If You Play It, Do You Believe It?

Making Game Stories Become Real with Embedded Design

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I will start with a simple question: If you play something, does that mean that somewhere, somehow, you suppose it is happening? Believe in it? Does a game change you? Over the last decade, scholars have conducted research on the use of games in education, healthcare and other areas where an engaging "gamified" approach might be "useful". But what about deeper things, such as our beliefs? Is it possible for a game to affect our personal values or behaviors? Are players of games swayed, enticed or brought into new states of understanding with games?

As all games express and embody human values (Flanagan/Nissenbaum 2014), they express "big ideas" like democracy, justice, equity, honesty and cooperation. They also express other ideas, including violence, winner-takes-all mentalities, exploitation and greed. These values emerge in games whether designers intend them or not, so it is important that designers understand their impact. So, when we consider whether and how game stories can "become real", that is, have impact on our lives, shift our actions, beliefs or behaviors, we need to ask several questions. One, what actions, beliefs, or behaviors do we mean? Two, what about the game story, in the larger sense, facilitated this shift? Three, how does one go about measuring shifts? And finally, what are the unintended consequences of game stories impacting on everyday life?

This essay details a game design approach called embedded design, developed in my game design research laboratory, Tiltfactor, that was founded to study and create pro-social, pro-people games that strive to have a positive impact in the world. Concerning social challenges like public health crises, sexual assault, mental health challenges and more, games in fact can play a role in tack-

ling them. From *Depression Quest* (2013) to *That Dragon Cancer* (2016), games increasingly are used to empathize, educate and transform.

The core idea behind embedded design is that using a collection of narrative mechanics, games can be effective at shifting beliefs and biases when these are carefully designed employing subtle techniques (Flanagan/Kaufman 2016; Kaufman/Flanagan 2015; Kaufman/Flanagan/Seidman 2015). Transformative moments can be designed and studied utilizing psychological approaches from social cognition, bias and persuasion fields. These intentionally transformative methods inspire new ways of thinking through the narrative mechanics that designers initiate in games. A game can mix in or even hide an overt message, activate fantasy, position a mindset and introduce "aha" moments, all of which have the potential to shift player' attitudes and beliefs, and thus change not only the game story, but the real world.

In this chapter, I will articulate three key aspects of how an embedded design approach can help game stories have real-world impact. By stories, I mean not only narratives in the stereotypical sense, i.e. a linear story with a narrative arc (one might initially think of a game story as constituted by the plot, the script, with authentic characters whose motivations we invest in). However, games also tell stories through genre, style, images and animation, and music. The most important sites for storytelling in a game lie in a given game's game goals, player actions and the model of the universe this framework represents. From narratives in the most abstract games (Go, Chess) to the character positioning in PC games like *Papers, Please* (2012), the spatial storytelling in games like *Gone Home* (2013) and the social experience in board games like *Monarch* (2015), games tell their stories in many different ways: by their very mechanics-based nature, by their context, by their rules and patterns, and ultimately by us, the players. What is and is not possible in the rule system communicates what is valued and what is important; stories can be generated by rewards, player interaction and play aesthetics, depending on platform, advertising and target audience. Games create meaning through the models they express, and the logic of the game universe. Thus, game stories are the result of a constellation of intersecting points from all of these ingredients at play, realized ultimately in the player's own mind – right alongside the unquantifiable experiences and beliefs and situations that are preloaded, instilled or built up by the cultures and customs which form the respective context for each and every player.

Such transformational games use specific techniques ranging from the embedded design approach to attitude and behavior change. These techniques are not at first obvious, but are based on years of research into games concerning impact and bring to light notions that game stories are themselves kinds of me-

chanics, just as game mechanics lend themselves to certain kinds of game stories.

