Gamification - literature review

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Introduction

The literature on Gamification can be divided into three categories: theory, guides, and case studys. "Guides" are sources that range from general recommendations based on theory, to recommendations of specific mechanics. The former are related to "theory" papers, and the latter to "case studies". This review divides the literature that way into two groups: the first is sources with theory and theory-based broad recommendations; the second is sources with more practical recommendations, and case studies.

I look first at the theory side of gamification, focusing on the definition of gamification, and discussion of goals and objectives of gamification. I then review some sources borrowed from other fields on the subject of player/user motivation, which helps bridge the gap from theory to practice. I then review the practical advice and case studies against the concepts in the theory sources.

Definition

The first topic in review the theory-classed sources is the definition of "gamification". This is necessarily preceded by a brief review of the definition of a digital game.

What is a digital game?

The process of gamification is nearly always being applied on a digital platform, so for the purposes of this review and guide, only digital games are included in the discussion.

What distinguishes a digital game from non-game applications is that a digital game creates meaningful play. Meaningful play comes in part from allowing users to make "choices that influence the outcomes of events" (Ferrara 2012). That interaction between choices and outcomes can be broken down further: the actions a user chooses must have immediate outcomes, for which the player can *discern* the outcome's causation and nature. And the outcomes of actions must *integrate* with the outcomes of other actions in that they all have effects on the larger context of the over-all game. (Salen and Zimmerman 2004)

Games create meaningful play by having actions with *integrated*, *discernable* outcomes. Another way to consider those relationships is to say that game actions provide immediate *feedback*, and the combined feedbacks determine the player's *progress* toward a goal. The terms "feedback" and "progress" show up often in the literature about gamification, presumably because they map directly to the core characteristics of what distinguishes a game from both undirected play and other non-games.

What is gamification?

Gamification is taking something that isn't a game and making it somehow more game-like. The reason for doing so is "to motivate desired behaviors" and to increase "engagement" (Deterding 2012). A commonly cited definition for gamification is:

> " 'Gamification' is the use of game design elements in non-game contexts." (Deterding *et al.* 2011)

But that would seem to be more of an way of identifying when gamification has happened, since it really only considers the results, and not the process or the goal. A similar sort of exclusive focus on the resulting mechanics has led to a commonly quoted gamification criticism:

> "You'll be able to tell when something's been gamified because it will have points and badges. And this is the nub of the problem… gamification isn't gamification at all. What we're currently terming gamification is in fact the process of taking the thing that is least essential to games and representing it as the core of the experience. Points and badges [are] great tools for communicating progress and acknowledging effort, but neither points nor badges in any way constitute a game. Games just use them… to help people visualise things they might otherwise lose track of. They are the least important bit of a game, the bit that has the least to do with all of the rich cognitive, emotional and social drivers which gamifiers are intending to connect with." (Robertson, Margaret. 2010)

As Elizabeth Lawley writes, for the process of gamification "to be successful, it must include game design, not just game components. Games are not a replacement for thoughtful experience and interaction design; they are an alternate lens for framing that process" (Deterding 2012).

So, while elements of game design are indicative of an attempt at gamification, successful gamification will foster "cognitive, emotional and social" motivations and create a game-like experience. Huotari and Hamari have proposed that gamification should be defined in terms of that experience, not the mechanics that are used to create it:

> "Past definitions rely on the notion that gamification is based on the use of game elements. However, there doesn't seem to exist a clearly defined set of game elements which would be strictly unique to games, neither [do] they automatically create gameful experiences. We can find similar elements from a variety of non-game contexts as well. …We argue that the definition of gamification… cannot be based on a set of methods or mechanics, but instead it has to be understood more broadly as a process in which the gamifier is attempting to increase the likelihood for the gameful experiences to emerge by imbuing the service with affordances for that purpose (be it badges or more implicit cues)." (Huotari and Hamari 2012)

A useful definition of gamification, it would seem, should include not only the resulting elements, but also the process by which those elements were chosen, and the goals for which those elements were chosen. Such a definition doesn't seem to exist in the literature.

Though there is no a consensus on a complete definition of gamification, there is enough agreement on what gamification is—or perhaps what it should be—for there to be coverage in the literature of other issues such as the goals and objectives of gamification projects, which is the first topic in the next section of this review.

Goals and motivations

The general frameworks given in the literature for how to go through a gamification project largely mirror one of the approaches used in either user experience (UX) design or game design. Which is not surprising, since gamification would seem to be the bridge between the two fields.

