I argue that this approach of tacking game-like extrinsic reward elements onto non-game experiences exposes a disdain for games, because it refuses to entertain the idea that “Games themselves are valuable experiences.”

Gamification implies an impoverished, cynical, and exploitative view of games as inherently frivolous and mostly useless.

Gamification fails to recognize that games are much more than rewards. Not that there is anything wrong with rewards—points, leaderboards, and badges can all be worthwhile design choices. But they are just a small part of the player experience, sitting on a plane of Motivation along with the intrinsic interestingness of the game’s core mechanic. There are four other planes of player experience (see Figure 1). Extrinsic and intrinsic Motivation lies next to a plane of Meaningful choices, which is about tactics and strategy. There is a plane of Balance within short-term interactions, and within campaigns that unfold over a longer duration of play. A plane of Usability allows players to exercise control over the experience in the short term and gain mastery in the long term. At the surface, a plane of Aesthetics comprises sensory elements

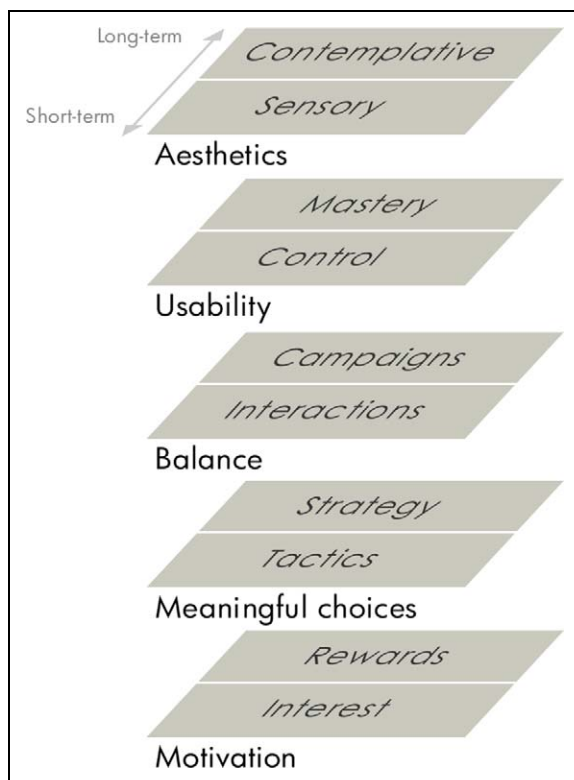


Figure 1. Five planes of player experience. Player experience can be thought of as comprising five planes. In better games, each of these planes is well developed. (Appears as figure 3.1 in Ferrara, 2012. *Playful design*. New York: Rosenfeld Media).

like graphics, sound, haptics, themes, and motifs, as well as contemplative elements like narrative, story arc, and character development.

These planes work in combination to make games the beautiful, satisfying experiences they are. “Gamified” experiences that rely solely upon extrinsic reward systems rarely succeed because they do not incorporate the other key planes of player experience. As a consequence, people will not value gamified experiences the way they value games.

Pervasive gamification poses an even more serious risk to serious games. Gartner publishes a methodology it calls the hype cycle, which describes the typical pattern of adoption for any new technology (see Figure 2). After arriving on the scene, interest around a new technology quickly builds and culminates in the Peak of Inflated Expectations, where people have all kinds of lofty and unrealistic ideas about the benefits it will bring. This seems to be about where gamification is these days. Then, as more and more implementations fail, people discover that gamification does not deliver everything they thought it would, and the hype collapses into a Trough of Disillusionment.

