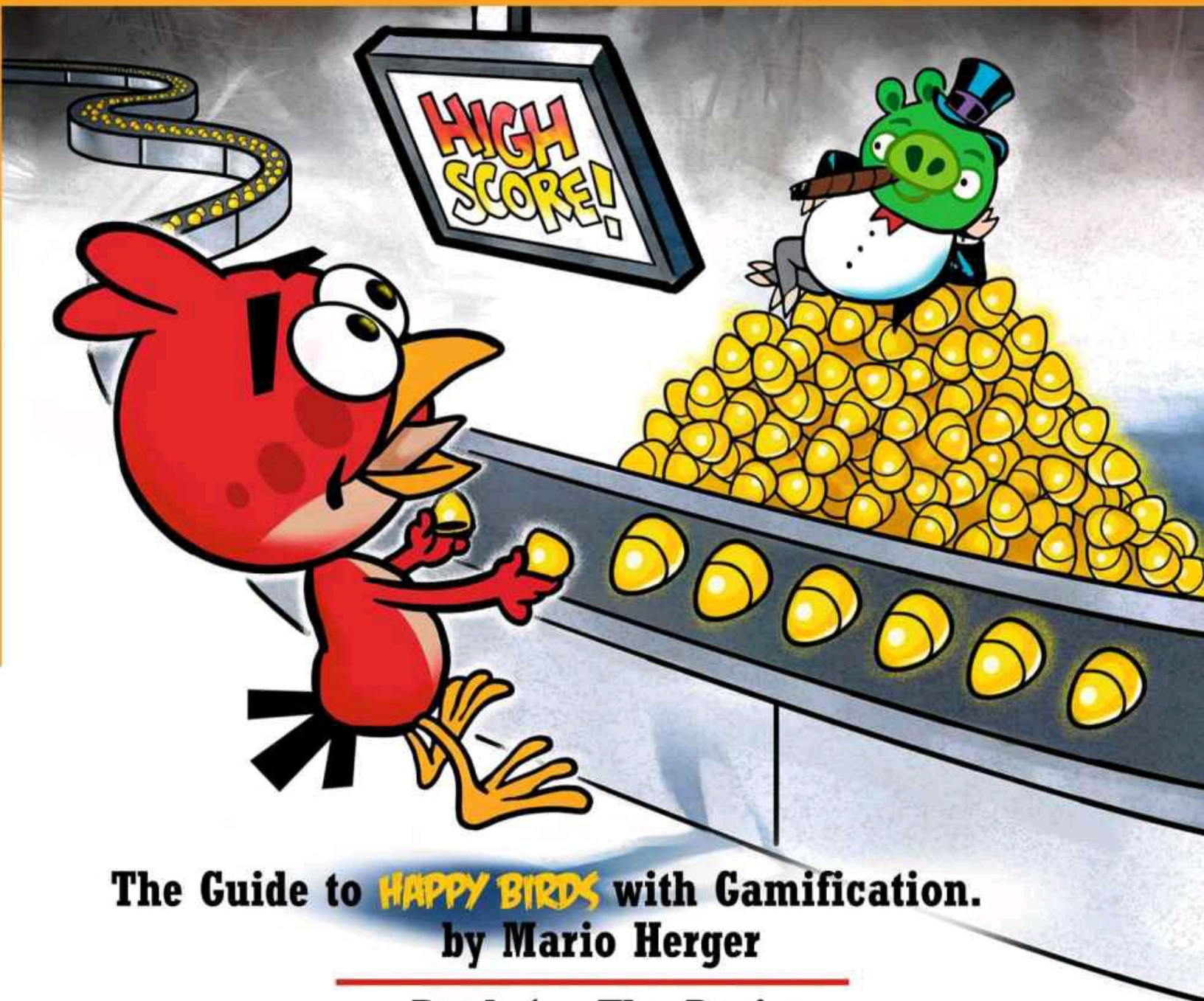


ENTERPRISE GAMIFICATION

100%
fat-free
pigs!

Engaging people by letting them have fun.



The Guide to **HAPPY BIRDS** with Gamification.
by Mario Herger

Book 1 – The Basics

Enterprise Gamification

Engaging people by letting them have fun

Book 1
The Basics

Mario Herger

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DEDICATION

This is my fifth book,
And I dedicate it to my wife Natasha and my son Sebastian,
Who bought the other four.

And to my twin baby-boys Gabriel and Darian,
Who use it for age-appropriate purposes.

NOM NOM

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This book would look very different without the diligent editing of my friend Mark Schreiber. His knowledgeable feedback on the topic guided me from rants and repetitions to a friendlier and more legible writing style. Not least I want to thank him for going through the painful exercise of correcting my Austrian English.

A book sells either through its title, its cover, or both. In this case Bernd Ertl, an excellent Austrian cartoonist, created this great cover. He does really fantastic work that I ask you to check out on his website <http://www.ausgezeichnet.com/>

Finally, let me thank you all of you who have inspired me with their awesome work and enthusiasm in all the fields that are the basis for gamification and making the world a better place. Many of you and your work are quoted in this book.

Mission 0 – Game Trailer

“What matters is not how motivated someone is, but *how* someone is motivated.

Alfie Kohn

What’s your computer wallpaper? A picture of your family, a dream vacation spot, your pet, your favorite sports team? Whatever it is, it’s probably not a picture of your job. Which is why I was so surprised when I visited the BMW plant in Dingolfing, Bavaria many years ago to do some programming work.

As we were walking through the factory floor, the buzzing and humming surrounded us. We found ourselves thrown into a chaotic, yet orderly dance of humans and robots around sculptures of metal, glass, and cables to craft what would soon become some of the most adored cars in the world. When we finally passed the three-stories high shelves with hundreds of neatly stacked engine blocks, we had reached the office of the IT manager. From his Spartan room with a staggering view of the assembly line, he took care of the smooth operation and upgrades of all IT workstations at the quality check points in the assembly hall. When we finally turned our attention from the cars, our eyes fell on the background picture on his monitor.

“Is this the new BMW 5 design?” one of us asked.

The IT manager looked at the image.

“Yes, Marketing just released the images today to the public,” he said. And then, after a long pause, without having taken his eyes from the picture, he added with a trembling voice, “It’s really a beautiful car.”

This was motivation on a level that I have only rarely seen again in the next two decades. At least not at work, but I’ve met that look again in video game players. Like the girl in Figure 1 playing a video game^[1]. Her face tells us that she is enjoying the game, that she is focused and that she seems to be winning. Yes, somehow she seems to be beating the crap out of a monster, or a dragon, or whatever opponents she is fighting right now. Nothing can distract her; she is in the flow and she experiences “fiero,” her “personal triumph.” But she does not look like she is relaxing. It looks more like the total opposite; she is working hard.



Figure 1: A video game player (© Philip Toledano)

Now imagine a user interacting with your application; or you interacting with any non-game system and process. What would the picture look like? Build up this mental image. What do you see? The facial expression looks probably very different. Passive, disengaged, perhaps frustrated or even angry.

While this girl is at a very high level with engagement, fun, and the hope to be successful, the very same attributes with business applications tend to be at a low level. And this is our quest: to understand how can we give our users an experience that resembles the one that players have?

Most likely, we will never reach or surpass the levels of engagement for employees that videogames can achieve, but if we can improve the current level a little bit, could we get more work done?

For most employees, work is pretty boring. Work for them is something that they dread, an obligation that has locked them in an inescapable situation, from which they try to get as far as possible in their times off. Maybe you are a person like that right now. If not, you've certainly met such a person: the unhappy cashier at your

supermarket, the rude clerk at a ticket counter, your colleague on the other side of your cubicle who's spending most of the time walking with his mug between the coffee corner and desk.

And once in a while you catch those very same co-workers at their true passion. The bored clerk turns out to be very creative in building the most elaborate model train sets, or the cashier who's helping with wedding planning on the side and doing really creative event decorations. Our first reaction with such unexpected revelations is surprise, and then the second the question: "Why can't they bring this passion back to work?"

I was buying groceries in a supermarket in my home town of Vienna, when I encountered a cashier who seemed to fall out of the usual pattern of reserved friendliness paired with low engagement that is usual in this demanding but low paid job. This cashier kept chatting with the customers, looking at the products that they had put on the counter, asked them about their opinion and generally showed an upbeat mood. The customers were caught off-guard, and reacted reserved until their resistance whittled away. And lo and behold, within a short time, the supermarket shoppers who typically minded their own business were engaged in chatting with her. The shoppers kept coming to this supermarket searching for her and lining up in her line, although it took longer to get through, But that was outweighed by the opportunity to get a dose of cheerful mood from her.

According to a long-running Gallup-study^{[\[ii\]](#)}, the levels of engagement are at a devastating low. Seventy percent of employees in the US are not engaged. The researchers state that

1. *In world-class organizations, the ratio of engaged to actively disengaged employees is 9.57:1.*
2. *In average organizations, the ratio of engaged to actively disengaged employees is 1.83:1.*

Actively disengaged employees erode an organization's bottom line while breaking the spirits of colleagues in the process. Within the U.S. workforce, Gallup estimates this cost to be more than \$300 billion in lost productivity alone. In stark contrast, world-class organizations with an engagement ratio near 8:1 have built a sustainable model using our approach. As organizations move toward this benchmark, they greatly reduce the negative impact of actively disengaged employees while unleashing the organization's potential for rapid growth.

Imagine bringing the level of engagement of the girl playing the videogames or the IT manager at BMW to the rest of the workforce. We cannot even imagine what we are missing out today and what we could achieve.

Take my study mate at university, who really sucked in the laboratories. I was paired with him and regretted every minute being tied with this loser. He didn't seem to get anything right, wasn't interested in doing the experiments. I wasn't very nice to him and glad when we finally passed the course. But imagine my surprise a few months later when I met him again under different circumstances and it turned out that he actually was really knowledgeable and passionate about computers, and a real fun guy. This and the following encounters with him changed my whole perception of him.

We think we should detach our personalities and interests from work. It doesn't matter at work that I am a good hammered dulcimer player. It's irrelevant that I knew a lot about folk dancing. But it turned out that this passion directed me to learn web technology, video editing, pattern recognition in dances, of cultural differences. All skills that I needed later in my professional life.

Our ancestors had a way more difficult life, without today's benefits from technology and education. Two hundred or two thousand years ago, life and its obligations were difficult. Were the people happier? We don't know. But what we do know is that they certainly had a more complete grasp of life and the meaning of their work. A farm laborer understood how his work contributed to the cycle of life and the overall good. The increasing complexity of life accompanied by the division of labor distances many employees from seeing the impact of their contribution.

Behavioral pioneers like Frederick Taylor or Henry Ford segmented work into small elements and dictated the order of work steps with such detail that there was not much of autonomy left for the laborers. Charlie Chaplin's battle against the machine in *Modern Times* created the most iconic image of man lost in work that doesn't make any sense anymore.

Not that all our ancestors before the Industrial Revolution had had a more fulfilled life. But they developed means to overcome the burden of hard work and dulling routines by something like singing. Many folk songs and dances reflect the rhythm of picking cotton or separating corn from crop with their tools. Time passed by faster and the dread became bearable. And singing was common around the globe, from the cotton pickers in the southern states in the US, the weavers in England, to the farm laborers in Austria.

Nobody is singing at work anymore. In fact, over a century ago in Austria, a song form named *Gstanzln* was very popular. They were basically what you know today as rap-

songs. Short four-liners, often with mocking (“dissing”) the “opponent“, always humorous, often with sexual content. Young farm laborers would spend hours in their free time to diss each other and pride themselves at not repeating a single poem to the girls they were visiting in the nights outside their bedroom windows.

While this all was done by avoiding the watchful eyes of church, ruling class, and landowners, there was one notable exception: a farmer (the “*Streckaubauer*“) in the Austrian village of Leogang hired only laborers who could keep up with him conversing all the day in Gstanzl. Work instructions and responses had to be in Gstanzl-form. Imagine you work for somebody only talking in Limericks all day long and expecting you to do the same. And he would not pay them more than any other farmer. Whatever motivated this farmer to come up with this, it had an interesting effect: laborers with elaborate Gstanzl-singing-skills from near and far would apply for jobs. And those who got in had every reason to show their pride and work hard. By having so many talented people working together, everyone could learn from the others. Morale went up, work rates were high, and everyone felt appreciated. The farmer had found a way to engage his employees and achieve higher yields.[\[iii\]](#)

While this tradition has disappeared, the reasons why it worked are still true today. Give people a challenge, and create a safe environment for them to try it autonomously. Let them fail as often and safely as necessary to learn without punishing them, give them immediate feedback, a way to connect with others, and reward them when they do succeed.

With the Industrial Revolution we have seen the enduring contradictions between *homo economicus*, for whom work becomes an instrumental means for monetary gain, and *homo faber*, for whom work is valued for its intrinsic meanings, challenges and satisfactions, playing out. Depending on your point of view, work is structured either through a *homo economicus* rationale as preferred by employers, or through an employees *homo faber* rationale seeking intrinsic fulfillment through work. With labor division degrading, deskilling, and making work intrinsically unfulfilling, *homo economicus* began dominating until today. And both *homo economicus* and *homo faber* dominate *homo ludens*, for whom the rituals of play (within work) are important. While both play and intrinsic values can and should be gained from work, mostly only the economic value is considered in modern management. And that is about to change with gamification.

What matters is not how motivated someone is, but *how* someone is motivated. And this could be by making them happy. James P. Carse [\[iv\]](#) made the case for happiness by regarding life as nothing else than an infinite game. Dividing your life into

missions, for which you can earn karma and experience points, makes failures more endurable. Failure in a game is seen as something natural. You need to fail to learn and become better. In life people have the tendency to regard failure as devastating. Some people never overcome that and fall into lifelong depressions. With a playful attitude to life, considering yourself as a player in an infinite game of epic proportions, the “game” allows you to distance yourself from outcomes and to study the results.

Genius is the ability to make the most mistakes in the shortest period of time.

On the United Airlines flight 901 from San Francisco to Frankfurt a four-year-old girl was moody. A lot of excitement for her, too much that was going on. Everything was new and the exhaustion and the unknown had already strained this little girl, and she became cranky. Enter Judy Chevreuil [\[v\]](#), United flight attendant who bent down to the girl, popped out of her bag a balloon and a pump, and with quick motions created a balloon dog. The eyes of the girl lit up. You could hear Judy’s pump and the screechy sounds of the balloon-plastic, while being formed into swords, silly hats, and giraffes throughout the hallway. Wherever there was a little – or not so little – child (like myself), Judy would happily make a balloon animal.

Judy had discovered balloon artistry some time ago and once she mastered the basic elements, started bringing her stuffed bag onto long-distance flights. I had the pleasure seeing her in action on two flights, and once she talked about her hobby that fit so well into her work. As a flight attendant she basically is an entertainer, and her newfound hobby brought this to a new level. She enriched her work and as well her progress in the mastery of balloon artistry.

In fact we will see later in the book how making your life a game has caught the attention of professionals from many different fields. From Jane McGonigal’s *Superbetter*, empowering patients fighting their diseases, to *Kred*, *PeerIndex*, *Achivy* and other startups aiming at measuring users’ online influence, or engaging your family members to do chores with *Chore Wars*, or rewarding patients for taking medication in time, and of course nudging kids with stars, stickers and the big literal carrot to watch a Scooby-Doo-movie when they stick to a desired behavior. Not to mention couples using sex [\[vi\]](#) to get what they want from their partner.

We live in the gamification age, and with this book I will help you get engaged.

Mission 1 – Onboarding

“Donald Duck is the original Angry Bird.”

Unknown

Why would anyone play a game where you sling a bird at pigs hidden under wobbly structures? With downloads now over one billion and still going strong, there must be something about *Angry Birds* that may teach us how to make good and gameful experiences. Let's dissect the game.

First - the game has a narrative. The pigs stole the birds' eggs and the birds get so mad that they sling themselves at the pigs.

Second - it's a beautiful world. The way the birds fly out from the slingshot, the way the wobbly structures crumble, the little explosions, the clouds, planets, hearts, balloons, monkeys and not least the birds all drag you into a world of beauty and fantasy.

Third - there is feedback everywhere: audio, visual, rewards. The points and stars that you receive, the cheering chirps of your birds, the mocking grunts and laughter of the pigs when you lose, the leather screeching when you extend the slingshot, the spectacular collapse of these structures under which these rotten pigs hide. That is a feast for the senses.

Fourth - there is attention to detail. Have you ever noticed how sometimes the birds jump into the slingshot with a somersault? What a delight to discover this and tell others.

Fifth - it has tactical depth. You got stuck at a level because you attacked the wrong part of the structure, and you couldn't kill all the green miscreants. And with *Angry Birds in Space* the right approach may even be to shoot at them in the opposite direction, thanks to fun with gravity.

Sixth - Angry Birds comes without a manual. Unlike the games that I had as teenager, which came with 30 page booklets for my Commodore 64, Angry Birds gives you just one type of bird, and a hint on the screen. That's it. By trial and error you understand the concept and reach the next level, where a new type of bird is introduced, with another hint what this bird can do. In a matter of minutes, a player will master the intricate nuances of the game.

Seventh - when I read a friend's post on Facebook that she made it through all levels of the *Angry Bird Seasons* during the Christmas holidays, I knew what she had accomplished. The Angry Birds Christmas version was a really tough challenge. My friend got my kudos and admiration for that. In other words, a player always knows

how she is doing, what the path to mastery is, and also how the others are doing. And when a player overcomes a challenge, everyone else knows what effort it takes.

Now certainly this is a game, and a game is built to entertain. But some of the elements that we listed above resemble what we encounter in non-game contexts. We want feedback - instantly - and we'd like to know how we and others are doing. After all, how should we learn how to become better? While a game has a player fail more often than succeed, overall the game creates a positive and encouraging environment. A good game gives the player the right amount of information at the time a player needs.

When I worked on my Ph.D. in Chemical Engineering I teamed with a group of engineers on measuring exhaust gases of oil-fired heating systems across Austria. To come to scientifically sound numbers of the carbon dioxide and other emissions of these systems, we needed a sample of statistically significance. Because I was the Ph.D. candidate, I had to enter all the data from the measurements and therefore was the only one who knew how we were doing. The only problem was that nobody else knew the numbers and statistics, and therefore nobody really cared how our timeline looked to reach the goal. Of course we were soon way behind with too few systems measured to make scientifically sound conclusions.

One day I went into the room, where all the engineers met in the morning to discuss the day's tasks. I simply wrote the current number of systems measured on the whiteboard. It was just a two-digit number on the whiteboard. Ah yes, and one detail more: the head of engineering announced that as soon as we reached 100 systems, we would have beer and pizza.

And boom! The numbers took off. We quickly surpassed the plan. Each engineer who spent time on the road had actively sought out more heating-systems to measure by chatting up the owners and asking them about the neighborhood. We had turned a situation of lack of information into one where everyone on the team knew the goal, the current status, and saw the immediate effect of his work.

And this is one of the dirty secrets of gamification. In the end, gamification provides feedback and information at the right time in the right amount in the right context for the right player.

Definition

Gamification borrows elements and techniques from several areas, such as games, play, behavioral science, motivation, that it makes sense to start with some basics and work our way up to a definition that practitioners can use. But before we define gamification, let's define the other terms.

Play

“Play is manipulation that indulges curiosity.”

Jesse Schell

A child pretending a box is a car is playing. Play has no rules, no goals, and aims at no real-world outcomes. The activity itself is the purpose; it is autotelic. But play is not restricted to humans; animals play as well. In his 1938 essay, “*Homo ludens. A study of the play-element in culture*,” Dutch historian Johan Huizinga states:

Play is older than culture, for culture, however inadequately defined, always presupposes human society, and animals have not waited for man to teach them their playing. We can safely assert, even, that human civilization has added no essential feature to the general idea of play. Animals play just like men.

While we are familiar with our pets' playful nature, it's a little bit more surprising to learn about wild animals playing as well. Raven, bears, octopuses, and even fish engage in behaviors that satisfy the definition of play. Medical doctor, psychiatrist, and clinical research Stuart Brown[\[vii\]](#) wrote about an encounter from the Canadian far north:

Hudson seemed to be a very dead dog. That's what musher Brian La Doone thought as he watched a twelve-hundred-pound polar bear quickstep across the snowfield, straight toward the sled dogs that were staked away from his camp. That November, the polar bears in the Canadian far north were hungry. The sea had not yet frozen, denying the bears access to the seals that they hunted from the ice. La Doone spent much of his life in the polar bear's territory, and judging from the appearance of this particular bear he knew it had not eaten in months. With a skull-crushing bite or a swipe of its massive claws, the bear could easily rip open one of his dogs within seconds.

But Hudson had other things on his mind. Hudson was a six year old Canadian Eskimo sled dog; one of La Doone's more rambunctious pack members. As the

polar bear closed in, Hudson didn't bark or flee. Instead, he wagged his tail and bowed, a classic play signal.

To La Doone's astonishment, the bear responded to the dog's invitation. Bear and sled dog began a playful romp in the snow, both opening their mouths without baring their teeth, with "soft" eye-contact and flattened hair instead of raised hackles—all signaling that each was not a threat.

In retrospect, the play signals began, even before the two came together. The bear approached Hudson in a loping way. His movements were curvilinear instead of aggressively straightforward.

When predators stalk, they stare hard at their prey and sprint directly at it. The bear and the dog were exchanging play signals with these sorts of curving movements as the bear approached.

The two wrestled and rolled around so energetically that at one point the bear had to lie down, belly up: a universal sign in the animal kingdom for a timeout. At another point during their romp, the bear paused to envelope Hudson in an affectionate embrace.

After fifteen minutes, the bear wandered away, still hungry but seemingly sated by this much-needed dose of fun. La Doone couldn't believe what he'd just witnessed, and yet he was even more astonished when the same bear returned the next day around the same time for another round of frolicking with Hudson. By the third day, La Doone's colleagues had heard about this interspecies wrestling match and his campsite was filled with visitors eager to catch a glimpse of the two new best friends. Every night for a week, the polar bear and Hudson met for a play date. Eventually, the ice on the bay thickened enough for the famished but entertained polar bear to return to his hunting grounds for seal.

What was it in these animals' nature that was strong enough to overcome hunger and survival instincts? How can two species that don't interact peacefully read each other's intentions well enough to roughhouse and play-fight, when any misunderstanding could become deadly? As I began to look at these sorts of questions, I started to see that play is a tremendously powerful force throughout nature. In the end, it is largely responsible for our existence as sentient, intelligent creatures.

The drive for play is so strong that animals (and humans) even take great risks to satisfy the need of play. Brown lists examples of risky play from researchers who

observed this behavior in the animal world:

- Mountain goats bound playfully along rock faces thousands of feet high, and sometimes they fall.[\[viii\]](#)
- Eighty-five percent of observed seal pups off the coast of Peru were killed by predators while the pups were playing and not being vigilant[\[ix\]](#)

In play there may be no rules and goals, but there seems to be a purpose: animals that play the most were also the ones who survived better in the long run, even if some of the young animals got killed. Play helps them practice to fight or hunt. Brown cites studies that show that without play animals and humans will

[] have an inability to clearly delineate friend from foe, miscue on social signaling, and either act excessively aggressive or retreat and not engage in more normal social patterns. [] Playful interaction allows a penalty-free rehearsal of the normal give-and-take necessary in social groups.

While older and stronger children will dominate physical play with younger children, they will self-handicap, like the polar bear restricted his behavior in order not to hurt the husky. Through roughhousing with an older human like a father, children learn to deal with losing, getting upset, and are taught where play stops.

Humans who have been deprived of play or where rough-and-tumble play was absent in their childhood have never learned to distinguish properly when play ends. Research on young murderers[\[x\]](#) reported significantly lower rates of rough-and-tumble play in their early backgrounds.

Pretending to play family or firefighters teaches skills, social rules, and self-regulation. In neuroscience this is referred to as *executive functions*, which:

... refers to the ability to think straight: to order your thoughts, to process information in a coherent way, to hold relevant details in your short-term memory, to avoid distractions and mental traps and focus on the task in front of you.[\[xi\]](#)

Experiments based on the Soviet psychologist Lev Vygotsky's work showed that children who were told to stand still wouldn't last more than two minutes. But if they were told to pretend being soldiers on guard standing at their posts, they lasted eleven minutes. Similarly, kids told to memorize words could retain twice as many when they pretended it was a shopping list. This approach was so convincing that it has been integrated into a new and impressively successful curriculum for preschool and kindergarten, called *Tools of the Mind*[\[xii\]](#).

The Austrian philosopher Ludwig Wittgenstein developed the concept of the language-game[xiii]. Words can be used in very simple to very complex language systems such as philosophy, a joke, or mathematics. According to Wittgenstein, language-games are thought experiments that are distinct from everyday language and may serve no larger meaning. Language rules are analogous to the rules of games, and saying something is like making a move in a game. According to this logic, only in the various and multiform activities of life do words have a meaning. Like play may have no meaning in itself, in the various and multiform activities of a play and game combined with the proper context this may get a meaning, such as learning crucial facts or behaviors that prepare for life.

Now that we understand the purpose and importance of play, let's look at what the characteristics of play are. Huizinga identifies five characteristics that play must have:

1. Play is free, is in fact freedom.
2. Play is not “ordinary” or “real” life.
3. Play is distinct from “ordinary” life both as to locality and duration.
4. Play creates order, is order. Play demands order absolute and supreme.
5. Play is connected with no material interest, and no profit can be gained from it.

Huizinga continues with his description of play and coins the term of the play space, or *magical circle*:

All play moves and has its being within a play-ground marked off beforehand either materially or ideally, deliberately or as a matter of course. Just as there is no formal difference between play and ritual, so the ‘consecrated spot’ cannot be formally distinguished from the play-ground. The arena, the card-table, the magic circle, the temple, the stage, the screen, the tennis court, the court of justice, etc. are all in form and function play-grounds, i.e. forbidden spots, isolated, hedged round, hallowed, within which special rules obtain. All are temporary worlds within the ordinary world, dedicated to the performance of an act apart.

French sociologist Roger Caillos in his influential 1961 book *Man, Play and Games* distinguished the concept of *paidia* as

unstructured and spontaneous activities (playfulness).

Paidia (or “playing”) in that sense “denotes a more free- form, expressive, improvisational, even “tumultuous” recombination of behaviors and meanings.”[xiv]

In the space of digital games, Katie Salen and Eric Zimmerman[\[xv\]](#) state:

In a very basic sense, the magic circle of a game is where the game takes place. To play a game means entering into a magic circle, or perhaps creating one as a game begins.

Which gives us a segue from play to games.

Game

A game is a problem-solving activity, approached with a playful attitude.
Jesse Schell

Games have rules and goals (they help solve a problem), but do not have a direct real-world outcome. Being a millionaire in *Monopoly* does not make me a millionaire in real life. Being a top player in *Grand Theft Auto* doesn't make me a good driver in the real world. Although it may give me a better understanding of how the real world works.

Games can look very different. Scholars have defined the categories[\[xvi\]](#) as sports, tabletop games, video games, role-playing games, business games, and simulations. Each of these categories has their own subcategories. Some can be very abstract, while others come very close to a real world scenario (like the game *La course à L'Élysée* in Figure 2, which is a game to become the French president).

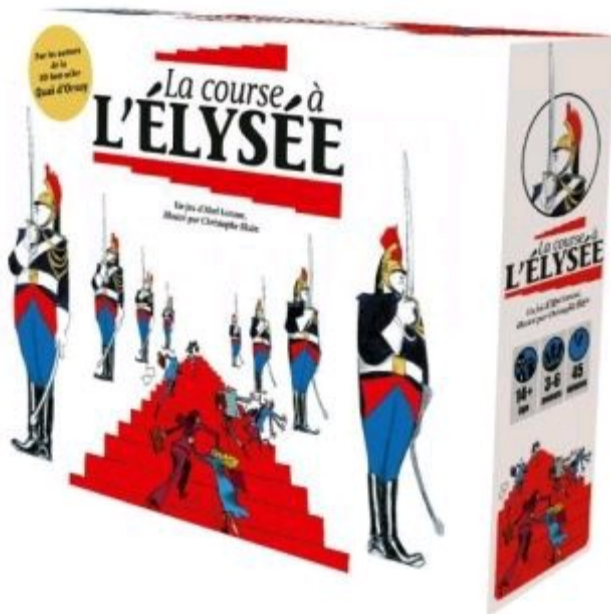


Figure 2: La course à l'Élysée © Abel Lanzac and Christophe Blain

At the end of his endeavor of getting a handle of what defines the term game, Schell offers the following list:

1. Fun is pleasure with surprises.
2. Play is manipulation that satisfies curiosity.
3. A toy is an object you play with.
4. A good toy is an object that is fun to play with.
5. A game is a problem-solving activity, approached with a playful attitude.

James P. Carse, Professor Emeritus of History and Literature of Religion at New York University, brought up some other important characteristics of games in his philosophical book *Finite and Infinite Games*[\[xvii\]](#).

First, games must have players. Second, those players must choose freely to play. Whoever must play, cannot play. Third, games have a space where they take place. This can be a soccer field, a chessboard, or an online virtual world, to name a few examples. Fourth, games must have rules. Players need to accept the rules, when they enter the game space. Fifth, games can be finite and infinite.

The fifth characteristic opens the path to two distinct other sets of rules and boundaries:

If it's a finite game, the goal is to have a winner. There is a winning condition that the players have to agree to. If players cannot agree on a winner, the game has not come to a decisive conclusion. It also does not matter, if the spectators or audience disagree. If the players decided on a winner, but not the referee, the players won't be "truly playing" if they have to return to the field to continue playing, when they are convinced that the game is over. There is only one person or team that can win, but other contestants may be ranked.

Since a finite game ends, it must have a precise beginning. And in addition it must have specific players.

[T]he date, place, and membership of each finite game are externally defined.

Infinite games have few similarities to finite games. In fact, Carse says that they "stand in the sharpest possible contrast." To begin with, infinite players cannot say when their game started. An infinite game's goal is not to have an ending. While it has rules like a finite game, the rules are not fixed. Occasionally rules must be changed in order to avoid having the game end. Because we do not know the beginning and it has no end, players can enter and leave the game. There are also no spatial boundaries to infinite games.

Finite players play within boundaries; infinite players play with boundaries.

Caillos[\[xviii\]](#) sees games as being on the opposite spectrum of *paidia* (see the chapter Game on page 13), which he terms as *ludus*, defining them as:

[S]tructured activities with explicit rules (games).

Ludus, or gaming, therefore, captures playing structured by rules and competitive strife toward goals. [\[xix\]](#)

Serious Game

A serious game is a game designed for a primary purpose other than entertainment.

Wikipedia

What would be the primary purpose of a serious game? Solve a problem? Master a challenge? Learn and practice something? Measure the player? Probably. But why does this definition explicitly mention entertainment in a way that makes entertainment and fun look like unwanted frivolities?

“I have no time for fun; I have serious work to do.” That reaction, from one of my former German colleagues, explains it. Work and fun are incompatible. Work is not supposed to be fun. But then comes game designer and theorist Raph Koster: “Fun is just another word for learning.”

From what we have learned so far the definition for serious games and the name itself seem to be problematic. Because Jesse Schell defined that “a game is a problem-solving activity, approached with a playful attitude. The term *playful attitude* always indicates entertainment. And what would be a game if it were not a “problem-solving activity?” Right, it would be *play* or something else, but it would not be a game anymore.

Still, a problem-solving activity is not a guarantee that it is an entertaining activity. You can call it game, but it still will be boring and not be entertaining, if done wrong. So is a serious game an alternative term for a *bad game*? An easy excuse for not having to think during the design what constitutes fun?

Using the term “serious game” is an oxymoron. Game itself intrinsically means fun. Serious game would make as much sense as defining the primary purpose of a recreational vehicle not to be a vehicle, but a living space, when in fact it is both at the same time. But there are reasons why people call it “serious game:” namely to highlight that there is a serious background behind this game, such as training

firefighters, and to make decision-makers more comfortable with using it. A marketing trick.

What distinguishes a serious game from a non-serious game is an indirect “real-world” outcome. As mentioned, *Grand Theft Auto* doesn’t make you a better driver, or *SimCity* a better city planner. Those games were not built to accurately replicate reality. They were designed to provide entertainment.

Entertainment software teaches you to play a game.

Serious games on the other hand, try to emulate reality.

Serious games teach you a skill, task performance, or cognitive decision-making related to real world requirements.

From that understanding a better definition for a *serious game* could be:

A serious game is a problem-solving activity built on a model of, and indirectly connected to, reality, approached with a playful attitude.

There is one important distinction to make: a serious game has an *indirect* real-world outcome. Playing a serious game does not affect the world during the game, but it does when players move from the magical circle of the serious game back to the real world and apply their practice there.

Game designer Ian Bogost^[xx] makes the case that such games just seem instrumental or opportunistic in their intentions and do not really aim at being games. He concludes that maybe we don't want so much serious games, but rather *earnest* games.



Figure 3: Firefighter Training: The REVAS Process © 3D Serious Games And Simulations

The serious games and simulations from 3D Serious games & Simulations^[xxi] are good examples. Tailored to train firefighters, nurses, and other professions, players go through typical scenarios that they later will very likely encounter at their real world

workplaces.

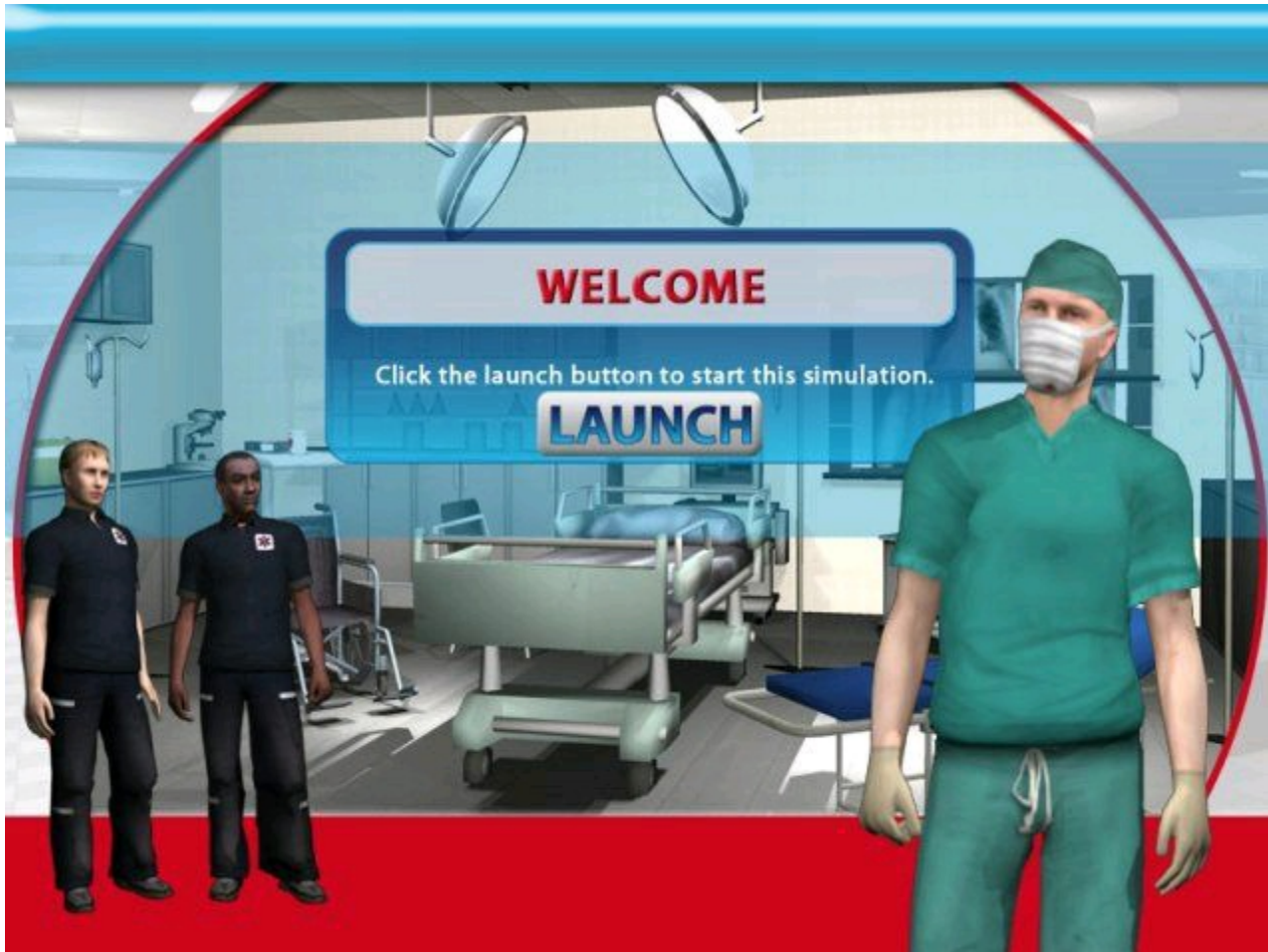


Figure 4: Nurse Training: Trauma Unit © 3D Serious Games And Simulations

Which brings us from serious game to simulation.

Simulation

A simulation is something that is made to look, feel, or behave like something else especially so that it can be studied or used to train people.

Merriam Webster

Simulations are often referred to in the game space, but are they games? Not necessarily. While all the characteristics of a serious game can be applied, many of them miss play. Simulations have been used for pilot training in flight simulators, military simulations, weather predictions, banking stress tests, and science.

Is entertainment a required ingredient of a simulation? In most cases entertainment is not intended.

Simulation models sometimes predict surprisingly realistically scenarios that the

model creators were not aware at the beginning. Here is the report from the Millennium Challenge 2002, a simulation^[xxii] conducted by American military officers, in which the retired US Marine Corps General Paul K. Van Riper played the opposing force commanders and sank a whole carrier battle group.

In that war game, the Blue Team navy, representing the United States, lost 16 major warships — an aircraft carrier, cruisers and amphibious vessels — when they were sunk to the bottom of the Persian Gulf in an attack that included swarming tactics by enemy speedboats.