> "User experience design and video game design are something like siblings who were raised in separate homes. It's easy to understand both as forms of human-computer interaction and as centrally concerned with the design of experience. But UX design creates experiences that help people meet their real-world needs, whereas game design is about the experience for the sake of the experience." (Ferrara 2012)

This section focuses on the issue of defining project objects, and the following section will cover user motivations. These two seem to be the areas where the process of gamification diverges most from both of its parent fields, UX and game design.

Goals

Both Raftopoulos (2014) and Ferrara (2012) explicitly advise to start a gamification project by determining the goals for the system. But what those goals are—or at least what they should be—is not an obvious question. To begin with, how can you properly balance the goals of the organization and the goals of the users?

Often, the goals of the organization obscure the goals of the user, such as in the gamification of a university course, when "Our goal with gamification was to improve lecture attendance, content understanding, problem solving skills and general engagement. [These were] measured using course marks, lecturer evaluations, lecture attendance, and a questionnaire" (O'Donovan *et al.* 2013). While improved marks are evidence that the users of the system, the students, benefitted from it, the inclusion of "lecturer evaluations" as an indicator of success implies that overall the goals were organization-centric.

Or the goals of the organization may simply ignore the goals of the user. "The language used by vendors selling gamification solutions imply that it is something performed on employees by management" in order to improve employee performance (Raftopoulos 2014), as opposed to something that assists, or benefits employees. More so "gamification too often invokes organization-centered design, treating users as zombies: senseless mechanisms urged onwards by a desire for extrinsic rewards. Gamification still often fails to acknowledge the user's context and innate psychological needs" (Conway 2014).

While the analogy to mindless zombies might be hyperbole, at least one example of gamification did treat its users as something like non-sentient beings. In order to gather data on the deployment of Near-Field Communication tags, researchers released what was ostensibly a game, but what it could also be argued was an application, with a heavy layer of gamification that obscured its objective and the core process. The researchers themselves described their project as using "gamification", and reported that "most users are unaware of the game's purpose as a research project". In describing the process of deploying their application, they wrote that they "chose a neutral name for our game that did not disclose its nature as a research project, but did rather seem like a game of an independent development studio" (Kranz 2013). The intentional obfuscation of the true purpose of an application is, if nothing else, putting the goals of the organization well ahead of those of the user.

Conversely, the goals of the user might be made superior to those of the organization. Some have recommended that "…meaningful gamification puts the needs and goals of the users over the needs of the organization". And while we are assured that "if users have a positive and meaningful game-based experience that is well-connected to the underlying non-game setting, then the organization will benefit in the long term" (Nicholson 2012), much like with the student's goals in the example above, merely

ensuring that the organization benefits is not the same as ensuring that the organizational goals are serviced.

This confusion and conflict between user and organization goals is a consequence of trying to define goals for a gamified application as opposed to a game application.

Designers of games don't necessarily have an easy task in defining project goals, but it is at least a straight-forward one, since "the fundamental role of the game designer is to be the 'advocate of the player' and the designer must look at the game world that is being created through the eyes of the player and focus completely on the player experience without being distracted by the other concerns of production". In contrast, "a gamification designer is often the advocate of management… and the role of the player or worker is fundamentally subordinate in the game that is being developed. The engagement and experience of the player in a gamified enterprise application is typically a means to an end…, rather than the end in itself…" (Raftopoulos 2014).

One way proposed to overcome the confusion and possible conflict between the goals of users and the goals of the organization in of a gamification project is to include users in the process of defining the project goals, and also by framing those objectives within a larger definition of project values—which users also participate in defining (Raftopoulos 2014).

Another possible difficulty in defining the goals of a gamification project occurs in case where the intended users of the system have a wide variety of goals. A proposed approach to resolving the problem of needing to accomodate a broad spectrum of user goals is to adapt the Universal Design for Learning from education, which is used to create courses that are appropriate for a wide range of students. The basic approach is to break down the overall process into steps, and then to provide a variety of approaches for each step. At each step, users can find the approach that works best for them. In other words, there is no single path of progress through the system, and users can switch between paths along the way. Developing these multiple pathways can increase design difficulty, but "opening up the design of the gamification to users of the system can help designers overcome that challenge" (Nicholson 2012).

So, again, a good way to ensure an appropriate inclusion of user goals in the project's goals is to include users in the process, or to deploy a system that allows users to customize and expand the system.

