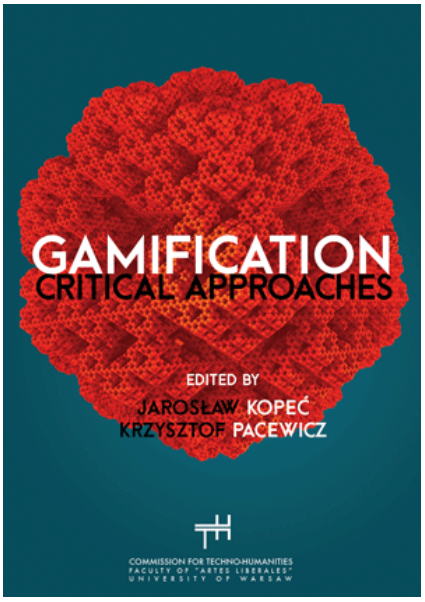

Title:
THE DOPAMINE LOOP AND ITS DISCONTENTS. ANALYSIS OF "GAMIFICATION BY DESIGN" AS BIOPOLITICAL POWER/KNOWLEDGE

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THE DOPAMINE LOOP AND ITS DISCONTENTS. ANALYSIS OF "GAMIFICATION BY DESIGN" AS BIOPOLITICAL POWER/KNOWLEDGE

Krzysztof Pacewicz

The paper analyses the discourse on gamification, as presented in *Gamification by Design* by Zichermann and Cunningham, as biopolitical power/knowledge. The gamification techniques proposed by the book are based on a certain understanding of human nature, often presented explicitly. This "anthropology of gamification" – an eclectic and pseudo-scientific variant of behaviourism – is shown to be a crucial element of the proposed techniques of power. It is also argued that the gamification strategies of management advocated by the book incorporate simplifying procedures and disciplinary techniques to ensure that players play by the rules, and thus can have a substantial effect on social behaviour patterns if widely adopted.

Gamification has recently become one of the dominant trends in many different areas of social life including marketing, commerce, education, healthcare and workforce management. While there has been some debate over the precise definition of the term (Deterding, Dixon, Khaled & Nacke, 2011), it is generally used to describe use of games in non-gaming contexts (Zichermann & Cunningham, 2011, p. XIV).

Even though the term has only been used since late 2000, the process itself is a variant of modern management strategies that were famously described as biopolitical by Michel Foucault. Niklas Schrape (2014) correctly states that:

> this mode of regulation takes Michel Foucault's concept of a liberal governmentality to the extreme. Within it, the subject is constructed as a free player in a defined rule-space. So far, the biopolitically appropriate behaviour of the players had to be ensured by negative feedback-techniques like punishment

> and deterrence. Now, gamification allows for effective behaviour regulation via positive feedback. (p. 21)

In my chapter I will analyse gamification as a biopolitical strategy for controlling human behaviour through methods that attempt to mimic the mechanics of games. I will focus on the discourse about gamification rather than the techniques themselves, and the subject of my study will be the well-known book *Gamification by Design* written by Gabe Zichermann – a vocal proponent of gamification, called by some "the godfather of gamification" (Chanel 4, 2013) – and Christopher Cunningham. *Gamification by Design* constitutes a perfect subject for a case study not only because it is one of the most widely read books on gamification, but also because it has the form of a manual for businessmen, openly stating its biopolitical objective:

> The House Always Wins (...) As markets gamify and consumer demand for fun, engaging, and creative experiences increases, you have a fundamental choice: either be the house, or get played.
> Trust us, you want to be the former. (p. 13)

According to Zichermann and Cunningham, modern society is rapidly adopting gamification as a matrix of power relations – most people only "get played", but those who create games and define the rules constitute a privileged group of "winners" – that is, those who benefit (mainly financially) from the new gamified reality. *Gamification by Design* is meant to be a tutorial for those winners *in spe* – entrepreneurs who already find themselves in privileged positions within the economic relations, but lack the knowledge of how to adapt to the new gamified markets. The book therefore contains information on how to exercise power, not unlike, *mutatis mutandis*, Machiavelli's *The Prince*. And can there be a better object for analysis of a discourse of power than a "power manual"?