“The sheer numbers involved overloaded their ability, both mentally and electronically, to handle the attack,” said Lt. Gen. Paul K. Van Riper, a retired Marine Corps officer who served in the war game as commander of a Red Team force representing an unnamed Persian Gulf military. “The whole thing was over in 5, maybe 10 minutes.” ...

In the simulation, General Van Riper sent wave after wave of relatively inexpensive speedboats to charge at the costlier, more advanced fleet approaching the Persian Gulf. His force of small boats attacked with machine guns and rockets, reinforced with missiles launched from land and air. Some of the small boats were loaded with explosives to detonate alongside American warships in suicide attacks. That core tactic of swarming played out in real life last weekend, though on a much more limited scale and without any shots fired. ...

In the war game, scores of adversary speedboats and larger naval vessels had been shadowing and hectoring the Blue Team fleet for days. The Blue Team defenses also faced cruise missiles fired simultaneously from land and from warplanes, as well as the swarm of speedboats firing heavy machine guns and rockets — and pulling alongside to detonate explosives on board.

When the Red Team sank much of the Blue navy despite the Blue navy’s firing of guns and missiles, it illustrated a cheap way to beat a very expensive fleet. After the Blue force was sunk, the game was ordered to begin again, with the Blue Team eventually declared the victor.

That report tells us a couple of things: General Van Riper definitely had fun. Not so much the Blue Team, which was sunk in the original game (before the game masters “fixed” the game and declared the Red team winners against all evidence). And there is a lot to learn from that simulation. Van Riper’s point was made six years later, when this simulation scenario unfolded in real life in the Gulf of Persia, although in a smaller scale and with the speedboats loosing.

But why would the military call this a *war game* and not a *war simulation*? Because the military is one of the oldest gamified institutions. To train soldiers, simulate war, and keep track of their success, militaries have been using game mechanics for millennia^[xxiii]. From the insignia in the Roman army, to modern warfare with leaderboards counting planes shot down, vessels sunk, or tanks destroyed (see Figure 5); and not to forget the medals and stripes signifying the players' - pardon me - warriors' ranks.



Figure 5: "Leaderboard" on the decommissioned aircraft carrier USS Hornet © Mario Herger

What makes simulations so interesting elsewhere is that they tend to crossover from an *out-of-system* to an *in-system* experience. While serious games are built as separate systems, not interacting with or built on the system that the player will later perform in the real-world, simulations sometimes are either built into the real-world system or emulate it to the smallest detail. Flight simulators for commercial pilots are built with the real parts used in cockpits and built on hydraulic stilts. Or in some cases the simulation is played in real-world systems. The 1983 movie *War Games* tells the story of a teenage boy who unknowingly hacks into the military's central computer and

initiates a war simulation that then tries to start a real war, mixing up reality and game. A simulation like *ERPsim*TM from the Canadian business simulation company *Baton Simulation*[\[xxiv\]](#) is built on a real SAP enterprise resource planning system with data and a pretend scenario to be played on the very system that the players will use later for their work.

Which brings us to gamification.

Gamification

Gamification is a process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation.

Kai Huotari, Juho Hamari

Gamification was coined as a term only a few years ago. In August 2010, when I began to investigate what business applications can learn from video games, the term *gamification* popped up in the search results. Back then there were less than 500 results for *gamification*. Now the count is in the millions.

User experience designer and researcher Sebastian Deterding[\[xxv\]](#) defines gamification as

... the use of game design elements in non-game context.

Building on that, many in the field enhanced the definition as follows:

Gamification is the use of game-thinking and game mechanics in non-game contexts in order to engage users and solve problems.

Considering James P. Carse excursus about finite and infinite games, we can see that there are and should be no *non-game contexts*. In the end, everything is a game. *Game mechanics*, as we will learn later, do not create games - or more precisely - a gameful or playful experience. *Game-thinking* according to Kevin Werbach and Dan Hunter[\[xxvi\]](#) is a

..mind-set required to deploy fun in a considered and directed way ... [T]o be effective at gamification, you need to think a little like a game designer.

Two Finnish computer scientists, Kai Huotari and Juho Hamari[\[xxvii\]](#), propose a definition that I consider the most comprehensive definition of gamification. But the authors limit the definition to a service marketing perspective with a customer as a player in mind.

Gamification is a process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation.

Game design elements are described as service, and the game itself as service system. A service according to the Marketing researchers Vargo and Lusch[\[xxviii\]](#) is *the application of specialized competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself.*

Bundling systems creates a system service, which according to the IBM Almaden Research Center researchers Spohrer and Maglio[xxix] *is an arrangement of resources (including, people, technology, information, etc.) connected to other systems by value propositions.*

Beside the notion that a gamification approach shall aim to lead to *gameful experiences*, the most interesting part of Huotari's and Hamari's definition is *support user's overall value creation*. While other definitions mention the more specific goals *to engage users and solve problems*, this definition keeps the goals vague as *overall value*.

As much as gamification designers strive to deliver a gameful experience, Deterding[xxx] says that in the end players decide, if it's just a regular application for them and they remain a user, or if they enter a playful mode and become a player. Deterding calls that *game-frame boundaries*.

Of course, the boundary between “game” and “artifact with game elements” can often be blurry – is Foursquare a game or a “gamified” application? To complicate matters, this boundary is empirical, subjective and social: Whether you and your friends ‘play’ or ‘use’ Foursquare depends on your (negotiated) focus, perceptions and enactments. The addition of one informal rule or shared goal by a group of users may turn a ‘merely’ “gamified” application into a ‘full’ game.

A gamification designer can lower the barrier for reaching a gameful experience and add value, but ultimately it's up to the players to decide if they want to enter a playful state.

Enterprise Gamification

Gamification practitioners may not be caring as much as academics with finding the best definitions. After all, as long as any of those gameful approaches help to solve problems, engage the players, and add value we use them. This is why the following overarching definition for enterprise gamification is aimed at gamification practitioners.

Enterprise Gamification is an empathy-based process of introducing, transforming and operating a service system with affordances for gameful experiences to support players' overall value creation for indirectly supporting an entity's overall value creation.

Or in a lighter, easier digestible version:

Enterprise Gamification empathizes with people by adding gameful experiences to work and life, helping them to fulfill their interests and motivations for the benefit of all involved parties.

Let's take a step-by-step approach to understand how I arrived to this definition as a gamification practitioner.

Defining the Criteria

Gamification does not have the luxury of creating an independent game dynamic. In the end gamification has to adhere to the logic and dynamic of the underlying business process. We are not starting from an empty space. We most often *bolt* gamification onto a system. We feel lucky when we can *bend* the system. We very rarely can *build from scratch*. These are the limitations that we work with and that guide us.

Enterprise

In the context of this book, enterprise is not limited to a for-profit corporation. *Enterprise* means any entity, from a corporation, association, non-profit, school, community, family, and society. In other words: any organization that is formed to reach goals that an individual could not achieve alone and where collaboration or cooperation – in opposite to competition - is required. Any individual interacting with the organization, from employees, third-party employees (like vendors or contractors), customers, public, community or society members, is a potential player.

Player

Gamification design can make it easier for the user to enter into a playful mode and thus become a player. The gamification designer's aim should be to get as many users into a playful stage. I recommend gamification designers use the term *player*, and not *user*, *employee*, *customer*, or other terms. With this priming gamification designers will always have enjoyment or even fun in mind.

The enterprise context means that gamification in nearly all cases requires multiple players. A gamified enterprise system cannot be played alone. *Player* in that sense does not restrict to an embodiment of a real person, or teams composed of humans. Computer-controlled players fit this definition as well.

Empathy

Design Thinking and other new methodologies have introduced the concept of empathy to innovation. Empathizing with a player's struggles with a product or service has become the core of creating better products and services.

Because understanding the motivations of players is a crucial part of making gamification successful, gamification designers must apply an empathic approach. Gamification designs that overtly focus on punishing the players for unwanted behaviors or ignore player dimensions and pit players against each other, do not so much try to understand the players and their motivations, but focus only on what

management wants. This is a surefire way to fail with a gamification approach. Not trying to understand the motivations of players is disrespectful to the players and will not create a gameful experience that creates value; neither for the players, nor for the entity.

There is a reason why I am passionate about empathy. I keep seeing gamification designs that focus on punishing the players, such as room maids. If they are not fast enough cleaning the rooms, they are punished. If they are not diligent enough with cleaning, they are punished. If their breaks take too long, they are punished. Instead of supporting the maids and giving them feedback how to improve, and enable forming relationships between them, the design reveals a negative attitude of management towards their employees. Showing empathy sometimes requires a change in management thinking.

Collaboration

Because we are playing, we never play alone. We can play against other players or other entities, we can play beside them without any interaction, or we can play together as an entity. When talking about games and gamification, the most common reaction is that this is all about competition. “People can compete against each other and win something!”

While competition is undeniably a very important factor in many games, those games often have a surprising large amount of social elements in them. Poker is not just competitive, players need to be socially savvy, they need to be able to read and interpret their opponents. Every team sport is first and foremost about players in a team collaborating. Only when they are able to collaborate, they can start competing against other teams. And as we will learn later in this book, players prefer social over competitive games. As Jane McGonigal mentioned at the 2011 *Gamification Summit*, cooperative games out-ratio in popularity competitive games by a factor of 3:1 [\[xxxix\]](#).

Which leads us to the enterprise. We form such entities because together we can achieve more than as individuals. The first and foremost characteristic of players in an enterprise is to collaborate. Nobody can or wants to compete forever and all the time. As we will learn later, only a small minority of players is predominantly competitive. Even those groups of people that are stereotypically seen as overly competitive (like sales representatives) turn out to have a much larger collaborative than competitive component. After all, they rely heavily on others. They sell a product that others built, they use information that others prepared for them, and they use their social networks to find new accounts.

While the occasional friendly contest is OK, enterprise gamification must encourage

collaborative behavior. Collaboration is a distinguishing attribute of enterprise gamification.

Simultaneity

There is no requirement that all players play at the same time. It could be that they play at the same moment, but often players and their entities played some time ago, which could even extend to situations where players participated many years ago and stopped at the time when their achievements, or more precisely their titles, are being challenged, like the competition for beating a certain world-record. The other player may even be the same player, just meaning it's the past play from a week ago, like can I beat my personal best? Or can the company make more profit than last quarter?

Value Creation

Value creation is a key aspect of enterprise gamification. Traditionally, with the start of the industrial age, mechanization and division of labor have made us more efficient in production and value creation. Western societies have certainly profited from the industrial age.

But in the later part of the 20th Century we have seen some of the progress from the traditional industrial age style production stalling, and the growth rates declining. While a shoemaker was involved in the whole process of manufacturing a shoe, from talking to the customer, measuring the foot, buying the leather and the wood, preparing the materials, cutting them, nailing and gluing them to finally handing over the finished product, labor division required many people to see only few of these steps. Many people working in such production chains feel detached from the overall process and lose sight of the meaning of their work.

The information age that we all live in created new, additional value by removing the industrial age's limitation of physical proximity. Nowadays teams located across continents can achieve high levels of productivity. But as we've learned, other problems become more prominent. People actually care about physical proximity, or at least having met others in person. The information age as well sees certain limits.

The type of value creation that has driven growth in the past starts doing less so in today's world. As the industrial age has seen a shift from agrarian societies to machine labor, we now see a shift from routine work to services and creative work. And you can't be creative if you are unaware of the whole picture. And you can't be creative only from nine to five. And you can't be creative without collaboration. And you can't be creative without certain freedom and information. And you can't be creative when you don't care about the problem.

That leads us to the single most disrupting and defining element of good gamification: we need to know what people care about and how we can use that to help them be creative and do good work. We are entering the Gamification Age.

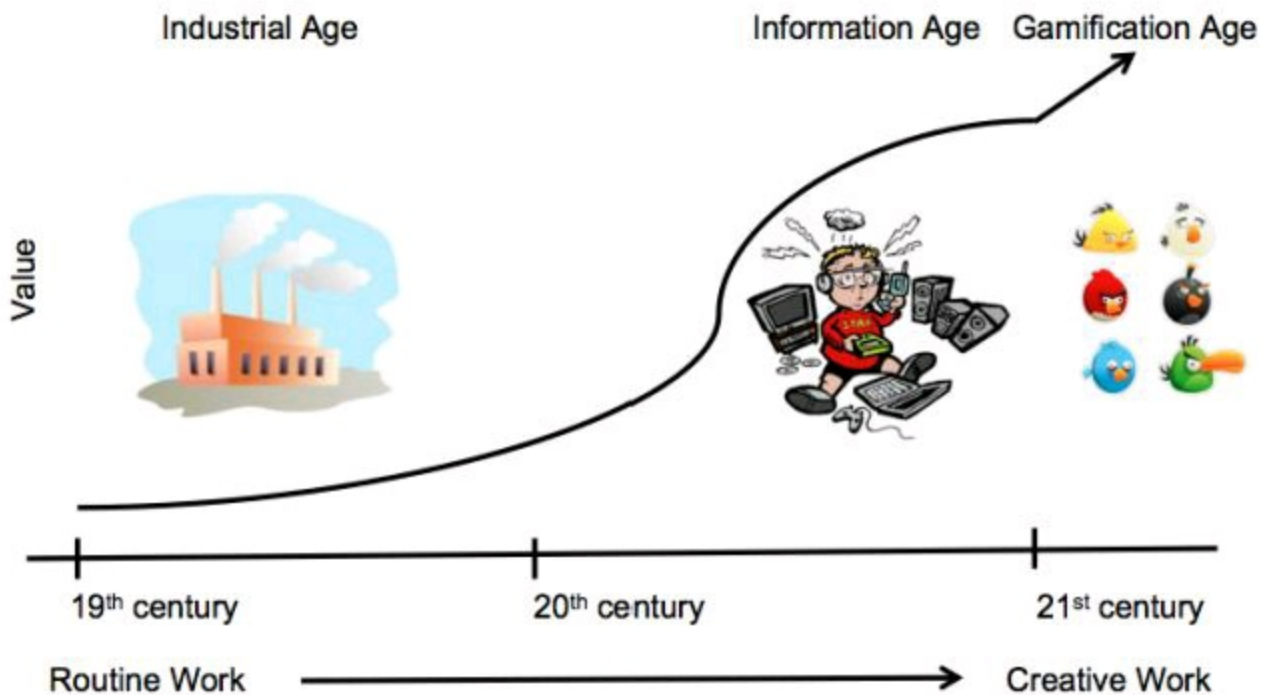


Figure 6: Value Creation

Unlike the non-gamification approaches that have been focusing on value creation for the organization, gamification centers on value creation for the players. This doesn't mean we don't need to create value for the organization. It is as important as before, but the way to reach this is through value creation for the players first. We move to a *player-centered design* [xxxii], which is richer than the traditional user experience approach of *user-centered design* (which itself was a quantum leap from the times where only the problem mattered, but never the user).

Ultimately the players decide if value is created. It becomes crucial for gamification designers to support the players' overall value creation in order to support the organization's overall value creation. But, as in a sales funnel where not all leads are turned into sales, the player's value creation does not automatically translate into an organization's value creation. Uploading family pictures in the corporate collaboration tool may create value for the player, but be regarded by the organization as a distraction. On the other hand, the value creation for an organization may be larger than the value for an individual player (represented as dotted curves in Figure 7).

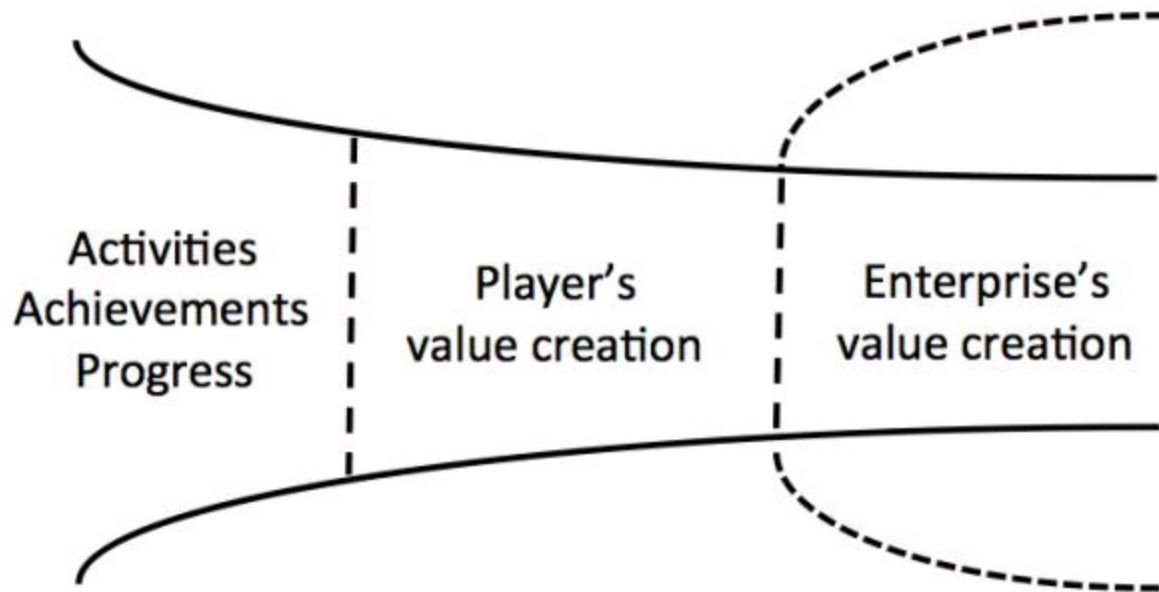


Figure 7: Gamification funnel for value creation

The last centuries have seen a tremendous value creation (and to some extent also destruction) through the processes that were introduced with the dawn of the industrial age. Gamification was not invented because there had been no value creation in the past, but rather the value added with traditional, industrial age concepts has flattened. Negative effects have become more prominent or even outdone any gains. Whenever we reach such a stage we need to introduce new concepts. Gamification is such a concept.

From this perspective, enterprise gamification is not just a singular approach to create value, but a strategic one. A gamified marketing campaign would be one building block in the whole gamification strategy that needs to fit into an entity's overall value creation. In the end, we aim at building a house, not just a brick.

Longevity

Enterprise gamification must ensure that both long and short-term gameful experiences serve long-term value creation for both players and organizations. We know already that players in finite games try everything to end the game by reaching the winning condition. Finite games played again and again have the tendency to create disequilibrium in the players' skills. Master players will know the game so well that they can predict moves and the element of surprise is lost.

But surprise is a crucial element in most finite games. If we are not prepared to meet each of the possible moves of an opponent, our chances of losing are most

certainly increased. It is therefore by surprising our opponent that we are most likely to win. The master player who already knows what moves are to be made has a decisive advantage over the unprepared player who does not yet know what moves will be made.

Infinite players continue their play in the expectation of being surprised. If surprise is no longer possible, all play ceases. To make gamification successful over long-term we need to keep players engaged by surprising them.

Finite games can be part of an infinite game, while an infinite game cannot be part of a finite game.

To be prepared against surprise is to be trained. To be prepared for surprise is to be educated. Education discovers an increasing richness in the past, because it sees what is unfinished there. Training regards the past as finished and the future as to be finished. Education leads toward a continuing self-discovery; training leads toward a final self-definition. Training repeats a completed past in the future. Education continues an unfinished past into the future.

If gamification designers use finite games, they must make sure that a) the player's goal is not to end the game, but to end the game in order to start another finite game, and b) that the finite game is embedded in an infinite game.

Autonomy and Freedom

Such a holistic view of gamification in the enterprise will lead to larger disruption. Successful players alter the equilibrium of how power and influence in an organization is assigned. After all, these players show their skills, achievements, and progress in an accountable way. The data is in the gamified system. The power to decide who's leading the organization at any time is handed to the individual players depending on their current achievements.

This would mean that past winners are no longer warranted ceremonial recognition of their titles and are therefore without power – like Russian princes after the Revolution.

With infinite games - which we strive to achieve for enterprise gamification - rules must change over time. This also means that players in enterprise gamification will encounter more freedom and autonomy. Although every organization exerts power, the fact that it can exert power is not without the implicit agreement of the players. Of course there will be consequences in resisting the power that can be more or less severe. When you walk away from a job, the company cannot exert power over you anymore, but you may be without a job and paycheck. Or you may accept to live in a

suppressive system, unless you (together with other players) overthrow the current rulers (as we have recently seen in the Middle East).

We also must distinguish between situational voluntarism and autonomy. I may not like to learn, or perform a specific task, but I know that as my overall goal to get a good grade or become certified I need to do it. A nun in a monastery may not like sweeping the floor for two hours, but it was her autonomous decision to join the abbey. Therefore enterprise gamification does not affect players' freedom or autonomy to choose to play or not.

In a very recent study from the University of Pennsylvania [\[xxxiii\]](#), the researchers found that a crucial element to the success of gamification was the consent of the players. In their experiment at a company that offers their clients coupons for products and services, several hundred sales people were split into three groups: one was assigned to the basketball-themed game condition, the second to the baseline control condition or business-as-usual, and the third group was exposed to large-screen scoreboards.

The game group received daily updates with game graphics. The second group received the same information on a daily base, but without the game theme, and the third group had just the setup as usual. The researchers asked the participants about their excitement, enthusiasm, and energy level. The researchers also measured the "consent to the game" within the game group.

While the researchers couldn't find a direct link between increased performance and gamification with consent, they found indications that

"...games, when consented to, increase positive affect at work, but, when consent is lacking, decrease positive affect and performance."

One more interesting outcome was that sales people who had stated that they play multiplayer games outside of work consented significantly more to gamification at work. According to the researchers, consent to gamification is directly related to familiarity with games.

System

We've learned already about services and service systems. In these definitions of gamification, a term like "non-game context" was often included to distinguish gamification from games.

Non-game context can be interpreted as using in a context that we do not normally relate with a game. But what does that mean? There are games that allow you to build

a city, lead wars, run restaurants, direct airplanes at an airport, drive a tractor, fly spaceships to other planets for trading goods, and so on. Practically every context that we know can be used as narrative for a game. So it cannot mean that a topic is not fit for games. We can be certain that every thinkable topic has already been used for a game-context.

Or do we interpret non-game context as taking something that is not a game and making it more game-like? Consider an accounts payable or a tax-filing application that probably count as the most boring activities one can imagine (unless of course your passion really lies in accounting and tax laws).

This latter angle seems to point at a more likely interpretation of what is meant with a “non-game context”: building a game-context into a service system that originally was not designed for gameful experiences. Or as I would say: *in-system characteristic*.

Regarding the characteristics of enterprise gamification, limiting the definition to an in-system experience only would seem wrong. After all, simulations and serious games match all of the characteristics listed for enterprise gamification. With the only exception of the system: they are typically what I would call “out-system”. The firefighter and nurse training examples in Figure 3 and Figure 4 are not embedded in any live-system that firefighters or nurses would use while heading to an emergency. But they still create significant value.

Game and non-game logic

While games are built for the primary purpose of entertainment, and game logic is designed to support this purpose in the best way, serious games and gamification play with the logic of the original process, such as creating a customer account or recording work hours. The game logic is second to the non-game logic. Gamification and game researcher Razvan Rughnis said that the distinction between *gamification* and *serious games* depends indeed on context:

Gamification sticks to the argumentative logic of the non-game activity, with little room for "artistic license", should any debate arise. Participants in gamified systems are ultimately accountable to the logic of the non-game, serious activity that they are pursuing; they cannot invoke, as a reason, the gaming vocabulary ("that's the rule of the game", "we are just playing a game").

Game logic may be the reason for the negative reception of the gamification approach of the Israel Defense Forces' blog. While the blog had been already gamified since June 2012 (see Figure 8), the sudden outbreak of a new round in the Israeli-Palestinian

conflict with the operation *Pillar of Cloud* in November of the same year drew the attention of the gamification community. Many gamification bloggers saw this as an ill-conceived use of gamification.

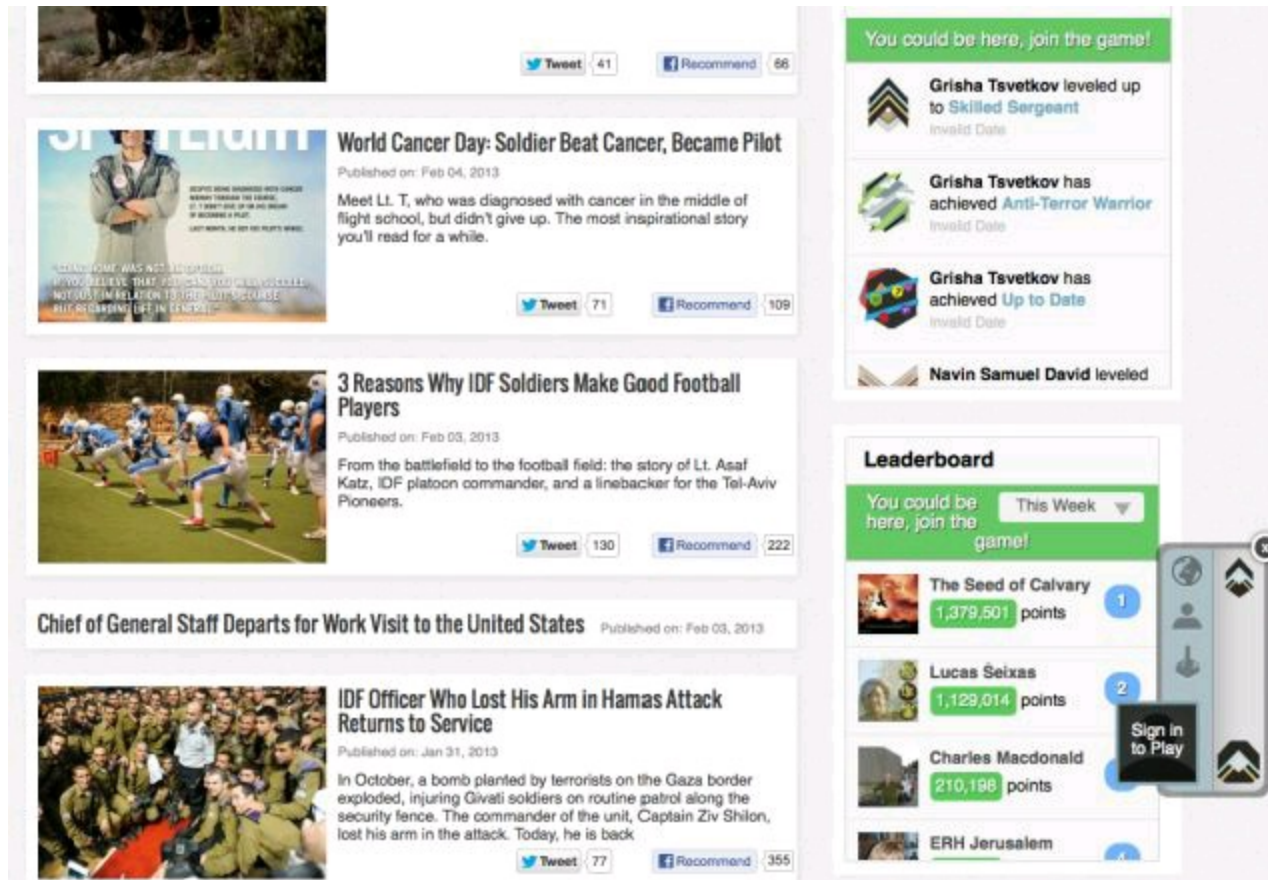


Figure 8: Gamified Blog of the Israel Defense Forces

This reaction showed, according to Deterding, that the thinking of the gamification design community towards this approach highlights that

*... the frivolity of games ("light game elements," that is) ought not to be mixed with the seriousness of war, presumably *because* in their gamified social media activity, the users/players engage in actions that have a direct bearing for the "logic of the non-game". Whereas a ... serious game like "Global Conflicts: Palestine" is *lauded* for its depiction of the conflict, even though players are put into the shoes of the leader of one side and may engage directly (but in-game) in the kind of military activity that in the IGF leaderboard you only very indirectly (but out-of-game) participate by tweeting, blogging, facebooking things about the IGF.*

Result

Based on all the above factors and considerations, *Enterprise Gamification* results in

a definition that can be seen as an umbrella term including a variety of gameful approaches such as serious games, certain types of simulations, and gamification. All of them represent tools that gamification designers have at their disposition. Comparing all definitions, we can create this matrix (Figure 9):

| | Play | Game | Serious | Simulation | Gamification | Enterprise |
|------------------------|------|------|---------|------------|--------------|------------|
| Spontaneous | ✓ | ✗ | ✗ | ✗ | ✗/✓ | ✗ |
| Rules | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Goals | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Structured | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Real World Outcome | ✗ | ✗ | ✗/✓ | ✗/✓ | ✓ | ✓ |
| In-System (writ-large) | ✗ | ✗ | ✗ | ✗/✓ | ✓ | ✓ |

Figure 9: Matrix

Which also explains why I classify serious games and simulations as subcategories of Enterprise Gamification (Figure 10).

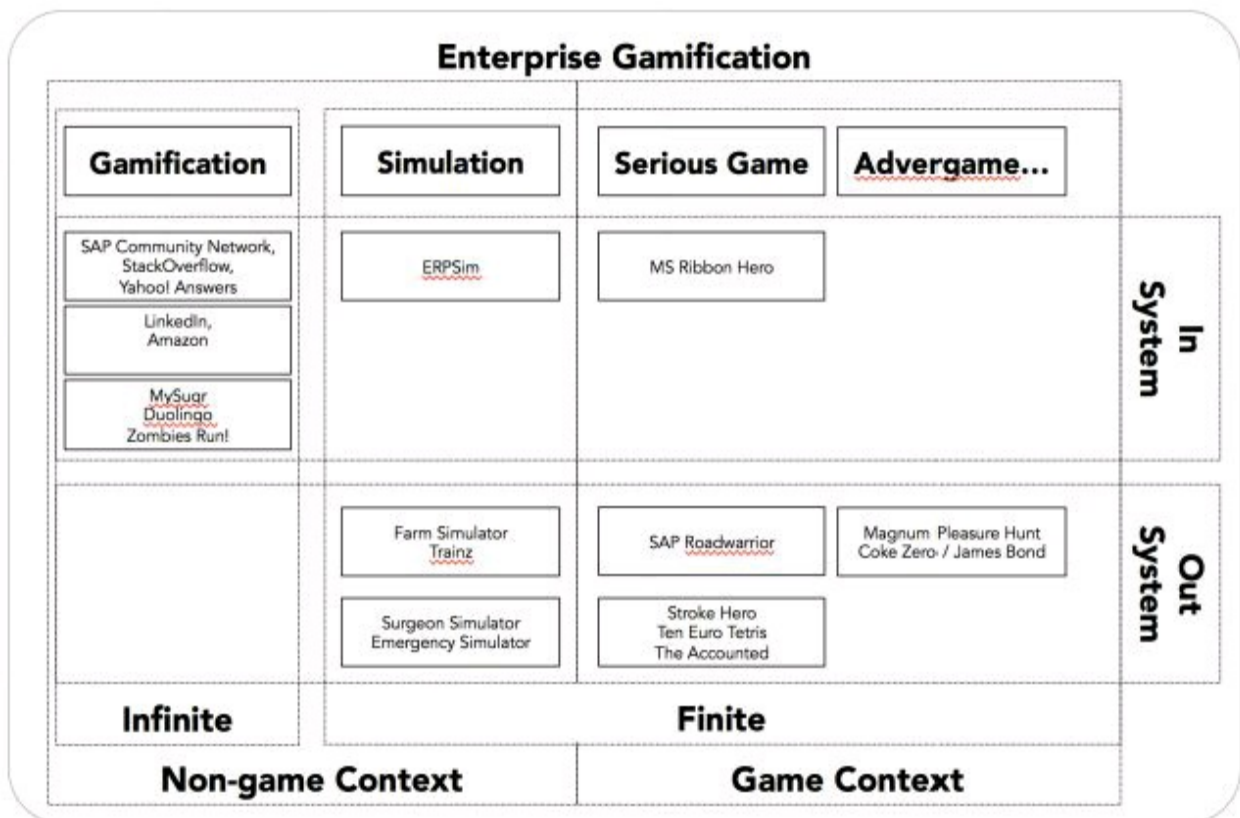


Figure 10: The big picture of Enterprise Gamification

Like Michelangelo who believed that the David was already incarnate in a piece of rock and he just had to chisel away the superfluous pieces of rock, gamification designers believe that work already incarnates games, but that they are hidden and that they can be uncovered.

Gamification is the way you can uncover the game within work.

Not so different to what Mary Poppins said to the children:

In every job that must be done, there is an element of fun.

My personal short favorite description is this one:

Gamification makes work more fun.

Some More Design Principles

Personally, I strive that each of the gamification projects that I work on triggers at least one of three reactions in players:

- Aaah-effect
- Aha-effect
- Haha-effect

The *Aaah-effect* is one that you experience when you see something beautiful, like a firework, or a nice piece of art. That's when you are standing with big eyes and a big open smile and indulge in the beauty of the moment. Putting a mental image behind that I remember the movie about a talented shepherding pig named *Babe*. At one night fireworks pop up over the farm and the sheep, dogs, and other animals are all looking upwards and aaaahing and oooohing.

The *Aha-effect* is the one when you experience a moment of clarity, when you suddenly realize what the solution to the problem is, or when you understand the mechanic or logic of something. The movie-scene that comes immediately to my mind is when Peter Seller's character of Inspector Clouseau is going through the evidence and interrogating the house domestics and finding a putative clue or a motive of the killer (who's still at large). In that movie-series the Aha often turns into an *Ouch*, mostly yelped by someone in the vicinity of the infamous Inspector whom he just hit with some seemingly innocuous device that somehow got stuck on one of Clouseau's limbs and now wreaks havoc during his very physical analysis.

The *Haha-effect* finally is the one when you experience a hilarious moment. Like the moment when you are with two friends, and one tells a joke. At the punch line you

laugh. And you laugh again, when it turns out that the other friend did not get it. That's when both the joke-teller and you can laugh. And that's the reason why you need three people for a joke.

Roles

Throughout the book we will mention different roles. Here are a couple of definitions of gamification roles as I will be using them in this book.

Game Designer

A game designer is a person who designs and creates a game. A game can be a video, social, board, sports, card game and whatever game type you can think of. The main focus of a game designer is to create a fun game for the player.

Gamification Designer

A gamification designer is a person who creates the design for a gamified system. This person must understand the problem, the players, what motivates them, which technologies to include, and what incentives and rewards to be used.

Player

A player is a person who plays the game or interacts with the gamified system. There is a very good reason why the term *player* should be preferred: it keeps a gamification designer focused on what are the fun-elements for a player.

Gamification Master

A gamification master is a person operating a gamified system, as well as monitoring and interacting with the player community. The tasks include running the gamified system smoothly, enforcing rules, discovering cheating and unintended consequences, creating missions and challenges, handling disputes, giving feedback, amongst many others. Their task-profile is comparable to game masters and community managers.

Gamification History

While we have already learned about the wide spread use of play and games, and that James P. Carse made the case to regard life as play, the first person to combine work and games into a more profound concept was Charles Coonradt. In 1973 the organization *Game of Work* was founded to study why productivity in the US declined, while sports became ever more popular. Teamwork and goal-directed activities are similar for work and games, but something appeared to be different for work. As a result, Coonradt published in 1984 his book “The Game of Work,” where he identified five key principles:

1. Clearly defined goals
2. Better scorekeeping and scorecards
3. More frequent feedback
4. A higher degree of personal choice of methods
5. Consistent coaching

But who coined the term “gamification” and when did the term start to gain traction? The first coining of the term is credited to the computer programmer Nick Pelling. His intention was this, according to an interview[\[xxxiv\]](#):

With the term I meant “apply game-like accelerated user interface design to make electronic transactions more enjoyable and faster.”

While back in 2002 the term did not really catch on, Rajat Paharia, co-founder of *Bunchball*, recounted how the term finally started to be used, first occasionally, and then much more frequently:

If people had only listened to me in 2007, we'd be calling this field "web catalytics."[\[xxxv\]](#) But sadly, nobody did. When we first started doing gamification, we were transitioning from being a social gaming company[\[xxxvi\]](#).

So people knew us as a game company, and we were trying to get them to stop thinking that. So we tried everything we could not to make "game" a central part of our message. We used "driving behavior", "the science of engagement", "web catalytics", etc. After a couple of years of everybody raising an eyebrow and going "WTF" whenever we'd try to explain what we do, we decided that it had been long enough and started using "game mechanics" and then in 2009, started using gamification[\[xxxvii\]](#).

Gabe Zichermann started using it too, and that's the term that finally took off. Honestly, I could've cared less what the name of the field was, I was just happy that it finally had a name, and that people understood what it meant. Now that there are books, conferences, analysts, and Google Groups, we don't really have much of a choice. You'll see some companies trying to reframe the industry and create new categories with their "behavior platforms" or other things, but they're swimming upstream. Creating new categories is hard. It took three years to establish gamification, and even then it was a convergence of companies and people, we could never have done it on our own.

And I'll tell you from direct experience, that we can't always use "gamification" when we're selling. Serious senior managers don't always like it. We use the other terms that I mentioned in the article. It's a double-edged sword.

Finally, our thinking and messaging has evolved over time, as we've built, learned, and experienced first-hand how all this stuff works (or doesn't). If I knew then what I know now...

Gamification Areas

With my background as an engineer and a developer, the first thing I had in mind when I began investigating videogames for business purposes was how we could bring the great user-experience of games into the business application world. I quickly recognized that the professionals who were joining my community came from at least seven different areas.

Developers who just wanted to improve the user-experience for their applications. Community managers, such as the ones running the SAP Community Network, who wanted to engage community members more and have them blog and post more. Colleagues from the training department, who wanted to make learning more interesting and fun. My colleagues from HR, who were aiming at onboarding new employees faster and have employees follow compliance training and learn some facts about the company and benefits and take charge of their careers. The folks from Marketing and Branding, who had already some exposure to gamification with several playful campaigns that they had done in the past. And finally people, who were interested in how to make events more fun.