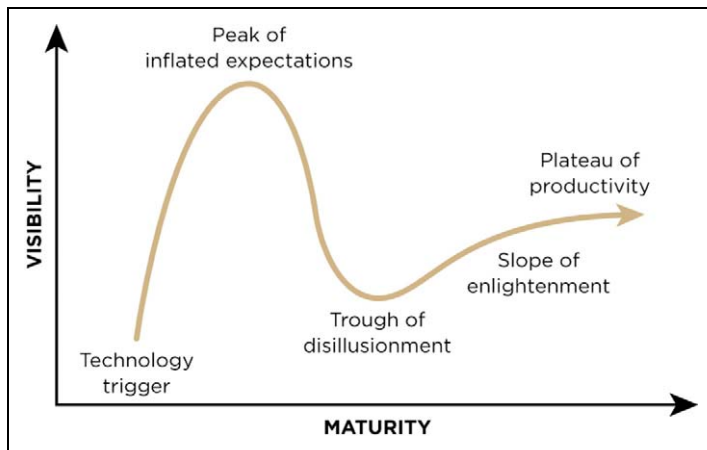


Figure 2. The Gartner hype cycle. Following the typical path of the Gartner hype cycle, in early 2012 gamification was somewhere just past the peak of inflated expectations. (Appears as figure 1 in Ferrara, 2012. *Playful design*. New York: Rosenfeld Media).

This should be of concern to anyone working in serious games, because most people do not understand there to be a distinction between gamification and the well-informed, well-researched work being done by the people designing meaningful play and serious games. The inevitable backlash against gamification threatens to poison the well by undermining the credibility of what we are trying to achieve. This scares me.

The good news is that, after bottoming out in the Trough of Disillusionment, things start to look up again. People begin to discover better uses for the technology, and we begin climbing the Slope of Enlightenment. Finally, the Gartner hype cycle levels off on the Plateau of Productivity, where gamification finds durable mainstream adoption.

I want to start moving quickly toward a post-hype discussion of how games can best achieve great things in the real world. I propose starting with a simple maxim: *Games Must Be Designed as Player Experiences First*.

Rather than raiding them for game elements and exporting those elements to non-game applications, we should start by building true games, and avail ourselves of the prodigious strengths native to the medium. These include the ability of games to simulate conditions of the real world; the ability of games to accelerate learning; the ability of games to foster communal experiences between people; and the ability of games to persuade, which I believe is one of the great underutilized facilities of games. The rest of the presentation will take a deep dive on this native strength of persuasion.

Games Are a Form of Procedural Rhetoric

The modern theory of persuasive games was laid out by Ian Bogost (2007) in his book, *Persuasive Games*. In it, Bogost argues that games are a form of procedural

rhetoric, meaning that they are able to contain and communicate persuasive messages. I think that this is my favorite idea ever, because it is one of those things that is just completely dead-on.

Bogost further argues that it is the procedurality of video games, by which he means their ability to execute rules, that makes them unique as a communications medium. In conventional media like TV, newspapers, books, and billboards, meaning is communicated overtly. But in a procedural medium meaning is communicated through participation in the experience. Gamification rarely, if ever, shows regard for this powerful property of gaming.

Let me give you an example. You may recall that back in 1999 (Cabell, 1999), the Kansas State School Board voted to allow individual school districts to decide whether they would remove the theory of evolution from their science curriculums. A high school biology teacher named Al Frisby lived in one of these districts that was opting out of Darwinism, and he did not believe this was a good idea. His first inclination was to just go ahead and teach it anyway, but he faced a lot of hostility from his community. So instead he decided to teach it procedurally, through a game (Belluck, 2000).

Frisby took a bunch of toothpicks, some of which were green and some of which were blue, and scattered them in a grassy field. These represented prey, some of which were better adapted to survival in their environment. And then he gave each of the students either a spoon or a fork, and had them hunt through the field trying to pick up as many toothpicks as they could find. They represented predators, some of whom were better adapted to catching their prey. Green toothpicks were more likely to survive than blue, and spoons were more likely to eat than forks.

He was illustrating the basic tenets of natural selection and demonstrating their goodness, not through overt instruction, but through gameplay. That is procedural rhetoric.

Persuasive games are not new—people have been trying to convey messages through games for some time.

This is a game from 1866 called *The Checkered Game of Life* (see Figure 3). This was actually the first commercial game that was ever produced by Milton Bradley—not just the company, but the man himself. It was designed to promote Christian moral values. The board contained a number of squares, some of which represented virtues like perseverance, honesty, and bravery.