Motivations

The promise of gamification is motivation—people will *want* to use the gamified application (Deterding 2012). However, the gamification literature has sparse coverage of motivation theory, and what is there is borrowed from other fields. One motivation theory commonly used is self-determination theory, which is a work motivation theory that focuses "on the relative strength of autonomous versus controlled motivation" (Gagné and Deci 2005).

In self-determination theory, the strength of *autonomy* in motivations has a 'very strong' positive influence on work performance. The sense of autonomy is strongest in "intrinsic motivations" that stem solely from an inherent, internal interest (Gagné and Deci 2005) or enjoyment (Ryan and Deci 2000) in an activity.

In contrast to intrinsic motivations are extrinsic motivations, which can have a wide range of strengths of autonomy. Extrinsic motivations depend on a contingency between an action and some external consequence, and based on the strength of autonomy that they comprise, they can be placed on "a self-determination continuum". The extrinsic motivations that are the least self-determined are referred to as "external extrinsic motivations", while those that give the greatest sense of self-determination are referred to as "integrated extrinsic motivations" (Gagné and Deci 2005).

Since integrated extrinsic motivations are highly autonomous, they are largely indistinguishable from intrinsic motivations in the amount of their influence on workplace performance. There are two ways to distinguish the two from each other: 1) integrated extrinsic motivations started out as external

motivations, but over time have become integrated, and 2) integrated extrinsic motivations are not required to be enjoyable or interesting, while intrinsic ones are.

However, the second distinction is problematic. A good example of why comes from gaming:

> "[Being motivated by fun] doesn't account for the nearly masochistic things people are willing to do when playing a game. Many of the most popular role-playing games, for example, require players to fight the same enemies over and over again (and then again and again) to get the experience and loot they need to advance in the game. Players may spend dozens of hours in thousands of battles. So many games involve these kinds of endless repetitive actions that the gaming community has given it a name: grinding. This term is related to how we describe work we really don't enjoy—as 'a grind.' So why do people pay good money to subject themselves to something that's as unpleasant as the work an employer would pay them to do? This is a really big problem if your only explanation for why people play games is to have fun." (Ferrara 2012)

The players in the example are not motivated by some external consequence; their motivation is not an extrinsic one. But if it's not an extrinsic motivation, then under self-determination theory it's an intrinsic motivation, and therefore should be interesting, enjoyable or in some other way pleasurable. But 'grinding' through a game is not pleasurable; it's a grind.

More generally, it has been proposed that "[Intrinsic Motivation] theorists may have erred in embracing hedonism, the philosophy that pleasure motivates behavior," so that "we may question whether [Intrinsic Motivation] theorists have exaggerated the extent to which certain activities really are pleasurable" (Reiss 2004).

On way to avoid the pleasure problem is to simply use only the location of the consequence that is behind an action as the distinguishing factor between intrinsic and extrinsic motivations:

> "Intrinsic motivation is intimately tied to the locus of control, part of one's sense of autonomy. As we have discussed, external rewards can cause a shift in an individual's sense of the locus of control, as moving away from the person towards the source of the reward" (Conway 2014).

But doing so misses an important point: if we drop the requirement for an intrinsic motivation to pleasurable, then what is the reason for people to engage in an intrinsically motivated action? What is the internal consequence that is contingent on the action?

Borrowing from the field of Psychology, we can say that the internal consequence behind intrinsic motivations is the pleasurable feeling that results from the fulfillment of an intrinsic desire. "The satiation of each basic desire produces an intrinsically valued feeling of joy, a different joy for each basic desire. Loosely speaking, people behave as if they are trying to maximize their experiences of the 16 intrinsic joys" (Reiss 2004). And fostering the fulfillment of an intrinsic desire will increase the related intrinsic motivation.

A simplified version of the table of intrinsic motives and desires provided in Reiss (2004) follows. It lacks the "Animal behavior" and "Intrinsic feeling" columns, and the text of some of the "Motives" has been shortened.