The Gamification Tipping Point

In August 2010 I launched an SAP internal community around gamification, trying to understand how game mechanics and game design principles can be applied to something as serious as business applications. The first months it was more conceptual research with an unclear outcome. A Google search in August 2010 returned only 400 to 500 results. Then came the first *Gamification Summit*[\[xxxviii\]](#) in January 2011, organized by Gabe Zichermann, and since then the topic shot through the roof. Over three million search results barely 18 months later.

For the whole of 2011 I fought the skeptics. "We are doing serious business, we don't have time for fun at work", was a common argument against gamification. "We are just losing time by creating a game out of business applications." But more and more colleagues joined the SAP internal gamification and began to understand the details of gamification.

And two events, the *SAP Gamification Cup*[\[xxxix\]](#), and the *InnoJam*-coding competition tipped the public enterprise opinion. The 25 examples created in both events, together with the more than 40 other gamified business examples from other areas at SAP, demonstrated the positive impact that gamification can have on the interaction of users with enterprise software.

I had noticed a significant change in the requests that I got from colleagues, partners and customers. They were no longer, "Tell us what gamification is", but "How can we gamify this app?" This had turned from "that thing that this crazy Mario drives" to "I always told you it's good."

The gamification requests do not come from the "usual suspects" like Marketing or Training, who have been pushing and adopting this topic in the past. Both customers and colleagues from seemingly conservative areas like Banking, Change Management, Utility, CRM, or Oil and Gas approached me with B2B scenarios that they want to gamify. Now that's a change, and a challenge. The tipping point for gamification has been reached.

Where Work and Game are Similar

I've always been more on the side of feeling the urge to mock people who give the feeling of overly self-importance. Not least through a satiric magazine and blogs[\[x1\]](#). And this was also always my problem in the corporate world. The business was way too important and taken too serious to understand employees and their motivation. The solution to this was based on monetary rewards and corporate perks. Somehow there was something missing. Whenever I had fun at work, I knew that the results would be excellent. Whenever I felt down with my tasks, I was not doing a good job.

But only in past months I have really started to understand how this could be explained. And a lot has to do with gamification and games. A closer look at a selection of elements of what games and work are doing and trying to achieve brings some astonishing insights. There is no denial that there are more similarities between games and work than we might be comfortable to admit.

British psychologist Michael Apter claims that we seek low arousal in normal goal-directed activities, such as work, but high arousal, and hence challenge and danger, in activities performed for their own sake, such as games. Let's have a look at the differences and similarities between games and work.

| | Game | Work |
|------------------------|--------------------------------------------------|-----------------------------------------------|
| Tasks | repetitive, but fun | repetitive, and boring |
| Feedback | constantly | once a year |
| Goals | clear | contradictory, vague |
| Path to Mastery | clear | unclear |
| Rules | clear, transparent | unclear, in-transparent |
| Information | right amount at the right time | too much and not enough |
| Failure | expected, encouraged, spectacular, brag about it | forbidden, punished, better not talk about it |
| Status of Users | transparent, timely | hidden |
| Promotion | meritocracy | kiss-up-o-cracy |
| Collaboration | yes | yes |
| Speed/Risk | high | low |
| Autonomy | high | mid to low |
| Narrative | yes | only if you are lucky |
| Obstacles | on purpose | accidental |

Table 1: Comparing Game and Work

When we take the popular game Angry Birds as an example, somebody watching us playing the game without actually seeing the game would consider this as pretty

repetitive. After all, the task of slinging a bird to hit pigs boils down to sliding a finger from right to left. But in a game even repetitive tasks can be very entertaining, while the opposite is mostly true with work. Feedback that we receive in a game comes from multiple sides: there are not only the points, badges, and stars, but also visual and audio feedback. The structures crumbling, the birds and pigs exploding, balloons popping are the visual feast for the player's eyes in the game. Not to forget the audio feedback that players receive from explosions, cheering birds, scratchy leather-sounds, and the pigs trash-talking the player when he failed the level. The only audio feedback in business software comes when we do something wrong.

Failure is another interesting area. Games are designed that in many cases players fail. Failing a level, characters dying, loosing virtual goods are natural parts of the game that – as unpleasant they are for a player – give valuable feedback about an approach or game strategy and make the player more skilled. Failure in a game is institutionalized; it is part of learning and becoming better. In some games failure is depicted so spectacularly that players have created their own subculture on most epic failure[\[xli\]](#). This is in stark contrast to work or school[\[xlii\]](#). Failing is stigmatized, which deprives us from learning and the experience of risk taking.

Game players have also more insight in how to level up or get promoted than an employee at work has. To reach level 10, the player needs to kill six pigs, or bring the sword to the castle, or come in 3rd place in the race. As an employee, we never know what qualifies us for getting promoted to the position of a vice president or a director. We also don't really know, how the people on these positions today actually got there. There is no public track record telling me that this person closed deals in the amount of \$10 million and if I succeed with that as well, I will also be promoted.

We know very well that the workplace is not a merit-based system. Even if we tell ourselves “you earn what you deserve“ – after all that's the underlying mantra of a capitalist system – being promoted at work has often less to do with a job well done, but more with how well networked somebody is[\[xliii\]](#).

These similarities can bring us synergies if we bring them together. It's not just a one-way exchange where only work can profit from games. It also gives game designers a chance to have a real-world impact.

Gamification Criticism

Anyone interested in gamification will sooner or later encounter the gamification critic. The criticism and concerns can be categorized into games vs. gamification, ethical concerns, simplicity, and addiction.

Games Versus Gamification

“Where’s the game?”

Senior manager of a software giant

One executive, who was introduced to gamification and saw his first gamified systems, kept asking where the game was. When we defined gamification, we made clear that gamification does not mean that we are building a game.

But while the executive can be excused for not knowing back then anything about gamification or game-design, practitioners face different criticism from another side. Namely the criticism that gamification-designers completely misunderstood gamification and games. Gamification-designers take game design elements and techniques, but seem not to understand what makes a game a game. Namely that a game brings a player to a certain state of entertainment and engagement, while in contrast a gamified system appears rather dull in comparison to that.

After many articles published and fierce discussions with game designers, a long and lone drive on the Autobahn after an especially controversial gamification panel discussion finally gave me enough time to crack the problem and understand what the core of the gamification criticism coming from game-designers was. It’s the reference-point that we take to look at gamification.

The Game Designers’ Perspective

Game designers do their best to create a good game that keeps a player in the flow, offers challenges, creates fun and entertainment. Game designers regard game design as a kind of art, and no book title than the one from Jesse Schell makes a better case for it: it’s aptly named “The Art of Game Design.” Their perspective is to create a game, and their reference points are other games.

But gamification designers take a seemingly mechanistic approach by applying game design elements out of the context to business software, a website, or a process. But the result is far off from the experience of a game. For a game designer this looks like a misrepresentation of what a game is.

The Gamification Designers' Perspective

A gamification designer does not come from the game perspective. Nor does she aim to create a game. Her point of reference is the experience that a business application gives a user. Traditionally building an enjoying experience has certainly never been the focus of designing a business application. The focus has been to solve a problem.

In the past years the broader corporate world finally discovered what science and research has known for decades: that adding the very same elements and principles that games use to non-game tasks can help increase engagement, problem solving, efficiency, and solve many other pain points that plague the corporate world.

Lending and applying these principles to business applications and processes can dramatically alter the outcome. Many use-cases and results from scientific research support that, and I have witnessed a couple of these myself. Even the most simplistic approaches often create two-digit improvements in every measure that we look at. Users are happier, more engaged, more motivated, more upbeat, feel that they accomplish something. As a side-effect, the bottom line for the organizations improved as well. Coming from that perspective, gamification seems like a big leap forward; I can make people happier at their workplace.

Nick Fortugno, co-founder of *Playmatics* and designer of the game *Diner Dash*, wrote: “Gamification is to games as jingles are to music.”[\[xliv\]](#)

Simplicity

Critics often state that gamification represents nothing else than the application of points and badges on existing non-game context. By slapping those game design elements on the application, so the argument goes, shallow mechanics are attached and are nothing more than lipstick on a pig. I agree to a certain degree with them. The pointsification and badgification is a simplistic approach, limiting itself just to the use of a few of the available game design elements. And I will make the case in the following chapters for a more sophisticated approach and the use of a wider range of game design elements that leads to a focus on intrinsic and not on extrinsic motivators.

But even a simplistic approach like this one can result in an engagement increase. Gabe Zichermann mentioned in 2012 that he had a conversation with the online news portal *The Huffington Post*[\[xlv\]](#). The site had introduced a badge system for their users. Readers would receive badges for certain activities like reading a news article. Not much of a challenge or accomplishment, or something that readers should be rewarded for. No surprise that Gabe and other gamification practitioners kept pointing out that this is a case of bad gamification-design. Until the editors told him that this “bad gamification“ actually had increased engagement on the website by 20%.

While I flinch at the thought of this type of gamification, I cannot ignore the fact that this can have a significant positive impact for the operators of the website. And The Huffington Post isn't the only organization that reports such numbers with such designs as we will see.

Ethical

Definition

To address ethical concerns, we need to understand how ethics is defined. Ethicists from the Santa Clara University in California[\[xlvi\]](#) use a crisp and practical version for the question “What is Ethics?:“

First, ethics refers to well-founded standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues.

Secondly, ethics refers to the study and development of one's ethical standards. As mentioned above, feelings, laws, and social norms can deviate from what is ethical.

That definition then allows us to come to framework for thinking ethically, and understanding and acting on ethical challenges. Here are five steps how to do that^{[xlvi](#)}:

1. Recognize an Ethical Issue
2. Get the Facts
3. Evaluate Alternative Actions
4. Make a Decision and Test It
5. Act and Reflect on the Outcome

Examples

Exploitation

**“This is just exploiting employees. Nobody is gonna do that just for points.”
A German colleague**

Gamification is not a replacement for a compensation program. Gamification does not aim to have people do stuff for free in their workplace. Employees still need to earn a living. As Dan Pink mentions in his book *Drive*, you need to take the subject of money off the table by paying above average salaries, so that employees are not constantly on the lookout for better-paid jobs or feel treated unfairly. We will learn later in this book that sometimes monetary or tangible rewards may even lead to worse outcomes, especially if extrinsic motivators overtake intrinsic ones.

Our understanding of what people are willing to do without being paid has significantly changed with the advent of Wikipedia, open source software, and internet communities. None of the members receives other rewards than kudos or status in their respective communities. The competitors of those examples including Microsoft's Encarta or Internet Information Server have fought uphill battles ever since or were even discontinued although the people behind them were being paid handsomely.

The exploitation criticism comes from the question of who's profiting from the increased productivity and who's taking advantage of whom? For the critic this seems to be the owner of the production facility, the company. Now gamification seems to be successful, “because it is a mechanism for de-coupling alienation from capitalist production.”[\[xlvi\]](#)

With my background from a blue collar family in Austria and many relatives and friends having been active members in the socialist party and engaged in the labor union for years, I found that an especially interesting argument. Many people found meaning in their jobs, and while standing their grounds for higher wages and better

benefits, they cared of the companies that they were working for. They also spent a lot of time with friends talking about the job and other colleagues. There was no alienation, but they would have always loved to get a better job experience.

In our definition of enterprise gamification, we made clear that this is an empathy-driven process that creates first and foremost value for the individual. That is a far cry from being taken advantage of. I would even make the case that workers in non-gamified environments are taken advantage of.

Over-justification

Another criticism of gamification is the mindless handout of rewards that lead to over-justification[\[xlix\]](#), with the effect of players losing intrinsic interest in doing things unless they get such a reward. Bad gamification design focuses on points and badges that reward for activities that shouldn't be rewarded, have no meaning, or do not pose a challenge. That's the state of gamification today, and we need to do smarter designs than those.

Power

Does a company exert power over employees through gamification? That's an interesting question. Maybe we start with another angle, like the time period that employees have to spend at work, or tools that they must use. It's obvious that any restriction of my autonomy forces me to adhere.

Many jobs nowadays can easily be done with flexible working times. Employees can choose when they do their work, as long as they get results. Especially jobs that are not relying on rote routines but require creative thinking. After all, you can't switch on creative thinking at 9am and turn it off at 5pm. Ideas and inspirations may literally come anywhere, any time. And it may also mean that we work longer than our work contract may require, or at very different time patterns than our forefathers with traditional jobs may have been required to work. Recent research from the Harvard Business School has even shown that too much supervision can harm productivity[\[1\]](#)
[\[1\]](#).

Looking at arbitrary company policies, a social contract, and a flexible option we can see different levels of power exerted. An arbitrary company policy is certainly the one that makes the least sense. Here the company creates a random rule that may have made sense somewhere sometime, but today it's become archaic. If it's forced, it's useless. In a social contract, while forcing us to be in time, there is a clear reason why. Do we feel forced? Yes, maybe. Do we understand it? Yes, certainly. And the flexible option is not forcing us into a work pattern, as long as we deliver results. We

are free to choose.

What about tools? Does the company force us to use specific tools? So to speak, it's in the company's interest to provide employees with all tools that help us do the work in a timely and productive manner. We may not like the tools provided, but the alternative is that we bring a forklift or our own screwdrivers to work. There has been a recent trend of the consumerization of IT, where employees started using their private mobile devices or their own software and websites for work-related purposes, and this is fine. But imagine if you'd have to choose on your first day between 30 different smartphones, 10 variations of computers, 30 designs of office furniture. You'd just be overwhelmed. Limiting the number of choices and setting a standard is not exerting power, it's helping me to make decisions and be productive.

As James P. Carse^[lii] says:

Although it may be evident enough in theory that whoever plays a finite game plays freely, it is often the case that finite players will be unaware of this absolute freedom and will come to think that whatever they do they 'must' do. There are several possible reasons for this:

— we saw that finite players must be selected. While no one is forced to remain a lawyer or a rodeo performer or a kundalini yogi after being selected for these roles, each role is nonetheless surrounded both by ruled restraints and expectations on the part of others. One senses a compulsion to maintain a certain level of performance, because permission to play in these games can be canceled. We cannot do whatever we please and remain lawyers or yogis - and yet we could not be either unless we pleased.

— since finite games are played 'to be won', players make every move in a game in order to win it. Whatever is not done in the interest of winning is not part of the game. The constant attentiveness of finite players to the progress of the competition can lead them to believe that every move they make they must make.

— It may appear that prizes for winning are indispensable, that without them life is meaningless, perhaps even impossible. There are, to be sure, games in which the stakes seem to be life and death. In slavery, for example, or severe political oppression, the refusal to play the demanded role may be paid for with terrible suffering or death.

*Even in this last, extreme case we must still concede that whoever takes up the commanded role does so by choice. Certainly the price for refusing it is high, but that there is a price at all points to the fact that oppressors themselves acknowledge that even the weakest of their subjects must agree to be oppressed. If the subjects were unresisting puppets or automatons, no threat would be necessary, and no price would be paid - thus the satire of the putative ideal of oppressors in Huxley's *Gammas*, Orwell's *Proles*, and Rossum's *Universal Robots* (Capek).*

Unlike infinite play, finite play is limited from without; like infinite play, those limitations must be chosen by the player since no one is under any necessity to play a finite game. Fields of play simply do not impose themselves on us. Therefore, all the limitations of finite play are self-limitations.

Corporations are actually less evil than you might think. They are not in a constant quest to find the best way to oppress everyone. We are not in a class warfare, and this rhetoric does not help to address the real issues. Such vocabulary does frame one side as evil, and with that we block our views and positions to collaborate.

Manipulation

Is gamification evil, because we manipulate people? Is gamification the equivalent of the *Imperius Curse*[\[liii\]](#) in Harry Potter's magic world? Did we finally find the magic tool to control behavior? It's true that games are amongst the most powerful sources of non-coercive influence in the world, and there may be a danger of addiction and abuse of gamification. Jane McGonigal said:

"... if you use the power of games to give people an opportunity to do something they want to do, then you're doing good. If you're using the power of games to get people to do something you want them to do, then you're doing evil."

That doesn't sound too good for us. Gamification designers actually want our players to do things that we want them to do. How do we solve that? Adena DeMonte at *Badgerville* says:

"... gamification can never be successful exploitationware, because it only works when the behaviors that are motivated are behaviors that the user wants to perform to begin with. It's not some magic solution where you can manipulate users to perform behaviors against their will."

So who's right? Jane or Adena? Neither? Or maybe both? Well, first of all, the gamified systems that we use in the enterprise are tools to do work. And our users are using them to achieve those goals. They may not necessarily like the way they have to do the work, but they know that doing things like filling out forms and entering data is necessary for the company. After all, that's how our users earn their living. So indirectly they want to do that anyway.

And this discussion can easily be extended to other examples, like fitness. We know that exercising means we will be fitter and healthier. But do we like to exercise? Not so much, especially if we haven't created the habit of exercising. A gamified fitness application like *Nike+ Running* or *Zombies, Run!* nudges us to do that and by making it fun and interesting, we exercise. This doesn't make the application evil. To support this case, watch the commercial[\[liv\]](#) that the French mineral water company *Contrex* aired in 2011 (or their even sexier commercial[\[lv\]](#) from a year later).

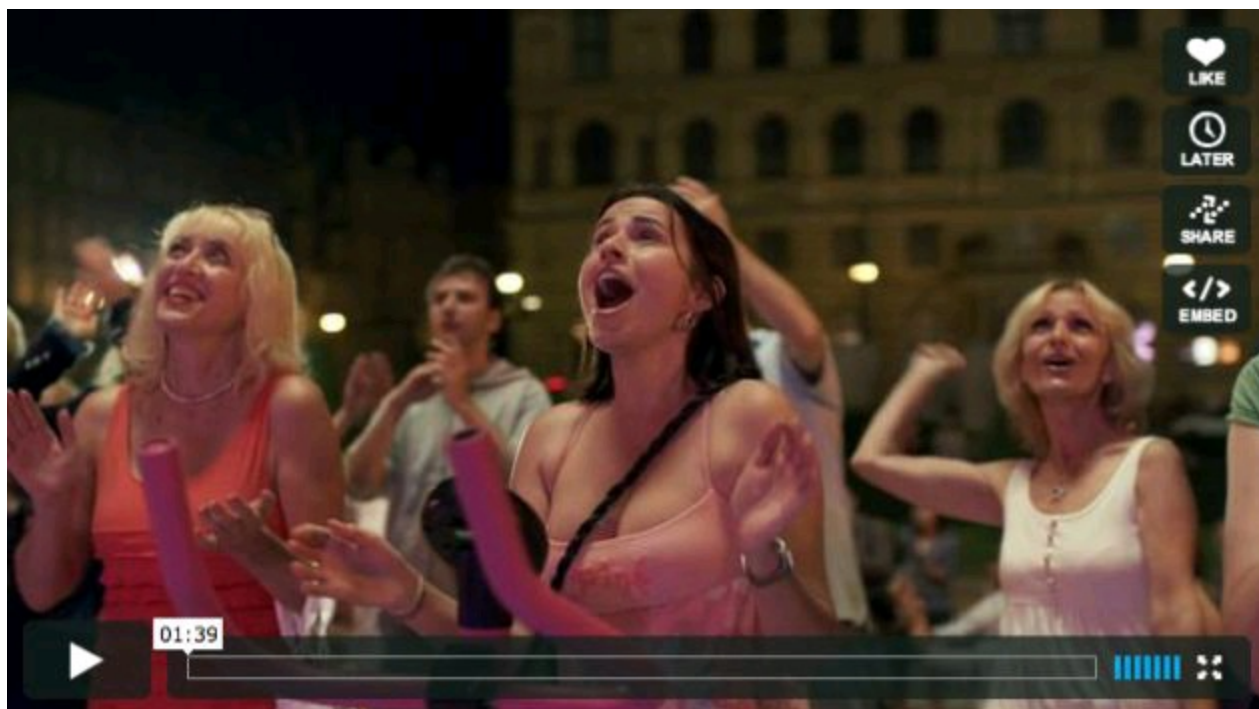


Figure 11: Contrex - Ma Contrexpérience © Contrex

Now where do these contrasting viewpoints come from? That leads us back to Games Versus Gamification. Jane is a game-designer. Gamification for her looks like a step back to a low state of playful experience. While Adena comes from the gamification world, and everything that helps to improve non-game contexts is good.

The economist Richard Thaler and legal scholar Cass Sunstein even make the case for such a libertarian version of paternalism in their book *Nudge: Improving Decisions about Health, Wealth, and Happiness* [\[lvi\]](#). The authors conclude from their research that the concept of humans making rational decisions and being labeled a *homo economicus* cannot be supported.

By nudging people into certain choices, like positioning fruits at the beginning and healthier food items at a remote position in a cafeteria, or setting the default option for choosing a health care plan to a government selected one, or setting the default to donate organs (instead the other way round), people can be manipulated to make better choices.

For programmers this is nothing new. They constantly have to make decisions for users when they create interfaces. Pre-filling forms with data, setting the defaults for entry fields, or suggesting the most common search terms, that is all aiming to help the user, to increase efficiency. Is it manipulation? Maybe if there is an exploitive intent, like these annoying in-game purchase screens that seem to infest many mobile games.

But designers or architects consciously nudge people into positive behaviors. A trash

bin in the form of a bird or dolphin that looks hungry encourages children to “feed” the animal with waste. Or look at this cute example of the ghost-shaped light switch (Figure 12) that German designer Tim Holley [\[lvii\]](#) created. The ghost changes color and facial expression the longer the light is turned on. Of course children want to keep the ghost happy. And incidentally they learn about energy saving.

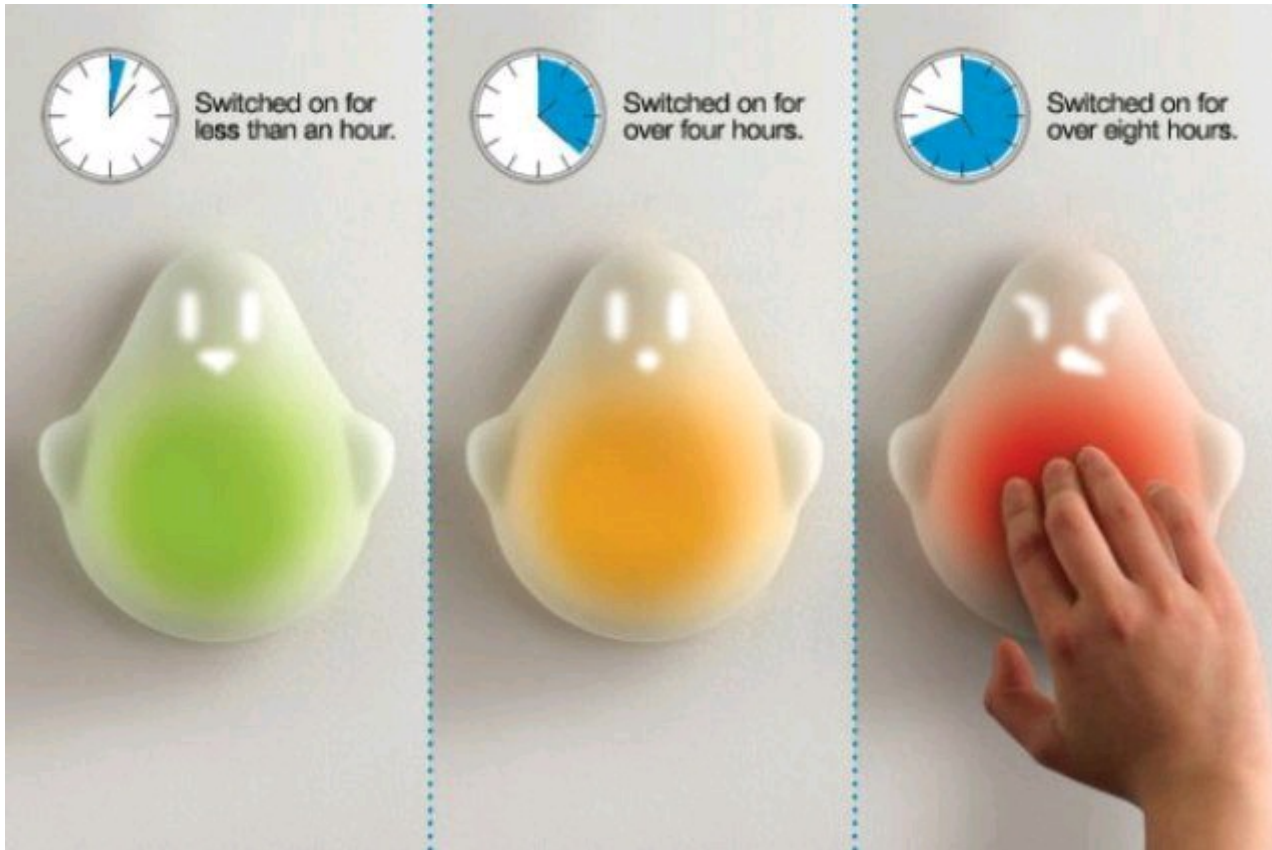


Figure 12: Energy Saving Light Switch © Tim Holley

You certainly know the type of trash bins that you can find at public places that are split into several units for the different waste types. In Germany, Austria, and other countries they often have compartments for paper, trash, and bottles/cans (see Figure 13). To help people quickly find the right compartment, sometimes the lid-shapes are formed differently. A slit for paper, a round hole for bottles and cans, and just a wide open lid for the rest.



Figure 13: Recycling bins at the San Francisco Airport © Mario Herger

Does a trash bin designer now exert power over the user? Not really. A trash bin designer just nudges the users into finding quickly the right spot and help them perform the task. And that's a good thing, because I know the situation in California, where waste separation is not as clear-cut as here. The distinction there is between compost, recyclables, and waste. The confusing thing is that a disposable cup can be either compost, (like a paper cup, and some plastic-looking cups), or recyclables - but only if it has the recycle-symbol on it - or it can just be waste. What I find when look into the trash bins is completely mixed waste in all three bins.

Stanford lecturer and serial entrepreneur Nir Eyal gave the art of manipulation [\[lviii\]](#) more thought and came up with a *Manipulation Matrix* that can be used as a guide for distinguishing between “good” and “bad” manipulation.

| | | |
|-------------------------------------|---------------------------|-------------------|
| Materially improves the user's life | Peddler | Facilitator |
| Does not improve the user's life | Dealer | Entertainer |
| | The maker does not use it | The maker uses it |

Figure 14: Manipulation Matrix © Nir Eyal

In this quadrant Eyal considers only the *Facilitator* as the good type of manipulator. The others fall into the categories of “not good” or “bad” manipulations. In the end, if you wouldn't be willing to use your own manipulation and materially improve your player's life, everything else seems dishonest, either to yourself, the players, or both.

Serious Versus Solemn

“I don't need to waste my time on fun stuff! I have to do serious work!”

A skeptic colleague

Actor and comedian John Cleese, is undeniably one of the biggest, if not the tallest expert in everything humor and fun. Monty Python, Fawlty Towers, A Fish name Wanda, Compaq commercials, introducing Tina Turner at her concert to her fans: his legacy is legendary, his mastery unmatched.

Lesser known is that John Cleese has also been speaking about a variety of topics, including creativity. In a very entertaining and inspiring talk from 1991 he speaks about the five factors to make your life more creative[\[lix\]](#). While I recommend the 13 minutes video of his talk, here is a summary of the five factors:

1. **Space** - “You can’t become playful, and therefore creative, if you’re under your usual pressures.”
2. **Time** - “It’s not enough to create space; you have to create your space for a specific period of time.”
3. **Time** (yes, a second time ‘time’)- “Giving your mind as long as possible to come up with something original,” and learning to tolerate the discomfort of pondering time and indecision.
4. **Confidence** - “Nothing will stop you being creative so effectively as the fear of making a mistake.”
5. **Humor** - “The main evolutionary significance of humor is that it gets us from the closed mode to the open mode quicker than anything else.”

Especially interesting is his explanation on humor and its importance for creative solutions.

“... how many times have important discussions been held where really original and creative ideas were desperately needed to solve important problem, but where humor was taboo, because the subject was deemed to be sooo serious. This attitude seems to me to stem from a very basic misunderstanding of the difference between serious and solemn. ... Solemnity on the other hand, I don’t know what it’s for. ... But solemnity it serves pomposity and the self-important always know at some level of their consciousness that their egotism is gonna be punctured by humor. That’s why it’s a threat.”

James P. Carse^[1x] comes from the angle of play, but nonetheless reaches the same conclusion that playfulness - and therefore fun and humor in a game - allows for unlimited possibilities.

To be playful is not to be trivial or frivolous, or to act as if nothing of consequence will happen. On the contrary, when we are playful with one another, we relate as free persons, and the relationship is open to surprise; ‘everything’ that happens is of consequence. It is, in fact, seriousness that closes itself to consequence, for seriousness is a dread of the unpredictable outcome of open possibility. To be serious is to press for a specified conclusion. To be playful is to allow for unlimited possibility whatever the cost to oneself.

Researchers have also confirmed these points^[1xi]. Humor, laughter and fun are neither

distracting from nor endangering to work. These small moments of relaxation help to be better at work. How fun and humor are applied doesn't matter. A joke from a colleague in the hallway, a funny video while switching between applications, or a Nerf-gun-battle; all create the same kind of brain activity that relaxes us and primes us for creative and productive work. Fun is not an enemy to work; fun is a tool to achieve better work.

Pixar's Brad Bird, who directed the animated movies *The Incredibles* and *Ratatouille*, said:

In my experience, the thing that has the most significant impact on a movie's budget—but never shows up in a budget—is morale. If you have low morale, for every \$1 you spend, you get about 25 cents of value. If you have high morale, for every \$1 you spend, you get about \$3 of value. Companies should pay much more attention to morale.[\[lxii\]](#)

Fallacy

“FarmVille: I don't play that, who's playing that anyways?”

Skeptical colleague

In the heyday of game studio Zynga's popular social game FarmVille, more than 80 million monthly active users played the social game (see Figure 15).

FarmVille - Monthly Active Users



Figure 15: Monthly Active Users for Zynga's Social Game FarmVille[\[lxiii\]](#)

KZero[\[lxiv\]](#), a British consulting company focusing on virtual worlds, publishes statistics on virtual worlds and online games. Their KZero Universe charts reflect the size, growth, and other factors of these worlds and games. In 2011 the accumulated number of registered users across all those platforms reached more than 1.7 billion.

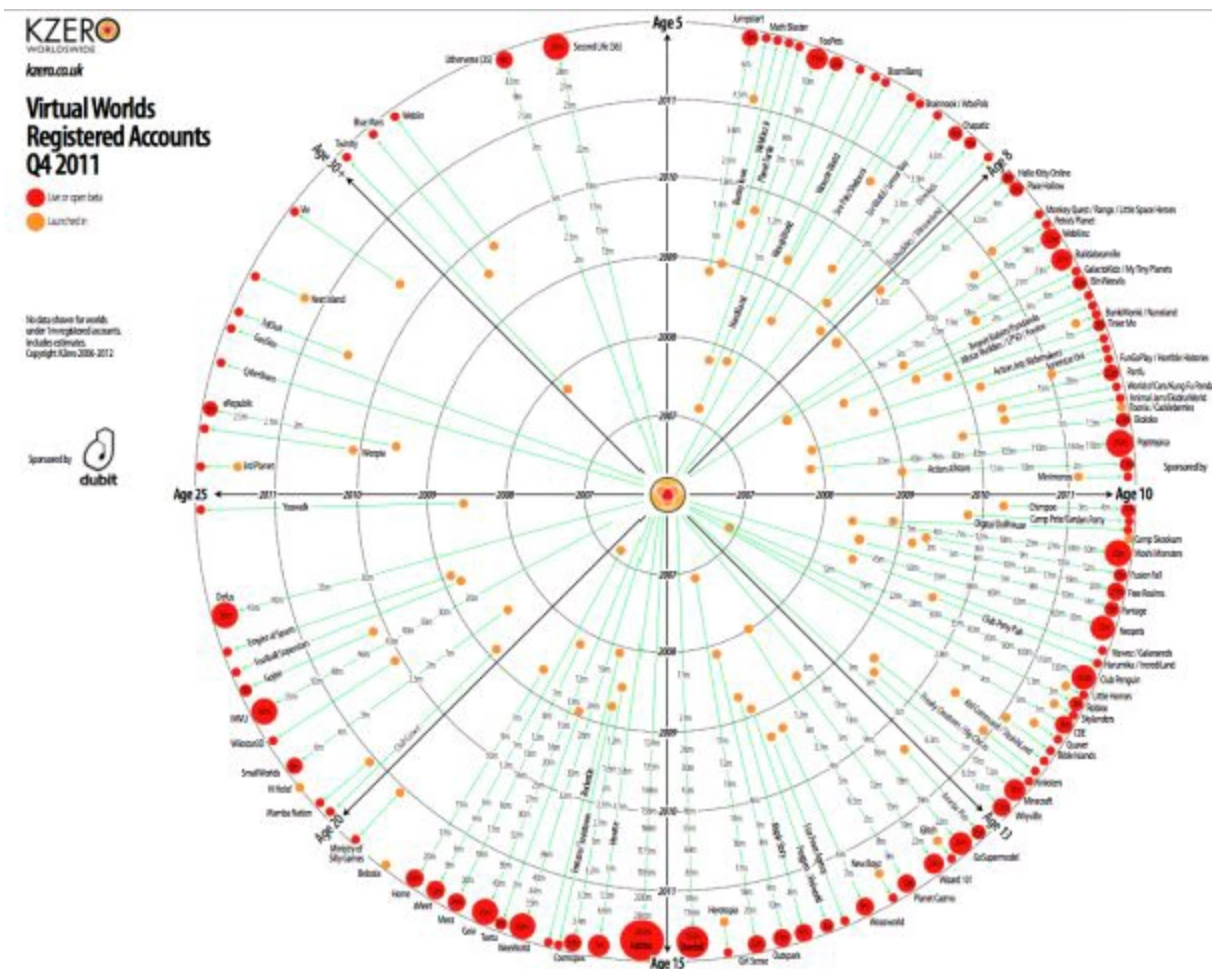


Figure 16: KZero Universe of Virtual Worlds and Online Games Q4/2011 – ©KZero

So while companies are striving to understand the tastes and preferences of their audiences and markets to create products and services for them, why do they think it's appropriate to consciously ignore and snub on their employees' tastes, preferences, and familiarities instead of creating similar experiences?

Addiction

We know that gambling and gaming addictions can have serious outcomes. While a Korean couple was raising a virtual child in an online game, their real child starved to death^[lxv]. But can rewards lead to addiction? Anton Suvorov, professor at the New Economic School in Moscow, looked^[lxvi] at how rewards are used by *principals* (managers) to motivate *agents* (employees). At least two important factors influenced the perception and effectiveness of rewards:

1. Long-term relationship between principal and agent
2. Perceived information disparity between principal and agent

In the first condition it was shown that managers who are in for the long-term with an employee tend to adopt a more conservative reward policy. Not so many and not as high. A transient manager, who's planning to end the relationship with the employee is less conservative with the amount and frequency of rewards.

Adding the second condition is now crucial whether addiction is created or not. An employee always has an information disadvantage when assigned to a new task. The manager has defined the goal and has a more or less clear idea how to get there, has more information about the importance of the goal than the employee. This creates uncertainty and doubt of the employee's abilities to succeed.

If a reward is offered for the completion of a task, which was interesting in itself, the subject will still choose to fulfill the job if the reward is high enough, but the attitude to the task may be spoiled, as measured both by "self-reports" and the future willingness to re-engage in similar activities.

The most important conclusion from this study is that transient managers can create addiction to rewards if the employee's abilities to independently acquire information about the task are limited. This can have negative effects on the motivation of employees. Managers who jump from position to position may be more likely to leave a trail of demotivated employees thanks to the managers' low commitment to the goals, the information disparity, and their negligence towards a conservative reward scheme.

Code of Ethics

Gabe Zichermann has proposed *The Code of Gamification Ethics*[\[lxvii\]](#), a similar ethical standard to what other professional groups like doctors are pledging to follow.

As an accredited Gamification Designer, I pledge my best effort to act in accordance with the following principles when creating systems of engagement:

- *I will strive to design systems that help individuals, organizations and societies achieve their true potential, acting consistently with their values and enlightened interest.*
- *I will not obfuscate the use of game mechanics with intent to deceive users about the purpose or objectives of the system.*

- *Where practical by law and contract, I will make an effort to share what I've learned about motivating behavior with the community so that others may leverage this understanding to advance society and the state of the art*

Benefits and Risks

Gamification Designer Marigo Raftopoulos analyzed over 220 self-reported gamification results and identified in her analysis^[lxviii] the seven core value creation benefits and value destruction risks that dominate the debate around gamification.

| Value Creation Benefits | Value Destruction Risks |
|------------------------------------------------------------------------------|------------------------------------------------------|
| 1. Engage and motivate employees <i>Engagement</i> | 1. Coercive participation <i>Coercion</i> |
| 2. Performance data analysis <i>Analytics</i> | 2. Leaky container problem <i>Leaking</i> |
| 3. Improve learning and collaboration <i>Learning & Collaboration</i> | 3. Technological whip <i>Channeling</i> |
| 4. Shape behavior & performance <i>Shape behavior</i> | 4. Homogenization of the workforce <i>Norming</i> |
| 5. Improve employee productivity <i>Empowerment</i> | 5. Loss of human agency <i>Disempowerment</i> |
| 6. Workplace & process transformation <i>Transformation</i> | 6. Illusion of change <i>Misrepresentation</i> |
| 7. Make work more fun <i>Fun</i> | 7. Shallow and inauthentic <i>Inauthentic</i> |

Table 2: Value Creation Benefits and Value Creation Risks

Leveling Up from Gamification to Enterprise Gamification

The fascination of gamification in the past three years has been focused on how to create fun and engagement for users in connection with non-game applications. One of the most hotly debated areas is around intrinsic versus extrinsic values and rewards. Everybody agrees on the importance of intrinsic values, but most implementations show the easier extrinsic rewards approach only.

Coming from an enterprise background I'd love to see enterprise applications and processes made more fun and entertaining. But we must not forget that there are quite a number of other questions specific to the nature of the corporate world. If we want to introduce gamification on a broader base, we need to understand its limitations and requirements.