OBFUSCATION

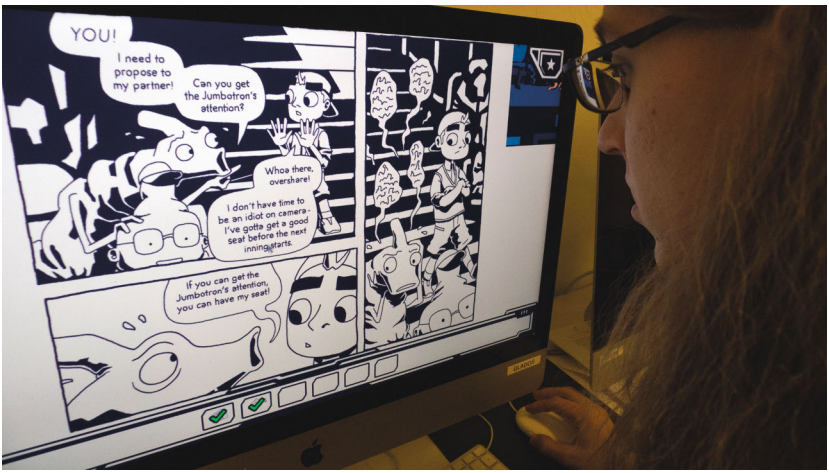
Games can tackle very difficult topics, but the one thing they can't do is tell a player what to do and how to think. That is inherently anti-play and cannot work in a game structure in which players voluntarily enter into the space. Take as an example a game design project from my research lab that was specifically aimed at promoting "bystander intervention" in situations of potential sexual assault at college. The US has grave statistics about sexual assault on college campuses, with one in five college women and one in sixteen college men reporting assaults. With such a crisis, it is critical to shift mindsets so that students find tools and strategies to keep themselves and their friends safe. Our research partners turned to games as a way to engage the attention of students in order to introduce them to ideas about bystander intervention, an effective set of counter-measures to sexual assault.

A key challenge is that students have typically been lectured on the dangers of sexual assault in earlier schooling and by families, and "tune out" college workshops on the topic. Many students therefore display *psychological reactance* to such ideas: where certain types of messages or topics meet resistance. Dillard and Shen (2005) found that public health programs promoting teeth flossing or limiting student drinking produced *reactance*, resulting from a combination of negative cognition and anger, perhaps because such messages undermined feelings of personal freedom or the participants' concept of self and identity. Challenging topics or training programs (such as multicultural training, as studied by Mio and Awakuni (2000)) actually lead to resistance among students. Some programs in fact cause students to hold on to their original beliefs much more strongly. This phenomenon is consistent with the original research in psychological reactance theory (Brehm 1966; Brehm/Brehm 1981). Studies on some sexual assault prevention programs even suggest a boomerang effect, in which the training produced the opposite result and led to poor attitudes towards women (Spikes/Sternadori 2018). Malamuth et al. (2018) note that boomerang effects are produced by an individual counterarguing against the message and even displaying hostility, which shows that among high risk males, sexual assault training interventions may actually do more harm than good. Thus, overt approaches can and do backfire, and require instead a method that aims to deemphasize the overt message. One of the core principles of embedded design is

obfuscation, that is, designing for psychologically powerful player choices that do not at the time appear to be as "on topic" as they truly are. Obfuscation changes the frame or the narrative to decrease psychological reactance to challenging materials.

Our design team decided that in order to subvert psychological reactance, we had to obfuscate any overt message and study this approach to see if it could still be effective given such a highly-charged and important topic. We decided to try two very different game approaches and wanted the games to look nothing like one another so that the messages about bystander intervention, developed across two games, could be tested against each other and possibly work in tandem. The first game we developed, *Ship Happens*, is a single-player interactive comic that tackles bystander intervention through a ridiculous narrative involving a future college student "spring break" holiday trip on alien planets. Our space traveling spring breakers encounter a few strange situations in which they have the option to intervene. The choices offered to players ultimately embolden them to try out bystander intervention in the game. Though it is a point-and-click comic involving funny characters and outlandish space travel, the choices strengthen the idea that the player has agency, and that taking action can have a positive effect, narratively speaking.

Figure 1: A player playing Ship Happens (2017).