Table 1: Intrinsic Motivation – 16 Basic Desires

Motive name	Motive
Power	Desire to influence, to lead
Curiosity	Desire for knowledge
Independence	Desire to be autonomous

Motive name	Motive
Status	Desire for social standing, for attention
Social contact	Desire for peer companionship, to play
Vengeance	Desire to get even, to compete, to win
Honor	Desire to obey a traditional moral code
Idealism	Desire to improve society, for altruism, justice
Physical exercise	Desire to exercise muscles
Romance	Desire for sex
Family	Desire to raise children
Order	Desire to organize, for ritual
Eating	Desire to eat
Acceptance	Desire for approval
Tranquility	Desire to avoid anxiety, fear
Saving	Desire to collect, value of frugality

Motivations in games

The problem with defining intrinsic motivations as being inherently pleasurable was highlighted with a description of players "grinding" through a game; in other words, the fact that games are not always 'fun' yet people play them anyway parallels the idea that not all actions prompted by intrinsic motivations are pleasurable, yet people engage in them anyway. If people are intrinsically motivated to do non-pleasurable actions in order to fulfill some intrinsic desire, then why are they motivated to grind though a game?

Ferrara (2012) includes a discussion of some common player motivations, and how they relate to the games those people play. He also has some examples of how games can be tailored to feed those motivations, by using certain game elements. Those examples will be described in the later section on "Goals, motivations, and games design elements".

Game design elements

The purpose of gamification is to improve an non-game application by using game design elements, but exactly what are they?

Game design elements are "elements that are characteristic to games – elements that are found in most (but not necessarily all) games, readily associated with games, and found to play a significant role in gameplay" (Deterding *et al.* 2011). Those elements must also be implemented in ways similar to the way they are in games. E.g., an application can have "levels" in order to structure content or access, which are not game-like "levels" that are tied to progression through the game. However, if there is a connection between an application's "levels" and progression toward a goal, then those "levels" would be an example of a game design element.

Goals, motivations, and games design elements

A gamification project has goals, toward which users are directed by motivations. Those motivations are strengthened by appropriate game design elements. Ferrara (2012) gives examples of how design and design elements in games can be used to appeal to players with common motivations.

- **Autonomy** – Games can give players an increased sense of freedom by giving them multiple objects from which to choose, and a variety of ways to meet those objectives. By not imposing

time restraints, and not forcing players through parts of a game that don't interest them, games can let players enjoy their autonomy.

- **Competence** – Players motivated by confidence need the challenge to their skills to constantly increase–if the game becomes too easy, they'll lose interest. However, it's impossible to create a sequence of increases in difficulty that appeal to all players. So, a common approach is to make the standard sequence increase in difficulty at a rate that only the best players can keep pace with, then offer options to help other players advance.
  Players can be helped by giving them the option to choose a lower level of difficulty. Or, there can be ways for players to earn items or features that will assist them. Also, coaching players or having "practice" areas with little risks can help players build the skills they need to be good enough at playing the game to enjoy it.
- **Social Image** – Players motivated by wanting to maintain or improve their social image will want a game to provide ways to compare achievements between players. They will enjoy having ways to display their achievements, such as items acquired in the game, or badges earned, and will expect to be able to view others achievements.
- **Creativity** – In a game appealing to the player's desire to be creative, the player will not be tied to any particular objective. An easy-to-use interface will allow the player to create a wide variety of things, which are readily identified as distinct from other player's creations. And the game will provide a way for the player to showcase her creations.

Everywhere in the gamification literature, if any specific game design elements are discussed the one that seemingly is always included is 'points!'. Which is why it merits its own section, which follows.

Points!

While there are a wide variety of game design elements that might be used to strengthen user motivations, the most popular by far is 'points!'. Sometimes rebadged as 'coins', or 'karma', descriptions of various implementations of the intrinsically valueless counters takeup 10 pages in "Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps" (Zichermann 2011). In "Play at Work: How Games Inspire Breakthrough Thinking", having a points! element is enough for an application or promotion to be included as an example of "gamification" in our everyday lives.

This identification of points! as synonymous with of gamification is completely specious: "What we're currently terming gamification is in fact the process of taking the thing that is least essential to games and representing it as the core of the experience" (Robertson 2010).

The irony is that points! often play an important role in gamification. But they are not rewards. They do not motivate users. When used properly, points! are an effective mechanic to provide feedback, and they can also work as indicators of progress.

Which means that they can be used for both of the requisite characteristics of meaningful play; actions with discernable outcomes, and outcomes that integrate into the overall game experience (Salen and Zimmerman 2004). Points! can make the outcomes of actions discernable. And they can be combined from independent outcomes and have an impact on overall gameplay.

What does it mean for points! to be properly implemented? From a work motivation perspective, "feedback needs to be specific and relevant if it is to motivate and direct" (Siegall 1988). So, when used as feedback points! must be tied to a specific user action, and they must be tied to the *right* user action.