Gamification 1.0

Gamification 1.0 deals mostly with gamification under the following conditions:

- **Consumer-oriented:** Driven mainly from entertainment and marketing, the typical user participated on a voluntary base in the game and, depending on the domain, we saw a large variety of players. Soccer moms, TV show audiences, scavenger hunt participants, shopping and media websites and so on.
- **Insular:** It's the one movie, the one product launch, the one shopping site that is gamified, but not the overall experience for all parties involved.
- **Not subtle:** Badges are popping up everywhere, all the bells and whistles are shouting at you, the system cries "GAME".
- **Competition:** Because of the common misconception that games are about competing, most gamified solutions reward competitive rather than exploratory or collaborative behavior.
- **Extrinsic rewards:** It's very hard to figure out the right way to appeal to and reward intrinsic values, especially when you deal with a very diverse crowd of users. That's why the easy and quick way has overwhelmingly been the use of extrinsic rewards.

- **Fun and entertainment:** Because of the focus on consumers as players, fun and entertainment are the center of the experience.
- **Short-lived:** Many examples were finite or failed to keep up interest and engagement over extended periods.

All these findings are not necessarily bad. Many of them have proven to have their merits and successes. But as soon as corporations embrace gamification on a large scale, certain paradigms and expectations will shift.

Gamification 2.0

In this phase designs will move beyond shallow rewards and short-lived, unsubtle entertainment.

- **Employee-oriented:** While a consumer has a choice to use a gamified application, process or website, an employee typically has no choice. The requirement of having to play can quickly turn pleasure from games into negative stress.
- **Integrated:** We will see a trend from isolated instances of gamified apps to an approach that considers most systems and processes. That also means that goals and reward systems need to be synchronized. The gamified applications shall work towards the same corporate goals. The reward systems must be balanced. If certain applications reward proportionally more points for relatively lesser work, the value system will be out of balance.
- **Subtle:** Instead of having blinking badges and points rolling up like a slot machine, the sustainable approach of using subtle, even often nearly unnoticeable game design elements will dominate, to cater to the more conservative users in the business world.
- **Collaboration:** Corporations and organization exist because people collaborating and cooperation can produce more than individuals working alone. Rewarding collaborative over competitive behavior will be the default for most domains.
- **Intrinsic rewards:** Short-lived gamification approaches will be too costly.

A heavy focus on extrinsic rewards will not sustain a mid and long-term gamification strategy. Therefore successful corporations need to appeal to the intrinsic values of their workforce.

- **Autonomy and mastery:** Instead of career planning that gives a false hope and false intrinsic reward of climbing the career ladder, corporations will focus on enabling employees to achieve autonomy and mastery, as well as help them seeing a clear path towards such goals.
- **Data-driven:** In order to achieve all the above-mentioned goals, data accumulated through gamified applications will become crucial. When you start tracking each and every activity of users, corporations will assemble a larger dataset than any business transaction system will generate.

The Big Gamification Data Disruption

This data set will change the corporate world as we know it. The data from holistically gamified corporate entities will reflect the achievements of individuals and teams inside an organization much better than any performance feedback today's metrics display. Because every activity is tracked on a granular level and potentially available to all other individuals and entities, comparisons, promotions, budget assignments, layoff decisions, and so on will much more transparent than they are today.

The data collected in this aggregator will turn out to be extremely valuable. Unlike social networks, which are aggregators of vanity data of their users (users decide themselves what they are posting and what image they present), gamification data aggregators will track and display the real achievements of users. The hidden gems among the workforce can be discovered based on that data, and career paths become more objective and predictable. The corporate world will turn to a merit-based system that it claims to be today, but isn't. And both sides – employees and employers – will profit from that. Matchmaking becomes easier, justifying promotions clearer, the confidence of employees will rise, and ways to improve will be transparent.

With so much data comes responsibility. And: Who owns the accumulated data? What happens when an employee leaves the company? Can she take her data to the new employer? What about data privacy and theft? How can employers verify the accuracy of data when doing background checks? How can she repair poor performance data, as with a credit score? What about discrimination when she is looking for a new job?

Success and Failure Rates

How successful is gamification? If you believe *Gartner's* Brian Burke, “Eighty percent of current gamified applications will fail to meet business requirements.”[\[lxix\]](#)

But many technologies of the past ten years have undergone similar scorn and criticism. Let's look at two of them: Customer Relationship Management (CRM) and Social Media. A quick research on data and reports published about the failure (or success) rates for them will give you a déjà-vu moment. CRM failure statistics from analyst groups like Gartner, AMR Research, Butler, Forrester and others range between 18-70%, with still 49% failures in 2009, eight years after first statistical success data for CRM was published.[\[lxx\]](#) And, according to Gartner[\[lxxi\]](#), “... through 2012, over 70 percent of IT-dominated social media initiatives will fail.” Having attended a number of social media-related conferences in 2012 and before, I can tell you that many companies are still struggling with getting a working social media strategy in place. But would anyone doubt the importance and viability of these concepts? Absolutely not. But it's a craft that needs to be learned. Most of us know that this is more than a technology. Just plugging a social media tool into your IT landscape is a certain path to failure. The same is true with CRM systems. Because these concepts must be regarded as processes, and not as projects, work doesn't stop with the launch of the system. The real work starts with the launch.

Now let's get back to how analysts define failure. “Failing to meet business requirements” is a pretty vague definition. Does it mean management set unrealistic business goals, tried to meet them by only caring about management goals instead of understanding the players and their motivations? Then this sounds less like a gamification failure, then a management failure. Even if the gamification approach wore off after three months and engagement levels stagnated, your players were happier and more engaged for three months. That's a positive outcome.

When you look at startup failure rates from different researchers[\[lxxii\]](#) they are between 50% and 90%. Management is a process, not a project that is over once a person became a manager. Let's consider games next. According to the data from App Store Metrics[\[lxxiii\]](#), there are currently around 120,000 games on the Apple App Store. How many of them do you know? How many of them have a significant number of players? If we are generous and say 10,000 have a significant download rate and number of players, we still have 110,000, or more than 90% of games that we can rate as total failures. Would we dismiss the concept of games as total nonsense and judge all game designers as ignorant? No, of course not. We know that creating a good game

is difficult.

From this perspective, a 20% success rate according to Gartner for gamification sounds like a great accomplishment.

Facts & Figures

Gartner aside, how effective is gamification? According to hundreds of examples and studies, the numbers are quite impressive. The following list is an excerpt from *Enterprise-Gamification.com*[\[lxxiv\]](#).

ROI-related Examples

LiveOps[\[lxxv\]](#)

LiveOps Inc., which runs virtual call centers, uses gamification to help improve the performance of its 20,000 call agents, who are independent contractors located all over the U.S. The company began awarding agents with virtual badges and points for tasks such as keeping calls brief and closing sales. Leaderboards allow the agents to compare their achievements.

Results:

- some agents have reduced call time by 15%
- sales have improved between 8% and 12% among certain agents
- reduced training from an average of four weeks, to 14 hours
- trained agents outperformed peers by 23% in call handle time and 9% in customer satisfaction

Objective Logistics[\[lxxvi\]](#) [\[lxxvii\]](#)

Automatically determining work performance of employees in restaurants based on criteria such as sales, tips, surveys and customer acquisition data.

In restaurants, the top 10% of employees adds \$8.54 to every check. The bottom 10% actually subtracts \$7.21. In many cases it's even more extreme. MUSE creates a competitive environment, and in doing so shifts the bottom to the middle, the middle to the top and the top through the glass ceiling – we conservatively predict a 2-4% increase in sales at the outset.

Rather than forecasting demand and staffing a restaurant accordingly, as most systems do, the software tracks wait staff performance in terms of per-customer sales and satisfaction, gauged by tips. Highly rated servers are given more tables and preferred schedules. By shifting work to its best servers, the restaurant hopes to increase profits and motivate all employees.

Results:

- 1.8% increase in sales
- 11% increase in gratuities
- \$1.5 million more revenue

UK Department of Works & Pensions (DWP)[\[lxxviii\]](#)

Spigit, an innovation management system provider, and DWP gamified government processes by creating the *Idea Street initiative* in 2007. Through a virtual trading platform, British civil servants could buy and sell stock in new ideas with a virtual currency. What followed was a crowd-sourcing effort that called on civil servants to turn ideation into real cost savings. Those who posted comments and helped execute change could accrue more points, and were even rewarded through promotions. In one case, a call center employee came up with the idea to create internal marketing materials, resulting in that employee's transfer to the office of the head of the DWP.

Results:

- £41 million in hard savings by innovating its business processes
- £21 million benefits

CaLLogix[\[lxxix\]](#)

CaLLogix, a contact center company, focuses on being highly responsive to their clients' changing requirements and delivering exceptional service. Attrition, absenteeism, and rising health care costs negatively impact the company's service and bottom line. The ability to provide superior service depends on staff being ready to take important calls coming into the center.

Results:

- saved \$380,000 during the first year of the program – that equates to \$2,000 per employee!
- reduced attrition by 50% and absenteeism by 80%

Engine Yard[\[lxxx\]](#)

Gamification platform Badgeville integrated gamified support documentation into Engine Yard's Zendesk help desk.

Result:

- 20% reduction in tickets per customer on average
- 40% improvement in response time by agents for tickets filed

Allstate[\[lxxxii\]](#)

Insurance company Allstate solicits innovative ideas from employees with the help of a gamified social innovation tool from innovation management system provider Spigit two to three times a month.

"We don't necessarily use the reward system in the tool," says Matt Manzella, Allstate's director of technology innovation. "We have in the past, but people just want to participate." The key, he says, is to pick challenges that resonate with employees.

"We do turn away concepts," he says. "If we feel that a challenge statement is not compelling enough for the crowd to get excited about, we'll turn it down or ask them [the company's business units] to come up with better challenges."

One successful blitz resulted in changing the process of how claims are scheduled in an office.

"It sounds like a mundane process, but leadership didn't recognize how complex it was and how much stress it was causing employees," he says. Changing the process saved the company \$18 million a year in adjusters' time.

Result:

- saved the company \$18 million a year in adjusters' time

InvestorVille[\[lxxxiii\]](#)

Commonwealth Bank of Australia created a property investment simulation named *InvestorVille*. This is a virtual world where players can try their hand at investing in rental property, without the risk of actually buying one. The simulation is based on actual property data.

Results:

- the simulation generated about 600 loans
- 56,600 visitors, 13,660 registrants and 34 home loan applications in the first six weeks
- project costs for InvestorVille were around 400,000 Australian Dollars

HP – Project Everest[\[lxxxiii\]](#)

Hewlett Packard was able to achieve over \$1 billion of revenue growth after investing in a new online portal that takes a gaming and rewards approach to selling. HP and *Corporate Rewards* built an online platform called *Project Everest* that offered resellers rewards for selling HP's *ISS* and *ESS* products. The website was game-based, with e-learning and rewards schemes integrated into a seller's profile, visualized with avatars who climb the sales mountain.

The star prize was the holiday of a lifetime to each of the three target groups, but all of the resellers were offered rewards such as TV's, iPads and music.

Results:

- aimed for 50% of revenue growth – achieved 56.4%

Teleflora[\[lxxxiv\]](#)

US florist Teleflora gamified its entire store using gamification company PowerReview's social loyalty scheme, offering points for actions, including user reviews, comments, answering other customer queries and posting on Facebook. There are additional points on offer if a user is the first person to review a product or answer a question in the user Q&A section.

Results:

- conversion rate improved by 92%

Moosejaw[\[lxxxv\]](#)

Outdoor apparel retailer Moosejaw offered \$10 gift cards starting at \$1. Once the release launched, the price would increase rapidly from \$1 to \$5. The company sent teaser messages with a sneak preview of the upcoming deal. Consumers could opt in to the deal without knowing exactly when it would go live for purchase. They only knew that the faster they reacted, the better price they scored – creating mystery, intrigue and suspense, but also a captivated audience.

Gamification company Quikly also included a feature in the platform called *Team Building*, which allowed participants to invite their friends. The more friends a player invited, the better the player's chances were of scoring a great deal. All team members got the lowest price locked in by any other member of the team.

Results:

- The \$10 gift card led to an average basket size of \$66 – nearly seven

times the initial value

- Of the new customers, 34% went on to make additional purchases within 90 days
- The average basket size of those additional purchases was more than \$150

Autodesk 3D[\[lxxxvii\]](#)

To help users learn about the software *Autodesk 3D max*, the free trial onboarded the users. An intriguing storyline was created with a reward system to incentivize users and understand the software fully. In-game benefits were coupled with a grand prize of a license to the *Autodesk Entertainment Creation Suite Ultimate Edition 2013*.

Results:

- 29% increase in channel revenue per trial start
- 54% increase in trial usage
- 15% increase in buy clicks

ePrize[\[lxxxviii\]](#)

Digital engagement company ePrize leveraged gamification competitions internally to support sales of a new product. The company incentivized reps to accelerate sales of a mobile product recently brought to market.

Results:

- increased sales of that new product by 230%

Detroit Pistons[\[lxxxix\]](#)

During the 2012 Summer Olympics, the Detroit Pistons had their own Sales Olympics gamification strategy to boost suite sales. The team-based competition included assigning sales teams to countries and giving points whenever an "athlete" (or sales rep) from their "country" (or team) hit a desired quota on closing suite sales. In addition to getting points for closing deals, reps were also given points when actual Olympic athletes from their country scored in the summer games.

Results:

- increased sales by 18 percent

Pep Boys[\[lxxxix\]](#)

Auto part retailer Pep Boys wanted to reduce retail loss and increase safety for 19,000 employees. The company introduced a gamified training system for their employees.

Results:

- safety incidents and claim counts were reduced by more than 45 percent
- reduction in shrinkage has been at a level of 55 percent
- contributions to shrinkage such as shoplifting, organized crime, administrative errors, and employee theft have all decreased substantially
- in the case of internal loss, each time a burst of content related to employee theft is pushed out, they see at least a 60 percent increase in their “Integrity Pays” hotline calls, resulting in a direct reduction in inventory loss

Quixey[\[xc\]](#)

Quixey, a tech startup, has an app to hire software developers. The *Quixey Challenge* is an online coding competition where nerdy tech guys and girls have to fix a bug in a 10-line algorithm in less than a minute. The prize for winning: \$100 cash and the chance to work for Quixey.

Results:

- saved the company nearly \$45,000 in recruiting costs

Training & Education-related Examples

According to a report on educational games presented by Don Menn[\[xci\]](#) at the 2006 Summit of the *Federation of American Scientists*, students recall just 10% of what they read and 20% of what they hear. If there are visuals accompanying an oral presentation, the number rises to 30%, and if they observe someone carrying out an action while explaining it, 50%. But students remember 90% "if they do the job themselves, even if only as a simulation."

We can easily see that through a gamification approach we can drastically alter the stickiness of the learning material, and thus get more results out of training.

NYU Student Journalists[\[xcii\]](#)

A graduate journalism professor from NYU used multiple game design elements to engage his students. Among them were leaderboards for social media, where students

over the course of 14 weeks grew their followers, as well as handing in over 20 assignments. Through a company called Stray Boots, he organized a Wall Street treasure hunt, in which students learned the history of the area through playing a walking game.

Results:

- Collectively, the 15 grad students correctly answered 77 out of 150 questions (or 51.3%) from the reading passage but for the treasure hunt they got 89 of 150 right (or 59.3%)

MathLand[\[xciii\]](#)

A special education teacher used game design elements to address problems that she had with students.

Results:

- MathLand led students to a 17% improvement in statewide assessment
- attendance increased by 13% in the first two years
- standardized test results moved upwards by 22% at the end of year three

AstraZeneca[\[xciv\]](#)

Go To Jupiter is a game-based learning solution, used to teach 500 agents about a new medicine. Astrazeneca's agents earned points to be the first to reach a Stadium, which represents the official launch event of the medicine and where agents, answering questions using a remote control, could earn additional points. In the web game, agents received points by answering quizzes and playing different mini-games focused on the features of the new product.

Results:

- high usage rates (97%)
- most of the agents where using the platform outside of their work time
- 95% of the users completed each teaching session

Learning Names at Slalom Consulting[\[xcv\]](#)

To improve internal communications between their 2,000 employees in offices around the United States, Slalom Consulting created a mobile application that would help employees learn the names and faces of their colleagues. To encourage participation,

the application included a leaderboard.

The tactic backfired. "We found that only 5% of the people truly cared about being at the top of the leaderboard," said CEO Brad Jackson. The prizes - gift cards - weren't enough, either.

"What changed for us is when we transformed to teams. Whether by organization, or randomly assigned teams, there was a dramatic shift in the engagement of the game. People didn't want to let their team down."

Results:

- participation grew from 5% to 90%
- recognition scores went up from around 45% accuracy to 89%

Deloitte Leadership Academy[\[xcvi\]](#)

Deloitte created a gamified training program called *Deloitte Leadership Academy* where learners are competing with peers to achieve their learning plans. The leaderboard was an important element, as it created a status-oriented competition amongst users inside their organization.

Results:

- 46.6% increase in the number of users that return to the site daily
- 36.3% increase in the number of users that return to the site weekly
- an average of 3 badges per active user
- top user has collected 30 badges in a few weeks
- after only a few weeks one user has earned the Leadership Academy Graduate badge which is expected to take 12 months to achieve

OTT[\[xcvii\]](#)

eLearning provider OTT had experienced high growth and was offering over 100 courses to agents. The Operations Director had noticed that, although more courses were being completed in total, the average number of passes per course was falling. So they invested in gamification. Members were encouraged to earn virtual badges by completing eLearning courses.

One client had a live course on the website but did not actively promote it over 12 months. Gamification had a big effect on their results. Pre-gamification, their course was getting around 10 course passes a month. Post-gamification launch they were

averaging around 50 passes a month.

Results:

- average increase of 65% in user engagement, with some clients benefiting from an uplift of over 300%

Kaplan School of Information of Technology[\[xcviii\]](#)

Kaplan School gamified their online courses with Badgeville.

Results:

- grades were more than 9% higher
- the "unsuccessful rate" -- the number of students who failed the course or did not complete it -- decreased by 15.76%
- students spent up to 17 percent more time actively engaged than their counterparts

Healthcare and Wellness-related Examples

Gamification in Healthcare and Wellness has a huge potential to increase health and fitness, reduce medical costs, and make people happier.

PatientPartner[\[xcix\]](#)

PatientPartner is a mobile game app that aims to boost adherence to a treatment plan and take medications. When patients don't take their medications or adhere to a treatment plan, this has a negative outcome on the healing process and costs. Patients are asked to play the game for 15 minutes while waiting in the doctor's waiting room. The game unfolds by telling a fictional patient's health story, like a clinical case. Reminiscent of a *Choose Your Own Adventure* book — in a more interactive, engaging form — the player decides at critical points what to do about the game character's health.

Results:

- In one clinical study, use of the app increased medication adherence by 37%

Another trial resulted in

- an increase of medication adherence from 58% to 95%

- diet adherence increased by 24%
- exercise adherence increased by 14%
- HgbA1C decreased from 10.7% to 9.7%.

Blue Shield of California Wellvolution[\[c\]](#)

Healthcare provider Blue Shield of California's *Wellvolution* (including *Shape Up Shield* and other programs) is an eight-week-long, social-media-fueled challenge that uses an online platform to let employees form teams, post comments in forums, set team and personal fitness goals, and give virtual high fives for encouragement.

Results:

- In the past three years, ... 80% of Blue Shield employees have participated in at least one of its wellness programs.
- During that period, there has been a 50% drop in smoking prevalence and a similar increase in regular physical activity among employees.
- The incidence of hypertension has fallen by two-thirds, and
- disability claims are down among participating workers ...

Keas[\[ci\]](#)

Employee engagement platform provider Keas introduced an employee wellness program that combines social media and online games to create happier, healthier, more engaged employees.

Results:

- user engagement rose 100x

Community-related Examples

SAP Community Network[\[cii\]](#)

The *SAP Community Network (SCN)* is a platform where SAP employees share news and updates about products and technology, and a place where customers or consultants go first when they encounter a challenge in an SAP project.

Results (after one month):

- activity increased by 400%
- activity generating points increased by 2,210%

- community feedback rose by 96%
- a total of 53,028 badges were earned

EMC²[\[ciii\]](#)

Computer storage company *EMC²* gamified their community with Badgeville.

Results:

- increase of 25% in reply to discussions (in the first 2 weeks)
- registration -3%
- page views +12%
- visits +10%
- unique visitors +10%
- created a document +9%
- replied to thread +15%
- file downloaded +10%
- videos watched +41%
- total activity +21%
- 2012 engagement +9%

T-Mobile[\[civ\]](#)

Telecommunications company T-Mobile wanted to motivate its customer care and retail store representatives to make T-Mobile's online social business community their go-to resource for answering customer questions. In the process, T-Mobile is driving up customer satisfaction scores by engaging more than 30,000 frontline representatives so they can effectively respond to customers' queries, even as the devices they sell and support grow more complex.

Results:

- user participation in T-Community increase 1,000 percent
- within the first two weeks, more than 15,000 frontline employees completed an array of Getting Started missions -- far better than historical adoption rates for self-guided tutorials
- employees were so active and quick to adopt the new platform that T-

Mobile awarded 187,000 achievement badges in the first six weeks

- the number of "likes" assigned by employees to indicate a helpful response increased a staggering 6,000 percent.

HCM-related Examples

HCL Recruiting[\[cv\]](#)

IT company HCL was looking for an online platform that could engage new hires between the day of offer and the day of joining, promote Day 1 readiness through online pre-boarding, reduce pre-join churn and better predict their hiring needs. They used gamification platform provider MindTickle to gamify the recruiting process.

Results:

- dropout rate of the cohort that participated was 9x lower than those who did not
- pre-join churn reduced by almost 90%

PricewaterhouseCoopers[\[cvi\]](#)

Multipoly is a recruiting simulation by the Hungarian division of PricewaterhouseCoopers. Potential candidates were invited to participate in the virtual reality world of PwC as trainees, working for a year at the company (an equivalent of 12 days in the game).

Results

- number of applications went up
- candidates hired through Multipoly need shorter training methods
- presented a much higher loyalty

ERP-related Examples

SAP ERP[\[cvii\]](#)

A prototype for gamification using SAP ERP was introduced. The researchers evaluated the concept within a comprehensive user study with 112 participants, based on the technology acceptance model using partial least squares for analysis.

Results:

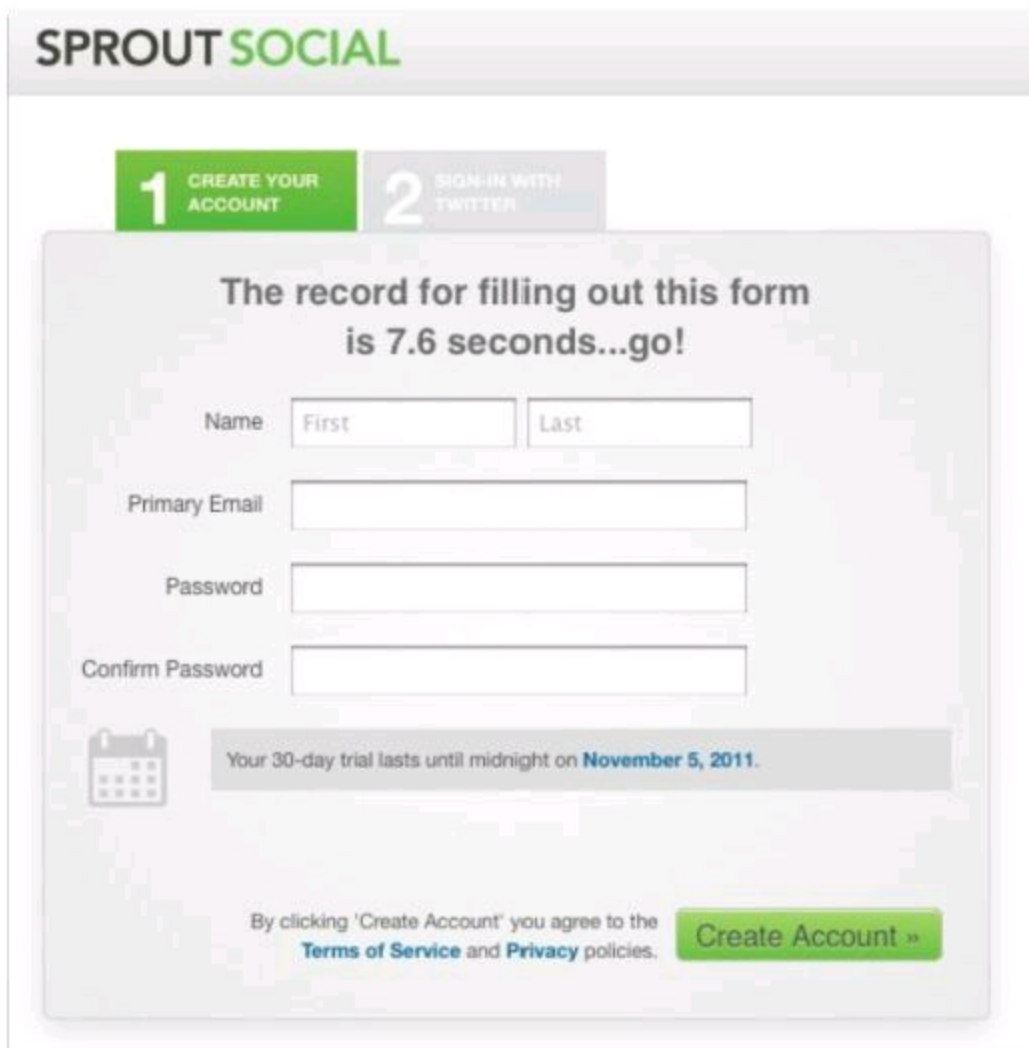
- tele-presence was improved by 29.75%
- interface improved by 23.4%
- flow improved by 30.353%
- enjoyment improved by 53.414%
- perceived ease of use improved by 36.123%
- perceived usefulness decreased by 3.03%

Mission 2 – The Challenge

“The struggle of maturity is to recover the seriousness of a child at play.”

Friedrich Nietzsche

We all have been through this scenario when registering on a website. We picture several fields to fill out, maybe some specific information that you need to lookup somewhere such as a credit card: a tedious, unpleasant, yet necessary process. As standardized and boring this process may seem to be, there is room for a drastic change in how we experience it. And SproutSocial demonstrated that (Figure 17).



The image shows the SproutSocial registration interface. At the top, the 'SPROUT SOCIAL' logo is displayed. Below it, two tabs are visible: '1 CREATE YOUR ACCOUNT' (highlighted in green) and '2 SIGN-IN WITH TWITTER'. The main content area features a large, semi-transparent box with the text 'The record for filling out this form is 7.6 seconds...go!'. Inside this box, there are four input fields: 'Name' (split into 'First' and 'Last'), 'Primary Email', 'Password', and 'Confirm Password'. Below these fields, a calendar icon is shown next to a message: 'Your 30-day trial lasts until midnight on November 5, 2011.' At the bottom of the box, there is a line of text: 'By clicking 'Create Account' you agree to the Terms of Service and Privacy policies.' and a green 'Create Account »' button.

Figure 17: SproutSocial registration screen with a competitive element

At a first glance, the screen looks like any other registration screen, but then there is

one sentence that changes everything: “The record for filling out this form is 7.6 seconds...go!” This boring task turns into a competition. Can you beat the record and register faster? And, like flicking the switch, people start engaging.

Before we start doing anything like this, we need to understand a couple of things. We need to define the problem we want to change. And remember, we are not just putting in gamification for the fun of it. In the end, it has to solve a problem. Like launching social media tools for your workforce needs to help solve a problem. Otherwise you’ll meet resistance in the adoption of the tool. If your new intranet rewards employees to upload pictures, but this is not solving a problem, then management will complain. If the social media tool supports knowledge distribution amongst co-workers and helps accelerating projects, then you tackled the right problem.

Defining the Challenge

The way we dissect a challenge in gamification is by asking several questions. After all, gamification aims at changing behaviors and habits, but gamification cannot change other problems, such as server performance, or limitations through corporate policies.

If users despise entering data in forms, ask why. If the answer is that users don't like it because it takes 10 seconds for every screen to load, then this is an IT problem, not a behavioral problem. Add servers or reduce performance bottlenecks to reduce loading times. Beside IT problems, internal policies or legal reasons can be behind users' unwillingness to do something.

Eric Ries, startup founder and author of the book *The Lean Startup* [\[cviii\]](#), suggests using Toyota's system of the Five Whys. When you are confronted with a problem, ask why this problem occurred. Repeat that for every response until you reach the root-cause.

Q: Why did we only learn now that we are not going to reach the sales target?

A: Because the management wasn't aware that the information in the CRM system did not reflect the latest status.

Q: Why did it not reflect the latest status?

A: The sales reps did not enter the data in time.

Q: Why did the sales reps not enter the data in time?

A: They were on the road meeting customers and couldn't enter the data.

Q: Why did they not use the mobile CRM applications that we gave them?

A: They found the applications too difficult to use.

Q: Why was it too difficult?

A: Only 20% of the sales reps had time to be trained on the mobile CRM apps.

From the original problem about missed sales targets, we learn that we have a training and time problem. The reasons and the potential solutions turn out to be very different. Before applying gamification to a process, we need to fix the other problems first. If a website has no content, gamification will not make the content better. After all, a bad application is not becoming better through gamification. Only good applications can become better with gamification.

Once we've identified that there is a behavioral problem to solve, we can proceed and follow a checklist like this one:

1. What is the mission?
2. What is the current behavior that we want to change?
3. Why do people show this current behavior?
4. What is the root-cause for this behavior?
5. What is the desired behavior?
6. Why do you want to change it?
7. Who's benefiting from the change?
8. How can the player benefit from the change?
9. Can the activity be learned?
10. Can feedback be given to the player in a timely manner?
11. Can the activity be measured?
12. What are the metrics?

What Is The Mission?

Good business leaders are not just managing, they are also thinking ahead. What are the goals for the next period? Do we want to grow sales, train people better, increase quality, expand to new markets, or reduce waste? These goals may be more or less bold and realistic, but somewhere somebody must put numbers behind the goals and a date when to achieve them. These high-level goals need to be broken down and tailored to each individual in the company. But breaking down the goals into smaller components may interfere with the mission. If the players lose sight of the larger meaning of what they are doing, they quickly become disengaged.

What is the overall mission, and what is each player's contribution? Does a player's activity support the goal? And if it does not, is this due to a behavior or habit?

What Is The Current Behavior?

In our example we find a behavior that is currently interfering with the organization's goal. It turns out that the sales reps are not completing the training.

That type of analysis is not just limited to our enterprise scenario. It's applicable to other areas of our lives as well, like dating. Professional dating coach Rachel Greenwald, author of the book *Why He Didn't Call You Back*, describes the results

from over 1,000 exit interviews with the former dates of her female clientele. The women, who had found their dates on dating websites, had troubles getting a second or third date with these men, although the women had had a good feeling about how the initial dates had gone. Turns out that these women showed certain behaviors during their dates that were reason enough for the men to not get back to them. By identifying those behaviors Greenwald was able to help her clients to adapt.

Why Do People Show This Current Behavior?

Before she called the former dates of her clients, she asked the women what they thought the reasons were for not being called back. The top three reasons were

- Timing (he was not yet ready for commitment, busy with traveling, other priorities in life)
- Fear (he was afraid of intimacy, of being hurt again, intimidated by her success)
- Why bother (because she has given him a negative vibe of not being interested in him)

But when Greenwald compared these more generic responses to the ones that the men gave her, the women were 90% of the time wrong with their guesses.

What's The Root-cause?

Once Greenwald had the men open up in the exit interviews, she got very detailed reasons of what made them not take any second chances with a particular woman. The majority of these men was in fact looking for long-term relationships. The behaviors that the women had shown, which they were completely unaware of, allowed Greenwald to offer advice to overcome those hurdles. Examples ranged from rude and bossy behavior, going through a checklist of questions that men likened to the feeling of having an interview with a sperm bank, stalking, and jealousy after the first date.

As a doctor should not just treat symptoms, a gamification-designer must understand the behavioral root-cause. We learned that the root-cause in our sales scenario is not ill-informed managers, but an employee-behavior that comes from missing training and overscheduling. The sales reps don't see any value in taking the training. It takes time away from selling, doesn't help them get their jobs done, and may reveal too much information about the internal competitive advantage that the sales rep has (information about his own client), and anyways the CRM sales app is just a pain.

What Is The Desired Behavior?

Once we identified the causes, describing the desired behavior makes it easier to address the larger problem. We want the sales reps to enter more detailed information into the CRM system. Easy? Not so fast. That still doesn't tell us how we can do it and why we want to change it.

Why Do You Want To Change The Behavior?

By changing the current to a desired behavior we expect to reach the goals that we defined in the first place. But this is illusionary if the goals do not align with the interests of the people who should help you reach them. While we need to keep the company's goal in mind, the reasoning should focus on the players' motivations for accepting and adopting such a change.

Who's Benefiting From The Change?

Having more information at an earlier stage is something that management profits from. Sales reps? Nay! And don't fall into the standard response of management that, "it is in the interest of every employee to make the company profitable." Certainly, they want to keep their jobs, and if the company doesn't make profit, they'll ultimately lose their jobs. But making or keeping the company profitable is abstract and not immediately beneficial to them.

As long as there is no overall value creation for the player, the player is not engaging on the level that she could. The player's benefit has the first priority; the company's benefit comes last.

Can The Activity Be Learned?

Being able to perform an activity is a prerequisite to changing a behavior. While every activity can somehow be learned, the amount of learning and practice may be out of proportion to the goal. If management decided to have their sales reps draw portraits of their customers instead of just snapping a photo, then the effort in acquiring the skill to perform the activity outweighs the benefits.

Can Feedback Be Given In A Timely Manner?

How much of a fun game would Angry Birds be, if you learned only three months later that you killed all the pigs? Besides not being much of a fun game, learning from the actions and their outcomes doesn't make the player more skilled.

If the women in the dating example had learned right away, maybe even during the dates what behavioral ticks were reducing their chances for a second date, they probably would have had not go through months or years of unsuccessful dating.

Same with the sales reps. If they experience timely results from entering the data, such as management being able to support them in closing the deals thanks to the additional information, then these are all reasons to change the behavior.

Can The Activity Be Measured?

Whether a change has been successful or not depends on metrics. And the desired behavior needs to be measurable. Asking for more user engagement on a platform requires a description of what engagement actually means. It could be a composite of one or multiple indicators, including number of posts, repeat visits, comments, and tweets.

In our sales example it could mean number of fields filled, time-lag between customer meeting and data entry, and so on.

How to make people care

In an interview for *The New Yorker* in 1989[\[cix\]](#), cellist Yo-Yo Ma described his transformation from a musician playing "just" perfect notes, to telling a story with music. "I was nineteen and I had worked my butt off. I knew the music inside and out. While sitting there at the concert, playing all the notes correctly, I started to wonder, 'Why am I here? What's at stake? *Nothing*. Not only is the audience bored but I myself am bored.' Perfection is not very communicative."

Ma realized that playing the music as described in the sheet music was not leading anywhere for him, nor his audience. A computer could play the sheet music perfectly. But that's not why we play music. Instead, we want to discover the feelings, the emotions, the larger meaning behind them.

That's how Ma looks at a piece of music. He doesn't begin by analyzing the separate pieces of the music score; he is searching for the larger story. "I always look at a music like a detective novel," Ma says. "Maybe the novel is about a murder. Well, who committed the murder? Why did he do it? My job is to retrace the story so that the audience feels the suspense. So that when the climax comes, they're right there with me, listening to my beautiful detective story. It's all about making people care about what happens next."

In 2013 a meteor struck Russia's Ural region. The 10,000-ton meteor traveling with a speed of 18km/sec became a big fireball and burst over the Chelyabinsk region. There were a number of interesting things that are noteworthy with this incident. First, this was the largest meteor striking over an inhabited region since the 1908 Tunguska event (affecting mostly uninhabited land), and which resulted in over 1,000 people being injured. Second, the meteor's entry was recorded by dozens of dashboard cams installed in cars, and by surveillance and traffic cameras. Third, the reaction of Russians witnessing the moment, or rather – the lack of any reaction – was very interesting. While the event took place at 9:20am Yekaterinburg Time and not everyone may have had a good cup of coffee to get their senses ready for the hardships of the day, the majority of video and audio recordings that went viral showed no reaction from witnesses. In one famous video the driver just pulls the sun visors and keeps driving with a straight face (Figure 18).



Figure 18: Russian driver's reaction to the Chelyabinsk meteor strike 2013[\[cx\]](#)

Although I may have a lot of thoughts and opinions about the reasons behind the Russians' stoic nature (disclaimer: I've been to Russia several times, are able to mumble a little bit of Russian, and my wife is Russian), this is a wonderful parable of the initial engagement level of most of your players. Like Russians, Chinese, and Americans, most people won't react to any promise or fabled story from their governments, marketers, or anyone else who'd just wants to sell them something. And your employees (and future players) may show the very same reaction to yet another motivational speech from management that they will forget as soon as they're leaving the meeting room.

How can we even engage such players? We need to find out what they – and not management - care about.

The video “Fun Theory: The World’s Oldest Problem“ [\[cxi\]](#) is a masterpiece demonstrating how you make a player care. A father tries to make his son lift the toilet seat and not pee on it. The challenge, of course, is that the father’s problem “keeping the toilet clean so that the father doesn’t have to clean it“ is nothing the boy cares about. It’s the father’s (read: management’s) problem. That’s why the father turns the challenge into something that the boy (read: the employee) cares about. So he glues a hand-painted picture of a cowboy to the toilet lid and drawn guns on the bottom side of the toilet seat. The challenge was reframed from a problem the manager saw, to an experience the employee cared about and could relate to.



Figure 19: The World's Oldest Problem (Youtube)

That is the way a challenge has to be transformed to engage your players. It's not easy, and as you can see in the video, the father adds a number of additional game design and fun elements into the approach. A pea that drops into the water for aiming purposes[\[cxii\]](#), music, a cowboy making a funny face. These elements created an experience that engaged the boy. Out of nine times going to the potty, he lifted the seat four times, a 44% improvement.