Virtues led to positive outcomes like wealth, matrimony, and happy old age. Then there were other squares representing vices like crime, gambling, and idleness. Vices led to negative outcomes like disgrace, jail, and—sadly—suicide, which is a picture of a man hanging himself from a tree. A bit grim for a children's game.

Figure 4 shows the patent application for another game from around the turn of the 20th century called *The Landlord's Game*. This may look more familiar, because it would later be purchased by Parker Brothers, reworked, and rebranded as Monopoly. You can see here Broadway, the four railroads, jail, and Go—where you collect \$100 because “Labor upon Mother Earth produces wages.” In the modern game of Monopoly, there is a space called Free parking—that was originally sleeping for free in Central Park.



Figure 3. The *Checkered Game of Life*. The *Checkered Game of Life* carried a message about the merits of a virtuous life. (Appears as figure 13.1 in Ferrara, 2012. *Playful design*. New York: Rosenfeld Media).

The Landlord’s Game was made by a woman named Lizzie Magie, who was an adherent of what is now a very obscure, quasi-Marxist economic theory called Georgism which advocated for the establishment of a single tax on land ownership to replace all other forms of taxation. She designed the game specifically to demonstrate why that would be a good idea.

This is apparent in her patent reapplication for the game, where she writes “The object of the game is not only to afford amusement to the players, but to illustrate to them how under the present or prevailing system of land tenure, the landlord has an advantage over other enterprises and also how the single tax would discourage land speculation.”

This is a very sophisticated use of procedural rhetoric, 100 years before Bogost wrote his book on the subject, and 102 years before gamification took no interest.

