Too Good to Be True:

MyFitnessPal's Gamification of Weight Loss and Its Dangerous Consequences

Theresa Lim

In a Tortoiseshell: *In the final paper for her Writing Seminar, "Gamification," Theresa Lim argues that gamified elements of the MyFitnessPal app push users towards the unhealthy end of the eating behavior spectrum. Her* ***cross-disciplinary analysis*** *creatively combines scholarship in psychology, nutrition, and game theory. By carefully defining relevant* ***key terms*** *from these disciplines, and by clearly illustrating how the concepts she defines intersect in the MyFitnessPal app, Theresa arrives at a nuanced* ***argument*** *and makes important contributions to the* ***scholarly conversation****.*

Excerpt

The pre-existing literature on MyFitnessPal's relationship to disordered eating does not yet prove anything more than correlation, but we can demonstrate how MyFitnessPal drives users towards the unhealthy end of the eating spectrum by looking at the principles of game design. According to Jane McGonigal's definition of a game in her book *Reality Is Broken,* all games possess four defining traits: a goal, rules, a feedback system, and voluntary participation.[1] Any experience with all four defining traits is a game, so these traits can serve as a basis to determine if MyFitnessPal is gamified. McGonigal also explains that each trait serves a specific purpose in structuring the unique "experience" of a game.[2] McGonigal's explanation of how games affect players will help explain how MyFitnessPal affects its users, thus demonstrating how the gamification of MyFitnessPal promotes disordered, non-intuitive eating behaviors.

As defined by McGonigal, rules "place limitations on how players can achieve the goal."[3] The primary rule of MyFitnessPal is to stay below a threshold of net calorie consumption, which is determined by a number of self-reported metrics, such as weight and age.[4] According to McGonigal, rules "unleash creativity and foster strategic thinking."[5] Ideally, the "rules" of

[1] Jane McGonigal, *Reality Is Broken : Why Games Make Us Better and How They Can Change the World* (New York: Penguin Press, 2011), 21.
[2] Ibid.
[3] Ibid.
[4] Under Armor, Inc. "MyFitnessPal." Apple App Store, Vers. 20.21.0 (2020). https://apps.apple.com/us/app/myfitnesspal/id341232718 (Accessed on 29 October 2020).
[5] McGonigal, *Reality Is Broken*, 21.

MyFitnessPal would encourage people to think creatively about how to make healthier choices in order to adhere to their goal calories, such as cooking healthy meals or getting more exercise.

The net calorie rule of MyFitnessPal imposes an external restriction on how much a user should eat and runs counter to two of the key traits of intuitive eating: "unconditional permission to eat when hungry" and "reliance on internal hunger and satiety cues to determine when and how much to eat." [6] MyFitnessPal encourages users to rely on an external metric – the calorie threshold, instead of their own "internal hunger and satiety cues."[7] This indicates that MyFitnessPal's rules are counter to intuitive eating and would have the effect of moving users away from the healthy end of the eating spectrum and towards the unhealthy and disordered end.

The net calorie "rule" may seem healthy because it appears as though it should align with a user's caloric needs; however, MyFitnessPal cannot accurately account for every factor that impacts caloric needs. One example of this is the basal metabolic rate (BMR), which is the number of calories a person burns if they do not do any activity for an entire day.[8] In their study on BMR, Johnstone et al. found that their sample had a standard deviation of almost 300 calories with a range of BMRs from just over 1000 calories to almost 2500 calories.[9] Johnstone et al. found that a significant portion of this variance in BMR was predicted by differences in fat-free mass between subjects, as measured by "dual-energy X-ray absorptiometry."[10] MyFitnessPal does not have the tools necessary to accurately estimate a user's BMR. Instead, assuming they use a similar calculation in the app as on their website, they estimate BMR using weight, height, age, and sex.[11] Alone, these self-reported measurements simply cannot yield an accurate estimate of BMR, yet MyFitnessPal still uses them as the basis for its net calorie goal. While calories are not a completely arbitrary measurement, MyFitnessPal's calorie goal likely is hundreds of calories away from a person's true caloric needs, and its net calorie rule is thus still an unhealthy restriction.