Beside these elements, the video teaches us a lot of other lessons. Gamifying lifting the toilet seat was the original challenge, but at the end we notice two new challenges: how we can make the boy carry the underpants to the laundry basket and change the empty toilet paper roll. These are unintended consequences[\[cxiii\]](#) that gamification designers need to embrace readily. They offer us new opportunities to challenge the players and keep them engaged with the game. Which brings me to the point that gamification doesn't end once the system is launched. It needs to be adjusted, extended and constantly monitored.

Gamification is a process, not a project.

You cannot just toss out your gamified application, sit back, and expect the players to play. That doesn't work with social media either. Every community manager knows that at the launch of new social media tools the community leaders need to work the most, create FAQ structures, post material, invite members, set up webinars and

information session to get the momentum going and the community to form and engage.

When you launch the gamified system, make sure that you have gamification masters inviting and engaging players, fine-tuning, enforcing, introducing new rules, balancing the rewards and feedback, picking up trends and either amplifying them or disincentivizing them.

Mission 3 – The Player

“Let my playing be my learning, and my learning be my playing.”

Johan Huizinga

Visiting a technology museum and watching old machines not only brings nostalgia, but also amazes us. How could people possibly use such awkward things? My recent visit to the Computer History Museum in Mountain View, California brought such amazement. On display were generations of computer systems, including missile defense systems, punch card operated computers, and the now infamous Honeywell 316, a 1969 kitchen computer for the modern housewife to maintain her recipes – in binary code! You may not be surprised to learn that not a single Honeywell 316 kitchen computer was ever sold.

This represents how problem solving has evolved. First, computers and software were built with only the problem in mind. How humans were going to operate them was not given much thought. But once engineers realized that leaving the needs of human operators out of the equation led to inefficient, ineffective, or even opposite effects, a new discipline arose: user-centered design. Arranging switches, buttons, displays and other input devices in an order that humans could make sense of, helped improve the results. In multiple iterations we still see this field developing, and with new devices that we use, moving from mainframes to personal computers to mobile devices, our understanding of what represents good interface design is ever evolving. The third major development comes with gamification. What are the motivations for the player to engage with the problem? We put an actual human in the center of our design decisions.



Figure 20: Player Centered Design[\[cxiv\]](#)

The User

“If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions.”

Albert Einstein

When user experience designers want to understand the problem and how to solve it, they interview and watch users interacting in the real world with the software or tool. Typically a handful of such user studies are done, which they then compile in what is called a Persona. A persona is a prototypical user that has many characteristics of the users. If the UX designers came up with a persona that they named “Susan,” they kept her as reference-point and asked themselves “Would Susan do this?” It often quickly becomes clear for everyone involved in the creation of the new product whether this feature or that approach is necessary and how it should work and look so that Susan would find it useful.

In marketing customer segments are popular. The 25 to 35-year-old, or the blogger moms are common segments. One problem with that is that they are not specific. Talking about a segment does not help with feeling empathy for a person. Using a segment does not help us with the question “Would Susan use or do this?” Switching from anonymous segments to individual players allows telling stories.

Gamification designers would create multiple persona to cover the expected player demography. At least 3-5 persona should be created, but I have seen projects with 20 and more.

Understanding the user may seem a non-brainer for us, but astonishing enough creating a persona is still regarded as something unnecessary in many organizations. Many claim to know their users. Until they meet one. A common response is “we don’t have time to create a persona,” which is especially astonishing, considering that spending several months developing a product that we think somebody wants is okay, but several days of observing the users’ needs is time wasted?

Player Dimensions

Traditionally, a persona focuses on two or three dimensions. Describing Robert, a 35-year old consultant, who is using the travel expense system, makes it clear that only two dimensions are necessary: the professional role, and implicitly from his job profile the skill level in the game of travel expenses. He is probably a regular user of such a system. Do we need to know that he is married, has two children, reads the New York Times, and watches NFL? Traditionally this didn't help us to design a better travel expense system for him.

Not anymore. With gamification we must ask ourselves what motivates and engages Robert? For the first time in the history of building enterprise applications, we do not prioritize the functionality first, or the motivations of the manager ordering the system, or the legal requirements, but the player.

For this, we must vastly expand what we need to know about our users. What actually is their family status? What are they passionate about? What media consumption do they have? What do they like? What makes them cry, laugh, angry, happy?

Professional Role

Let's start with a seemingly easy dimension: the professional role. What function, what job profile does your player have in the organization? Is this a consumer, an employee, or a business partner? Is this about a development manager, a secretary, a key account manager, a call center agent, a truck driver, or a maid? Or are we looking at a more abstract entity like a citizen or household, which leads us to a follow-up question: are the players adults, teenagers, or children? And where in the organization? Are they students, school staff, or community? The list goes on.

This allows us to understand with what tools we can reach them, what legal restrictions we have, and where the players might be interacting with our gamified system. And depending on their educational background and how their job is perceived in public, those players may react very differently to a gamification design.

Gamification in the corporate world so far has looked mainly at employees - or specifically white collar workers - who use computers and digital devices to interact with business systems. Blue collar workers, like those who are at an assembly line in the automotive industry, seamstresses, room maids in the service industry, or garbage collectors, present a different challenge for gamification designers. They may not use digital tools such as computers for their work on a regular base, and they often perform monotonous and mind-numbing tasks that cannot be changed or varied much.

To understand them and their motivations[\[cxv\]](#), as well as their specific needs, we need to look at how blue collar workers see themselves, what their values are, and how they deal with monotony.

Blue Collar Versus White collar

Blue collar workers, while they operate the machines know that they do not have control over production tools and facilities. Knowing this and understanding how blue-collar workers see themselves and what they value, gives us a clue of what a gamification-design for them needs to accomplish.

Because of the perception of their jobs, blue-collar workers respond to praise from a supervisor or manager different than white-collar workers. Especially if the praise seems not to result from what blue-collar workers value most. What they value is meaning, dignity, and self-determination of their work. This does not mean that white-collar workers are not valuing those as well. But blue-collar workers tend to compare themselves to lower and higher status professions more often than white collar workers do[\[cxvi\]](#).

While we mention some of these values already here, we will encounter them and others later in this book again as elements that motivate and lead to job satisfaction, or to job alienation.

Meaning

Every job has a meaning and is important. The ditch-digger, the whopper-flopper, the toilet-cleaner – all are doing necessary work. Keeping this in mind makes even the lowest-regarded job bearable.

Dignity

Dignity comes with how an employee is treated at work. Abusive behavior can drastically change productivity, health, and collaboration in a company.

Self-determination

Self-determination describes a player's freedom within some boundaries to chose what, when, and how a task is done. Having a sense of control and not feeling like a cogwheel in a large machine brings satisfaction.

Example: San Francisco Garbage Collectors

A surprising result from a study on San Franciscan garbage collectors showed that the workers rated themselves high on happiness. This is astonishing given how the public may regard this type of job as low status. But there are reasons for the high rating:

first, the work is meaningful. Without garbage collection the city would fall into chaos pretty quickly. Second, the workers of the San Franciscan Garbage Collection Company are also owners of the company. They have a say in who's managing them and how their colleagues treat them. And third, the workers can decide on how much time they take for a route and also periodically switch routes, which brings them to new neighborhoods.[\[cxvii\]](#)

Example: Work Songs

What may sound at first anachronistic, breaking the monotony of routine labor with singing along is quite effective. British and Australian researchers have assembled an impressive historical evidence of work songs in Britain over centuries[\[cxviii\]](#). Singing together at work fulfills a number of human needs, including belonging, dignity, learning, feeling human, and engagement. The researcher observed that singing can also serve as a valve to let off steam and have those quiet co-workers participate as well.

Here, we found further support for our argument of the immanent intermingling of play and work, fancy and function, within singing at work, for we showed the process of singing at work itself to be creatively political in the way in which it mixed work and play, with the sounds of work frequently making up part of the music of singing at work.

[..] Singing at work occupied a space of simultaneous work and play; it offered a sense of being-in-play whilst also being-at-work. In contrast to feelings of alienation between worker and work, it pointed instead to the possibility of the worker becoming the work just as the singer becomes the song.

The latter is also demonstrated in dances and songs in Austria, where the men clapping during the dance mimic the rhythms of flails separating the wheat from the chaff. Besides fulfilling the above mentioned needs, productivity gains can be gained as well, as was observed in the example from the first pages, with the farmer hiring only workers who were fluent in using *Gstanzln* in everyday work situations.

Skill Level

Whatever system or process we encounter for the first time, it takes time to understand what to do and what the rules are. Think of an ATM. We can be very familiar with that ATM that we use on a regular base, and glide through the process, knowing where to put in the card, which buttons to push and how to log out. But the ATM just across the street may have a completely different interface and it takes us twice as long to go through the same process.

For a **rookie** the system needs to ensure a quick onboarding. This is the process of getting the user to use the system without having to read many instructions. But don't punish them for failure. Instead encourage them to try, and give them feedback how well they are doing. We want to give them the feeling of early success. A rookie is not going to do the most sophisticated things right away, but needs to learn the basics.

The longer a player interacts with the system, the more familiar she becomes with it. The player understands that following a certain order makes work efficient, and should form a habit. The player becomes a **regular**. The system can then offer more sophisticated features. For these features a regular may be again in a temporary rookie-stage, but she gets the feeling of progressing, of learning, of becoming better. The player then becomes satisfied.

A very experienced player is a **master** and knows the system in and out. She has used all features, seen the system developing over time, seen other users struggling. But she does not find the system challenging anymore. That's why the system needs to adapt and offer other qualities for her to master. Because a master has seen rookies struggling, she is willing to help and teach rookies to onboard faster. Or a master may want to create challenges, like building new levels in a game. In a business application this could be a package of data that needs to be cleaned and prepared for the process by the master.

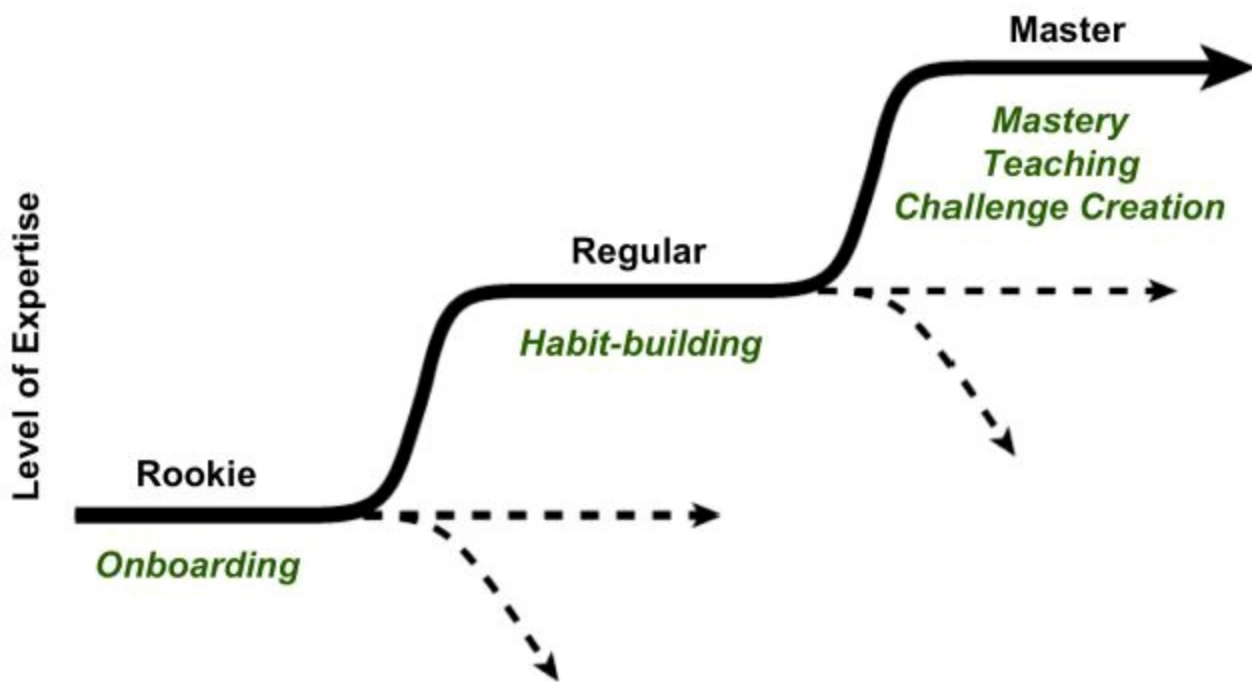


Figure 21: Skill Levels (Amy Jo Kim)

Gamification designer and community researcher Amy Jo Kim created a step-diagram

(Figure 21) that depicts the journey of a player through the different skill levels. With every step the level of difficulty increases. It is important to notice that the system needs to make it easy for the rookie, but needs to make it hard to master.

The dotted arrows in the diagram tell us that not every player will or can progress to the next level, and that they may even drop out. There are numerous reasons that are specific to each gamified application.

Player Type

The game designer and researcher Richard Bartle became known in the 1980s for co-creating the first multi-user dungeon (MUD), a text-based multiplayer real-time virtual world. He researched the player personalities in such multiplayer online games and divided them into four types: killers, achievers, explorers, and socializers.

Killers

Killers are players who want to fight with others, who want to win over others, who want to have everyone know that they won. They are very competitive and thus not focused on collaboration.

Achievers

Achievers are players who want to gain points, levels, equipment, virtual goods, and anything else that gives them a measure of progress and success. They will go to great lengths to accumulate rewards, even if these don't help them achieve game success. Prestige and the fun of having those items is a motivation for them. A certain type of achievers is even willing to spend significant amounts of money to acquire goods in the game in an in game purchase. Players who spend large amounts (some even \$100,000 and more) are also called "whales" and represent a small but very profitable segment for game studios.

Explorers

Explorers are players that enjoy discovering the virtual world in its completeness. They want to find every corner, every hidden feature ("Easter egg") of the world, and feel unfairly restricted when a game limits their options. Even after having discovered every corner of the game-world, they may log on again and choose a different player avatar to find corners that can only be explored by this character (like a mouse that can go into mouse-holes, while a cat cannot).

Socializers

Socializers play games to meet and play with other people or computer-generated characters. The game itself is not that important, as long as it allows playing with others.

Each of us contains all four of these characteristics. Some traits are more dominant than others, and they may change with the situation or over time. You can find out your own distribution by taking the Bartle Test of Gamer Psychology[\[cxix\]](#). Write down first what you think your distribution is, and then take the test.

Now if those four traits were mutually exclusive, how many people would be killers, achievers, explorers, and socializers? This is an exercise that I do a lot in my workshop and I let the audience guess the percentage for each category. The guesses are always very wild. Ranges between 10-80% are tossed around, and after the guesses for the third player types I remind them that the total must add up to 100%.

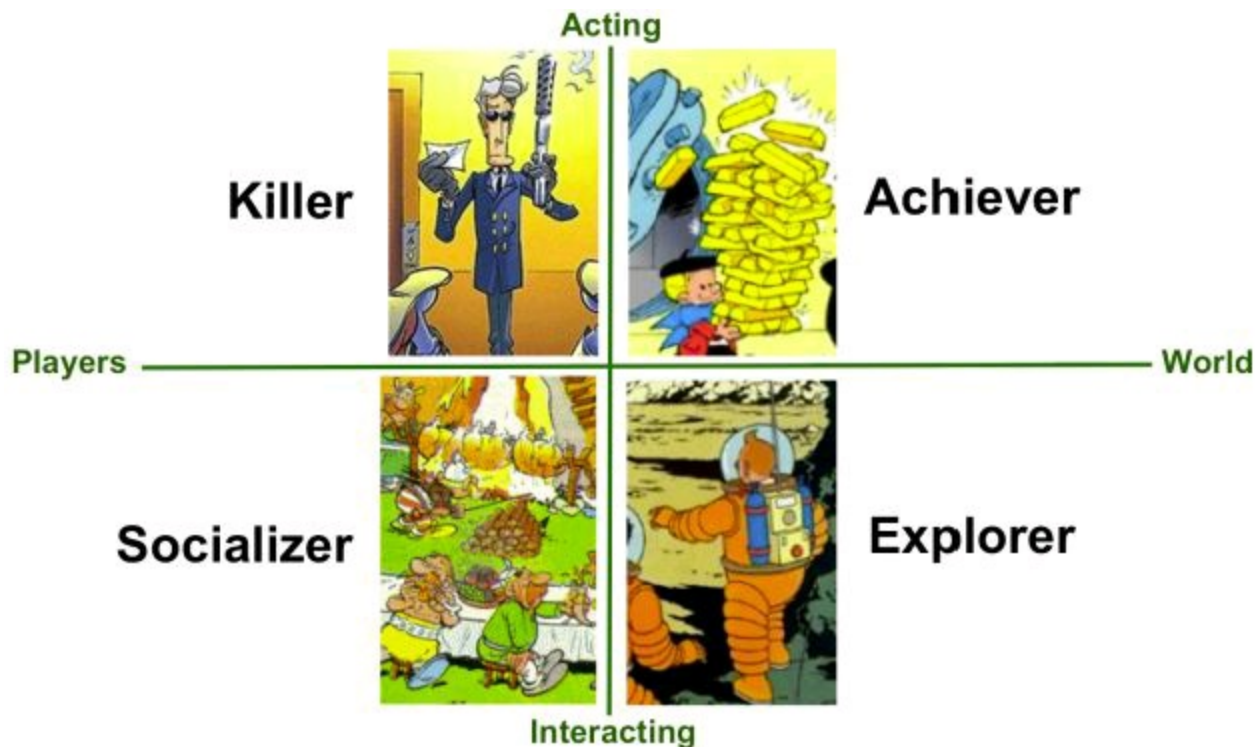


Figure 22: Bartle's Player Types

There is always an audible gasp when I finally reveal the distribution numbers. While often at least one audience member comes close to the number for socializers, the killer distribution takes them off balance.

It turns out that not more than 1% (according to other sources up to 5%[\[cxx\]](#)) of the population falls under the category of killers. Leaderboards, points, competition - that's what people have in mind when they think about games. But as it turns out even men are only 1% pure killer, and women not at all (unless you are married to my wife, then you have the exception to the rule).

There are a couple of arguments why using competition in gamified systems is not a preferred option. First, the number of players who enjoy competition is just too small. This fallacy comes from the people ordering gamification: managers tend to be male and those who are managers are more competitive than other ranks in the organization. After all they competed to top. Second, competition cannot last long. It costs a lot of energy to beat others and always strive to get to the top. The third, and probably the most important factor, is that we form organizations for the reason that together we can achieve more than as individuals. Encouraging collaboration, not competition, in an organization must be the goal. One person cannot win when everyone else AND the company as well are losing.

Also, only one person can be on top of the leaderboard. If you have 500 people, then

499 lose. How motivating is this? If you want to add competition, then better frame it as competition against oneself. Can a player beat her personal best? Is she better this week than last week? Did she learn the same amount as the last time? This also equals the playing field. Newbies and part-time worker are encouraged to engage as well, as are experienced players.

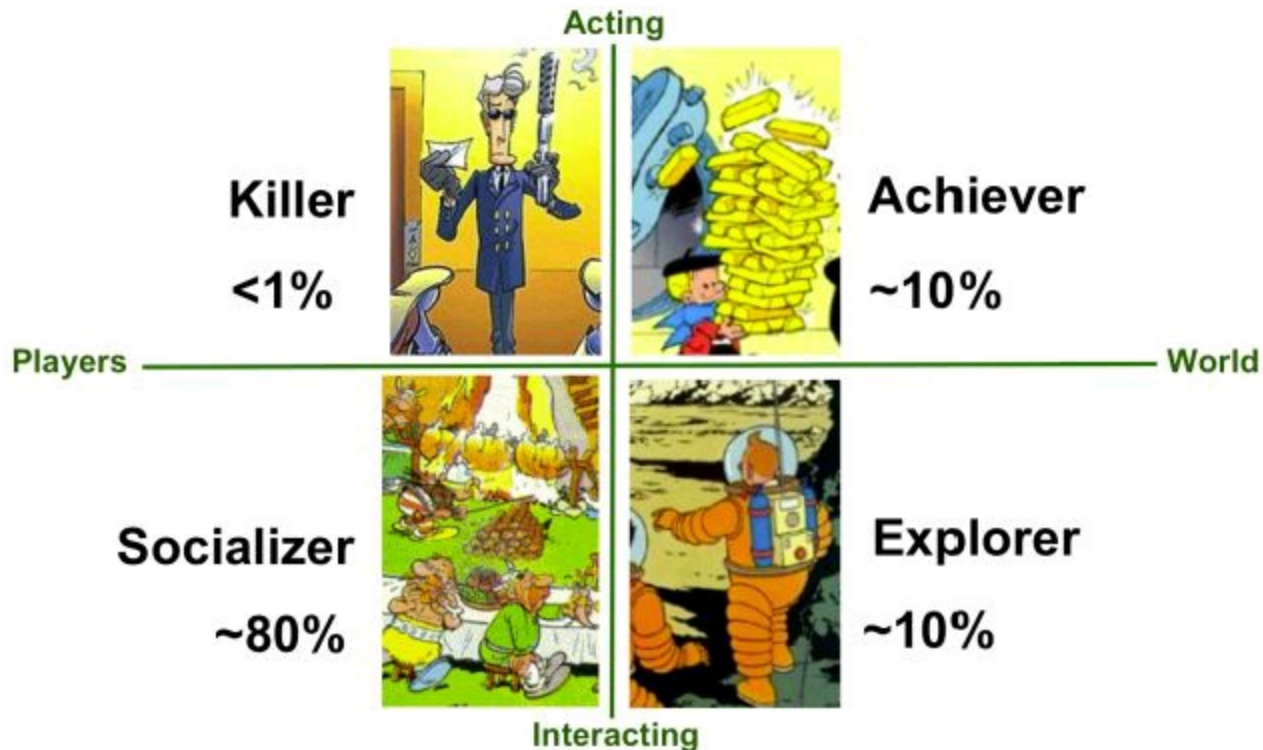


Figure 23: Bartle's Player Types with distributions

Bartle's player types are just one way of looking at your users. Motivations, personality types, and other approaches are also used for finding individualized solutions and ways to bring the most out of people. Depending on your specific situation, applying one or more of these categorizations may help you in your approach. Here are four more models and categorizations.

Game Player Motivations

Game-designer Jon Radoff[\[cxxi\]](#) suggested a variation of Bartle's player types (see Figure 24), and called it *Game Player Motivations*.

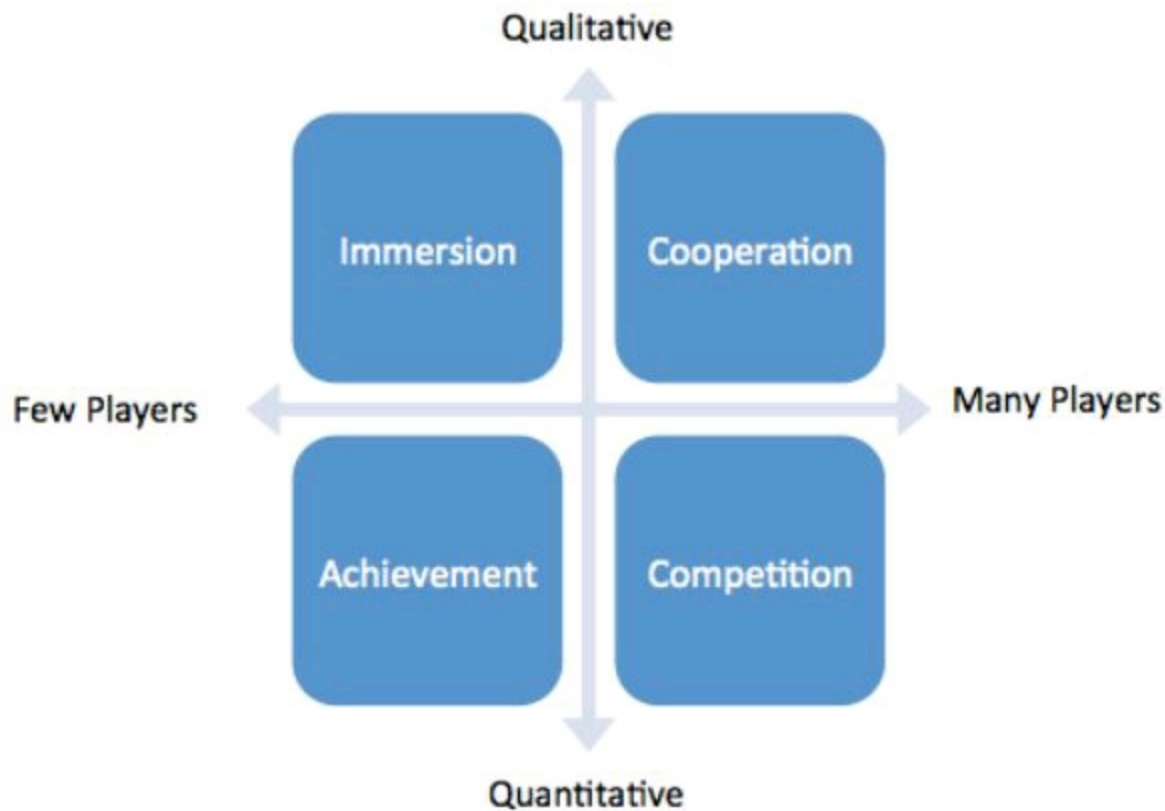


Figure 24: Game Player Motivations by Jon Radoff

1. **Immersion:** stories, role-playing, exploration, imagination, and a sense of connectedness to the world of the game.
2. **Achievement:** sense of progress, mastery of skills and knowledge, etc.
3. **Cooperation:** player involvement in activities where they are helping each other, through creativity, shared adversity, etc.
4. **Competition:** player involvement where individuals compete over scarce resources, comparison, and win/loss situations.

Personality Type Models

Beside the player types, many more models on human personality, information processing, and traits have been developed to describe how and why people act and react to influences from their environment. While they vary more or less in their approaches and sometimes come to differing conclusions, they represent a toolset for better understanding our players.

Personality Types

Jonny Shaw from *NakedPlay.com*[\[cxxii\]](#) and Chethan Ramachandran from *Playnomics*[\[cxxiii\]](#) clustered players in eight distinct personality types:

1. **Strategist:** Diligent, proactive, solo players that like a lot of control over their environment and their play. Typical game: Minecraft. (32%)
2. **Politician:** Intuitive, proactive, social gamers trying to get ahead intuitively by adapting their life and people into activities. Typical game: Chore Wars. (22%)
3. **Collectivist:** Diligent, reactive and social. They love badges. Typical game: Foursquare. (11%)
4. **Competitor:** Diligent, proactive, social players that are all about gaining respect, beating the other player. (11%)
5. **Soloist:** Diligent, reactive, solo players. Typical game: Drop 7. (7.5%)
6. **Socialite:** Intuitive, reactive and social. Typical game: Draw Something (7% of all types)
7. **Scientist:** Intuitive, proactive and a solo player. Typical game: Cut the Rope. (6%)
8. **Habitualist:** Intuitive, reactive and enjoying solo play. These types seek receptive pleasure feedback, even to the point of overindulgence. Typical game: Slot machines. (5%)

Myers Briggs Types

The Myers Briggs personality types are well known in the corporate world and are based on how people perceive the world and act on it. By combining the four dichotomies (Figure 25) sixteen personality types[\[cxxiv\]](#) are deducted.

| | |
|------------------|------------------|
| Extraversion (E) | (I) Introversion |
| Sensing (S) | (N) Intuition |
| Thinking (T) | (F) Feeling |
| Judging (J) | (P) Perception |

Figure 25: Myers-Briggs dichotomies

From the healer, champion, visionary, teacher, commander, protector to mastermind this personality categorization has been used in corporations for half a century.

Insights Wheel

Insights.com[\[cxxv\]](#) founder Andrew Lothian has come up with a combination of similar types, and assigned colors to each of them.

- The Fiery Red-type (“Be brief, be bright, be gone”) with competitive, strong-willed, driving, purposeful, task-focused, and goal-oriented traits,.
- The Sunshine Yellow-Type (“Involve me”) with Sociable, dynamic, demonstrative, enthusiastic, persuasive, and expressive traits.
- The Earth Green-type (“Show me you care”) with caring, encouraging, sharing, patient, empathetic, relaxed, and amiable traits.
- The Cool Blue-type (“Give me the details”) with cautious, deliberate, analytical, formal, questioning, and precise type.

Socionics

More elaborated than Myers Briggs, Socionics[\[cxxvi\]](#) is a model of how a person processes different categories of information. The eight information categories are mapped with eight psychological functions of perceiving, processing, and producing information that gives an understanding of the distinct thinking patterns, values and responses to arguments. This model also allows us to either match personality types that are more likely to collaborate better, or to help conflicting personality types to understand each others perspective better.

Culture

The well-known phrase “What’s good for Texas is good for the world” has never been true. Because it worked in Austin, doesn’t mean it works in Frankfurt. Or even in another part of Austin. Experiences are different, as well as are norms, morals, laws, history, geography, or nature. We take a look at a couple of them, including fairness, individualism and groupism, rewards, competition, identity, and honor.

Fairness

Is fairness a concept that is universally valid or are there different notions of what is considered fair? We may see a foul play in a soccer game differently, depending on the team we root for. Truth is that the concept of fairness has some elasticity and a lot of meanings. A quick search on Wikipedia gives an astonishing number of disambiguation.

This tells us that there must be cultural variations of what is considered fair. Let's look at the popular TV game show "Who Wants to Be a Millionaire," which is a kind of *Big Mac Index*[\[cxxvii\]](#)-equivalent for fairness. In the French version "Qui veut gagner des millions" a candidate named Henri had done well with the first couple of easy questions and got as his next challenge "What orbits around the Earth" four options: The Moon, the Sun, the Mars, and Venus. And here he started struggling. As in any version of this TV show, a candidate can make use of three lifelines, and Henri – after ruling out Mars and Venus – decided to use the audience lifeline.

This is where an interesting thing happened: 56% of the audience said "The Sun." Henri trusted the audience – and was eliminated. Now did this mean that the French audience was stupid? Many commenters interpreted that result as such. But as Ori and Rom Brafman tell in their book *Sway: The irresistible pull of irrational behavior*[\[cxxviii\]](#), the audience may have grappled with fairness. If a candidate like Henri cannot even answer a simple question like this one then the audience found him undeserving to proceed in the game and winning the million. In their mind having Henri win a significant prize after such a blunder seemed simply unfair to the other, more knowledgeable candidates.

But 90% of American audience answers are correct. For them fairness is siding with the candidates, regarding the candidates as being pitched against a larger system. Any help they can give is good to beat the odds and make the success story. This is the American story from rags to riches, the notion that everyone can make it.

On the other end of the spectrum we find Russia and Ukraine. Candidates on that TV show have learned the hard way that the audience cannot be trusted. The audiences tend to mislead the candidates. While everyone wouldn't mind being rich, the people who really become rich are deemed suspicious, and unworthy. The person doesn't deserve to be rich if others aren't rich either.

So we get three different standards to which fairness is interpreted:

- USA: Candidate vs. The System
- France: Candidate vs. Candidate
- Russia/Ukraine: Candidate vs. Everyone

In an experiment mentioned by Dan Ariely[\[cxxix\]](#), a test subject (sender) was given \$20 and he was asked to split it with another test subject (receiver), who knew about the \$20. The receiver could either accept or reject the money. But rejection also resulted in both losing the money. As it turned out, the majority of receivers rejected the money when it was not split evenly. They considered the split being unfair.

However, when the same experiment was conducted with an indigenous tribe in Brazil that hadn't had much interaction with other cultures, the receivers accepted an uneven split at a much higher rate. When asked, they said that they were happy for the sender to have gotten money and grateful that they had thought of them to share the money with them.

Fairness can also be age-dependent. In an interesting study[cxxx] with babies researchers showed one-year-olds three puppets playing with a ball. The puppet in the middle would slide the ball to the puppet on the left, who would pass it back. Then the middle-puppet would slide the ball to the puppet on the right, who would run away with the ball. The toddlers were asked to take a treat away from the puppets and most of them would take the treat from the one puppet that had run away with the ball. Except one boy who went even farther: he smacked the puppet in the head. This is an example that even little children already have a feeling for fairness.

In experiments young children were asked to distribute treats amongst each other after they all together performed a task. The children distributed them equally. High school students, on the other hand, distributed the rewards according to the contribution that everyone had given.[cxxxii]

In games fairness can be categorized under three types:

1. Skill
2. Chance
3. Labor

Based on these types there is debate whether some games are actually games and whether the right activities are rewarded, and hence, fair. The most vocal critics emphasize that a game that focuses on rewarding skills is the fairest, because it also rewards learning, while pure labor and grinding your way through the game does nothing to teach a player and is thus not worthy of rewards.

To solve this, these elements need to be matched with the type of goal. For example not every goal aims at teaching the player a skill.

But fairness is also influenced by other value systems. As researchers[cxxxii] found, loyalty can be in direct competition with fairness. In the case of whistle-blowers, study-participants who had strong beliefs in loyalty were more likely to see whistle-blowers as traitors, while those who valued fairness would see them as heroes.

Individualism and Groupism

Po Bronson and Ashley Merryman[\[cxxxiii\]](#) cite studies that in Western cultures, individuality is emphasized. People are encouraged to define themselves by the things they like and dislike. In high school, joining distinctive subgroups satisfies forming this identity. In Asian cultures the tendency is to value social harmony. That means children are discouraged to define themselves through personal preferences. The interesting outcome is that less groupism is observed in Japanese high schools than in the US.

Competition is such an example. As a personal experience I can mention one hackathon that a team that I had worked with in Shanghai didn't name first, second, and third place winners. Instead the organizers named the three best-ranked teams, but no winner.

Rewards

How about cultural differences when it comes to rewards? Shouldn't we all love stuff when we earned it? While early gamification designs have focused on points and badges, more meaningful interaction can be more powerful. Take the results that researchers from the University of Michigan published[\[cxxxiv\]](#).

Mitbbs[\[cxxxv\]](#), an online community for Chinese expatriates living in the US, was surveyed and analyzed for the interaction between the members of that community. While interactions in communities with members from Western societies thrive well with rewards systems that offer points, badges and the like for contributions and engagement on the platform, this expatriate community used gifting as an important component. According to the researchers, the social interactions reflect the traditional Chinese idea of *guanxi*, or interpersonal influence and connectedness. The administrators of this community implemented features that allowed the users to reward each other. Guanxi on Mitbbs is expressed through gifting in two forms: *renpin*, which literally means "moral quality" and close to what we know as *karma*, and through the concept of *weibi*, which is a virtual currency. Exchanging weibi for help, and rewarding other users increases guanxi. Renpin, which is necessary to bring luck, as needed in a driver's test or for the birth of a child. Users are even publicly shamed if they amass a lot of renpin and don't share them.

A third concept, that is not a feature in the platform but is used nonetheless by the members, is *baozi*. Baozi are steamed stuffed buns. While there is no feature built in in the platform, users substitute them by posting pictures of buns, thus virtually thanking the community and individuals when they've been especially helpful.

In another community the issue of tangible rewards put the spotlight on cultural

difference as well. The SAP Community Network (SCN or SDN), a professional community, had been using points to reward members for their contributions. To reward the milestones, members received a T-shirt with texts like “1/4K SDN Member” or “5K SDN Member.” The number represented the points achieved. Members from India prized that T-shirt so much that even a slight shipping delay caused angry emails to the administrators asking for their T-shirt, because their co-worker already got his and kept bragging about his status. Western members, on the other hand, didn’t really put any value in the T-shirt. It was just another T-shirt. They finally suggested to get rid of the shirts and donate the allocated money to a charity. And that’s what they did. The T-shirt program was discontinued, and the money went to the United Nations World Food Program.

Competition

When we talk about rewards, we need to mention competition. While in the US the *Employee-of-the-Month*-award is very common, this would not work well in European societies. Being from Austria, I remember the first time seeing that, and it made me wonder what the reaction of the other employees would be. In Austria, Germany or the Netherlands[\[cxxxvi\]](#) the focus is not so much on the individual.

The difference in acceptance can be exemplified with the Soviet-area “Hero of Socialist Labour.”[\[cxxxvii\]](#) This honorary title was handed out in the USSR and Warsaw Pact countries for exceptional achievements. What was meant to honor an individual quickly turned into something that people regarded with distrust. Those honored by the institutions were immediately suspected of having earned the title not through achievements, but more through their political network.

Identity

Identity on virtual platforms offers a lot ways to engage a user. In practice, elements of role-playing, social interaction, narrative, or fantasy are some of them[\[cxxxviii\]](#). In a cultural context, they also aid to hide real identities, for real-world reasons. Especially when the players are from countries with repressive regimes, they tend to hide identities, as observed in the example of the Chinese expatriate community Mitbbs. And the same is true for other countries, like Russia. My wife tends to be much more careful about what information she reveals because of her general mistrust of the institutions of her home-country.

A Specific Look On Differences In Asia

Analyst group Forrester published a pretty interesting analysis of a few key differences typically seen in APAC relating to the application of gamification[\[cxxxix\]](#).

Some competition is public, some is private. Asian cultures can be sensitive about the information they share and the way they are perceived publicly. Some public competitions (like leaderboards) may not work as effectively as private competitions (e.g., un-named groups or even competing against oneself or a technology system may be preferred in many instances over public declarations of success or leadership). This is very much dependent on the topic and the information being shared.

Multi-channel integrated gamification is much more powerful in Asia. Due to the high penetration of mobile devices and the different ways mobiles are used throughout Asia, the inclusion of an integrated mobility strategy for gamification is not only suggested, it is almost mandatory. The integration of gamification across channels, including physical channels, is a strong differentiator in Asia.

Low investment or free rewards have greater currency in Asia. Commercial gamification can be challenged in Asia by the "game of free". It's not uncommon to see anything perceived as free (or close to it) as being attractive whether it has real commercial benefit or not. This is also impacted by many of the following observations.

Kudos fails where real rewards succeed. A commonly cited difference in Asia from gamification advisors or consultants is that "kudos" is often not enough to engage consumers. They increasingly need real and hard rewards for investing game play effort. Without the opportunity for real value at the end (like discounts and free offers) they are much less likely to succeed.