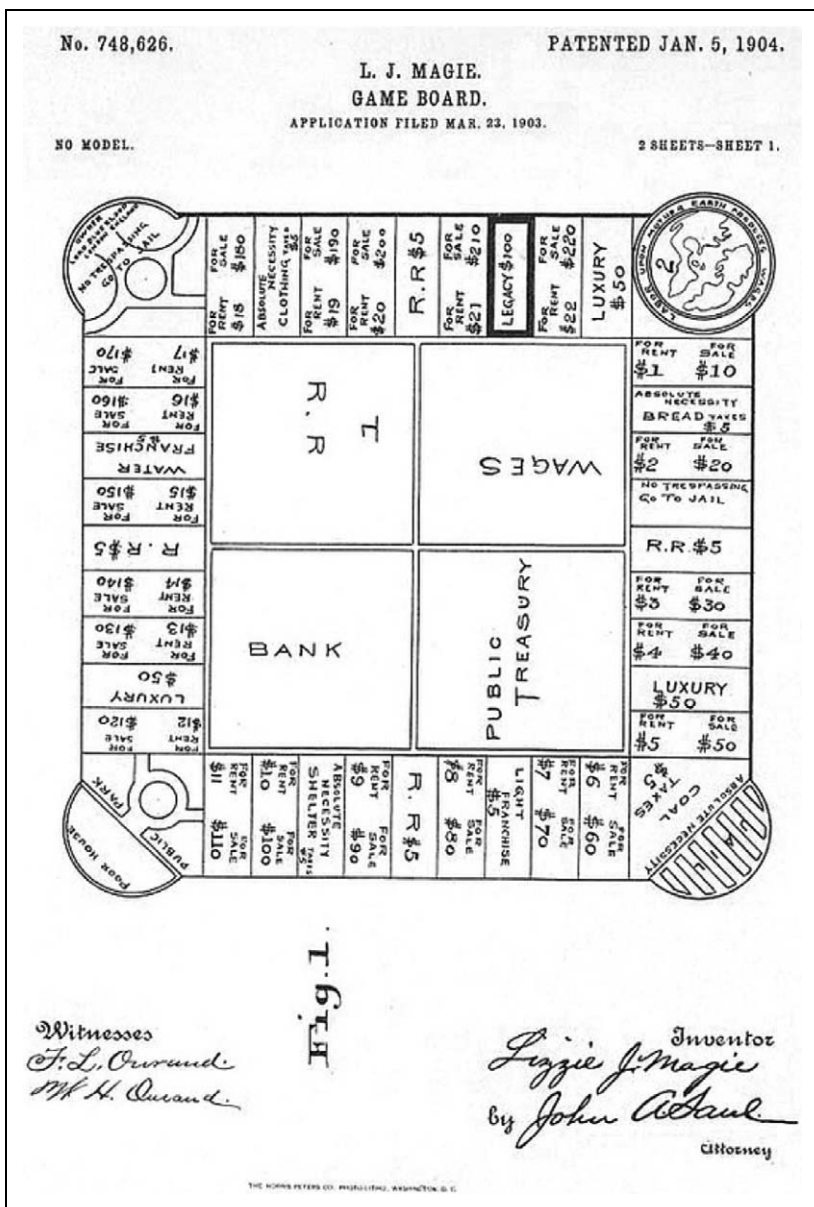


Figure 4. The Landlord Game. It is easy to see the modern game of Monopoly in Lizzie Magie's 1904 patent for *The Landlord Game*, although its persuasive message has been removed. (Appears as figure 13.4 in Ferrara, 2012. *Playful design*. New York: Rosenfeld Media).

A Case Study

Next I present a case study of a persuasive game that my team at Megazoid Games developed and which was heavily influenced by the theory of procedural rhetoric. We started with a very complex question: What causes childhood obesity? And we focused on a very simple answer: too much high-calorie, high-fat, low-nutrition food.

For too long, this has been kind of the normal diet for kids at home and at school. The good news is that kids are starting to get access to healthier options at school. The healthy, hunger-free kids act of 2010 (U.S. Department of Agriculture [USDA], 2010) authorized federal funds for school lunch program and established minimum standards for those meals so that kids would be getting healthier options.

Unfortunately, the result has been that in many cases the healthy food ends up in the trash. A *New York Times* article (Gonchar, 2012) described how students were staging boycotts of their cafeterias across the country, complaining that they did not like the new, healthier food and they want their cheeseburgers back.

Apparently, access to healthier food alone is not enough. For there to be real behavioral change, my game design team posited that kids need to:

1. Have access to healthy choices
2. Understand the nutritional attributes of food.
3. Build a knowledge base of better and worse food choices
4. Develop skills to interpret nutrition information
5. Learn to value of healthier food choices

Some of these are simply a matter of learning, of knowledge transfer. But for there to be behavioral change, children also need to be persuaded to value healthier food choices. This one is really tough. Why? More than anything, the problem is cultural.

It is really easy for a clown to sell cheeseburgers to kids. Children learn to value food through life experiences. If we grow up eating hamburgers, and hot dogs, and French fries, and pizza, then our propensity toward unhealthy foods becomes bound up in who we are as Americans. And that is one tough nut to crack.

I believe that the unique attributes that are native to video games coupled with their cultural legitimacy can make games a powerful tool to counteract the cultural forces that instill negative attitudes toward eating in kids. Conversely, I argue that gamification is poorly suited for this kind of knowledge, attitude and behavior change.

In 2010, Michelle Obama launched her Let's Move campaign in coordination with the USDA Apps for Healthy Kids contest, which was a challenge to create games that teach 8- to 12-year-olds healthier eating habits. Our entry was Fitter Critters (Fitter Critters, 2010), and of the 63 entrants it took second place.

The player is responsible for maintaining the health of a virtual pet. To do that, they need to shop for the critter's food, cook for it, feed it, exercise it, decorate its house, and provide social contact with other players' critters. Figure 5 shows progress bars in Fitter



Figure 5. Fitter Critter progress bars. Every day players need to select foods that will fill all of the green bars (representing positive nutritional attributes) without filling either of their red bars (representing fat and added sugar). (Appears as figure 13.6 in Ferrara, 2012. *Playful design*. New York: Rosenfeld Media).

Critters that enable players to track their nutrition levels. Each day the player must fill each of eight green progress bars representing healthy food groups (orange vegetables, green vegetables, total vegetables, fruit, whole grain, dairy, and protein), while staying below the maximum value on either of two red progress bars representing unhealthy fat and added sugar. If players can do that, calendar day after calendar day, then the critter's health—represented by this bar on the left—will gradually go up.