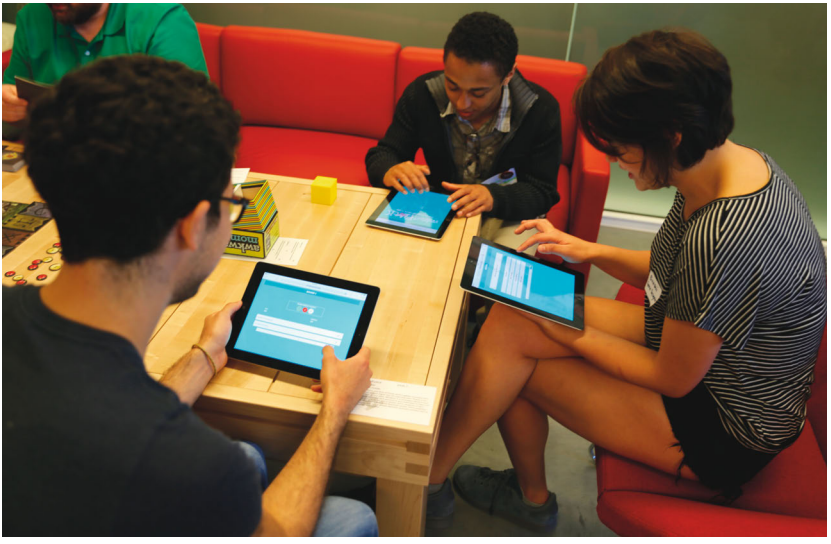


Source: Mary Flanagan

The second game developed, *Mindflock*, is a same-room, multi-device mobile trivia game. What this means, is that players play with a team of friends in the

same room, but each player is using their own phone. Players answer trivia questions, and each correct answer is a point for the team. At the start of each round, each player gets a bunch of trivia question categories, such as "College Football" "Harry Potter" or "Contemporary Art". Teams shout back and forth amongst themselves to figure out who is going to be the best person to answer each question. If a teammate knows a lot about college football, players drag that question to that person's name, and it will send the question to their phone. Then, after the questions have been moved around, everyone has a very short time to answer the ones they ended up with, so teams have to hope that they sent the right questions to the right people. The teams are competing over the internet, so whichever team has more points at the end wins. Here, the trivia game obfuscates its intent (it is pitched as a team-building exercise), and it also uses "intermixed" content. More on this theme will follow.

Figure 2: A group of players engaged with Mindflock (2016).



Source: Mary Flanagan

Thus *Mindflock* appears to be nothing more than a team-based trivia game, but it is working to encourage eventual bystander intervention. Our longitudinal study on these two games aimed at first-year male college students took place over month. The research team was happy to find evidence that through time the games continued to shift thinking towards bystander intervention, even though it was not obvious to the players that the games were doing so (Potter et al. 2018).

Longitudinal studies are notoriously difficult to fund and run in any subfield, and attrition in these types of studies is a very real challenge across the social sciences. Yet the effort was incredibly valuable, for our findings show that well-designed yet not obvious messages embedded into each of the games, in very different ways, have the power to shift beliefs and attitudes. In this case, the game story may lead to real-world intervention, as first-year male college students reported that they are more likely to intervene in instances of potential sexual assault after playing the game.

Therefore, a game designer taking a responsible role in designing for a game's impact needs to take into account that their approach could cause unexpected reactions, or even harm. In fact, a word of caution: while it is true that messages are a part of a game's story, messages that a designer thinks are in the game may actually not be there, or may not be read/experienced as intended. This is why research is an important component of understanding how game mechanics gel into narratives themselves. Framing the game narrative or choices away from the game's true purpose can reduce unintended consequences and counterintuitively increase its impact.

INTERMIXING

The principle of intermixing involves using both relevant and irrelevant content in the game so that the blend of content does not reveal the intentions of the game (Flanagan/Kaufman, 2016; Kaufman & Flanagan, 2015). Intermixing is close in its approach to creating a research survey that contains distractor questions, or "cover stories", so that participants in the research are not led to answering in a certain way, are less aware of the study's purpose and do not become biased. Examples of intermixing includes trivia questions that are on- and off-topic, choices that mix "just for fun" with more related choices, and other ways that a message can be present but "mixed in" to feel "natural". Part of the reason intermixing is effective is that the over-representation of on-topic content can trigger reactance or have unintended consequences.