Many Asian users value the journey as much, if not more than, the reward. For many Asian users, the idea of gamification is not so much about the competitive rankings, rewards or gameplay. It's just as much about the learnings and the journey. Therefore, many of the objectives and benefits of gamification can be lost when translated from other markets to Asia.

The novelty of gamification often lasts longer in Asia. Many case studies show that the same gamification strategies can have a much longer life in Asia than in other global regions. It is far more likely that Asian consumers will persist with gamification once they have been onboarded and become absorbed.

Gaming cultures can dilute gamification benefits. Some cultures (for example Chinese) have an inherent proclivity for gaming. This can dilute the

effectiveness or require significantly increased investments in the development of gamification strategies. When there is a significant tendency for game play regardless, the novelty and attraction of gamification can either be enhanced or diluted. Careful attention must be paid to understanding the likely perception of gamification and its implementation based on existing cultural or behavioral traits.

Wording is often more critical in Asia. *In many global markets it's the game play, not the wording that is critical. In Asia, language can have a major impact on the success or failure of a gamification strategy. For example, using the word "mission" may have a very different effect than using the word "objective" or something perceived as even softer.*

Gameplay must respect cultural norms. *Many common gameplay strategies don't translate easily to Asia because of the complex web of cultural sensitivities. There are some things which are off limits for gamification. Some styles of gameplay in general, or specific styles of game play in certain situations, can be problematic. For example, life insurance companies have tried adding game play to morbidity calculators with very different results in Asia compared to other global markets.*

Addiction and compulsive behaviours/tendencies can be magnified. *Where there are tangible rewards for game play (such as bonus or incentive schemes), there is an increased likelihood of addictive and compulsive behaviors being magnified. This can create social problems and may even be monitored or regulated by authorities in some regions.*

Gamification expertise remains scant. *The experience and expertise in Asia is generally lacking compared to other global regions. This is perhaps due in part to the "over-optimism/over-pessimism" syndrome that markets like Singapore tend to adopt. That is, they begin with over-inflated expectations and then abandon projects with haste when the results don't seem to come so easily.*

Honor

If you live in the US, you don't have to go as far as Asia to see cultural differences in action. Take the research done by Dov Cohen and Richard Nisbett[\[cxl\]](#). They asked their test subjects to fill out some forms and bring them to a table at the end of a narrow hallway. In the middle of the hallway they would pass a man working at a file cabinet. In the moment when the test subject passed, the man would slam the file cabinet and bump into them with his shoulder and call the test subject an "asshole."

The reaction of the test subjects depended on where they were from. If they were from the southern United States, they reacted to this insult with more anger and less amusement than test subjects from northern states. Also their physiological reaction reflected this. Saliva samples collected right after the incident revealed an increased level in testosterone and the stress hormone cortisol in Southerners.

That difference in reaction has been explained with the *culture of honor*, where people try avoiding offending each other, and maintaining a reputation for not accepting improper behavior. This is theorized as coming from the kind of *lone herder* mentality. A farmer or lone herder has to make a credible opposition to outside threats in order not to be taken advantage of. This may also explain the stand-the-ground laws that recently have become infamous.

Before we go into a lengthier argument and judging such differences, let me just mention that this difference also shows that Southerners in general are more polite in interactions than Northerners.

Playing Style

Players today have a lot of options how and where they want to play. The same application may be available on the computer, a smartphone, or a tablet. This allows them to interact with the system at places and times of their choosing. They could very well sit in the office at a desk, but also while waiting in line at the grocery store, on their sofas, in bed, and the back seat of a car.

A gamification design needs to take this into account, as the length of missions and the complexity of the tasks required may need to vary.

Gender

Whenever I talk about gender differences, I can be sure to receive furious feedback from some audience members that I am just propagating stereotypes and that there are many studies that show also the opposite effect. Well, I am not here to propagate stereotypes, I am here to help you make good gamification design by considering many aspects that could influence of how successful your design will be. Disregarding gender differences may satisfy my feminist view, but if bad design leads to setting up women to lose in the workplace, then I'd prefer to talk about stereotypes, base them on solid studies and make the corporate world better for everyone.

Having said this, let me just start propagating some stereotypes.

The big data and analytical company *Flurry*[\[cxli\]](#) estimates the rate of female players for traditional games at 40%, while for mobile and social games the numbers are

53%. The majority of players in social and mobile games are women. And that number seems to rise, as the video game markets shifts massively from hardcore console games to social and mobile games. According to Tom Smith[\[cxlii\]](#) from *Trendstream*, women are particularly attracted to short, casual games involving an active community, like FarmVille or Pet Society.

Research from Hilmar Nordvik and Benjamin Amponsah[\[cxliii\]](#), as well as game designer Brenda Laurel[\[cxliv\]](#) came to a list of things for each gender in what they like to see in games. According to the studies, men prefer

1. Mastery
2. Competition
3. Destruction
4. Spatial Puzzles
5. Trial and Error

while women prefer

- Emotion
- Real World
- Nurturing
- Dialog and Verbal Puzzles
- Learning by example

Those differences explain why men are never asking for directions (they prefer trial and error), and that a spatial puzzle like *Foldit*[\[cxlv\]](#), a game that helped scientists to fold DNA structures for finding cures, may exclude half of the potential (and homosexual[\[cxlvi\]](#)) players.

Women, on the other hand, like mastery only, when it is meaningful. But they like nurturing and the connection to the real world and to emotions. And we all have experienced that girls tend to acquire languages faster. And they also are the ones who read instructions.

If you want to read more about women and videogames, there is a whole Wikipedia article[\[cxlvii\]](#) dedicated to that topic.

Generation

According to Jesse Schell[\[cxlviii\]](#) games and interest in them change with ages. Jesse

lists age groups and matches them with interest levels in play and games.

- 0-3: Infant / Toddler – interest in toys
- 4-6: Preschooler – first interest in games
- 7-9: Kids – the age of reason
- 10-13: Preteen or “Tween” – age of obsession
- 13-18: Teen – lot of time at hand
- 18-24: Young adult – play less than kids, but developed tastes
- 25-35: Twenties & Thirties – peak family formation
- 35-50: Thirties & Forties – family maturation
- 50+: Fifties & Up – Empty nesters

The formative ages in play preferences are in the teens. In that age we play obsessively and develop tastes. We will have less time to play later on, due to studying, working, mating and dating, and building families, but once the children moved out, we suddenly have time to play again. And then those “empty nesters” prefer playing games that give them experiences like they had when they were young.

To understand the current generations of people in our workforce, we talk about the *Millennials* or *Generation Y*, the *Generation X*, the *Baby Boomers*, and the *Traditionalists* (see Table 3). For our workforce study, we don’t need to consider the “Traditionalists” anymore.

| | Style | Content | Context | Channel | Frequency |
|---------------------------------------------------|----------------------------------|--------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Traditionalists (born before 1946) | Formal | Detail; prose-style writing | Relevance to my security | Print; conventional mail; face- to-face dialogue or by phone | In digestible amounts |
| Baby Boomers (born 1946- 1964) | Semi-formal | Break it down, but give me everything | Relevance to the bottom line | E-mail (and a lot of it!), group/team meetings, mobile phones for talking (not necessarily for texting) | As needed |
| Generation X (born 1965- 1976) | Not so serious; irreverent | Get to the point – what do I need to know? | Relevance to what matters to me | Email, mobile phone, text, blogging, instant message, online forums | Whenever |
| Millennials (born 1977- 1997) | Eye- catching; fun | If and when I need it, I'll find it myself | Relevance to who and where I am | Text, online social networks, e- mail (but only for work or school), instant | Constant |

Table 3: Generation-dependent Communication Preferences[\[cxlix\]](#)

Do older users like gamified systems less, or are they less ready for gamification? Is gamification only for younger generations? According to Vlad Gyster, CEO and co-founder of *H Engage*[\[cl\]](#), the age distribution in their research based on over 27,000 employees almost exactly mirrors the eligible population. Figure 26 shows that there is no indication that older employees are adopting gamified applications at lower levels, or younger generations more likely to use them.

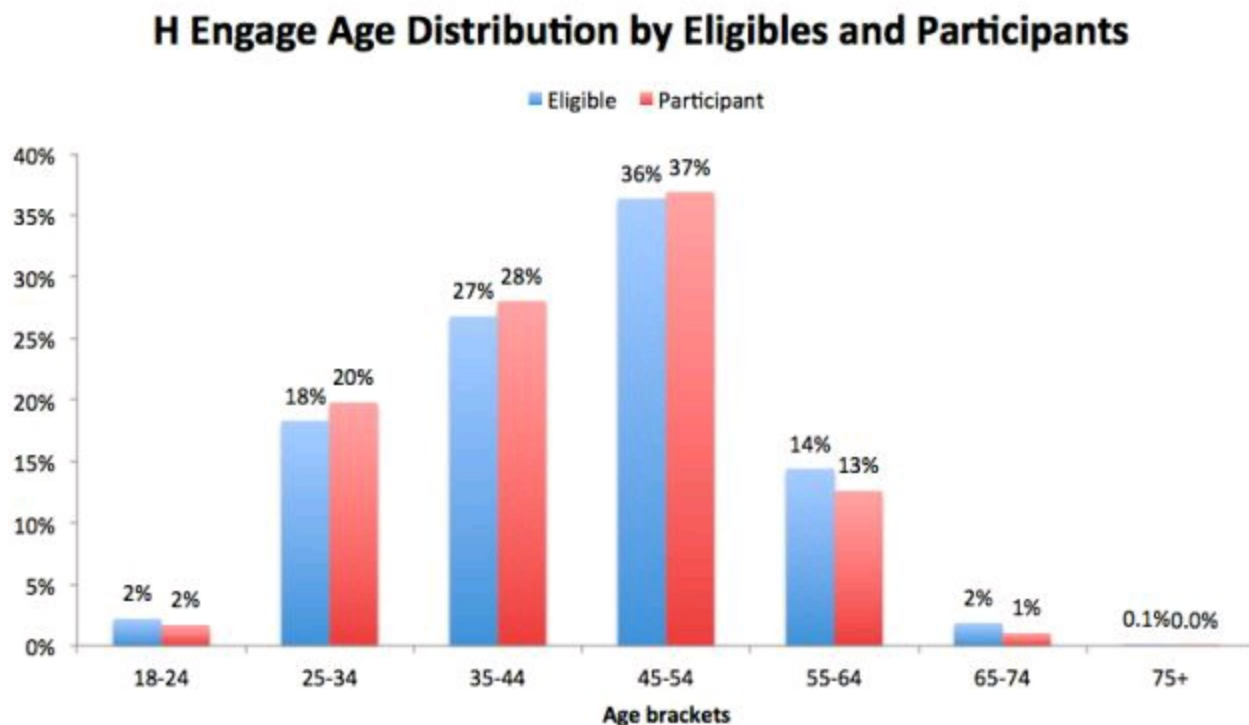


Figure 26: Age Distribution by Eligibles and Participants © H Engage

A number of interesting facts on the millennials come from a variety of studies[\[cli\]](#). In 2013 there were 79 million millennials in the US, and they will make up 50% of the workforce by 2030. A whopping 27% of millennials are self-employed, and 80% of them sleep with their phone next to their beds.

Managers struggle with attracting and understanding millennials, as a survey[\[clii\]](#) amongst 500 German companies has shown. Millennials' priorities are different and are regarded by managers as pretentious. Those millennials question the way work is done in the company, they ask for immediate feedback, want flexible work hours, are less interested in money and titles, but more interested in doing interesting work, and

using their social networks to get work done. While these are all characteristics of people being really engaged (how would you call somebody suggesting improvements to the way the company works?), traditional companies regard that as a threat. Especially when they reach out to their social network and potentially share secret company information. But this is the reality of a 21st century company. You need to prepare for innovation, and you can't achieve that with somebody who's not questioning the way things are done and shows no interest in feedback.

As a side-note, the only positive comment from the managers in that survey was about the foreign language capabilities of the millennials.

Social Role

When talking about the social context of a player, we mean two things:

- social circle
- social network

The **social circle** describes the player in regards to family and friend status. Is the player a mother, then tell us more about the ages of her children. What's her marital status, how is she active in her community? Does she hang out with friends in a café, engage in volunteer work, do sports, sing in a choir? This type of information gives us many clues to what she may be passionate about and allows us to build hooks in our gamified application that may better engage her and give her meaning.

The **social network** description takes a look at what role the player fulfills in social media. Is this a player contributing a lot through blogs, discussions, and original work, or somebody taking on to administrate and police, or just watching and observing?

The curator of the TED conferences, Chris Anderson, wrote about innovative communities[\[cliii\]](#) in an analysis of what creates the high quality given at TED speeches. He attributes this to the way the TED community pushes itself to higher and higher levels with each new conference. An innovative community is not just populated by people who have ideas. In fact, idea people are the minority. Fewer than half a dozen people out of 100 are likely to innovate. And they won't have ideas all the time. But if the community is not just a hundred members strong, but more ten thousand, or one million, then you have many people who are likely to innovate. And not only that, they will be exposed to a lot of good ideas.

But the innovator is only one type of social role that is necessary for innovation. In a

typical innovative community you also need

1. The trend-spotter, who finds a promising innovation early.
2. The evangelist, who passionately makes the case for idea X or person Y.
3. The superspreader, who broadcasts innovations to a larger group.
4. The skeptic, who keeps the conversation honest.
5. General participants, who show up, comment honestly, and learn.

Depending on the type of community that we create in our gamification design, we need to consider these other roles as well, give them the right incentives and progression paths. In a game not only a warrior should be able to earn points, but also the healer, the trader, the leader. In a social network, beside the blogger we want to reward the editor, and the administrator equally and honor their work.

Work Environment

Recently I visited the California offices of a large insurance company. Entering the office made immediately clear why this company had an engagement problem. When you walked through the ceiling-high cubicles you couldn't hear a peep. If I hadn't checked, you would have thought that building was empty. That isolation may have created a quiet environment to work, but social interaction between employees was dampened. It's unlikely that there would have ever been a sudden outbreak of a Nerf war, as it regularly happens in the halls of the game publisher Electronic Arts. A former colleague of mine who'd worked there for a couple of years said that the first thing she got on her first day was a game console; her laptop arrived only two days later. And at least twice a day a sudden Nerf war started.

The work environment influences, how bold you can be with a gamification design and what the players will accept. With a hierarchical company, you may want to make sure to keep the threat of overthrowing that hierarchy to an acceptable level. An indication of a hierarchical company is when employees refer to their managers with full titles and last names. If the language in the company tends to be more coarse, because of the kind of profession (soldiers, truck drivers, metal workshops), you may have more liberties in how you name levels and badges, as long as they fit into the environment and are accepted by the players.

Introversion / Extroversion

In her book *Quiet: The Power of Introverts In a World That Can't Stop Talking*, Susan Cain argued that introversion is a proactive trait. This is of interest for

gamification, as introversion may impede the success of certain approaches that require interaction between players, or supervision. As it turns out, introverts work most productively without supervision, as they find being monitored distracting. Extroverts on the other hand seem to thrive from the extra stimulation, attention and interaction.[\[cliv\]](#)

Character Dimensions for Movies

Whenever I am in the Los Angeles area and ask the audience to raise hands if they have written or are working on a movie script or novel, you can bet that I see hands going up from half the audience. Not so in other locations. And that's a pity, because creating a character for a movie or a novel is important to understand the creative process and how a story may develop.

I myself have written short stories and two humorous movie scripts. Characters that you invent start having their own life. A few years ago I published a satirical magazine and my cartoonist and I discussed a lot the personal traits of the characters in the comic strip that populated the pages. The stage of the comic strip was a typical Viennese setting: a café. After only a handful strips, we couldn't believe how the characters turned out. The grumpy waiter had this leather-fetish side in his time off. The supposedly nice Japanese music student turned into this sexy but bitchy and dominating girl. And the only one who seemed to keep his calm was *Rupert* the dog. Our main character, *Rappelkopf*, turned into a sidekick. And this transformation happened before our very eyes.

No wonder that movie scriptwriters and novelists struggle with their characters, like they do with real people. To make a character richer, to describe your characters, in this case our players, there are a number of helpful approaches. Some of the player dimensions[[clv](#)] with some attributes stolen from the movie-industry, describe:

1. **Physical dimension:** height, weight, body type, ethnic origin, scars, deformities, etc.
2. **Sociological dimension:** the character's origin, upbringing, place of birth, etc. plus the character's current environment
3. **Psychological dimension:** how the first two dimensions have formed the character's view of the world. Any two people born in the same place and with similar physical features may react entirely differently when confronted with conflict or relationship.

Persona Example

With all the player dimensions explained, here is an example that I use in my workshops.

Susan is a 36-year-old single mother of a 5-year-old boy. She works in marketing for a mid-size company. On the weekend she enjoys reading the New York Times while sipping her latte. Recently, she has started to play FarmVille on Facebook with her friends in the evening after her son is asleep, and feels guilty about that.

What can we learn from that description? Do you think Susan is successful in her career? Answer that question for yourself first, before you continue reading the next paragraph. Whatever your answer, lay out the reasons why you think she is successful, or why she is not.

Every single time this question stirs up a lively discussion. Some see her as successful. She has a good job, she can treat herself to a latte, and she reads a highly regarded newspaper. And she has time enough to spend her time online playing games. Others see her as stuck in her career. She feels guilty for playing an online game.

Now here is my interpretation having written the example. First she is a single mother. We don't know if the father is in the picture, or her parents who are here to help her with raising her son. Also we don't know how her love life is. Is she dating, is she in a relationship? The text doesn't say, but we may assume that she is not. With her 5-year-old, she certainly needs to drop him off at daycare in the morning and pick him up at specific times, which restricts her from having early morning or late afternoon meetings. Also, traveling to visit customers or host customers in the evening may not be an option for her. When her son is sick, she may even have to stay home. With small children that happens frequently and of course always in the worst moments.

Maybe 7 years ago she rocked the world, flying high, traveling. But her life today is very different. The girls-night-out with cocktails has been replaced with playing Farmville. This is not just a game where players grow crops and raise chicken, it's a place where friends are hanging out virtually. They are all in the same situation, 35-45 year old women with children. Through Farmville they stay in touch and show that they care for each other.

Susan's priorities changed. Her son is the most important thing, but she also needs adult conversations with her friends. From a career perspective she may feel she has reached a ceiling. She feels guilty playing Farmville, because she'd like to work on

her career and that's the time when she could put in an extra hour.

This short persona description gives us a lot of clues of what Susan would engage with in a gamified system. If we chose to add competition, it's very unlikely that she'd engage that. But if we design a system that has a social component where she can connect with co-workers and that gives her the autonomy to choose the time of day when she puts in work hours, then she would feel that the work schedule can be tailored around her needs and the results would be visible to her colleagues and manager.

Mission 4 – Motivation and Habit

“Motivation is what gets you started. Habit is what keeps you going.”

Jim Ryun

Motivation is the psychological feature that arouses an organism to action toward a desired goal and elicits, controls, and sustains certain goal directed behaviors[\[clvi\]](#). The word motivation comes from the Latin term *motivus*, which means “a moving cause.” As George Carlin humorously (and with an uncomfortable amount of grain of truth) states, motivated people can do and accomplish many things.

“If you ask me, this country could do with a little less motivation. The people who are causing all the trouble seem highly motivated to me. Serial killers, stock swindlers, drug dealers, Christian Republicans. I’m not sure that motivation is always a good thing. You show me a lazy prick lying in bed all day watching TV, and I’ll show you a guy who’s not causing any troubles.”

Motivational Theories

There are a number of motivational psychological theories that are related to gamification that we need to understand and keep in mind. Some of these theories and models that we will discuss are:

- Maslow's Theory of Needs
- E-R-G Theory by Alderfer
- Balance Theory by Heider
- Motivation 1.0, 2.0, and 3.0 by Pink

Theory of Needs (Maslow)

Abraham Maslow proposed in 1943 the *pyramid of needs* (Figure 27) that most of us are now familiar with. What motivates us is basically a hierarchy of needs. According to Maslow, each level is the foundation to reach the next level. If one level is not satisfied, the motivation to reach the next may be there, but the need to first satisfy the lower will prevail.

The levels with the needs that Maslow describes are

- Physiological Needs
- Safety Needs
- Love/Belonging Needs
- Esteem Needs
- Self-Actualization Needs

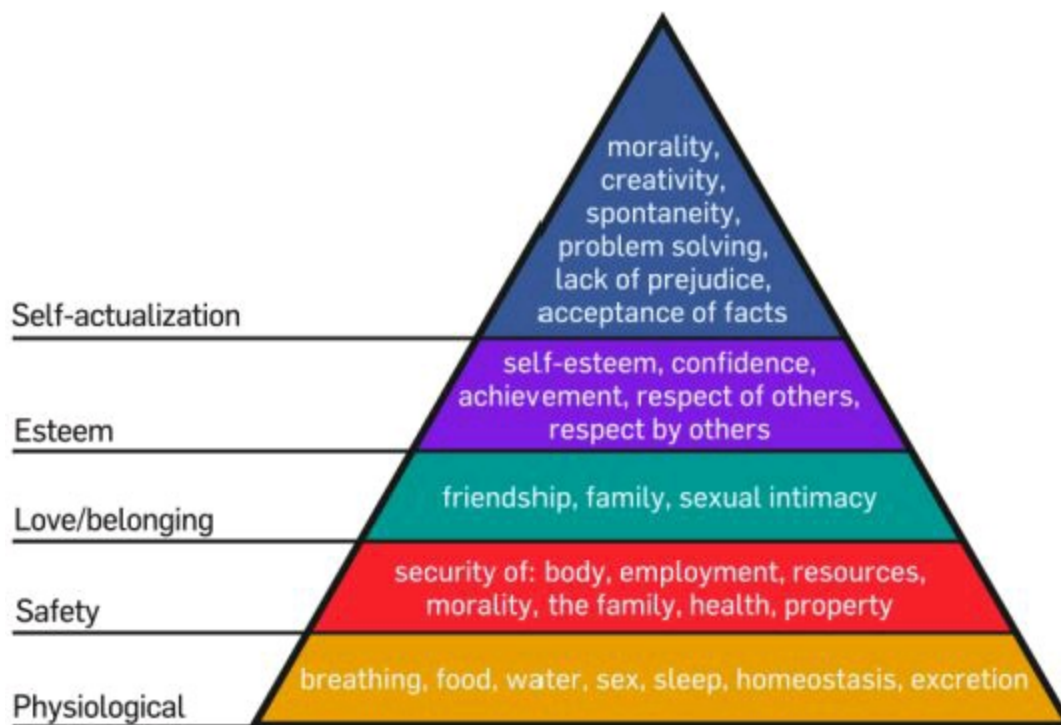


Figure 27: Maslow's hierarchy of needs

An example of this would be that if you don't have enough to eat, sexual intimacy may not be occupying your mind right now. Reaching the higher levels becomes difficult, less important, or even impossible when the basis levels are not satisfied.

E-R-G Theory by Alderfer

The American psychologist Clayton Alderfer took Maslow's pyramid of needs and categorized the hierarchy into his Existence, Relatedness, and Growth (ERG)-theory. Maslow's levels of Physiological and Safety Needs would be summarized under Existence, Love and Belonging under Relation; and Esteem and Self-Actualization under Growth.

While this seems to be just a renaming and regrouping of Maslow's needs, one thing is new: Alderfer introduced the concept of *Effort Redoubling*. If a person is unable to achieve growth, the person will redouble their efforts in a lower category, such as investing more effort in Relatedness.

Balance Theory by Heider

Austrian psychologist Fritz Heider developed the motivational theory of attitude change that he named *Balance Theory*. Attitudes are beliefs and behaviors towards some object that a person has. Attitudes can change due to three factors:

1. Compliance
2. Identification
3. Internalization

Compliance-based changes happen when a person gets a reward or tries to avoid punishment for a behavior. Identification is an attitude change based on how somebody whom we admire or like perceives or has an attitude. We want to be similar to this person and identify with this person's beliefs and behaviors. Internalization is when the attitude is deemed as intrinsically rewarding and being consistent with the individual's value system. An important component in attitude change is emotion.

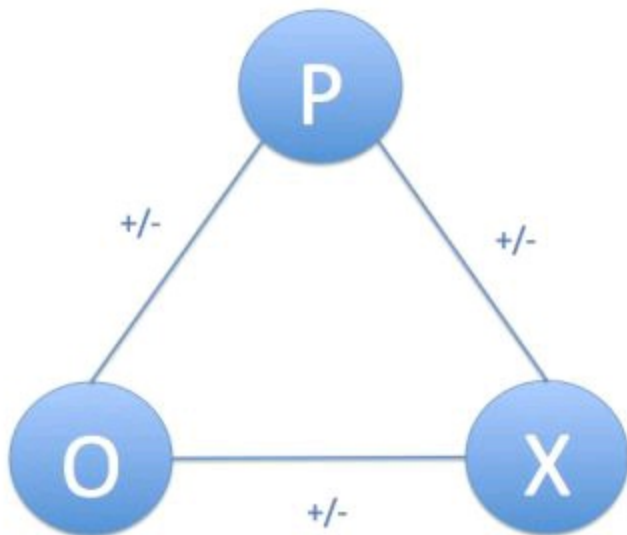


Figure 28: POX-model of the Balance Theory

Based on attitudes and the influence factors for change of attitudes as named above, Heider introduced the POX-balance-theory-model[\[clvii\]](#). A person (P) who likes another person (O) will be likely having or taking the same attitude. This attitude

balance can also be extended to an object (X). How this is used can be experienced in advertising. A celebrity makes an endorsement for a product and, if I like the celebrity, this attitude may also be extended to the endorsed product. But if I don't like the person, but liked the product that the person is endorsing, I have a need to balance my attitudes. I have two options: either I start disliking the endorsed product and decide it's not so good after all, or I start liking the celebrity.

Motivation 1.0, 2.0, and 3.0

Dan Pink's [\[clviii\]](#) approach is more a historical perspective of motivations.

Motivation 1.0

In the first phase humans' motivation was simply to survive. These of course are the same base needs of Maslow's pyramid that fulfill physiological and safety needs, and that Heider summarized under Existence.

Motivation 2.0

Building on Motivation 1.0, with the Industrial Age we became more sophisticated. The *Law of Effect* [\[clix\]](#) by psychologist Edward Thorndike gave us the carrot-stick image. Frederick Winslow Taylor turned it into a management theory that is still in effect today. In his groundbreaking book, *The Principles of Scientific Management* [\[clx\]](#), he described how tasks at a factory can be broken into parts and how each worker works on the task according to a precise plan. All that tied in to a reward.

In a much-cited example, Taylor conducted an experiment where he used one worker, Henry Noll, to shovel 47 tons of pig iron every day by following exact instructions.

To ensure that workers were working seamlessly, like parts of a machine, good behavior was rewarded and bad behavior punished. This concept regards humans like livestock. By dangling a carrot in front of them, you got the behavior that you wanted.

You may not be surprised that Taylor's concepts were embraced by the management world, but met with strong resistance by unions and workers. Introducing Taylor's methods in a company often led to strikes and protests. And we now understand why: Taylor assumed a worker was not able to comprehend the underlying science of his work, and that they needed to be directed. And thus he took their autonomy.

Motivation 3.0

Thorndike's and Taylor's work is still regarded today as the driving force for good behavior anywhere. "Do this and get that as reward." And work from Skinner and

others, including experiments on rats, monkeys, and dogs seemed to confirm that management practice.

Psychologist Alfie Kohn[[clxi](#)] so pointedly asks, how applicable is it to motivation for humans when we experiment on starving animals and train them to do what we want?

This is where we go beyond simple rewards, and start looking at intrinsic and extrinsic motivations and how we balance them. Dan Pink called that Motivation 3.0.

Extrinsic and Intrinsic Motivation

Free sex is the most expensive sex.

Woody Allen

Extrinsic Motivation

Extrinsic motivators are the desires that come from outside an individual. If your manager offers you a day off if you finish the report, then you are extrinsically motivated. If you promise your child ice cream as soon as she cleans up her room then this is an extrinsic motivator.

Examples of extrinsic rewards include money, points, badges, cookies, ribbons, rankings, prizes, gold stars, smileys, or stickers. At work, extrinsic rewards[[clxii](#)] can be security, high earnings, a good starting income, a pension, fringe benefits, advancement and training opportunities, or leisure time.

Extrinsic motivators narrow the focus. That's why they can be effective, because they make us concentrate. But this narrowed focus comes at a cost. Complex or conceptual tasks can narrow the holistic thinking that is necessary to come up with creative and innovative thinking to solve a problem. If you reward a student in a learning situation with an extrinsic reward, the student will learn only as much as is needed to beat the test, but likely not try to thoroughly understand the topic.

As Dan Pink concludes in *Drive*, carrots and sticks have what he calls "The Seven Deadly Flaws:"

- They can extinguish intrinsic motivation.
- They can diminish performance.
- They can crush creativity.
- They can crowd out good behavior.
- They can encourage cheating, shortcuts, and unethical behavior.
- They can become addictive.

- They can foster short-term thinking.

Intrinsic Motivation

In the caf  s of Naples in Italy one can sometimes hear patrons asking “C’   un Sospeso?” This means literally “is there a reserved one?” This is a centuries old tradition of helping those in need. If a person had some luck today, done a good business deal, or simply the local soccer club had won a game, then the person celebrating pays for two coffees, but consumes only one. The “reserved coffee” is served to those less fortunate[\[clxiii\]](#).

The caff   sospeso as a symbol of grassroots social solidarity is a good example that while people may have gotten some tangible rewards they still know that this is not what life is about. They want to share it and they don’t expect anything in return. Their motivation is more than just extrinsic.

The psychological needs that underlie intrinsic motivation are the need to feel competent, the need for relatedness, and to have meaningful relationships with other people. Psychologists call that self-determination.

Based on studies involving more than 6,000 people, psychology professor Steven Reiss[\[clxiv\]](#) at Ohio State University has proposed the following 16 basic desires that guide nearly all human behavior and define our personality:

- Acceptance: the need for approval
- Curiosity: the need to learn
- Eating: the need for food
- Family: the need to raise children
- Honor: the need to be loyal to the traditional values of one's clan/ethnic group
- Idealism: the need for social justice
- Independence: the need for individuality
- Order: the need for organized, stable, predictable environments
- Physical activity: the need for exercise
- Power: the need for influence of will
- Romance: the need for sex
- Saving: the need to collect
- Social contact: the need for friends (peer relationships)

- Social status: the need for social standing/importance
- Tranquility: the need to be safe
- Vengeance: the need to strike back/to win

According to Reiss, people differ in the individual importance of the basic desires. These basic desires represent intrinsic desires that directly motivate a person's behavior, and are not aimed at indirectly satisfying other desires.

American psychologist Henry Murray suggested a *system of needs*[\[clxv\]](#) describing personality. He clusters needs in the domains of Ambition, Materialism, Defense of status, Human Power, Affection between people, and Exchange of information.

| Domain | Need |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Ambition | Achievement, Recognition, Exhibition |
| Materialism | Acquisition, Order, Retention, Construction |
| Defense of status | Infavoidance, Defendance, Counteraction |
| Human Power | Dominance, Deference, Autonomy, Contrarianism, Aggression, Abasement, Blame avoidance, Harm avoidance, Infavoidance |
| Affection between people | Affiliation, Sex, Rejection, Nurturance, Succorance, Play |
| Exchange of information | Sentience, Cognizance, Exposition |

Table 4: Murray's System of Needs

An employee may get intrinsic satisfaction[\[clxvi\]](#) from variety, creativity, autonomy, the opportunity to use one's abilities, the importance and meaningfulness of work, a sense of accomplishment, that the tasks are challenging and the work interesting, and that there are positive coworker relationships.

Extrinsic versus Intrinsic Motivators

Should we only aim to use intrinsic motivators? Have we been wrong in the past to

just use extrinsic motivators?

Sport psychologists Costas Karageorghis and Peter Terry[\[clxvii\]](#) state that the proper balance between extrinsic and intrinsic motivators is crucial for becoming a successful athlete. Athletes who are predominantly extrinsically motivated tend to become discouraged if they do not perform according to their expectations. Athletes who are predominantly motivated by intrinsic motivators may not have the competitive drive to win. For them mastery and the activity itself is motivation enough.

According to Karageorghis and Terry, this balance does not hold true for young athletes. An extrinsic motivation, often induced by eager parents wanting their child to win, may lead to having the child drop out prematurely, because it's not fun anymore.

In the end we aim at satisfying an intrinsic goal, the basic desire. The extrinsic motivator helps us to keep track of how well a player is doing to react to the intrinsic goal.

Just imagine yourself half a century from now, or, if you are very young, 80 years from now. You are on your deathbed. After some struggle and objection, you make peace with the fact that you are going to die. What is it in this very moment that you remember? The miles that you collected in a frequent flyer program? The points you achieved on the professional community? The money that you earned that will make you the richest person in the cemetery?

You will remember the moments that you had with your friends and family, the experiences that you made, and yes, some things you will regret having done or not having done (like those ones[\[clxviii\]](#) that this palliative nurse from Australia has recorded as the top regrets that dying people had).

This is why it is important in your gamification design that players reach their own intrinsic goals with the right balance of intrinsic and extrinsic motivators.

Self-Determination

If we go ahead and consolidate these theories, then we get what the psychologists Edward Deci and Richard Ryan call the Self-Determination Continuum (Figure 29). This visualization puts the different types of motivation, the amount of regulation, as well as the causality of motivations in context.

Deci and Ryan proposed that three main intrinsic needs are involved in self-determination: competence, autonomy, and relatedness. Competence is the desire to control the outcome and experience mastery and learning. Autonomy is the desire to be in control of one's life and act in harmony with one's self. And relatedness is the

desire to interact and be connected with others.

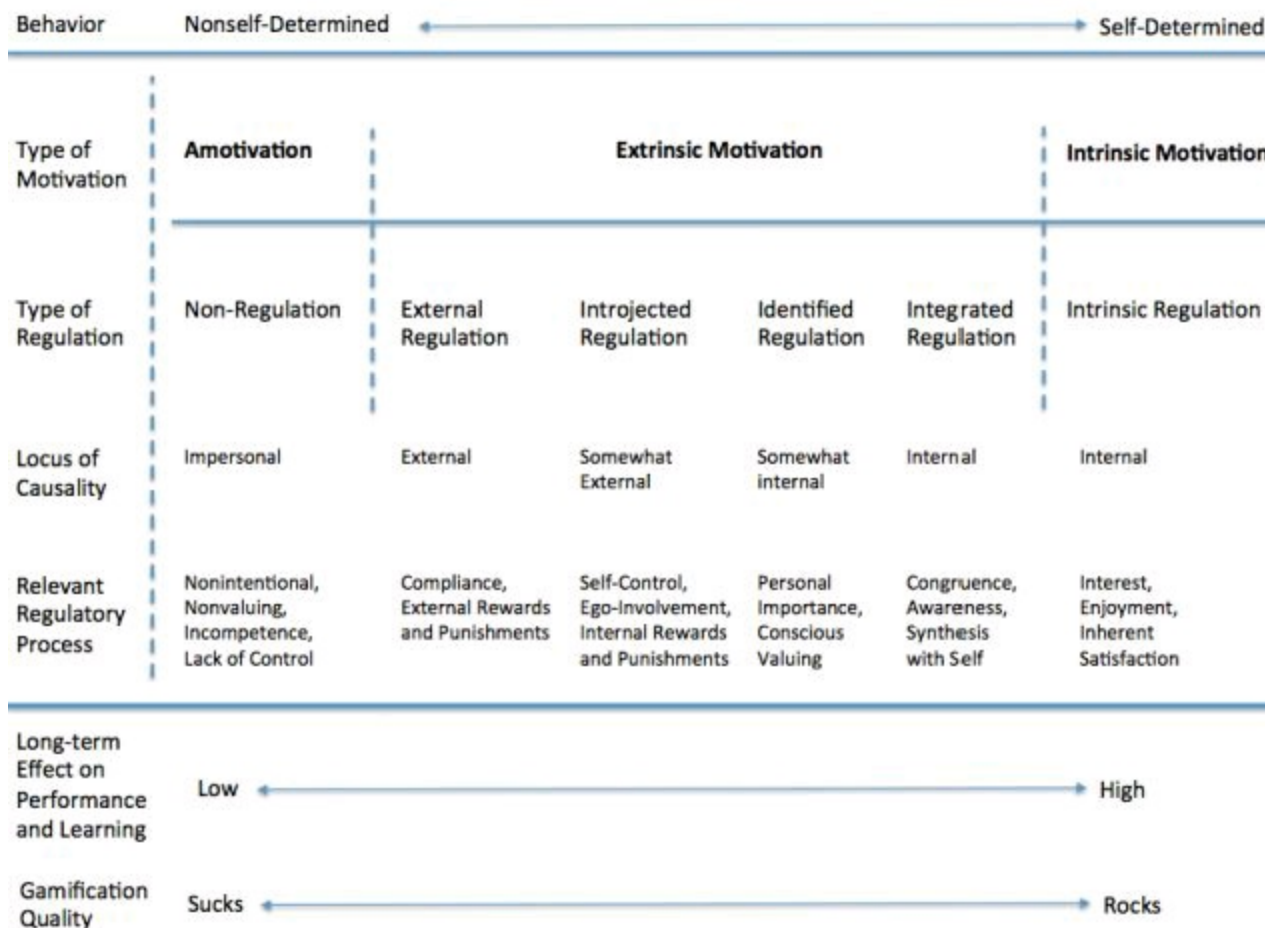


Figure 29: Self-Determination Continuum[\[clxix\]](#)

By mapping the degrees of determination with the motivations will quickly convince any gamification designer to aim at the sweet spot with a design that relies on the elements displayed on the right side of the continuum.

Feedback and Praise

A person only profits from praise when he values criticism.