Building up from this core mechanic, we designed the game across all five planes of the experience, incorporating strategy, tactics, campaigns, usability, and aesthetics aspiring to the charms of games. Gamification's singular focus on simple rewards sacrifices the depth of experience that can effectively communicate and reinforce complex messages.

Designing Persuasive Games and Implications for Gamification

I will close by presenting a few guidelines for the design of persuasive games and implications for gamification, drawing from my own work on Fitter Critters and from Bogost's book.

First, Define a Core Message. A persuasive game must be designed around a clear and concise statement of what you want players to do or to believe. This is critical to guide design decisions toward the central persuasive objective. These messages are often best left implicit in the game itself—but more about that in a minute.

When we were first sketching out the game on index cards, its two core messages were the only unchanging part of the design.

In Fitter Critters, the core message was in two parts. First, eating a varied diet rich in vegetables, fruit, and whole grain leads to a better quality of life. Second, eating junk food may have short-term advantages, but in the long run it is not worth the negative health consequences. Everything in the game is built toward these two ideas. (See Figure 6.)

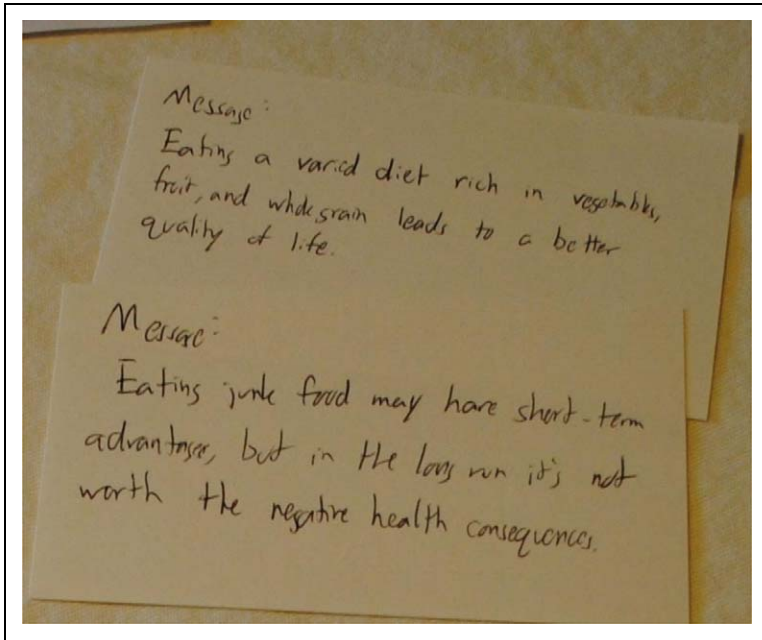


Figure 6. Fitter Critters Core Message. An early paper prototype of Fitter Critters. Many elements changed, but the core message (shown here at upper left) remained constant throughout. (Excerpt from Figure 13.5 in Ferrara, 2012. *Playful design*. New York: Rosenfeld Media).

Persuasive gamification would likewise be built around a common core message.

Second, Tie the Message to Strategy. Games drive players to find the most efficient ways to win. If the message represents the ideal strategy, then the process of playing serves as a proof of its truthfulness.

One of the great things about game design is that the player's motivation is in one way very simple. What do most players in a game want to do? They want to win. And they apply themselves assiduously toward that end. If you make the core message into the secret of winning, then you will drive people efficiently toward that conclusion. In order to win, players need to adopt your game's core messages as a working hypothesis, and then use the gameplay to prove its truthfulness.

Games are arguments. Play is evidence.

Likewise, persuasive gamification would drive users to experience the core message as a direct effect of their effort to play strategically.

To prove eating better leads to a better quality of life, we built a tiered system of rewards into the game, where one success leads to another (see Figure 7). If the critter is consistently served better food, then its health goes up. If its health goes up, then it is more productive at work and wins more games.



Figure 7. Tiered system of rewards. Fitter Critter rewards span from immediate to longer term, beginning with choosing nutritional food, which ultimately culminate in social rewards.