Mindflock, mentioned above, addresses this problem by containing trivia questions that increase players' likelihood to intervene in cases of sexual assault. We used particular strategies to develop the content of this game that could have the potential to change players' likelihood of intervening. As we wrote questions, we looked at setting positive norms, teaching intervention methods, increasing risk of not intervening, fostering anti-rape culture role models, minimizing perceived embarrassment and humanizing bystanders. Taken together, these

various approaches were mixed together with random trivia questions. In fact, these "just for fun" questions constituted less than half of all of the questions and therefore did not cause reactance.

To take another example, in a study we conducted about role models and representation, we found that "overdoing it" with counter-stereotypical role models can backfire. We tested the representation of characters in a science game, where we created one version that featured six female and two male scientists, while the second version was balanced, including equal numbers of male and female scientists. We tested the game on girls to see if more role models would be more effective in encouraging them to pursue science careers. Even though girls were exposed to more female role models in the imbalanced condition, these role models had virtually no effect on girls' inclination to see themselves pursuing computer science as a career. Perhaps counterintuitively, the female-dominated version was harder for female players to identify with. Reasons could be that an overabundance of female scientists was simply unbelievable and could have reduced perceptions of attainability of career goals. This condition could also have made players see the gap between role models and the self (i.e. "I'm not like them"). Ultimately, being less subtle was also less effective than a balanced representation of male and female scientists.

ACTIVATING FANTASY

Imagine two different scenarios: You are watching a documentary film about a mountain community across the world from where you live. The film shows stunning, unfamiliar scenery but you quickly learn of political turmoil in the area. You become very wrapped up in the emotional plight of one particular family as they struggle. You see the circumstances of unfairness that led to this family losing their farm. Now they have no food. The mother of three has resorted to begging on the street. There is a small girl in particular who needs warmer clothes and could really use help. From deep in your heart you want to reach out ... Now imagine you are watching a program after coming home from work. This show is about a homeless family who live in your city. You hear how they lost their house due to job loss in the economic downturn. Now they can't afford food. The youngest daughter needs better clothes to go to school. The mother of three small children spends her days asking people for money as they pass, going off to their jobs. In fact, now that you look at the image of the mother and where she sits, you realize that you walk near that spot every day on your way to work.

Which story pulls the heartstrings more? These two scenarios invoke ideas of *psychological distance*. This is a phenomenon where places, ideas and people that aren't present in our direct experience of reality are interpreted differently to things that are present in our daily environment. In short, something "far away" engages the imagination and makes us less likely to judge. Things can be distant through time ("once upon a time"), space (on a planet far far away or across the world) or by relation (strangers). Researchers have found that because we simply know less about the distant past and distant future, and because we know less about more remote places that might be difficult to imagine, this lack of knowledge means that our minds must represent these phenomena more abstractly and fill in the blanks. Distant entities in time, space or familiarity are just more abstract to us. This abstraction can be useful: employing psychological distance, for example, can help improve decision-making. Distance, after all, helps us to see "the big picture". Liberman, Trope and Stephan (2007) have shown that temporal distance (thinking about the future, thinking about the past), spatial distance (remote locations), social distance (working from someone else's perspective) and hypothetical distance (counterfactual claims and alternative endings) are all ways of traversing psychological distance. Psychological distance encourages us to use the strategic mind, the part of the mind that slows down, thinks hard and chugs through details as we reflect.

The notion of psychological distance is useful in embedded design to actually help players connect with difficult topics. It may seem counterintuitive, but shifting into a fantasy setting in order to address a real-world problem can allow players to feel more open to the message or the "moral of the story". In order to address bias in scientific fields and in academic programs, for example, we thought repositioning women's struggles in science would possibly be more engaging and cause players to invest if the scenario were psychologically distanced.