However, just like *The Prince*, the discourse on gamification does more than just advocate a specific set of power techniques – it elaborates on a certain anthropology, a set of presuppositions about human nature. The proposed strategy for acquiring power is based on a specific understanding of the human psyche, on a quite peculiar knowledge about the mechanics of human psychology and biology, which it seeks to exploit in order to produce profit, and therefore it constitutes a model biopolitical discourse, a contemporary power/knowledge strategy.

Power/knowledge

Gamification by Design advocates a specific vision of human nature. This anthropology is analysed later in detail, but it must be generally noted that the presuppositions about human nature are coupled with proposed management techniques.

The arguments in the book are usually structured in such a way that a specific thesis on human nature is coupled with a specific technique of gamification. While the proposed techniques of gamification are mostly either original ideas created by the authors or their observations on the latest gamification trends, the vision of human nature is definitely not: the anthropology (concept of human nature) of the book is based on certain scientific or pseudo-scientific theories, business experience (case studies) and common knowledge about life.

The status of the information presented in *Gamification by Design* is therefore dubious – it is by no means scientific or academic, neither is it strictly practical. On one hand, it is an eclectic mix of scientifically proven facts, pseudo-scientific theories and appeals to commons sense, and on the other, a set of claims about the effectiveness of certain gamification techniques.

However, the fact that the knowledge about human nature presented in *Gamification by Design* is epistemically questionable should not be interpreted as evidence of a defect of the book. It should rather be seen as a necessary element of a power strategy: a subjectivation technique, defined by Butler as "disciplinary production of the subject" (Butler, 1997, p. 95). In order to implement gamification as a management strategy, its subjects – human beings – have to be perceived as gamers: their desires, motivations and actions interpreted in relation to gamification techniques. The result of such a power/knowledge strategy, if applied consistently, can be a gamified social environment in which the possible actions that subjects can undertake are based on a predefined anthropology, and therefore limited (Schrape, 2013, p. 5). Subsequently, within this gamified environment, subjects may actually act as if they were gamers, "proving" the knowledge by submitting to the power of gamification techniques.

Rules of the gamification discourse

Before we move to analysing the content of the gamification discourse it is worth exposing its general characteristics: its producers, consumers and form.

Both the producers and the consumers of the discourse presented in *Gamification by Design* are entrepreneurs: people in the position of power, or at least aiming for such a position, seeking financial gain. Ultimately, the gamification discourse itself is a product – a marketing strategy – meant for sale. This has an enormous effect on the form of the discourse – it is not only a proposition of a power technique but also, at the same time, an advertisement of this technique. Gabe Zichermann, the author of *Gamification by Design*, is the CEO of Gamification.com, a company which organises fairly expensive "gamification workshops", and Dopamine Inc. – "a creative agency focused on fun, innovative, gamified campaigns for employees and consumers" (http://dopa.mn).

As a result, the form of the gamification discourse is designed to appeal to a broad spectrum of entrepreneurs, all of them potentially customers of Zichermann's services. This may be the reason why the information presented in the book is often based on the most famous, though not necessarily the most up-to-date, scientific theories (e.g. Pavlov and Skinner) (Zichermann & Cunningham, 2011, p. 40) and "common sense". Furthermore, arguments about human nature lacking scientific grounding or even logical consistency are often used because of their persuasive power – they are meant to be simple, concrete and give easy answers to difficult questions, answers that entrepreneurs may grasp immediately and without too much effort.

According to a typology presented by Sebastien Deterding, the discourse on gamification presented in *Gamification by Design* clearly exemplifies the "rhetoric of reinforcement" (Deterding, 2014, p. 22), one of the most common ways of understanding gamification. Deterding states that:

> proponents of the reinforcement rhetoric appeal to science but ultimately operate on a folk theoretical understanding, amalgamating knowledge of often obsolete and even mutually contradicting bodies of research (e.g. Maslow's hierarchy of needs with behaviorism, cf. Wu 2012), filtered through pop science. (p. 23)

This is clearly visible in *Gamification by Design*, which presents an extremely simplified picture of the human psyche, almost entirely based on the concept of reinforcement, understood in behavioural terms. This rhetoric, though scientifically obsolete, has – according to Deterding – an obvious advantage:

> In the rhetoric of reinforcement (as in behaviorism writ large), intention, and cognition are seen as mostly epiphenomenal. Behavior is explained – that is, mathematically modeled and predicted – as the relation of the observable previous history of reinforcement of an organism and its current environment of observable stimuli (see Linehan, Kirman & Roche, this volume). This 'engineering' view of human behavior, coupled with a focus on data and predictive modeling, seems to resonate with the existing mental models and practices within software and technology companies. (p. 22)

This is precisely the way in which *Gamification by Design* uses the reinforcement rhetoric – the engineering view of human nature appeals to entrepreneurs because it provides a simple action-reaction model, easy to grasp and easy to implement in product design.