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[6] Tracy L. Tylka and Jennifer A. Wilcox, "Are Intuitive Eating and Eating Disorder Symptomatology Opposite Poles of the Same Construct?," *Journal of Counseling Psychology* 53, no. 4 (October 2006): 474, https://doi.org/10.1037/0022-0167.53.4.474.
[7] Ibid.
[8] Under Armour, Inc., "BMR Calculator," MyFitnessPal, n.d., https://www.myfitnesspal.com/tools/bmr-calculator.
[9] Johnstone, Alexandra M., et al. "Factors Influencing Variation in Basal Metabolic Rate Include Fat-Free Mass, Fat Mass, Age, and Circulating Thyroxine but Not Sex, Circulating Leptin, or Triiodothyronine." The American Journal of Clinical Nutrition 82, no. 5 (November 1, 2005): 941–48. https://doi.org/10.1093/ajcn/82.5.941.
[10] Ibid.
[11] Under Armour, Inc., "BMR Calculator."

MyFitnessPal also has multiple feedback systems, game features that are meant to provide players with a sense of their progress towards the goal.[12] Within the app, the main feedback system is the neatly packaged "calories remaining" equation at the top of the screen that informs the user of their net calorie intake for the day: calories consumed minus calories expended.[13] The number is green if the user is below their goal calorie intake, and red if they are above.[14] Presumably, the colors correspond to a "good" and "bad" result; although the colors do not change if the user is aiming to gain weight, reinforcing the idea that the app is designed primarily for weight loss.[15] MyFitnessPal also has a progress tab to keep track of weigh-ins and progress pictures, which serve as additional feedback systems, informing the user of their progress.[16] According to McGonigal, a feedback system "serves as a *promise*... that the goal is definitely achievable, and it provides *motivation*."[17] In MyFitnessPal, the calorie equation is an easily digestible report of how well the user is adhering to the net calorie rule, which may motivate users to commit to following the rule in order to reach their goal.

The calorie equation is a problematic feedback system because it rewards unhealthy, non-intuitive eating behaviors. The calorie equation implies that eating fewer calories is always good because this keeps the user below their goal calorie intake and in the "green." As a result of this design choice, the feedback system rewards users who ignore their "internal hunger and satiety cues" because eating more food, even if hungry, puts the user closer to the "red."[18] This is a clear indication that MyFitnessPal discourages intuitive eating. Additionally, the main feedback system in MyFitnessPal is entirely calorie-based and thus encourages users to cut out calories through any means necessary to stay below their net calorie threshold. This may lead users to skip meals or exercise excessively, both of which are disordered eating behaviors.[19] Both, however, are also rewarded by the feedback system because they reduce a user's net calorie intake. Thus, the calorie equation not only pushes users away from intuitive eating, but also incentivizes disordered eating behaviors.

[12] McGonigal, *Reality Is Broken*, 21.
[13] Under Armour, Inc. "MyFitnessPal."
[14] Ibid.
[15] Ibid.
[16] Ibid.
[17] McGonigal, *Reality Is Broken*, 21
[18] Tylka and Wilcox, "Are Intuitive Eating and Eating Disorder Symptomatology Opposite Poles of the Same Construct?"
[19] NEDA. "Warning Signs and Symptoms." National Eating Disorders Association, February 21, 2017. https://www.nationaleatingdisorders.org/warning-signs-and-symptoms.

Author Commentary

Theresa Lim

"Too Good to Be True" is my final research paper for the Gamification Writing Seminar, taught by Professor Adrienne Raphel. In this class, we explored what games can teach us about the world around us. I was inspired to write this piece because of my personal experience using fitness apps like MyFitnessPal, having seen how they can motivate obsessive thoughts and behaviors around food. When I was looking into this phenomenon, one woman reported that MyFitnessPal was "like a game," and this is the moment when it clicked for me. If I could establish that MyFitnessPal fits the definition of a game, I could use scholarly works about game design to analyze it.