In one of my laboratory's research projects, we sought to understand whether or not a game could increase self-confidence in women scientists. In our digital point-and-click adventure puzzle game entitled The Enchanter, our team employed our embedded design strategies to help female scientists reposition the biases they faced and restructure the lingering sense of self-doubt they reported feeling. To play the game, players take on the role of Gertie who has been named the head alchemist, but on her way to the research lab, she encounters bias and discrimination. For example, an authority figure will not let her enter the lab because he is expecting the head alchemist to be a man – not a woman. The (unreliable) narrator undermines Gertie by casting doubt on her abilities. To make progress in the game, players must learn to fight back against these doubting

voices on Gertie's behalf and not give in to negative self-talk (e.g. "maybe they are right and I'm not smart enough).

In our study, we looked longitudinally at the effectiveness of *The Enchanter* on women's attitudes, and in particular, on women's self-doubt as it relates to academic achievement and science. Women college students studying science were involved in a two-week study wherein participants came into the lab to play the game at the beginning of the research period, in the middle and at the end of the study, answering questions along the way. The research results showed that playing just one session of *The Enchanter* game decreased self-doubt immediately and that players maintained this feeling for at least a week after playing the game. Thus, the game became the framework through which the young women scientists could silence negative thoughts and focus on overcoming obstacles by externalizing "negative self-talk". *The Enchanter* offered provocative results: they suggest that people who are the victims of bias, such as women in science, can be able to overcome real-world effects of biases (like self-doubt) by fighting against negative self-talk, something that can be practiced in a computer game.

SUMMARY

The three approaches to the embedded design concept presented in this essay show how, from a psychological standpoint, narrative mechanics can operate around difficult topics. Obfuscating, that is changing the frame or the narrative to lower psychological reactance to challenging materials; intermixing, or using relevant and non-relevant content in a game; and psychological distancing, using some kind of distance, including employing the power of fiction, to increase engagement in the game. These techniques can increase what is effective and possible with narrative mechanics.

In closing, I wanted to contextualize the attention to psychology in this essay. By discussing these science-backed approaches, I am not arguing that everything humans produce needs to be quantified and measured. But designers don't always understand the role our games can play out in the world. The Gamez and Rulez conference was filled with astute talks and inspiring projects, and I am honored to be among people who are really digging into what "story" means in games, and how game mechanics, informed by psychology, not only determine what the player can and cannot do within the environment, but what it means and how they feel about it from a psychological perspective. The psychological impact of narrative mechanics, goals and player choice, more than anything else, determines what kind of stories the player will experience.

I have offered some ideas about embedded design approaches and discussed experiments that reveal that games can work to engineer social change. While games are no panacea to the world's problems, game designers can create "microsolutions" to some of these challenges. I have shown that one can use techniques from embedded design to hopefully boost measurable impact as narrative mechanics increasingly become concrete in the analog world. I hope this essay inspires you to push the connections among traditionally disparate disciplines – philosophy, social science, design, play and more – as you seek to understand and craft games that change the story and make sure the best game stories become real.

HOW CAN GAME DESIGNERS BETTER UTILIZE NARRATIVE MECHANICS?

Some practical tips

Do: Know that messages in games don't have to be directly on-topic to be effective.
Don't: Be heavy-handed with your message.
Do: Use the ideas in embedded design: obfuscating, intermixing and psychological distance to name a few, to your advantage, just like artistic techniques such as metaphors and symbols.
Don't: Avoid the responsibility of understanding what your game is doing.
Do: Use fiction to your advantage. Fiction can be powerful.
Don't: Think games have to "tell the truth" about a social issue, acting like a documentary film.
Do: Get players hooked before you delve into difficult subjects, delay the reveal of any particular perspective or "agenda". Remember that all games have messages and carry cultural values, whether the designer intends them or not.
Don't: Think fun and serious issues can't go together.
Do: Work with researchers to run experiments if you really want to know in what ways your game is changing the story.
Don't: Think researchers or game players won't be interested. They will be!

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