The anthropology of gamification

As I have stated, while the anthropology presented in *Gamification by Design* is somewhat eclectic, it does constitute a fairly consistent model of the human psyche. I will outline the authors' assumptions about human nature and show how they are connected with their proposed gamification techniques.

Innate drives

According to Zichermann and Cunningham, every human being is naturally equipped with strong drives, which stand at the root of different motivations. The effectiveness of gamification techniques relies on whether they are able to take advantage of these drives in order to induce the motivations desired by game designers.

The chapter "Player Motivation" opens with a somewhat peculiar reference to sex and violence (presumably meant to represent *eros* and *thanatos*, the basic drives according to psychoanalysis):

> From Greek mythology to daytime soaps, it is clear that sex—or the drive to have it—will make a person do almost anything. Paris' abduction of the lovely Helen of Troy led King Menelaus to begin the Trojan War. (...) However, unlike games, sexual attraction is hard to predict and control, making it a less useful tool in engagement. Similarly, violence can yield unparalleled coercive results. Putting a gun to a person's head will likely get him to accomplish any task you request. However, chances are he won't enjoy a second of it, and he certainly won't come back for more. (...) Games, however, hit the sweet spot. They marry the desire-drive of sex with the predictability of duress—except without force and, when successful, driven entirely by enjoyment. (Zichermann & Cunningham, 2011, p.15-16)

According to *Gamification by Design*, games constitute a middle ground – a "sweet spot" – between the two basic drives, a clever way of using both *eros* and *thanatos* in order to motivate a human being to undertake certain actions. The power of games derives from the fact that they exploit the basic instincts implemented in the human psyche by nature itself. In order to be successful, a game designer has to mimic nature by creating situations in which players' natural drives kick in.

While this description might suggest that *Gamification by Design* presents a psychodynamic vision of the human mind (driven by deep unconscious forces), such a statement is far from the truth. In fact, the human psyche is understood mainly in behavioural terms: the natural drives and instincts are thought to be the basic objectives, sought by our somewhat animal and automatic brains:

> (...) we are trained to "thin-slice" all kinds of situations and people. Our animal brains are wired to make snap decisions about friend or foe, and then ask questions later. Casual and social game designers understand this incredibly well. They think about players entering a funnel, so they aim to maximize the value and effect of that first minute. Train and engage, but don't overwhelm. (p. 59)

While the game designers have to keep in mind the basic drives of the human psyche, there is no need to employ any psychoanalysis – the key to success lies in understanding the automatic reactions that guide humans' actions. According to *Gamification by Design*, humans are naturally equipped not only with powerful primary drives, but also with a set of secondary objectives and behavioural strategies for pursuing these objectives.

So, even though understanding the basic drives is important, it is really crucial that game designers know the secondary objectives, fixed instincts common to all people, called by Zichermann and Cunningham "things that people like". On page 80 of *Gamification by Design* the authors present a list of twelve "things that people like":

> Pattern Recognition; Collecting; Surprise and Unexpected Delight; Organizing and Creating Order; Gifting; Flirtation and Romance; Recognition for Achievement; Leading Others; Fame, Getting Attention; Being the Hero, Gaining Status; Nurturing, Growing. (p. 80)

While the list seems fairly random, the authors believe that these twelve objectives/instincts are the most important for game designers as they are intrinsic motivations which can be exploited by carefully planned game mechanics. Zichermann and Cunningham assume that "thing that people like" are natural instincts rather than learned strategies, even though they do not base their opinion on academic findings. For example, when describing the instinct to collect, they state that "[c]ollecting is one of the most powerful instincts among humans. Despite this strong proclivity, few rigorous studies have been done to identify the motivations behind collection" (p. 83).