Thus, I aimed to incorporate sources from the disciplines of game design, psychology, and nutrition to support my thesis. The first step for me was to establish what healthy eating is, and how exactly it is different from disordered eating. I used a psychology paper by Tylka and Wilcox to develop a spectrum ranging from unhealthy and disordered (as described by the National Eating Disorder Association) to healthy and intuitive (as described by Tylka and Wilcox). This spectrum not only established a definition for healthy eating used throughout the paper, but it could be used to assess the kinds of behaviors encouraged by MyFitnessPal.

In order to determine what behaviors MyFitnessPal encourages in its users, I drew from Jane McGonigal's book *Reality Is Broken*, which defines four key features shared by all games (a goal, rules, a feedback system, and voluntary participation) and describes the purpose of these features. When we first read McGonigal's work in class, I was struck by how much scholarly work has been done to understand how different features of games influence players, and, in this paper, I aimed to draw from this pre-existing knowledge in order to shed light on a completely different topic. McGonigal's work served two distinct purposes in my paper, first to establish that, because it has all four key features, MyFitnessPal can be analyzed as a game. Second, McGonigal's work offered insights into how these different features of the MyFitnessPal "game" affect its "players."

The interdisciplinary nature of this paper challenged me as a writer because I had to ensure the connections I made between disciplines were clear and easily understood. For example, when I wrote my first draft of this paper, I did not establish the eating behavior spectrum, so when I used game design to show how MyFitnessPal affects users, I lacked a clear metric to assess these behaviors psychologically and nutritionally. The connection was too

vague. When I discussed my paper in conference with her, Prof. Raphel mentioned that, although I defined "disordered eating," I never defined "healthy eating," a key term which played an important role in my paper. The spectrum that resulted by defining "healthy eating" and "disordered eating" served as a bridge between the disciplines of game design and health, making clear the connections between the two.

Another aspect of my paper that I struggled with was my thesis. I began my paper aiming to prove that MyFitnessPal causes eating disorders, and I stuck to this thesis far longer than I would like to admit. Eventually, after peer-editing with a classmate the weekend before the paper was due, I finally accepted that, regardless of my personal opinions, this thesis was not something I could properly support with the evidence available to me. Luckily, in the process of explaining my paper and reasoning to this classmate, I realized that I was actually arguing a more nuanced thesis in the body of my paper: MyFitnessPal encourages users to move towards the unhealthy end of the eating spectrum. Rewriting my thesis helped the rest of my paper fall into place by reframing the evidence and analysis I already had.

Editor Commentary

Meigan Clark

As someone who knows and loves many people who have struggled with disordered eating, and as someone who struggles with a related obsessive disorder myself, Theresa's paper "Too Good to Be True" resonated with me on a very personal level. It made perfect sense to me that a game-like app such as MyFitnessPal could fuel distorted patterns of thought and behavior, especially when those patterns can be game-like to begin with. Theresa's piece is an excellent example of noticing an unexpected connection—here between game theory and a nutrition app—and developing it with well-chosen **evidence** and rigorous **analysis** to bridge the divide between multiple disciplines.

One particularly impressive aspect of Theresa's piece is the way that she qualifies and nuances her claims to ensure that they are arguable. While it might well be true that apps such as MyFitnessPal *cause* eating disorders, this would be nearly impossible to prove in an academic paper. Instead, Theresa creatively draws on **evidence** from various disciplines to craft a claim that is more nuanced and more arguable. She uses a psychology paper to define a spectrum of eating behaviors—from healthy and intuitive to unhealthy and disordered—and scholarship on game design to define the characteristics of games and the effects of these characteristics on a game's players. By combining these specific metrics from two disciplines, Theresa makes a compelling **argument** for how the gamified elements of MyFitnessPal push users towards the unhealthy end of the eating spectrum.