Points! as feedback must also be obviously tied to the triggering action. Otherwise, they can have a negative effect on motivation: "When reward is presented independently of performance, people may learn they cannot influence reward presentation, resulting in reduced motivation" (Eisenberger and Cameron 1996).

Practical gamification literature – evaluation against theory

The practical gamification literature can be critically evaluated using the theory side of the gamification literature and the motivation theories from other fields, that are in the earlier sections. Which is what I do in this section, describing some examples of where practical gamification has failed to apply gamification in a way supported by theory. Since the general recommendation is that gamification projects start by defining the goals of the projects, the first examples from practical gamification literature are related to project goals.

One of the difficulties of setting the goals of a gamification project is find a proper balance between the goals of the organization, and the goals of the user, since that balance will be particular to every project. However, there are a couple of guidelines. The first is a simple one: any project that completely ignores user goals cannot have an appropriate balance of user and organization goals. The second is to check the project against the "value destruction risks", a.k.a. "the seven deadly sins" of gamification, as described by Raftopoulos (2014).

The first example is one that fails the simple guideline of gamification project goals: don't ignore user goals. As referred to an earlier section, the authors of "*A Case Study in the Gamification of a University-Level Games Development Course*" give the organization's goals as the project's goals, and don't include any users goals. "Our goal with gamification was to improve lecture attendance, content understanding, problem solving skills and general engagement. The success of this intervention was measured using course marks, lecturer evaluations, lecture attendance, and a questionnaire…" (O'Donovan *et al.* 2013).

That project also manages to fail when checked against the seven deadly sins. After first explaining that purpose of gamification is to use "game design techniques [to] manipulate users' behaviour with a high degree of certainty", they go on to recommend hiding that manipulation in order to maintain an illusion of autonomy, because "…if users feel that they are being manipulated, they may notice that their freedom within the product is an illusion" (O'Donovan *et al.* 2013). Not only is this is the "homogenization of the workforce" warned about in the seven deadly sins, but it seems to go a step beyond that. "Value destruction item 4" warns of an unintentional homogenization of the workforce through a "normative influence" that leads to a reduced "capacity for divergent thinking for creative problem-solving and innovation" (Raftopoulos 2014), but the intentional manipulation of users, wrapped in an illusory autonomy, would seem to indicate an equally intentional attempt to have a "normative influence" on users.

The project described in "*Research in the Large: Challenges for Large-Scale Mobile Application Research – A Case Study about NFC Adoption Using Gamification via an App Store*" also fails to include any hint of user's goals in the goals of the gamification project. As mentioned previously, this project also went beyond simple ignoring user's goals, by actively hiding the project's purely organizational goals, from users of the data collection application disguised as a game. The authors report that "most users are unaware of the game's purpose as a research project", and later describe their obfuscation of the project's goals: "[we] chose a neutral name for our game that did not disclose its nature as a research project, but did rather seem like a game of an independent development studio" (Kranz 2013).

In case where the project goals do account for user goals, it is important to consider how those goals align with the motivations that can be promoted by game design elements. Failing to align gamified motivations with user goals will fail to motivate users.

An example of this failure to understand the link between user goals and motivations can be seen in "*Gamifying Intelligent Environments*". The authors write that for gamification to work "designer[s] should build the system as a fun application to interact (play) with. We believe that the expected game-like behaviors will only arise when user is truly having a fun experience…" (Liu *et al.* 2011). They were explaining the failure of their gamification project "EcoIsland" to motivate users, as due to a lack of 'fun', writing that "a fun experience requires much more than simply adding basic game mechanics:

well-designed avatars, content, flow, user interface and interaction model are all needful components for a successful gamification implementation." But without an explanation of user motivations, there is no reason to believe that any or all of those game design elements would be necessary for the game to be 'fun'.

Liu *et al.* (2011) know that the users of EcoIsland are motivated by an "environmentally friendly mind" and "interests of saving energy", which presumably falls under the intrinsic motivation of 'idealism'. Yet the game design elements they implemented, such as "virtual items [to] decorate their islands" and a mechanic such that "successful [emissions rights] sellers can afford to decorate their island more", would seem to feed a 'status' motive.

EcoIsland wasn't fun for users not because it lacked avatars, but because it failed to have game design elements that aligned with the users' desire to improve society, and for altruism and justice. For example, the game included a mechanic where the sea-level around each user's personal island rose and fell based on the CO2-emissions of their self-reported activities; an additional mechanic where-by the sea-level around a user's island had a similar influence on the sea-level of neighboring islands would have appealed to an idealism motive, more than did a badge that could be shown to neighbors.