Those things allow it to earn more money. It also gets sick less often. Getting sick means that the player cannot compete in games or work, so staying healthy allows it to earn more. Players can then spend the money on decorating their homes.

Finally, this feeds into a social reward because players' friends can visit their house and see all the fancy bling they have got.

But at the root of all of this is learning to make better choices about food, which is not stated explicitly anywhere in the game.

Third, Enable Self-Directed Discovery. Self-directed discovery persuades by giving people a feeling of ownership of the insight they have uncovered. What I am saying here is to let the player make your argument for you.

Players can discover better food choices. They may find, for example, that a sorbet is a wonderful dessert, containing no added sugar and a good serving of fruit.

They can discover that a garden is a great source for food. Players can save their money by harvesting abundant fresh vegetables from their garden (See Figure 8).

They are challenged to discover the advantages that growing your own fresh vegetables can create.

Finally, they can exercise their creativity and invent recipes to create healthier meals. The game actually awards higher sell prices than the player paid for the ingredients the more nutritious the complete meal is. (Figure 9 shows nutritional summary and player options for one of their prepared meals.)

Persuasive gamification would allow room for player-directed discovery and ownership.

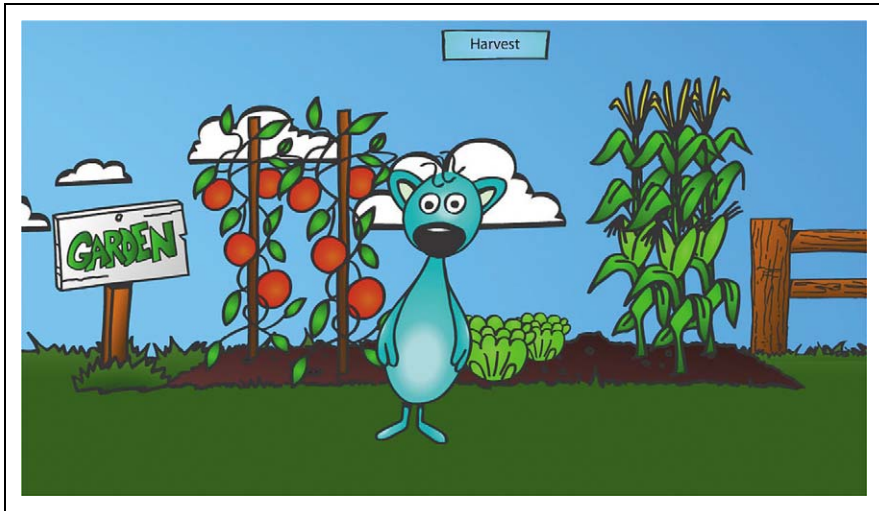


Figure 8. Harvest screen shot. Players can discover the benefits of growing a garden to harvest their own fresh vegetables. (Appears as figure 13.9 in Ferrara, 2012. *Playful design*. New York: Rosenfeld Media).

Fourth, Offer Meaningful Choices. If there is no benefit to making the wrong choice, then there is no choice at all. If healthy foods exclusively offered advantages and unhealthy foods exclusively offered drawbacks, the game would offer no opportunity to learn.

It sounds weird, but there has to be some advantage to making the wrong choice. In *Fitter Critters*, we did this through the effects of high-calorie foods. The primary advantage of eating them is that they provide more energy for sports games. Players need to have a minimum amount of energy to play sports, and each time they play they expend some energy—putting a limit on the number of times the sports games can be played in a sitting. But by eating calorie-dense foods like a bacon double cheeseburger, they can quickly gain a lot more energy to use to play the games. Up to a point, higher amounts of energy also allow players to earn more money at work.

However, these short-term advantages are ultimately outweighed by the long-term consequences of eating a lot of unhealthy foods. First, the player will exceed their daily limits on fats and added sugar much faster. If they habitually make poor choices, this will bring down the critter's health. As a result, the critter will be less likely to win sports games. So although the player can play more games, they will find it much more difficult to do well. Additionally, the critter will start rejecting healthier options. We built an invisible factor into the game called the junk food bias, which increases each time the player makes a really unhealthy choice. At higher levels, this will increase the probability that the critter will refuse to eat healthy foods and they will go to waste, so the player is digging a deeper and deeper hole.