It is worth noting that in addition to presenting knowledge of player's "psychology", the authors offer some "sociological" insights. After all, when it comes to playing a game, "the average person is looking to socialize—not win" (p. 23), and thus it is crucial for game designers to understand how humans' innate drives shape their social interactions. For instance, the authors claim that "status drives much of our actions, and it forms a critical part of how we understand ourselves in context and relation to others. Status is so ingrained in our society that even those who renounce the system often derive their sense of self from the degree to which they reject it (e.g., anarchists, punk rockers, bike messengers)" (p. 92).

The authors assume that our society is status-based because of a natural, innate drive towards status: "a big, complex, and omnipresent human desire" (p. 92). However, this "desire" is perceived in a very specific way – as a strategy for playing the social game: "it can be understood

simply as a system for determining where and how we fit into a hierarchy" (p. 92). Ultimately, the shape of human society is determined by the innate strategies of individual "players" pursuing their personal goals – in the case of status, trying to determine where and how they fit into a hierarchy. The sociology of *Gamification by Design* is thoroughly atomistic.

Therefore, the game designers' job is simple – the game mechanics should mimic the world to which the human psyche is adapted (e.g. create artificial social hierarchies) to unleash the individuals' natural drives. However, in order to create a sustainable gaming experience – to keep the drives unleashed for good, and subsequently make a profit – the game designers must understand and learn to make use of a process that may be termed the "dopamine loop".

The dopamine loop

Throughout *Gamification by Design* there are abundant suggestions that the real key to a successful gamification strategy is using dopamine loops (which could also be called reinforcement loops). The dopamine loop is an extremely simple concept: according to Zichermann and Cunningham, "brain scientists all over the world agree that games' challenge-achievement-reward loop promotes the production of dopamine in the brain, reinforcing our desire to play" (p. 4). This foundational psychological mechanism can be shown schematically:

> challenge -> achievement -> reward -> production of dopamine -> desire reinforced

How does it work in practice? Zichermann and Cunningham present an easy to grasp example: according to them, most children are genetically programmed not to like broccoli (p. XIV). How do we persuade them to overcome their natural limitations? The answer is simple: "Make eating the broccoli both more fun (with a little game) and more rewarding (with a little cheese sauce, or dessert afterwards). The interplay among challenge, achievement, and reward not only allows you to train children to eat their broccoli, but it releases dopamine in the brain, intrinsically reinforcing the action as biologically positive. (...) Heck, your kids might even show their friends how to turn broccoli into dopamine" (p. XV).

While *Gamification by Design* sometimes makes references to academic psychology, it is impossible to recognise the dopamine loop as a scientific concept. Rather, it seems to serve as a pseudo-scientific explanation for the effectiveness of gamification as a reinforcement strategy (to learn more about "neuromyths", see Przegalińska, this volume, p. 49). It should be noted that dopamine is no ordinary neurotransmitter – in recent years it has become very well documented in the media. According to an article by Dr. Vaughan Bell in "The Observer":

> If there were a celebrity among brain chemicals, it would be dopamine. Supposedly released whenever we experience something pleasurable, it's forever linked to salacious stories of sex, drugs and wild partying in the popular press. The Kim Kardashian of neurotransmitters, it gives instant appeal to

> listless reporting and gives editors an excuse to drop some booty on the science pages. (Bell, 2013)

It seems that the authors of *Gamification by Design* use the widespread knowledge of the existence of this particular neurotransmitter and the interest it attracts in order to appeal to the general public rather than to present a scientific description of brain functioning. Furthermore, it should be noted that Gabe Zichermann attempted to use the popularity of this "Kim Kardashian of neurotransmitters" by naming his creative agency, founded in 2011 – the year *Gamification by Design* was published – "Dopamine Inc.".

The dopamine loop can therefore be treated as a pseudo-scientific metaphor for a "reinforcement mechanism" motivating the player to keep on engaging in the game. According to *Gamification by Design*, the loop works correctly when both the challenge and the reward are designed to satisfy natural human drives. This is especially important in regard to the rewards: any gamified product must have a complex reward system to keep the players engaged.