Heinrich Heine

In the preschool and kindergarten curriculum *Tools of the Mind*[\[clxx\]](#), a program that was developed during the 1990s by scholars Elena Bodrova and Deborah Leong, based on the research and theories by neuroscientist Lev Vygotsky, children were routinely given feedback. But not in the typical sense of a teacher telling them how well they were doing, but through pairing them with a buddy and by tasks allowing them to evaluate their own performance. In buddy reading the paired kids rated their

partner's work. If the partner was not diligent and going too fast through the exercise, children complained that their evaluators weren't critical enough. Self-analysis was an important aspect of the program and the teachers routinely offer tasks that helped hone this skill. When the children learned a new letter, the teacher writes four versions of the letter on the board and children decided which was the best one[\[clxxi\]](#).

The awareness of how well they were doing and when their work was completed was critical for their feedback system and concentration. An influential publication from 1969 by Nathaniel Branden, *The Psychology of Self-Esteem*, argued that self-esteem is important for future success and happier individuals. This has led to the effect that parents, teachers, or even soccer coaches stopped criticizing children and instead began telling them how smart they are, and hand out rewards not only for the winners, but for everyone for participating, inflating the reasons to reward prizes.

But children being praised for their intelligence start regarding every task as a challenge for their intelligence. They tend to choose the easier tasks, when given a choice. Praise from a teacher turns into something suspicious for children. For the children this feels as if the teacher wants to tell them nicely that they have reached the limit of their innate capabilities. But when children are not so much praised on how smart they were, but on their effort and their path to reach the goal, kids will try even harder and most importantly learn what are the right measures to become better. The contradiction of today's situation can be seen by the immersion of children into videogames. In videogames children fail way more often than they succeed, but children seem to crave this feedback. This allows them to understand how to become better, while the self-esteem preachers do the exact opposite - they prevent children to get better.

On a similar note, the tendency of today's parents too be overprotective – also known as *helicopter-parenting* – and substituting negative stories with popular stories with high morals and no villains, is countered with the stunning success of the Harry Potter series. Instead of protecting the young readers from evil characters, the author exposed them to a variety of nuances in both the good and evil characters. And kids got hooked.

While praise can undermine the effect on children, it's different for adults. Praise from a manager typically increases an adult's intrinsic motivations. As we've already learned, this is especially true in white-collar professions, but can have less effect in a blue-collar setting, where management praise may sometimes be seen as manipulative. That is important to consider when the players are part of organizations with a unionized labor force[\[clxxii\]](#).

A study[\[clxxiii\]](#) from 1982 by Dr. Gerald Graham of Wichita State University found

that 58% of employees seldom if ever received personal thanks from their manager, that 76% of employees seldom if ever received written thanks from their manager, and that 81% of employees seldom if ever received public praise in the workplace. And yet praise from managers, written thanks, and public praise were three of the top five motivators among the surveyed employees.

Marcus Buckingham and Curt Hoffman of The Gallup Institute^[clxxiv] interviewed over 80,000 managers in 400 companies and found a number of links between employee opinion and business unit performance. From their twelve questions, the six most important were:

1. Do I know what is expected of me at work?
2. Do I have the materials and equipment I need to do my work right?
3. Do I have the opportunity to do what I do best every day?
4. In the last seven days, have I received recognition or praise for good work?
5. Does my supervisor, or someone at work, seem to care about me as a person?
6. Is there someone at work who encourages my development?

Sadly, as these questions show, feedback and praise are not institutionalized in our daily lives. Every game today gives more immediate and accurate feedback than the most important tasks at work.

Rationality Versus Intuition

Rational decision-making based on facts, data, and evidence is regarded as the optimal approach to solving the world's problems. While many theories and models assume that humans are rational beings, the opposite is true, as demonstrated by Dan Ariely and other researchers. In fact rationality can sometimes lead to worse decisions. The sentence "It was love at first sight" involves intuition and no rationality at all, while "He persuaded me to sleep with him" is a purely rational and conscious deliberation and appeal to reason. But our suspicion is that the first sentence will lead to a longer lasting and more rewarding relationship.

Time pressure and not enough facts to deliberate have a positive outcome on cooperation and altruism^[clxxv]. The less time we have the more cooperative we become. The less aware we are that our actions may benefit others and not serve our self-interest alone, the more we show behaviors that are altruistic. Our ability to rationalize allows us to create any narrative and self-delusion, self-serving our

reason.

Happiness and Meaningfulness

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness.

These words are from the Declaration of Independence. While the pursuit of happiness seems to be of fundamental importance, how to achieve it is a completely different question.

Happiness is not everywhere deemed a goal worthy or moralistic enough to be pursued. Protestants in Germany would rather work hard and live without frivolity; Roman Catholics (disclaimer: I am Roman-Catholic) would rather suffer, be miserable, and frugal to earn a place in Heaven.

Now what is it the reasoning behind the Minister for Happiness and the metric of *Gross-National Happiness* [\[clxxvi\]](#) in Bhutan? Apparently the recognition that our traditional metrics of how we measure success is not enough and that they may even reflect or hide problems.

The concept implies that sustainable development should take a holistic approach towards notions of progress and give equal importance to non-economic aspects of wellbeing. The concept of GNH has often been explained by its four pillars: good governance, sustainable socio-economic development, cultural preservation, and environmental conservation. Lately the four pillars have been further classified into nine domains in order to create widespread understanding of GNH and to reflect the holistic range of GNH values. The nine domains are: psychological wellbeing, health, education, time use, cultural diversity and resilience, good governance, community vitality, ecological diversity and resilience, and living standards. The domains represents each of the components of wellbeing of the Bhutanese people, and the term 'wellbeing' here refers to fulfilling conditions of a 'good life' as per the values and principles laid down by the concept of Gross National Happiness.

Why is happiness suddenly important? Because traditional indicators have shown a confusing picture about the productivity across the world, when only economic data are considered. More employment in some countries did not result in more output. Wage increases did not result in productivity gains, while in the US the opposite effect happened: lower wages, but higher output.

Productivity traditionally has been a combination of investment, innovation, skills, enterprise, and competition. But they do not explain the raising discrepancies in the data. Results from a survey conducted by the research institute *iOpener Institute for People and Performance*[\[clxxvii\]](#), showed that Bhutan is actually onto something very important: the happiness of employees is a key ingredient for productivity. Happy employees

- are twice as productive
- stay five times longer in their jobs
- are six times more energized
- take ten times less sick leave

And happier workers help their colleagues 33% more than their least happy colleagues. They raise issues that affect performance 46% more, and they achieve their goals 31% more often and are 36% more motivated.

Happiness is this not just a vague concept that the American founding fathers seem to have sneaked into the Declaration of Independence without giving us more direction, or that some exotic country in the Himalayans introduced, but something that's crucial for the success of a society overall.

How important are happiness, praise and recognition for the well-being and health of individuals? Harvard physician and sociologist Nicholas A. Chistakis and University of California political scientist James H. Fowler recently published a paper in the *British Medical Journal*[\[clxxviii\]](#) that addressed these questions. They studied 4,739 people from 1983 to 2003 as part of the famous *Framingham Heart Study*. These individuals were embedded in a larger network of 12,067 people; they had an average of 11 connections to others in their social network, including friends, family, co-workers, and neighbors, and their happiness was assessed every few years:

We found that social networks have clusters of happy and unhappy people within them that reach out to three degrees of separation. A person's happiness is related to the happiness of their friends, their friends' friends, and their friends' friends' friends—that is, to people well beyond their social horizon. We found that happy people tend to be located in the center of their social networks and to be located in large clusters of other happy people. And we found that each additional happy friend increases a person's probability of being happy by about 9%. For comparison, having an extra \$5,000 in income (in 1984 dollars) increased the probability of being happy by about 2%.

Shall we as gamification designers strive to create happiness for our players? Absolutely! Happiness can be achieved through an element of surprise. In an experiment, when thirsty participants were informed that they would finally get a drink, those who didn't know what they were getting showed more activity in their brains linked to positive emotions[\[clxxix\]](#). Barbara Fredrickson found in her research that the most flourishing individuals and work groups show a ratio between positive and negative emotions of at least three to one.

But happiness does not always guarantee meaningfulness. Or doing meaningful work does not always make happy. In a study on happiness and meaningfulness[\[clxxx\]](#), Roy Baumeister from Florida State University and his colleagues identified the reasons. Jennifer Aaker from Stanford University said that

"Happiness was linked to being a taker rather than a giver, whereas meaningfulness went with being a giver rather than a taker."

By following several hundred individuals over the course of a month and tracking their values, beliefs, and actions, the researchers found five key differences between meaningfulness and happiness[\[clxxxi\]](#):

1. **Getting what you want and need:** While satisfying desires was a reliable source of happiness, it had nothing to do with a sense of meaning. For example, healthy people are happier than sick people, but the lives of sick people do not lack meaning.
2. **Past, present and future:** Happiness is about the present, and meaning is about linking the past, present and future. When people spend time thinking about the future or past, the more meaningful, and less happy, their lives become. On the other hand, if people think about the here and now, they are happier.
3. **Social life:** Connections to other people are important both for meaning and happiness. But the nature of those relationships is how they differ. Deep relationships – such as family – increase meaning, while spending time with friends may increase happiness but had little effect on meaning. Time with loved ones involves hashing out problems or challenges, while time with friends may simply foster good feelings without much responsibility.
4. **Struggles and stresses:** Highly meaningful lives encounter lots of negative events and issues, which can result in unhappiness. Raising children can be joyful but it is also connected to high stress – thus meaningfulness –

and not always happiness. While the lack of stress may make one happier – like when people retire and no longer have the pressure of work demands – meaningfulness drops.

5. ***Self and personal identity:*** *If happiness is about getting what you want, then meaningfulness is about expressing and defining yourself. A life of meaning is more deeply tied to a valued sense of self and one's purpose in the larger context of life and community.*

While you can have meaningful work, it may not result in happiness. You could even be unhappy.

Flow-Theory

When the topic of psychology is brought up, it's often in the context of people with problems. Somebody with fears and anxieties, or reliving some dramas from childhood, or having some complexes are the subjects of study and discussion. Sigmund Freud famously researched what he called *hysteria* in women among other deviations from what was considered the norm in human behaviors. That started to change with psychologists like Martin Seligman and Mihaly Csikszentmihalyi who were more interested why different people undergoing the same traumatic incident react so differently? While one person is never able to get back on her feet again, the other one becomes even stronger, more resilient and an advocate for the rights of rape victims, soldiers, and other causes.

Psychologist Mihaly Csikszentmihalyi started to work on understanding why certain people are so creative^[clxxxii] and what it means to achieve such an experience.^[clxxxiii] As a result, Csikszentmihalyi proposed the *Flow-Principle* in the 1970s. When studying happiness and creativity, he led interviews with hundreds of outstandingly creative people from a variety of professions. He interviewed writers, novelists, painters, artist, scientists, many of them winners of important awards including the Nobel and Pulitzer Prize. After hundreds of interviews he identified a pattern which he named the *flow*.

Definition of Flow

The flow is a state of mind that a person enters in a creative stage where a lot of things happen. What happens and how do we feel being in the flow is something that Csikszentmihalyi categorized in seven items:^[clxxxiv]

- We feel completely involved in what we are doing. We are very focused

and concentrated.

- We feel a sense of ecstasy, of being outside of everyday reality.
- We are with great inner clarity; we know what needs to be done, and how well we are doing.
- We know that the activity is doable and that our skills are adequate to the task.
- We feel a sense of serenity, without worries about ourselves, and with a feeling of growing beyond the boundaries of our ego.
- There is certain timelessness, as we are thoroughly focused on the present, hours seem to pass by in minutes.
- We are full of intrinsic motivation, where whatever produces the flow becomes its own reward.

A common two-dimensional representation of the flow-principle is the one that places the level of difficulty of the task in relation to the time and/or the skills required (Figure 30).

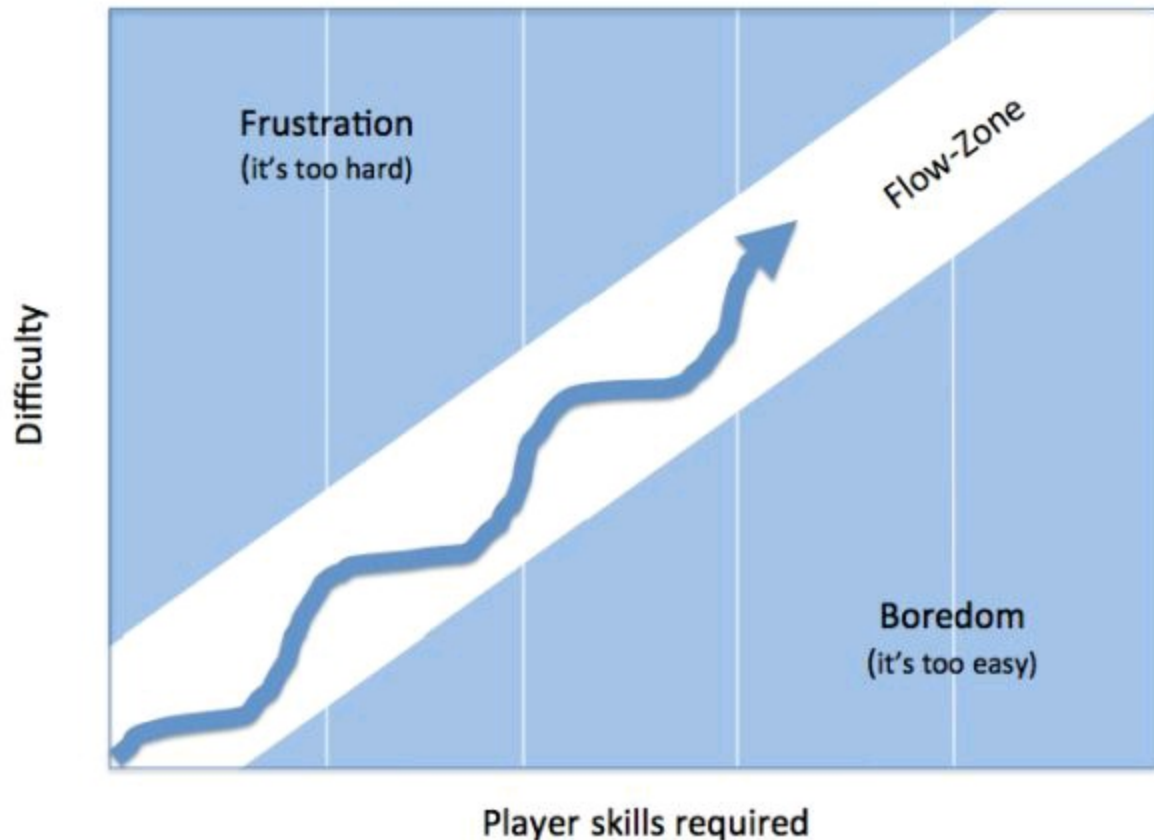


Figure 30: The Flow-Principle with the Flow-Zone

Whenever we are exposed to a game or a system for the first time, we don't know much about the rules, how to solve the challenge, or what has to be done. When you play Angry Birds for the first time, you don't know much about what's going on here. You see a slingshot, a structure with green pigs, and a chatty red bird jumping willfully into the slingshot. Once you followed the little hint how to propel the bird and are lucky enough to hit the wobbly structure, you'll "get it". And then you try propelling the bird in a different angle, doing all kinds of variations to test it. Without realizing, you get better, your skills increase. But also slowly, the structures become more sophisticated. And suddenly, a few level later a second type of bird becomes available. The game increased the difficulty incrementally. And within less than half an hour, you slingshot several types of birds, each with its distinct set of characteristics and features, and the structures and pigs vary in their reactions. Some structural elements collapse when hit by that one bird, but not the other, and you need to adjust and fine-tune the game play.

What's happening is that the game increased the difficulty level while you increased your skills. The game kept you in the flow-zone, the zone where skill and difficulty are in balance. A good game possesses the balance between those factors, giving everyone the feeling that they can master it. But as soon as a player masters it, the game cranks the difficulty up.

You may even have noticed that every few levels in Angry Birds there is one where a player needs to try thirty times (at least that's my count), before they overcome the level. The game challenges us every so often to a high degree, but we are not giving up. But then the next level is an easy one. After the exhaustion from before, we feel really good. And we'll stay engaged with the game, and keep playing.

Compare that to any non-game. Business applications, complex image manipulation software, CAD programs, and even a simple banking website tend to offer the first time user a lot of complexity. The level of difficulty the system is exposing to the user is far above the skills that the user has at that moment. The system pushes the user into the "frustration zone," the zone where the user feels overwhelmed and doesn't know where to begin.

On the other hand, when a user becomes very familiar with the system, the system complexity tends to remain at the same level as at the beginning, thus moving the user in the "boredom-zone". The question that arises for a gamification designer is how to design business applications that balance the skills of the user with the exposed complexity of the system.

A tool for designing a path to keep the player in the flow is Amy Jo Kim's Skill Level approach (Figure 21). Numerous levels can be designed and added over time. Designing a proper measuring and feedback system will be discussed in a later chapter, with examples from Yahoo! Answers, Stack Overflow, and other level progression systems.

Measuring Flow

Csikszentmihalyi and others have proposed multiple ways of measuring flow, or related factors including engagement and intrinsic motivation. Nakamura and Csikszentmihalyi[clxxxv] used interviews, questionnaires, and the *Experience Sampling Method*, where several times a day at irregular intervals the test subject is interrupted by a paging device and asked to fill out a questionnaire. Similar tools have been used by Reeve for measuring engagement[clxxxvi] and activity feeling, and by Pavlas for play experience[clxxxvii].

Fun

Imagine you are on a plane, on another business trip, maybe the fifth in the past 3 months, and you are waiting for takeoff. Squeezed in the middle seat, juggling your eReader and your neck pillow. Then the flight attendants start the safety instructions[clxxxviii]:

There may be 50 ways to leave your lover, but there are only five ways to leave this airplane. Even if you know where these exits are, please turn around to locate the one nearest you. We noticed when you boarded that there are some pretty good-looking men and women on this flight – you know who you are. We think the people sitting behind you deserve to get a look at you, too.

In preparation for take-off, please return your seat backs to their full upright, locked, and most uncomfortable position. Later you may lean back and break the knees of the passenger behind you.

When the oxygen masks drop out, you can put them like this. Except when you put them on, you're allowed to muss your hair. Those of you traveling with small children, or just people acting like small children, should put your masks on first.

What just happened here? A boring safety instruction – at least for the frequent flyers amongst us – turned into a totally different experience. And instead of ignoring the flight attendants, everyone was paying attention and enjoyed the experience. And not just that, the mood during the flight was positive, people chatted and laughed, and the

flight became a very different experience from what you normally have.

That is the power of humor: the “humorification” of a business. By adding the unexpected element of fun to the dry business situation, several basic desires were satisfied, including curiosity and social contact.

According to research from the hospitality industry[\[clxxxix\]](#), management supported fun at work has several positive outcomes. It lowers employee turnover and has a positive outcome on sales (under certain conditions). Adrian Gostick and Scott Christopher in their book *The Levity Effect: Why It Pays to Lighten Up* quote data from the *Great Place to Work Institute* [\[cxc\]](#), compiling data for Fortune’s *100 Best Companies to Work For*.

The Great Place to Work Institute asks each year tens of thousands of employees to rate their experience of workplace factors, including, “This is a fun place to work.” On Fortune’s “100 Best Companies to Work For” list, produced by the Great Place to Work Institute, employees in companies that are denoted as “great” responded overwhelmingly - an average of 81 percent - that they are working in a “fun” environment. That’s a compelling statistic: Employees at the best companies are also having the best time. At the “good” companies -- those that apply for inclusion but do not make the top 100 -- only 62 employees out of 100 say they are having fun.

Now what is fun? How can you inject fun into the work place that leads to positive outcomes and does not look like forced fun? When you ask you friends what is fun, you’ll likely get a set of diverse responses. A funny comedian. A joke. Hanging out with friends. Riding a mountain bike down the hill. Running as a dragon in a Chinese dragon run.

Four Keys of Fun

According to game designer and researcher Nicole Lazzaro[\[cxci\]](#), successful games have at least three of the following four fun types:

- Hard Fun
- Easy Fun
- Serious Fun
- People Fun

Hard fun - according to Nicole – is the one coming from challenge and mastery. When you are get a challenging task and you are able to finish it and get the feeling of really being up to the task and mastering it. The “hard” in the hard fun comes from the fact that at the beginning the challenge may not look much like fun. There are a lot of unknowns, apparent difficulties, pain, lot of work, and very likely quite many failures around the corner. Such as studying for a difficult exam, or when you wonder how you will ever get the tiny ball with this long stick in that hole across the lakes and the bunkers.

Easy fun is the one you experience when you explore something, or slip into a role different than yours. When children pretend to be cowboys or Spiderman, and explore a dark cave, where they feel frightened but good. Or when adults go to mystery parties (the ones where you have to dress up in vintage clothing and feel catapulted into an Agatha Christie-movie to find the presumed killer, all the while hanging out with friends and indulging into period-food).

Serious fun is the one that I at this very moment get out of the work that I am doing. Writing on these pages right now I feel that I am accomplishing real work and moving forward with this overdue book.

People fun finally is the best excuse to hang out with other people. We are social animals and socializing is an important part for humans and actually making us healthier. As plenty of research suggests, being alone is stressful.

Fun Motivators

Game designer Jon Radoff lists in his book *Game On*[\[cxcii\]](#) over 40 motivators[\[cxciii\]](#) that add fun.

Role Play

- **Being a Hero** – Playing as the hero appeals to the human desire for power.
- **Being a Villain** – It's about the fantasy of having power without consequences.
- **Being a Wise Old Man** – This is typically a high status role that may also touch on the motivator of family.
- **Being a Rebel** – The opportunity to flaunt society's rules while remaining basically good.
- **Being the Magician, a keeper of secret knowledge** – People enjoy the thought of knowing something that nobody else knows.
- **Being the Ruler** – The chance to be a person with considerable influence and power over other people.
- **Exactng Justice and Revenge** – Justice and revenge provide a sense of idealism and tranquility when wrongs are righted.

Organizing

- **Recognizing Patterns** – Anything from visual patterns, motion patterns, strategic patterns or mathematical patterns.
- **Collecting** – Collections communicate status, suggest organization, lead to rewards, represent wealth and are mementos.
- **Achieving a Sense of Completion** – Giving players a constant sense of finishing something like progress bars, to-do lists, achievements and levels.
- **Organizing Groups of People** – Organizing groups of people to achieve shared goals is a source of enjoyment.
- **Creating Order out of Chaos** – Sorting, lining things up and classifying give players a sense of control over their environment.

Status and Achievement

- **Gaining Recognition for Achievements** – Achievement systems provide a sense of accomplishment and a chance to be recognized.
- **Being the Center of Attention** – Satisfy the human need for attention by putting the player at the center of the universe.

- **Finding Random Treasures** – Like winning a jackpot or slot machine, finding shells at the beach or opening Cracker Jacks to find a surprise.

Decorating

- **Customizing Virtual Worlds** – People enjoy leaving their mark and place great value on things they've made.
- **Experiencing Beauty and Culture** – Games feature artwork, music and designs that appeal to the human senses.

Mastery and Learning

- **Gathering Knowledge** – Studying and being taught are not fun, but learning is fun because we are naturally curious.
- **Mastering a Skill** – Increasing one's mastery without becoming frustrated gives people a sense of flow.
- **Enlightenment** – Games provide a way for players to explore decisions and their consequences, leading to greater knowledge.
- **Predicting the Future** – Predicting the future makes people feel smart, in-control and influential.
- **Exploring a World** – Understanding your environment gives you a sense of power and control.

Social

- **Romance** – Games can provide opportunities for flirting, wooing and building relationships with other people.
- **Exchanging Gifts** – Players enjoy giving gifts to their friends and the act of giving triggers reciprocity.
- **Strengthening a Family Relationship** – Players enjoy feeling companionship with members of their family.
- **Competition** – People enjoy the sense of power that comes from winning.
- **Noting Insider References** – Discovering “Easter Eggs” gives player a

sense of being a part of the “in crowd.”

- **Psychoanalyzing** – Predicting, guessing or understanding the motivations of others can be a source of fun.

Feeling

- **Being Silly** – Players enjoy an escape from the serious and mundane.
- **Laughing** – People love to laugh, especially with their friends.
- **Being Scared** – People enjoy the sensation of danger without the actual danger.
- **Experiencing the Freakish or Bizarre** – People crave new and unique experiences that are different from their everyday lives.
- **Excitement** – Suspense, horror, competitive action and anticipation help create an addictive, exciting experience.
- **Relaxing** – Games can create a mental vacation which can lead to tranquility.

Imagination

- **Pretending to Live in a Magical Place** – Players enjoy imaging being in worlds different than their own.
- **Listening to a Story** – Stories appeal to our curiosity about people, places and things.
- **Telling Stories** – Games provide an opportunity for players to construct and tell their own unique stories.
- **Imagining a Connection with the Past** – Nostalgia is a powerful emotional trigger for good and bad emotions.
- **Mystery** – Striking a balance between revealing a little while holding back the rest can create a fun experience.

Doing Good

- **Improving One's Health** – People dislike exercise, but love to feel fit.
- **Nurturing** – Growing things stems from your motivations for family, saving

and power.

- **Improving Society** – Players can satisfy their need to leave the world a better place than when they came into it.
- **Triumph over Conflict** – Resolving conflict provides the player with a sense of victory.

As an example take the motivator, “Collecting.” Have you ever collected something, like stamps, baseball cards, Panini soccer stickers, or a magazine, or art, or Star Wars toys? Then you will certainly have experienced the pleasure drawn from collecting, and hunting down the missing pieces, exchanging rare finds with other collectors, or even going into a bidding war on eBay to get that crown jewel for your collection. And as avid collectors know, a collection is never complete.

Or look at “Being a Hero.” Who does not want to be a hero, save the damsel in distress? I personally prefer “Being a Villain”, as I think those roles are way more interesting (like Severus Snape in the Harry Potter-series) than the hero itself (I always found Harry Potter pretty boring – and don’t argue with me here, Harry Potter fans!).

Or why did the social online game *Farmville* work so well for the core audience of women in the age brackets of 35 to 45? It helped these women, who were now mothers, to stay in touch with friends through the game, find some relaxation, giving a feeling of accomplishment with feeding the chicken or growing plants, customizing their virtual world, pretending to live in a magical place (that was definitely more cleaned up than their homes could be with kids wreaking havoc), exchange gifts with their friends by helping them out.

Consider people working on an encyclopedia, an archive, or a library. Besides collecting they also create order out of chaos. And one must not underestimate that “being a rebel” may be a not so apparent but real motivator for librarians. How else would you explain that book publishers often see orders going up from libraries when an interest group tries to ban a book from libraries?

The best approach for making your application more fun and engaging is to incorporate as many of these motivators as possible.

If we take Radoff’s list and match it with the Reiss’ 16 basic desires, we see that there is a rich set of matching items. For each of the basic desires, multiple fun motivators can be found and potentially used (see Table 5).

| | Acceptance | Curiosity | Eating | Family | Honor | Idealism | Independence | Order | Physical Activity | Power | Romance | Saving | Social Contact | Social Status | Tranquility | Vengeance |
|---------------------------------------|------------|-----------|--------|--------|-------|----------|--------------|-------|-------------------|-------|---------|--------|----------------|---------------|-------------|-----------|
| Recognizing Patterns | | | | | | | | X | | | | | | | | |
| Collecting | | | | | | | | X | X | | | X | | | | |
| Finding Random Treasures | | X | | | | | | | | | | X | | | | |
| Achieving a Sense of Completion | | | | | | | | X | | | | | | | | |
| Gaining Recognition for Achievements | | | | | X | | | | | | | | X | X | | |
| Creating Order out of Chaos | | | | | | X | | X | | X | | | | | | |
| Customizing Virtual Worlds | | | | | | | X | | | | | X | | | | |
| Gathering Knowledge | | X | | | | | | | | X | | | | | | |
| Organizing Groups of People | | | | X | X | X | | X | | X | | | X | X | | |
| Noting Insider References | | | | | | | | | | | | | X | X | | |
| Being the Center of Attention | X | | | | | | | | | X | X | | X | X | | |
| Experiencing Beauty and Culture | | | | | | X | | X | | | X | | | | | |
| Romance | | | | | | | | | | | X | | X | | | |
| Exchanging Gifts | | | | | | | | | | | | X | X | | | |
| Being a Hero | X | | | | X | X | | | | X | X | | X | X | | X |
| Being a Villain | | | | | | | | | | X | | | X | X | | X |
| Being a Wise Old Man | X | | | | X | X | | | | X | | | X | X | X | |
| Being a Rebel | | | | | | | | | | X | | | X | X | | X |
| Being the Magician | | | | | X | | | | | X | | | X | X | | |
| Being the Ruler | X | | | | X | | | | | X | | | X | X | | X |
| Pretending to Live in a Magical Place | | | | | | | | | | | | X | | | | |

| | Acceptance | Curiosity | Eating | Family | Honor | Idealism | Independence | Order | Physical Activity | Power | Romance | Saving | Social Contact | Social Status | Tranquility | Vengeance |
|--------------------------------------|------------|-----------|--------|--------|-------|----------|--------------|-------|-------------------|-------|---------|--------|----------------|---------------|-------------|-----------|
| Listening to a Story | | X | | | | | | | | | | | X | | | |
| Telling Stories | | | | | | | | | | | | | X | | | |
| Predicting the Future | | | | | | | | | | X | | | | | | |
| Competition | | | | | X | | | | X | X | | | X | X | | X |
| Psychoanalyzing | | X | | | | | | | | | | | | | X | X |
| Mystery | | X | | | | | | X | | | | | | | | |
| Mastering a Skill | | | | | | | X | | X | X | | | | | | |
| Exacting Justice and Revenge | | | | | X | | | | | X | | | X | X | | X |
| Nurturing | | | | | | X | | | | X | | | X | | X | |
| Excitement | | | | | | | | | | | | | | | | |
| Triumph over Conflict | | | | | | | | | | X | | | | | X | |
| Relaxing | | | | | | | | | X | | | | | | X | |
| Experiencing the Freakish or Bizarre | | X | | | | | | | | | | | X | | | |
| Being Silly | | X | | X | | | | | | | X | | X | | | |
| Laughing | | | | | | | | | | | | | X | | | |
| Being Scared | | X | | | | | | | | X | | | | | | |
| Strengthening a Family Relationship | X | | | X | | X | | | | | X | | X | | | |
| Improving One's Health | | | | | | | X | | X | | | | | | | |
| Imagining a Connection with the Past | | | | | | | | | | | | | X | | | |
| Exploring a World | | X | | | | X | | X | X | | | | | | | |
| Improving Society | | | | | X | X | | X | | | X | | X | X | | X |
| Enlightenment | | X | | | | X | | | | | X | | | | | |

Table 5: Fun-motivators & Basic Desires

Rewards (and Punishments)

The name Burrhus Frederic Skinner may not ring much with you, but in fact you will certainly know his most famous invention. In the so-called *Skinner Box* a pigeon or rat could press a lever and receive food as a reward. Skinner's research on behavior was so influential that it became conventional wisdom to assume that tangible rewards like food or money will make animals or people behave in certain ways and motivate them.

And while this may have worked throughout the Industrial Age, the negative effects became more and more visible. At the same time outcomes that contradicted the conventional wisdom raised questions about our assumptions. Let's start with two examples that Dan Ariely mentions in his book *Predictably Irrational*[\[exciv\]](#).

Imagine yourself being invited to a Thanksgiving dinner at your mother-in-law's house. She spent all week preparing dinner. Everything is perfect. Everyone has a good time. At the end of the evening you take out your wallet, lean over to her and say:

"Mom, for all the love you've put into this, how much do I owe you?" you say sincerely. As silence descends on the gathering, you wave a handful of bills. "Do you think three hundred dollars will do it? No, wait, I should give you four hundred!"

What will be the reaction? She and the family will be very upset with you and probably never invite her to her house. What happened here was a violation of the social contract. You turned a social norm into a market norm.

Now don't get me wrong, it does not mean you come empty-handed to the Thanksgiving dinner. Bring flowers, a bottle of wine, a box of chocolate, even if your mother-in-law doesn't like the wine or is allergic to flowers. The will, the social intention is what counts. Or take this example.

Imagine you are dating a girl, and take her out. You invite her for dinner, pay a bottle of wine, and then you both go to the movies. You spent that day \$100. On the next date you spend another \$100 and after the third date you feel your wallet thinning. So when it comes to the moment of now or never, you say: "I spent \$300 on you, shouldn't we have sex now?"

Well, we can easily imagine her reaction. You'll end up lonely that night and the following days. Again a social norm was transformed into a market norm. It turned from a social contract to a hard and cold transaction.

Examples of conflicting reward norms

A number of studies have been published over the past decades that researched how tangible rewards influence the motivation to solve and engage with tasks.

Example 1 – Rhesus Monkeys

In 1949, psychology professor Harry F. Harlow [\[cxcv\]](#) from the University of Wisconsin experimented with eight rhesus monkeys on learning. He gave the monkeys a simple puzzle device that required the monkeys to pull out a pin, undo the hook, and lift the hinged cover. For monkeys a pretty advanced task. They quickly became interested in the topic, played determinedly with the device, and figured out how the mechanism worked. During these activities the monkeys displayed signs of enjoyment.

The monkeys had done all this without having gotten any rewards. According to the theories back then, offering rewards would certainly lead to better results. When Harlow gave the monkeys raisins for solving the puzzles, the monkeys actually made *more* errors, and solved the puzzles *less* frequently.

Example 2 – Soma Puzzle Cube

In 1969, psychology graduate student Edward Deci [\[cxcvi\]](#) at Carnegie Mellon University used the popular Soma puzzle cube as prop for study participants. He divided the male and female participants into two groups. Over three days the participants received three drawings of configurations that they had to create out of the puzzle pieces. The drawings were the same for both groups at the given day, but every day there were three drawings that differed from the day before.

On Day 1, both groups didn't get a reward. On Day 2, participants of Group A were promised \$1 for every configuration they successfully reproduced, but Group B wasn't promised any rewards. On Day 3 neither of the groups was promised any rewards.

Every day, once the participants had completed the first 2 configurations, Deci explained to the participants that he needed to enter the data in the adjoining computer room, and left them with a fourth drawing. This of course was a setup, as Deci monitored the participants in the adjoining room through a one-way mirror for exactly 8 minutes.

On the first day participants of both groups continued the puzzles during the secretly monitored period, and worked on them for an average of three-and-a-half and four minutes. On the second day, unpaid Group B behaved like the day before, while Group A seemed *really* interested in the task. This group now spent on average five minutes

on the puzzle. But on the third day, with no reward promised to both groups, Group A spent significantly less time on the puzzle: only three minutes. Group B's time was slightly higher than the two prior days.

Example 3 – Children Play

Psychologists Mark Lepper, David Greene, and Robert Nisbett[\[cxcvii\]](#) watched preschoolers for several days and choose the kids who liked to draw during their free playtime as study participants. They then divided the children into three groups. The first group was the *expected-award* group, who would get a “Good Player” certificate if they wanted to draw. The second group was the *unexpected-award* group, which wasn’t told that they would get a reward. The third group was the *no-award* group.

Two weeks later the researchers visited the classroom of preschoolers again and watched the free playtime. When the teachers handed out paper and markers, the children from the unexpected-award and non-award groups were drawing with the same energy and interest as they had two weeks before. But the children from the expect-award group showed much less interest and spent much less time drawing.

Example 4 – Playing Games

Economists Dan Ariely, Uri Gneezy, George Lowenstein, and Nina Mazar[\[cxcviii\]](#) from MIT, Carnegie Mellon, and the University of Chicago recruited eighty-seven participants in Madurai, India and asked to them to perform several exercises, including tossing tennis balls at targets, unscrambling anagrams, recalling a string of digits that required motor skills, creativity, and concentration. The participants were separated into three groups. The first group could earn a reward of 4 rupees (equal to one day’s pay in Madurai) for reaching the goals, the second group 40 rupees (10 days’ pay), the third group 400 rupees (nearly five months’ pay).

The result was that the participants offered the small and medium sized bonus performed the same, while the group with the largest bonus performed worst. According to the researchers, they lagged in nearly every measure behind the two other groups. The researchers wrote “In eight of the nine tasks we examined across the three experiments, higher incentives led to *worse* performance.”

Example 5 – Candle Problem

In the early 1960 psychologist Sam Glucksberg from Princeton University[\[cxcix\]](#) tested, how rewards influence the problem-solving prowess of study participants. The task given was the “candle problem”, developed by psychologist Karl Duncker in the 1930s, which requires participants to overcome what’s called “functional fixedness.” The task is to attach a candle to the wall so that it doesn’t drip wax on the table. Test participants receive a candle, a box of matches, and a box of tacks. Typically, test subjects would try to tack the candle to the wall, until they understand that the box can

be used to reach the desired outcome.

Glucksberg now divided his participants in two groups, timing each group. The second group, however, was offered incentives. If the participant's time was among the fastest 25% of all the people tested, the participant would receive a reward of \$5. If the participant's time was the fastest, the reward would be \$20. Adjusted for inflation, this represents a pretty nice sum.

The result was that the incentivized groups' time took nearly three and a half minute *longer*.

Example 6 - Creativity

Three studies show the effect of extrinsically driven motivation for two professions: artists and scientists. In the first study[\[cc\]](#), Harvard Business School professor Teresa Amabile recruited twenty-three professional artists and asked them to randomly select from their work ten commissioned and ten non-commissioned works. These works were then handed to a panel of artists and curators, who didn't know anything about the study nor the background of the works, and were asked to rate the pieces on creativity and technical skill. The panel rated the commissioned works as significantly less creative than the non-commissioned works, though the technical quality was rated as equal.

The second study conducted in the early 1960s amongst sophomores and junior at the School of the Art Institute of Chicago surveyed them about their attitude toward work and whether their motivations were more intrinsically or extrinsically focused. A follow-up study[\[cci\]](#) in the early 1980s compared the success of these students with their original dominant motivation. The result for men was that "The less evidence of extrinsic motivation during art school, the more success in professional art both several years after graduation and nearly twenty years later. ... Those artists who pursued their painting and sculpture more for the pleasure of the activity itself than for extrinsic rewards have produced art that has been socially recognized as superior. ... It is those who are least motivated to pursue extrinsic rewards who eventually receive them."