Figure 9. Summary information for a player prepared meal. Meals can then be sold to a restaurant in the game for a profit, where other players can purchase them, enabling social learning. (Screen shot from Fitter Critters).

Persuasive gamification would offer users meaningful choices that affect real outcomes.

Fifth, Keep It Real. Video games' capacity to simulate the conditions of the real world can impart credibility to embedded arguments.

And we worked with a nutritionist from the USDA to set the daily objectives based on real consumption guidelines. So the number of slices of wheat bread that you would need to eat to fill your whole grains bar, for example, is the same amount that a typical 8- to 12-year-old would need to eat (see Figure 10). If, instead, eating one apple magically gave the pet super strength, then the game would miss the opportunity to teach a lesson that could generalize in the player's own life.

Persuasive Gamification Would Be Credible and Tied to the Real World. So does all of this work? Well, we conducted a pilot study about a year ago to look at that. Partnering with the University of Massachusetts Medical School, we put the game into an elementary school in Northbridge Massachusetts. One hundred 5th graders played Fitter Critters over four class periods, and the researchers administered pre- and posttests to measure any change in attitudes, self-efficacy, or learning. They found significant increases in positive attitudes toward nutrition and fitness, significant increases in students' self-efficacy, and moderately significant increases in nutrition knowledge. They believe the knowledge gain was moderate because the students were already fairly knowledgeable about nutrition. We are currently applying for an R21 grant through the National Institutes of Health to fund further research.

Food	Portion	Energy	Sell price
Bacon cheeseburger on bun	1.0 cheeseburger	746	\$4.00
"Cheeseburger, plain on bun"	1.0 cheeseburger	317	\$2.00
"Club sandwich (chicken, bacon, tomato)"	1.0 sandwich	546	\$5.00
"Corn dog (hot dog, cornbread coating)"	1.0 corn dog	280	\$2.50
Double cheeseburger on double deck bun (Bic Mac)	1.0 Big Mac	596	\$4.50
Double hamburger on bun	1.0 double hamburger	384	\$4.00
Egg & sausage on biscuit	1.0 biscuit	565	\$3.00
"Egg, cheese & bacon on biscuit"	1.0 biscuit	438	\$3.50

Figure 10. Fitter Critters Database. Fitter Critters contains real nutrition data for 675 actual food items, taken from a USDA data set. (Screen shot from Fitter Critters).

Conclusion

In conclusion, there is a tendency today for people to say “games are useless things, but maybe there is something valuable we can get out of them.” I reject that viewpoint as disdainful, and ultimately it will not lead to success no matter how much temporary hype it has behind it.

But the fact remains that games can solve real problems. Games can be created to persuade people to adopt a particular point of view or to take some action in the real world. Games are actually ideal way to do this, and well worth the attention of user experience designers.

I would like to invite you to think of games as a form of design in which user experience designers can make an important contribution and find new ways to solve problems.

You might notice that if gamification incorporated all of the tenets I have described, it would actually be a game. What I am advocating is that we start with games. Rather than raiding them for game elements and exporting those to nongame applications, we should build things that are games first and avail ourselves of the prodigious strengths native to the medium.

The successful work is going to be done by those people who respect and love play, understanding it as a fundamental function of living.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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Author Biography

John Ferrara is the creative director of Megazoid Games and author of the new book *Playful Design*. His nutrition education game *Fitter Critters* was a top prizewinner in the Apps for Healthy Kids contest, an initiative of Michelle Obama's "Let's Move!" campaign. His professional background is in software user experience design and his educational background is in film; today he is a forceful advocate for holistic integration across multiple disciplines concerned with the construction of human experiences. He believes that games can effect meaningful change in the real world, that game designers are permanently transforming culture, and that play is a fundamental function of life. You can follow John on Twitter at @playfuldesign.