Zichermann and Cunningham are certain that status serves as the most convenient reward: "If you don't have a ton of cash to give away as an incentive (who does?), status is an excellent alternative. It is a great driver of loyalty, not to mention a player's fiscal behaviour (...) Importantly, this [status] ranking system need not be based on the real world at all—it works perfectly in a purely constructed environment" (p. 10). So, of all the natural instincts, the drive for status is the most useful when designing a dopamine loop – game designers should take advantage of this innate proclivity by constructing a virtual social hierarchy and motivating the players to compete for positions. This strategy is based on an assumption about natural human competitiveness: this is why the authors urge game designers to create leaderboards in such a way that every player can see himself right in the middle of it. "Below him, he will see friends who are on his tail, and above him he will see exactly how close he is to the next best score. And he will know exactly what he has to do to beat it" (p. 51).

As one can see, the basic mechanism of gamification as proposed by Zichermann and Cunningham – the dopamine loop – is easiest to achieve if the game itself induces players to compete for virtual status and get their virtual rewards from winning. In such a scenario, the only real winners are the game designers. Therefore, the model of gamification proposed by *Gamification by Design* indeed resembles a casino, where the house always wins.

Social engagement loop

Zichermann and Cunningham again employ the concept of a reinforcement loop when describing the social dynamics of gamification. One could say that the "social engagement loop" is a particular type of dopamine loop, crucial to the long-term success of the game. How does it work?

> In a social engagement loop, a motivating emotion leads to player re-engagement, which leads to a social call to action, which flows to visible progress and/or rewards, which loops back around to a motivating emotion. (p. 67)

A social engagement loop is therefore a version of the dopamine loop in which both the challenge and the reward are designed to produce social engagement. Since humans have a natural tendency to socialise and a natural drive towards status, it is not that difficult: for example, the challenge can be to post your result or opinion on a social network. In this scenario, the reward consists of attention and fame received from other users. This reinforces the desire to continue playing the game (the dopamine loop) and at the same time creates a social viral effect: others may become interested in the game and start playing themselves.

Of all the "things that people like" – the natural proclivities of human beings – some are especially useful to the creation of social engagement loops. In addition to the somewhat obvious "Fame, Getting Attention", "Recognition for Achievement" and "Gaining Status", one has to consider "Gifting" (p. 86) and, last but not least, "Flirtation and Romance": "Remember: in cultures with great social distance (including the United States), an element of flirtation can be critical for forming viral, social loops" (p. 87). However, game designers do not need to be too creative when designing social engagement loops, as "any product or service that has ranking, points, and favourites is likely to produce a fame or attention-getting loop" (p. 89). Humans are natural socialisers and therefore, according to *Gamification by Design*, it is enough to design a system and the innate social drives will kick in.

It has to be pointed out that gamification strategies based on the concepts of the dopamine loop and social engagement loop are exemplary specimens of contemporary biopolitics – the power techniques are designed to follow and foster natural processes (drives, loops) in order to gently guide the behaviour of subjects onto the desired path.

However, the understanding of human nature presented in *Gamification by Design* is not based on any solid scientific knowledge, but rather is extremely simplified and very selective – to put it mildly (see Deterding, 2014, p. 20). This is perhaps why the biopolitical strategies of gamification – in order to work "properly" – require simplifying procedures and disciplinary techniques, eliminating any unusual behaviour from the games and ensuring that players play by the rules.

Simplifying and policing the system

According to *Gamification by Design*, humans are generally speaking happier when their choices are simpler. This thesis, backed by the personal experience of the authors and Barry Schwartz's paper *The Tyranny of Choice* (Zichermann & Cunningham, p. 71), leads Zichermann

and Cunningham to advise against designing overly complex gamification systems, or – to put it precisely – to make sure that even in complex gamification systems the options individual players have are limited, since "when it comes to gamified options, it isn't good to reveal the entire complexity of the system upfront. Give the player just enough choice to engage him without overwhelming him" (p. 71).