Similarly, the authors of "*Gamification in Logistics and Supply Chain Education: Extending Active Learning*" don't consider their users' motivations when deciding what game design elements should be included when they explain the utility of leaderboards and inter-user comparisons.

> "Feedback needs be provided to students so that they can compare and contrast their own performance with that of their peers. It will become necessary to incorporate some form of the leaderboard or publication of results; even if these are not tied to particular students (we do not wish to breach privacy considerations). Such publications would allow an individual to understand where they are in comparison to their classmates; they may be able to determine that they are on the lower end of the class, motivating them to perform better in the future. …Staff can upload the results soon after assessments, ensuring students can perceive in near-to-real-time, how they are progressing in comparison to their classmates." (Wood and Reiners 2012)

In addition to not understanding that aggregating results onto a leaderboard largely defeats the effect of any feedback on specific behaviors, since it is rarely timely enough and the aggregation obscures what part of the results are tied to what behavior, they also don't explain what exactly would be behind a user's motivation "to perform better in the future". While in general a leaderboard can encourage a user who has a desire for social standing, an anonymous board wouldn't, since other users couldn't see that user's rank. Similarly the anonymity would lower its impact on a user's desire to compete or to win, since she wouldn't be competing against any specific users.

The final example is from the area of gamification literature that offers practical advice on gamification. The author of "*Gamifying Support*" gets off to a good start, by stating that "Points serve as feedback and track progression", and by recommending that points are tied to "the behaviors your company wants to reinforce" (Sampanes 2013).

However, when later describing how points can applied to customer support engineers, while they are referred to as being part of a "feedback loop", they are no longer actually feedback. Instead, they have become a work-performance metric: "How customers respond to survey's about the quality of their interaction… could provide another source of points for the engineer.… The feedback loop for them seeing the points accumulated from "tough" calls and how this is tracked and shared with the organization can help keep the engineer focused on the solution while working to keep their composure in stressful times. Other metrics, based on analytics within a call or support center can also drive points, badges, and esteem…" (Sampanes 2013).

Also, the author's only explanation for why a customer support engineer would be motivated to "overcome harder challenges" and "attain higher levels" is that doing so would "brings novelty into their work

environment (where there otherwise wasn't)" (Sampanes 2013). In other words, the only motivation is the obvious 'fun' to be had.

Ironically, the author explains one of the potential hazards of gamification as: "Gamifying support could result in dehumanifying customers. Be careful that support engineers don't get so caught up in the 'game' that they forget that customers are individuals whose feelings and thoughts must be considered throughout the process" (Sampanes 2013).

This is ironic because the game is, in fact, dehumanifying the *employees*. Indeed, the customer support engineer gamification as described in "Gamifying Support" easily embodies four of the seven deadly sins of gamification (Raftopoulos 2014).

1. *Coercive participation* – users that "are under pressure and obligation to perform and are aware that they are being scrutinized, measured and evaluated" are less likely to have a gameful experience
2. *The technological whip* – the gamified system is used by the organization for surveillance, monitoring and performance tracking.
3. *Homogenization of the workforce* – "self optimizing systems" encourage behavioral conformity, but do not shift attitudes; creativity and individuality are discouraged.
4. *Shallow and inauthentic* – the gamified system is less about fun than about distracting employees from organizational dysfunctions and the methods by which the organization is controlling them.

Conclusion

The definition of gamification is still not solidified. An element-centric definition such as the one offered by Deterding *et al.* (2011) is most common, but there are also a number of experience-centric definitions, e.g., the definition given by Huotari and Hamari (2012).

The primary area of discourse in the practice of gamification seems to be project goals (cf. Deterding 2012, Ferrara 2012, Nicholson 2012, Conway 2014, Raftopoulos 2014). Should gamification projects primarily focus on achieving organization goals; should they primarily focus on achieving user goals; or should they strike some balance between the two? There are recommendations for ensuring the inclusion of user goals in gamification project goals (Nicholson 2012, Raftopoulos 2014) but no guidelines beyond simple inclusion.

Issues of motivation are often reduced to simplistic distinctions between intrinsic and extrinsic motivations, and to make things more difficult, motivations are confused with rewards. Viewing motivations through a work-motivation lense, such as self-determination theory, is likely appropriate and useful for ranking the strength of motivations. However, a more fine-grained view of motivation, such as provided by Reiss (2004), might provide a way to better map motivations to both goals, and to game design elements.

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