Theresa's innovative combination of disciplines also allows her to make important contributions to the **scholarly conversation**. As Theresa says in the beginning of her excerpt, literature that approaches MyFitnessPal from a purely nutritional perspective "does not yet prove anything more than correlation." Yet by introducing the perspective of another discipline, Theresa shifts the conversation from *whether* MyFitnessPal causes disordered eating in its users to *how* and *why* its gamification could promote obsessive thoughts and behaviors.

In her **analysis**, Theresa skillfully interweaves theory and **evidence** from game design, nutrition, and psychology. Often she accomplishes this by applying **key terms** from one discipline to **evidence** from another discipline. For example, she persuasively argues that the "calories remaining," "progress tab," and "progress pictures" features of MyFitnessPal function like feedback systems as defined by McGonigal.

Theresa also makes complex, multi-step analytical points that require **evidence** from multiple disciplines. In order to demonstrate that the "rules" of MyFitnessPal push users away

from the healthy and towards the disordered end of the eating spectrum, Theresa first applies a concept from game theory—McGonigal's definition of rules—to the app. She goes on to explain why the net calorie rule restricts users' progress towards the goal of weight loss in a way that could promote unhealthy eating behaviors. Next, she addresses a counter-argument by bringing in **evidence** from yet another discipline. She demonstrates why the net calorie rule is not sound from a nutritional perspective, either, and thus is not likely to promote healthy eating.

Theresa's incisive **cross-disciplinary analysis** of MyFitnessPal has illuminated surprising and important links between game design and disordered eating—links which suggest that gamification can be dangerous when it exploits pre-existing distorted patterns of thought and behavior. Not only has Theresa written an excellent interdisciplinary paper, but her insights have important real-world implications that I hope will be taken up in future scholarship.

Professor Commentary

Adrienne Raphel, Princeton Writing Program

I'm always thrilled when a student approaches the D3 with a strong personal motive, but I'm also always a tiny bit wary. When students are emotionally invested from the outset, opinions can sometimes get in the way of the ability to do objective research. I know this from personal experience: I often have the hardest time writing about the subjects I love the most, because I find it so difficult to maintain enough critical distance to develop an objective argument based on evidence, rather than gather evidence to support the subjective belief I want to shout from my soapbox. So when Theresa proposed writing about gamification and MyFitnessPal, explaining her personal passion for this topic and the dangers she saw in the way this app turned wellness into a game, I knew her challenge would be to push past assumptions and back up her claims through rigorous research. Theresa was a model of methodological objectivity. She developed this thesis from the ground up, relying on meticulous analysis of concrete evidence to support every claim and to develop her overall argument. Theresa also maintained a top-notch standard by pursuing rigorous counterarguments at each turn, thoughtfully engaging with each counterclaim and using it to strengthen her own thesis.

In this excerpt, Theresa demonstrates her analytic chops by weaving a summary of her primary source, MyFitnessPal, with a discussion of one of her main secondary sources, Jane McGonigal's definition of gamification. Here, Theresa provides a thorough yet succinct explanation of how MyFitnessPal functions, but always through the lens of gamification. Her description thus does double duty for the paper: as a reader, we get a sense of how the app functions in the world in general as well as in the context of her paper, that is, as a model for gamification. A less sophisticated version of the argument might stop once it had demonstrated *that* MyFitnessPal could be classified as a game. What made Theresa's paper exceptional was that this was not the end of her inquiry, but the beginning: from this point, she explores that crucial "so what," that is, what impact gamifying wellness through the app has on its users, thus revealing a new side to the phenomenon of gamification in general. Theresa's paper taught me something new about the app and about gamification, and her process was a model of how to take a passionate personal motive and turn it into a critical analytic essay.

Works Cited

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Bios

Theresa Lim ’24 is a prospective Computer Science major from the California Bay Area. In her free time, Theresa enjoys dancing with BodyHype Dance Company, playing D&D, and wandering around campus. She wrote this essay as a first-year.

Meigan Clark, ’22 is a Comparative Literature major from Vermont. When she's not reading or learning new languages, she enjoys cooking, watching period pieces with friends, singing, cuddling with cats, and spending time in nature. She wrote this as a junior.