The authors believe that by simplifying the system it is possible to predict the desired behaviour more easily, ensure the happiness of the player and thus create a dopamine loop. Players should not be given more than one choice at a time – this "minimization of complexity contributes substantially to their happiness" (p. 71). Simplifying the player experience is especially crucial at the early stages of the gamified system – authors go so far as to propose eliminating all choices whatsoever from the beginning of the game in order to ensure proper functioning of the dopamine loop:

> At the tutorial level (level zero), there should be no choices. A player should be offered an action at which he cannot fail. Then, he should be rewarded for successfully completing that action. (Even a "Well done!" or a hearty, "I agree," places your player squarely in a very seductive positive-reinforcement loop). (p. 61)

While the complexity of the game should slowly rise, it is crucial to keep the player behaviour entirely predictable and under control. The fewer options players have, the easier it is to draw them into reinforcement loops. Zichermann and Cunningham make it clear that the real complexity of the system might be substantial, but should be only visible to game designers and supervisors, who are not supposed to "play by the rules", but rather intervene arbitrarily in order to ensure correct performance of the game mechanics. It is crucial that the gamified environment is not left to chance but rather meticulously controlled: "game designers leave nothing to chance" (p. 75).

In order to explain how to control a gamified system, *Gamification by Design* brings up the story of early online poker companies, which would hire poker players to fill the virtual poker rooms so that the new players would always find a match. "No matter your level in the game, designers made sure that a player of your ilk matched to you. If you were an expert, so was the paid player" (p. 75).

In order to keep the player behaviour simple and predictable in a complex system, there is a vital need for arbitrary policing, namely supervisors equipped with disciplinary prerogatives. The players will not always play by the rules and their behaviour will not always be standard. Zichermann and Cunningham warn their readers openly: "[d]o not be mistaken: people attempt to exploit any system in which there is something they deem of value" (p. 72).

A clever way of policing the system is to create admin positions and give them away as "rewards" to the most loyal players – this not only saves the resources needed to employ a disciplinary admin workforce, but also creates new rewards – "power, as mentioned, is one of the most motivating and enduring rewards in any system" (p. 72). The admins should be allowed to "look for unusual behavior" and be able to "take immediate and decisive action" (p. 73) against those who do not behave normatively – that is, those who do not play by the rules.

It seems that simplifying and policing the system are two sides of the same coin – while most subjects fit within the desired behaviour paths, there remains a minority whose unpredictable behaviour might endanger the consistency and predictability of the whole system. This is why every gamified solution needs some disciplinary policing; this model of power relations seems to fit well within contemporary biopolitics as such, which – according to many theorists – generally tends to resort to "soft" power in the central zones of the structure of social control, but still uses "hard" disciplinary techniques on the margins, directly policing those who do not "control themselves" (see Ajana, 2005; Foucault, 2003, Hardt & Negri, 2000).

Conclusion

Gamification techniques – as proposed by Zichermann and Cunningham – are definitely based on an odd, extremely simplified and utterly non-scientific model of the human psyche. But does this mean that they cannot be effective? As some critics argue, this is not the case. According to Nicolas Schrape (2013), "the gamification metaphor directly feeds back into reality. It motivates behaviour outside of the interactions with the computer. And isn't it plausible to think that the way we talk about this behaviour influences the way we think about it?" (p. 5)

The disciplinary power of late classicism and early modernity – as described by Foucault in *Discipline and Punish* (Foucault, 1977) – can serve as a useful analogy: when a simplified and non-scientific anthropology gets fused with powerful mechanisms of control, it can deliver tremendous results. If the behaviour options are successfully narrowed – in order to be consistent with an "abstract" model of the human psyche – the model can feed back into social reality and become "real"; that is, it can produce powerful effects.

In a well-designed gamified mechanism, subjects have to act as model gamers in order to reach their objectives. The problem is that participation in those mechanisms may not be voluntary – education and workforce management are some of the areas where gamification techniques are being introduced most rapidly. An employee might have no innate gamer's instinct, but he/she will nevertheless have to compete with their colleagues for points or badges in order to get a pay rise or a promotion. The same applies to students of primary schools.

This phenomenon is a model example of biopolitical subjectivation – subjects of gamified power techniques have to learn to play by the rules, even if the game mechanics do not "contribute substantially to their happiness" (Zichermann & Cunningham, 2011, p. 71). Even if the "dopamine loop" is just a fiction, the rise of simplified and well-policed gamified strategies of control is very real and so may be the rise of a new generation of "gamified" subjects. The somewhat detached and odd discourse presented in *Gamification by Design* might in fact produce substantial changes in social behaviour patterns – if, of course, it manages to influence those in positions of power.

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