The third study conducted in 2009 by Pierre Azoulay and Gustavo Manso from MIT[\[ccii\]](#), and Josh S. Graff Zivin from the University of California in San Diego looked at the creative output and the impact rate of similarly accomplished scientists who had received grants from either the US National Institute of Health (NIH) or the Howard Hughes Medical Institute (HHMI). The first funding process from the NIH emphasizes "short review cycles, pre-defined deliverables, and renewal policies unforgiving of failure," while latter one from the HHMI "tolerates early failure,

rewards long-term success, and gives its appointees great freedom to experiment.“ The rate of high-impact from research funded by the HHMI was much higher.

Example 7 – Blood Donation

In 2008, Swedish economists Carl Mellström and Magnus Johannesson[\[cciii\]](#) decided to test the bold theory from British sociologist Richard Titmuss, who had stated in 1970 that paying for blood donation was not only immoral, it was also ineffective. He speculated that this would *reduce* the blood supply. Mellström and Johannesson conducted a field experiment at the regional blood center in Gothenburg. From the 153 women interested in donating blood, they divided them into three groups. The first group donated blood without being offered a reward, the second group was offered 50 Swedish Kronor (\$7), and the third group was also offered a 50 Kronor reward with the option to donate the reward to a children’s cancer charity. Fifty-two percent of the first “non-award” group went ahead and donated blood, 30% of the “expect-reward” group women donated blood, and 53% of the third group with the option to donate the reward donated blood. However, for men the offered rewards did not have a statistically significant effect.

The interesting thing is that an extrinsic reward tied to an intrinsic one can be effective as well. The third group’s option to immediately donate the money negated the effect that the second group experienced. Similarly, a reward that removes an obstacle to altruism – like the Italian government giving blood donors aid time off work[\[cciv\]](#) – increased blood donations.

Example 8 – Day Care

Economists Uri Gezner and Aldo Rustichini[\[ccv\]](#) studied a childcare facility over a period of twenty weeks in Haifa, Israel in 2008. The facility was open from 7am to 4pm during weekdays (which is from Sunday to Thursday in Israel). Parents were supposed to pick their children up at closing time; otherwise the teachers would have to stay late. The economists recorded the number of parents who arrived late each week. After the fifth week the researchers changed the procedure and introduced a penalty that had to be paid by late-coming parents. For every time a child was picked up after 4:10pm, a fine of approximately \$3 per child had to be paid.

The result was that the number of parents picking their children up late *doubled* after the fine was introduced. And it stayed at this rate, even after the fine was removed and the late-pickup-policy reversed.

Example 9 – Radioactive Waste Storage

In 1993 the Swiss government identified two small towns as potential locations for

nuclear waste storages. How would the residents react to the news? Would they understand that with nuclear technology, some areas would have to take one for the team, or would they resist, as happened in many other countries?

To find out, the Swiss government asked two researchers from the University of Zurich [\[ccvi\]](#) to organize town hall meetings and talk to the residents. Of course the people were concerned, but national pride kicked in and a slight majority of 50.8% said they would accept the nuclear waste storage. However, the amount of people that disagreed was still too much for the politicians, so the Swiss government sweetened the deal by offering 5,000 Swiss francs (approx. \$2,175) for every resident per year.

From a rational perspective any amount paid should make it easier to swallow the prospective of living beside a nuclear waste facility. While not everyone of the 49.2% can be convinced, at least a certain amount should switch the side to accept. What happened was totally unexpected. The number of residents agreeing to the storage in their town dropped by half to 24.6% (from 50.8% without being compensated). When the government increased the compensation to first \$4,350 and then \$6,525 per year per resident, the number of people agreeing remained stuck at about 25%.

Example 10 – The Paid GMAT

Students at an Israeli university [\[ccvii\]](#) were asked to take a mock version of the Graduate Management Aptitude Test (GMAT). Now these students had no intention to apply for business school, but volunteered for this research to take it. As usual in such studies, the researchers split the subjects into two groups. One group was just told to go ahead and take the test, the other group was told that for every correct answer they could earn 2.5 cents. Nothing to really get drunk about, but apparently better than nothing.

With all the prior examples, you will be able to predict which group performed better. The first group of unpaid students performed with an average score of 28.4, while the paid group fared worse with 23.1. Also the top 50% performers in the unpaid group outperformed the paid group with an average of 39 versus 34.9.

Example 11 – Commie High

Community High School in Ann Harbor, MI [\[ccviii\]](#) was the city's first alternative education school. The school didn't have many rules, and even those that were in place were routinely overlooked. Students could skip classes; average attendance was at 51%. But that didn't have much effect on the GPA, which was at 2.71. The starting salary for teachers in 1996 was only at \$22,848, which demonstrated the teachers' commitment. And the school had a long waiting list.

When a new state law took effect that allowed schools to run more independently and try out new, innovative programs, the teachers and administrators brainstormed to find a new program. There was no need to come up with a new program, but the staff felt obliged to do something. Lacking good ideas, the staff settled on the idea to increase attendance of students and not have them miss too many classes. To evaluate attendance, the teachers were told that they would get a bonus that was equivalent to 12% of their annual salary if the attendance was at least 80%.

Remember, there was no need for the school to introduce this program; teachers hadn't asked for salary increases. They had purely come up with a program because the state now allowed them to experiment. The attendance rate increased from 51% to 72%. Big success, right? Nope, because the average cumulative GPA dived from 2.71 to 2.14. And there was no change in the GPA test standards, as well no change in the composition of the student body.

A post-mortem of the experiment showed that the focus of the teachers had shifted. Instead of focusing to inspire the students to achieve their true potential, they had focused on having students attend classes.

Meta-studies

In 2009, behavioral economists Sam Bowles at the Santa Fe Institute and Bernd Irlenbusch at The London School of Economics analyzed fifty-one studies of corporate pay-for-performance plans. The economists' conclusion: "We find that financial incentives may indeed reduce intrinsic motivation and diminish ethical or other reasons for complying with workplace social norms such as fairness. As a consequence, the provision of incentives can result in a negative impact on overall performance" [\[ccix\]](#)

Another meta-analysis by Deci, Ryan, and Koestner of 128 studies examined the effects of extrinsic rewards on intrinsic motivation and came to the conclusion that engagement-contingent, completion-contingent, and performance-contingent rewards significantly undermined free-choice intrinsic motivation, as did all rewards, all tangible rewards, and all expected rewards. [\[ccx\]](#)

When money is used as an external reward for some activity, the subjects lose intrinsic interest for the activity. [\[ccxi\]](#) Rewards can deliver a short-term boost – just as a jolt of caffeine can keep you cranking for a few more hours. But the effect wears off and, worse, can reduce a person's long-term motivation to continue the project. [\[ccxii\]](#)

Supporting that factor from the opposite side is an experiment from Carnegie Mellon

researchers, who allowed some volunteers to choose their rewards before taking a geography quiz. The reward was either to find out if they had given the correct answers to the quiz, or a candy bar but never learn the answers. As some may expect, people preferred the candy bar before they took the quiz, but the answers after they took it. [\[ccxiii\]](#)

Specific Reactions

Age-related Reactions to Rewards

Neuroscientist Adriana Galvan[\[ccxiv\]](#) at UCLA tested the reaction to rewards by having thirty-seven people between the age of seven to 29 play a simple pirate video game while inside an fMRI scanner. The subjects' heads were restrained, while their hands could move freely to play the game. When they succeeded in the game, the players won gold. Sometimes single gold coins, a small or even a huge pile of gold.

In the fMRI Galvan now tested how much the reward center of the brain, the nucleus accumbens, lit up. This part of the brain lightens up with dopamine, when we experience something exciting, pleasurable, or interesting. Young children's brains lit up whenever they got a reward. Adults reacted correspondingly to the size of the reward. The more gold, the more the nucleus accumbens lit up. Teenagers did not react this way. For small and medium rewards, the activity in the brain dropped, and only with a big reward did it light up.

This reaction is similar to drug addicts, who need higher and higher dose in order to get significant pleasure.

Gender-related Reactions to Rewards

Psychologists Madeline Heilman and Julie Chen from New York University examined how behavior influences the reactions (and consequently rewards) for men and women[\[ccxv\]](#). When participants were asked to demonstrate altruistic behavior, men profited more from such a behavior than women. In society, women are expected to help and nurture, thus an altruistic behavior was expected. In the opposite setup, where the participants were asked not to help, women tended to be punished for their non-altruistic behavior, while men were not.

This could indicate an additional reason why we have a gender gap in income. And this may be an opportunity for gamification to introduce a fairer system in organizations, as a gamified system does not distinguish between male and female players, but rewards them according to the activities.

Race and Social Class Specific Reactions to Rewards

Recent studies indicate that there is no relationship of how people from lower or higher income, or different races react to rewards. There have been some initial differences in the 1950s and 1960s in studies that explored certain isolated tasks, but they have since been discredited.

Instant Versus Delayed Gratification

In a famous experiment from the 1960s at Stanford University, psychologist Walter Mischel[\[ccxvi\]](#) studied delayed gratification. In the experiment children were offered a Marshmallow. If they could defer eating it they would receive a second marshmallow when the researcher came back to the exam room after several minutes. The original intent of the study was to find out at what age kids learn deferred gratification.

But because Mischel had recruited some of the test subjects (the kids) through the social circles of his own daughters, he kept hearing over the years about many of his daughters' classmates who had taken part in the study. When several decades later he brought them back for a follow up study[\[ccxvii\]](#) and analyzed their success in life, the children who back then ate the marshmallows (and could not wait) were performing worse at SAT, had more troubles keeping a steady job and finish higher education, and got into more troubles with drug abuse. An important factor for the children was whether they believed that they would get the reward or if they had experienced "broken promises."

You can watch several recreations of that famous study in the *very tempting Marshmallow test*-video[\[ccxviii\]](#).

Delaying gratification is related to willpower. If willpower is depleted or at a low level, then people are more likely to go for instant gratification. Neuroscientist Molly Crockett at University College London directly compared willpower and precommitment to study the effect on gratification[\[ccxix\]](#). When given the opportunity to precommit, the test subjects were more likely to wait for the larger reward than when they had to rely on willpower. Brain scans showed that with the precommitment the brain's reward network was activated.

Reward Beneficiary

Does it matter who is benefitting from a reward to motivate people? As a matter of fact, yes! A 2001 study from the National Institutes of Health[\[ccxx\]](#) put participants into an MRI and had them play a simple computer game. By either zapping or avoiding certain objects appearing on the screen with a joystick, the participants could earn or lose money. The current total of their rewards was prominently displayed on the

screen. The scientists monitored the brain activities and every time money could be won or lost a participant's *nucleus accumbens* lit up. That is the region of the brain that derives pleasure for us from rewards. So far nothing unusual.

But a comparable experiment by scientists from the University of Duke looked at it with a twist. In their study[\[ccxxi\]](#) the test subjects were not rewarded with money for themselves, but instead with earning the money for a charity. What the researchers now observed was that the nucleus accumbens did not light up. Instead, a different area – the *posterior superior temporal sulcus* – became active each time a reward was earned. This region is responsible for social interactions, how we relate with others, how we form relationships, how we perceive people.

These differences in which brain regions react to rewards can help to explain how social and market/transactional norms work from a neurophysiological perspective. And we will see that in the chapter about dishonesty, as Dan Ariely has described in his work. We tend to cheat more when it helps somebody else.

Addiction to rewards

We've seen that rewards can have similar effects on the brain of teenagers as they do on addicts. The nucleus accumbens lights up with large rewards, while with small and medium rewards the activity in the nucleus accumbens even dropped. Gambling addicts receive a jolt of dopamine when they win. Dopamine levels also raise when we receive a hug from someone, or when we engage in sex. But with gambling there is a twist: addicts do not get the jolt only when they win: dopamine is also released when they nearly win.

Anton Suvorov, professor of economics in Russia, demonstrated how managers can create addiction by rewarding their employees. In his research[\[ccxxii\]](#) he looked at two main aspects. First he looked at the information disparity between manager and employee, and second, the duration of the relationship between them.

Information Disparity

A manager (principal) who sets a goal and promises a reward for the completion of the tasks has an information advantage over the employee. Not only did the manager set the goal, she also knows the (real) motivation. An employee (agent) comes from the position of an information disadvantage. The employee needs to understand the task and the motivations behind them. If the manager does not give clear enough reasons, the employee will nonetheless try to find the information at other places and interpret the motivation.

An employee regards a promised reward suspiciously, especially if the reward seems

to be in no relation to the task. If the reward appears too high for the type of task, the motivations behind that imbalance become circumspect. If the rewards appear too low, the question about the worth of the task will come up, and why the reward is necessary at all.

By not having all information, the employee will be in constant doubt if he is capable of doing the task. A manager who sets the reward out of proportion may indicate that she does not trust the employee to be capable, and therefore needs to set the stakes higher so that the employee gives his best. A manager who thinks the employee is less able to perform the task tends to give higher rewards.

However the reward is set, for future tasks the employee will expect similar rewards and may reject tasks that do not guarantee them.

Transiency

The other element that Suvorov explored was *transiency* or the *expected length of relationship* that a manager and employee will have. As it turns out, a manager who's building on a long-term relationship and in for the long run is rewarding differently than a transitory manager, who's in for the short term. Because of the addition (expectation) of rewards for future tasks, a manager who is going to deal with the agent in the future adopts a more conservative reward policy than a transient manager. This can create a problem for companies that have high turnovers in management. Because they are short term, they give higher rewards. From that moment on similar rewards are expected by the employees and any reward lower will lead to less engagement. This may create a reinforcing vicious circle that creates less motivated employees, an unstable management layer, and higher costs in many aspects for the company.

Addiction Versus Addiction

What most people have in mind when are talking about addiction is the addicted gambler, who wants to relive the win (or near-win) again and again and again. He plays and does the same tasks repeatedly with the hope to win – which is uncertain and often based on chance.

In gamification we have the opposite effect: players do the task because they are promised a reward. If they don't get the reward, they don't do the task. This is an especially damaging situation if the players had done the tasks before without a promise of a reward. Once a reward is introduced, it corrupts the system.

The message for gamification designers is to be careful if and how much to reward tasks. While the conventional wisdom is to reward boring tasks and thus show that

they are valuable, it is always better to transform boring tasks into interesting tasks, and not reward at all.

Also, we may want to consider very carefully who's running the system. High turnover amongst the business owners of a gamified system may create an engagement death spiral through rewards.

Types of Rewards

Let us now examine actual examples of rewards. And how much they cost.

Praise

People are craving for praise, to hear compliments. But when did you last hear a co-worker saying “thank you“ for the help that you gave? Or more importantly, when did you last say thank you?

Praise is an important form of a feedback, if given honestly. Don’t just give a general thank you, but mention the things that the other player did well. From that praise, players can get an idea of what activities are appreciated. Praise is effective, simple to do, and carries no tangible costs. It doesn’t matter to whom you are giving the praise. If you see good work, recognize it. If you see somebody who needs encouragement, praise. Nobody has died from too much praise. And don’t limit yourself to praise people who report to you. It’s every player’s duty to give praise for work well done.

A way to regard praise from a gamification design perspective is to include it in a recordable form. Praise today is too often something that happens in unstructured form, such as a mention in an email or quickly thrown at somebody in the hallway, and is prone to be lost for eternity. But don’t get me wrong. A quick thank you between colleagues in the hallway is always good, but if a player can praise somebody in the gamified system, everyone else can see it.

Points

Points, while motivating for some players, are mere counters to keep track of how well a player is doing. Reaching a certain amount of points may give additional rewards, like more administration rights, access to the next level, a badge, or a virtual item.

So while points are an important counting element, players should not participate just for the points. Points are means to more intrinsic forms of rewards. Points are categorized as a granular feedback component.

Badges

Badges are awarded for specific accomplishments or as a result of another reward. The accomplishment can be unique (“First one to complete the mission!“), show an outstanding behavior (“Purple Heart“), or be based on an aggregated number of

activities (“10th Blog Badge”). Badges can be used to cater towards the fun motivator of collecting.

Prolonged Play

One of these rewards for which you may use points is prolonged play. Now this reward is something that you won’t usually expect to be motivating for players in a business system. Wouldn’t employees try to get done with their work and go home? Isn’t prolonged play the opposite of what employees want? If you thought that, then you have never worked in an environment with people staying hours after work because they enjoy what they are doing. The motivations may be different: the young intern or new hire may want to impress and make a reputation for herself. Or the executive for whom her job is the most creative and autonomous occupation that she can imagine. Or the software developer who’s in the flow.

A Gateway

Being able to explore a new feature, discipline, or level is what a gateway enables. In a gamified system or work-environment, this could be a fellowship program in another team and country that a talented player is allowed to attend.

Spectacle

A spectacle is an often-unexpected reward that may appear after an achievement. The specialty about the spectacle is that it’s eye and ear candy. A visually spectacular thing happens on the screen, like fireworks with dramatic music. Nike+ Fuelband uses a funny character that’s celebrating the runner’s achievements. A spectacle is typically paired with another achievement.

Note that a spectacle can also be used in a punishment or failure situation, such as crashing your car in a spectacular way. That actually gives the players bragging rights. Have you ever heard somebody bragging about just “setting a \$10 million project into the sand?”

Expression

Decorating a virtual space and dressing an avatar is a form of self-expression. The more players spend on that activity, the stickier the game becomes. Giving out elements as a reward to dress an avatar is a motivating factor. An avatar or virtual space is not only self-expression, but also conveys status, as some rewards may be handed out only for certain accomplishments.

Powers

Having more powers than others can be a strong source of motivation for players.

Being able to administrate a discussion forum, or having more authorizations in a system to complete certain tasks elevates the player from the masses. Not everyone can have these powers, and they have to be earned. Using powers as rewards which players can earn through skills and effort also has some desired side effects for the designers and operators of a gamified systems. These players have not only shown that they are skilled and motivated enough to use the powers, they can be involved in administrating the system. And they stay motivated by rising from the original tasks and activities to those that require mastery and higher skills.

Resources

Resources can come in the form of elements that the player can use in the game, and in the form of a virtual currency which allow players to acquire other items, such as powers, prolonged play, resources, or expression. External resources such as time off are also resources.

Completion

The ultimate reward in a finite game is finishing the game. Having completed all project tasks means this very project is finished. Doing the project all over again is not what engages the player anymore.

Types of Punishment

Players hate punishments! But they hate them only then if they are the ones being on the receiving end. Seeing others being punished may elicit in some people schadenfreude and satisfaction. Or being the punisher himself or herself may be a strong motivator. One of the fun motivators – as we remember – is exacting revenge and justice.

And then the chance of being punished adds to the risk, increases the challenge, and makes rewards more valuable because they were achieved under higher risk.

But generally, if you consider introducing punishments in your design, first consider if rewards might accomplish the same objective. In the end, you want to nudge players to behave in a certain, positive way, and this can be done to some extent either with carrots or sticks, but preferably with intrinsic motivators. Only when carrots do not show the desired results should you consider punishments. But if you do, then make them light-hearted, and apply them only for very good reasons. Even then, a whimsical title used for the punishment – while still being stingy for the player – may take the harshness out of it.

Shaming

Shaming can be used to discourage certain behaviors. An example is to expose

cheating in the game through making the cheating and the cheaters public.

Loss of Points

According to Jesse Schell, losing points is something very painful for players, maybe because of the perception, when points can be taken away that easily, they are cheap. Consider other options before point losses become part of a gamification design. On the other hand, administrator or peer-exacted point deduction can be very powerful. Administrators, higher-ranking players, or certain type of activities can very well deduct points. A light example for that is shown in Yahoo! Answers [\[ccxxiii\]](#), where points become a kind of currency that has to be paid for posting questions.

Shortened Play

In game speak this is equivalent to losing a life. In a gamification setup this could be number of attempts a player can do before the game ends prematurely.

Terminated Play

The finite game ended before the player completed it, such as a tournament or contest.

Setback

A setback returns the player back to the beginning of a level. Bidders in an auction may hold temporarily a good until somebody else has the higher bid and the time is over. The player is back at the beginning, having nothing.

Removal of Powers

Powers, such as authorizations for more functionality, that a player earned in a system can be taken away. In a gamification setting the reason may be a high-ranking player showed inappropriate behavior towards other players or damaged data in the system. Administrators would then remove authorizations for this player and he would lose his status.

Resource Depletion

This common form of punishment happens when the player loses already accumulated rewards like points and currencies.

Why Rewards and Punishments are the Two Sides of a Coin

Psychologist Alfie Kohn[\[ccxxiv\]](#) claims that a reward can punish as much as a punishment can reward. Based on analyzing studies and research, Kohn identifies four major problem behaviors that people who are offered rewards show. They tend to:

... choose easier tasks, are less efficient in using the information available to

solve novel problems, and tend to be answer oriented and more illogical in their problem-solving strategies. They seem to work harder and produce more activity, but the activity is of lower quality, contains more errors, and is more stereotyped and less creative than the work of comparable non-rewarded subjects working on the same problem.[\[ccxxv\]](#)

Kohn lists five reasons why rewards fail:

Rewards Punish

While people have come to believe that punishments are bad as a way to change behaviors (and there are many good reasons why they are right), they have introduced rewards in an even stronger sense to encourage good behaviors. Instead of punitive measures, they introduce positive reinforcements. Because they think that in order to elicit a certain behavior, which “the natural field forces of the moment will not produce”[\[ccxxvi\]](#), they have to use either punishments or rewards.

This reduces the range of measures for behavior control just to two types. And that is simply not true. A reward can serve as much as a punishment as a punishment itself. If you dangle the carrot in front of the individual and then remove it – because the person did not behave in the way you wanted it – the person will feel punished. The rewarding process has the punitive element built in. The punishment is seen even worse, when the failure was out of the player’s control.

Giving rewards to everyone – independent of the behavior – is not a reward anymore. According to Kohn, a reward given unconditionally is not a reward. A reward by definition is a desired object or event made conditional on having fulfilled some criterion: only if you do this will you get that.

In fact the better approach is not to promise anything, but giving the reward after the fact as a surprise. “Here is a little thank you for helping me out yesterday.”

You may have experienced similar situations yourself. Remember the time when you were promised a bonus or reward for doing something, and you worked hard, and then you were told you would not receive the bonus or a bonus smaller than expected? A promised reward not given is a punishment.

Rewards Rupture Relationships

Relationships at work are amongst peers, managers and subordinates. If a reward – a scarce resource - is introduced, it creates competition. The people are set up as rivals to compete for the same resource in an environment, where collaboration is needed. Through introduction of scarcity people are set up in a way to defeat instead of assist each other.

How about handing out rewards to a team, and not an individual? Alfie Kohn has encountered the very same proposals, and he says:

Some writers have acknowledged many of these problems and suggested that the solution is to stop rewarding individuals and use small group incentives instead, either in the workplace or the classroom. Unfortunately, offering goodies to teams simply shifts the rivalry to another level, maximizing the competition and thereby minimizing the coordination among groups. Moreover, the four other major problems discussed in this chapter and the next are not alleviated by changing how many people receive a reward. There is research to show that “shared incentives do not ameliorate the negative effects of performance-contingent rewards.”

Additionally, imagine in this scenario that due to the mistake of one person the whole team does not receive the reward. That feels like collective punishment. The military uses that a lot when training soldiers. A “collective reward” turns into a “collective punishment” and then somebody is blamed.

Rewards also change the relationships between a principal and an agent – the person who hands out the reward and the person who receives it. In a work environment, as well as a family structure, a working relationship is characterized by trust, open communication, and the willingness to ask for assistance. When the person that I am supposed to ask for assistance is also the person who judges me and hands out rewards for my behavior, would I still be willing to admit that I need help because I don’t understand something? The outcome is certainly to hide negative information, only communicate good news and not ask for help, so as not to give an impression of incompetence.

As compensation specialist Theodore Cohn reported, the effects can be the opposite and quite problematic.

Sometimes safety rather than performance is the criterion on which bonuses are based: everyone in the department is rewarded if and only if there are no injuries. The result ... is that an incentive is created to avoid reporting injuries. Moreover, such programs effectively shift responsibility away from the employer, whose legal responsibility it is to maintain a safe workplace, and to the employees.

Rewards Ignore Reasons

Because rewards are so easy to implement and bring short-term gains with long-term, damaging results, reward givers are less motivated to figure out the real reasons for

certain behaviors.

Rewards do not require any attention to the reasons that the trouble developed in the first place.

All reward givers have to do is bribe or threaten the person to behave. As Kohn says, rewards are not actually solutions at all; they are gimmicks, shortcuts, quick fixes that mask problems and ignore reasons. They never look below the surface.

A sudden deterioration of performance at work may indicate a deeper problem. There may be something wrong with the job itself, the number of tasks coming in, or personal problems. Often you only have to ask to find out, instead of immediately dangling a carrot.

Rewards Discourage Risk-taking

The candle problem shows how a promised reward strangles our creativity and the risk to explore paths to new solutions. If you know that you will get a reward, you will do only what's necessary to get it, take the shortest route and ignore any alternative. We do only what's required, and not more. In the end, as psychologist John Condry said, "rewards are the enemies of exploration."

A person promised a reward is not working on solving the task but on receiving the reward. The boy who's mother wants him to read more and thus promises baseball cards for each book that he checks out of the library, makes the boy want to read even less. When you then ask the boy what he read, he won't be able to tell the story of the book he just finished, he will tell you that he is doing that just for getting millions of baseball cards, and he will be checking out only the shortest books.

Alfie Kohn summarizes rewards this way:

Do rewards motivate people? Absolutely. They motivate people to get rewards.

Rewards Change the Way People Feel About What They Do

In the examples before where the test subjects were promised a reward for a task they were performing, we could see that even for the tasks that were considered interesting before, people lost interest in doing them.

This video[\[ccxxvii\]](#) from an experiment with capuchin monkeys is probably the most telling (and funniest) example of how rewards changed how the monkey felt about the reward and the task. Primatologist Frans de Waal shows two capuchin monkeys in a cage given a task. They have to hand over a rock to the experimenter, and receive a reward. The first monkey hands over the rock and gets a cucumber as a reward. She is perfectly fine with that reward and eats it. The second monkey gets a grape. The first

monkey sees this and gives another rock to the experimenter, for which she receives another cucumber. The monkey gets upset and throws the cucumber back at the experimenter.

From this we learn the following:

Intrinsically motivated people function in performance settings in much the same way as those high in achievement motivation do: they pursue optimal challenges, display greater innovativeness, and tend to perform better under challenging conditions.

One other reason for loss of interest in a task that is promised a reward is that

...rewards are usually experienced as controlling, and we tend to recoil from situations where our autonomy has been diminished.

In a broadcast on US National Public Radio, a former hostage who had spent many months in solitary confinement said that even today, after much time living again in freedom, he has troubles reading. The only way to distract him from the isolation in the prison was to read. So he read four to five books every day. But now after winning back his liberty, he cannot do that anymore. That demonstrates how he had regarded book reading and his situation: he considered them as a reward in a situation that he could not control. And the intrinsic interest of reading was permanently damaged for him.

Rewards corrupt intrinsic motivations and interests because of the following expectations and feelings that reward receivers have:

They are or feel threatened

A reward or punishment looming over somebody makes a person feel threatened and the task less appealing.

They are or feel watched

When people feel monitored in a sense that control can be exerted, then a task loses its appeal.

They expect to be evaluated

When somebody is watching you, evaluation is always included. Somebody is forming an opinion on how well the observed does the task, or how stupid she looks. Even if no reward is offered, the sheer expectation to being evaluated decreases the intrinsic interest in a subject or task.

They are or feel forced to work under deadline

While it is true that some people need the looming threat of a deadline and perform

only then (I am one of these people), it often has a deteriorating outcome on the result, where I'd wish to have had more time. But according to studies, a deadline reduces the interest in the subject as a result of imposed time pressures.

They are or feel ordered around

When the German Democratic Republic collapsed, one of the most common responses to the question why the system finally collapsed was that “they couldn’t bear being bossed around anymore.” When children or employees are being ordered around and told what to do, the task becomes less appealing to them.

They compete against other people

With competition people are set up against each other in a way that when one person wins, the other cannot win. When the reward is scarce it is available only to a few participants, usually one person or team only.

Reward Excuses

Even after all these studies on the negative and addictive effects of rewards, management, parents, and educators stick to the belief that rewards are useful. Rewards have one big advantage: they don’t require thinking and dealing with the problem. They are a quick fix. Instead of understanding the player’s motivation, they are an excuse to focus on the manager’s motivations.

Alfie Kohn has encountered all those excuses and lists an interesting collection of such counter-arguments.

Two kinds of motivation are better than one.

Our belief that when we take two ‘good’ things and put them together we’ll have an additive effect contradicts reality. Reality is more complex and, as the cited studies have shown, the use of extrinsic rewards can permanently decrease the intrinsic interest in a task.

As long as you don’t use rewards permanently, there’s no problem.

Introducing an extrinsic reward has a similar effect as Heisenberg’s uncertainty principle[\[ccxxviii\]](#). This principle says that in quantum mechanics one cannot measure with certainty two complimentary variables, like the position and the momentum of a particle. By measuring one with precision, the other one becomes unknown.

The introduction of an extrinsic reward has a permanently altering effect on the intrinsic interest. It does not matter how often or rarely you use an extrinsic reward, just the fact that the reward is introduced changes the game forever.

Rewarding people is not only inevitable but also apparently desirable since people *want* the goodies we give them.

Kohn argues that it's not about what we offer but how. If a group of employees is invited to a party, that's one thing. If the same group of employees is told that after a certain achievement is fulfilled a party will be thrown, then a condition was introduced.

As rewards continue to co-opt intrinsic motivation and preclude intrinsic satisfaction, the extrinsic needs ... become stronger in themselves. Thus, people develop stronger extrinsic needs as substitutes for more basic, unsatisfied needs ... They end up behaving as if they were addicted to extrinsic rewards. [\[ccxxix\]](#)

If players won't do anything without extrinsic rewards, then there must be something inherently flawed with the system or task itself.

An example from Argentina shows what the employees wanted. To the chagrin of their US manager the local team members kept spending a lot of time socializing and going to lunch. He tried to keep the team focused by promising them a team dinner at the end of the week. The employees felt this was condescending and were demotivated. What worked was when the manager decided to join the team for the lunches and learned that they were actually talking through a lot of work-related issues that in the end made their work more productive.

Let people reward themselves.

Handing over part of control of when and how to receive the reward has no different effect than having the reward handed over by management. This self-administration of reinforcement does not take away the factor of compliance, which is the same as when a superior rewards players. The effect on the intrinsic interest is the same, it will still decrease.

The only problem is that we are offering incentives for the wrong behaviors. If we made rewards contingent on people's doing exactly what needs to be done, the problem would disappear.

Changing the criteria for how a reward is given does not change how people feel about the reward. It's still seen as punitive, it is still damaging for relationships, does not address the root-cause of a problem, reduces the will to take risks, and has a long-term effect on intrinsic motivation.

If we're worried about reducing intrinsic motivation, then what's the problem with giving people rewards for doing things they don't find interesting?

Why not make the things more interesting in the first place? After all, we are here

applying lessons taken from games? Here is Kohn quoting Mihaly Csikszentmihalyi on what he did when he wanted to increase intrinsic interest in the boring task of mowing the lawn:

Can the speed at which I mow the yard or part of it provide feedback to my actions? Can I tell how neatly I do this job in comparison to other times? Is it possible to develop rules about how to proceed – for instance by following a circular path, or a zigzag pattern? Or do I rather want to develop rules for my physical movements as I walk behind the machine? ... Supposing I decide I want to cut parallel swaths in the grass, making a U-turn at the end of each run without overlapping any of the runs, getting as close to the trees as possible without nicking the bark. As soon as I set up these tacit rules, they define what stimuli will be relevant for me to watch for. They also define what will be negative and positive feedback under the rules. When this is done, I am ready to go; and mowing grass becomes a moderately enjoyable activity with its own set of intrinsic rewards.

Some people are more extrinsically oriented than others. Why not give rewards to those who seem to want or need them?

What came first, the chicken or the egg? When I watch my young children, then it becomes clear that they don't need rewards. They are so curious that they would kill themselves if we didn't watch over them.

Intrinsic interest is what exists first. We introduce extrinsic rewards later. According to Kohn's research, teachers and managers who use controlling techniques such as extrinsic motivators tend to produce students and employees who are more extrinsic, while those who emphasize students' and employees' autonomy produce students and employees who are more intrinsic.

When and What to Reward

After all this talk on how problematic rewards are, what can we do? There are a couple of approaches that Kohn suggests.

Get rewards out of people's faces

De-emphasize the reward if there is one. Make it smaller, give it less often, and avoid making a big fuss of it.

Offer rewards after the fact, as a surprise

When you give a reward, don't announce it and do it after the player accomplished something. Make it a surprise, but, as with the first suggestion, don't make it a big

deal. Don't create the future expectation that players will get unexpected rewards all the time.

Never turn the quest for rewards into a contest

An extrinsic motivator, which is turned into a scarce commodity through competition, will turn players into rivals. This will destroy collaboration, and decrease intrinsic interest.

Make rewards as similar as possible to the task

An endogenous reward is when you reward somebody with something that is similar to the task. A child that has read a book should be rewarded with another book.

Give people as much choice as possible about how rewards are used

By letting the players decide which reward to choose, the player feels more in control of the reward system.

Try to immunize individuals against the motivation-killing effects of rewards

Once a reward has been introduced it becomes difficult to return to the former state of the player's intrinsic interest. A technique that can support that "back-pedaling" to some extent is by reminding the players how much they used to like doing the task before the rewards had been introduced.

The Art of Failure

Should we use failure as design elements in gamification?

Ye goode olde days Versus Helicopter Parenting

When I was a child in the 1970s and a teenager in the 1980s, we spent the afternoons in the courtyard of our apartment complex at the outskirts of Vienna. We climbed the cherry, plum, and apricot trees, but not the walnut tree, as this was too high. We played with kids that were five years older and five years younger. We learned to include each other, scale down our ambitions when we were the bigger kids, or tried to live up to the expectations of the bigger kids when we were the small ones.

This all happened without parental supervision. When we fell, we got up ourselves. When we scratched our knees, we continued playing. My mother actually tended to take an afternoon nap, and when the time for dinner came, she just stuck her head out of the kitchen window on the fourth floor and yell “Dinner!”

When I heard for the first time of a “play date“ from a female colleague, I thought she’s talking about something that’s inappropriate for a US corporate workplace. But of course she meant an arranged setting where the kids can come together and play, under the supervision of the parents.

I went by myself to children’s parties. And I went to school by myself, starting in day care. From 1st to 4th grade I took the electric car and rode three stations all by myself.

Nowadays kids are driven everywhere, never left outside the supervision of an adult. At birthday parties kids play in the middle, and the parents form something like a protective circle around them, constantly taking pictures. And it doesn’t stop there. Parents complaining to professors about grades their child got, and employers have parents come by to the office why their son hasn’t gotten a raise.

Today in the Western world we probably have the most protected children ever. Sheltered from disappointment as well as danger. At sports games everyone gets a ribbon, not just the winners.

But at the same time, these very same protected and sheltered children are also the generation with the most videogame experience, where failure is inherent. An experience where being rejected, humiliated, and failing is the single most important form of experience.

How can we explain this phenomena and how can we use it in gamification? We need

to see what games mean for failure. A game makes painfully visible where our skills fail us. Of course we are familiar with the phrase “But it’s just a game,” and that the failure doesn’t really affect us. But this is a pretense that gives us the liberty to count and brag about our success, but downplay the importance of our failures.

Rejection Therapy

To be successful means to be prepared for failure. Actually you need to fail. And you need to fail a lot. That sounds very similar to what Nobel Prize winning chemist Linus Pauling once said when asked how he comes up with good ideas:

If you want to have good ideas you must have many ideas.

Therefore:

If you want to have success, you must have many failures (and learn from them).

In the book “*The Game: Penetrating the Secret Society of Pickup Artists*” author Neil Strauss, who learned how to talk to and pick up girls, describes the very first exercise that he was told to do: approach a girl on the street and ask her for her phone number. And do that not only once, but hundreds of times. Talk to hundreds of girls and just ask them for their phone numbers.

That doesn’t only sound scary, it is scary. Not that women are horrific, wild beasts waiting to rip men apart, but the thought of asking a girl for her phone number is enough to let even the hardest men sweat and tremble. In fact, men would do everything to avoid this, because rejection is certain.

And that is the aim of rejection therapy, to overcome the fear of being rejected by exposing yourself to as much rejection as possible. As a Toastmaster I know that for many people public speaking falls under a similar category. The fear of public speaking can be nerve wrecking, but the therapy to overcome that fear is to actually do what you fear most: speaking in public. Every new moment of speaking in public, or experiencing rejection makes it less fearsome. And over time you will also learn how to approach such a situation and make it more likely to succeed. Neil Strauss learned that as he asked girls for their phone numbers, he got more confident, became wittier, had better responses, could read clues that the girl sent out, and he ended up with a higher rate of girls willing to give him their phone number. Whether the numbers were correct is another question, but that was not the point.

In an interesting article[\[ccxxx\]](#) the self-declared life-hacker Jon Guerrera reports of how he aimed for getting rejected and thus build confidence by using gamification. He did not only not avoid getting rejected, he exposed himself to rejection opportunities

and kept a tally of his rejections. Once he reached a certain number of rejections, he rewarded himself.

How did he set himself up for rejection? By using dating as a vehicle to quickly encounter many rejection opportunities. But as he states, some rejections are more painful than others, like being rejected by a date in public. On the other hand being rejected on a dating website is not that painful, and the more often it happens, the less painful it becomes.

As a result from his continuing studies on rejection, he developed a healthier attitude towards dating, became more confident, and had more fun. Fear had less impact on his well-being, and he started to enjoy life more.

Failure in Games Versus Failure in Life

The element that distinguishes failure in life from well-designed failure in a game is fairness. Life never promises us to be fair, but in a game we expect that we have a fair chance and that everyone who's acquiring the skills can win the game.

Although our conventional wisdom is that we will avoid failure or tragedy, we are actually seeking it out. In theatres, movies, and news we indulge in tragic stories and epic failures (of other people).

Game theorist Jesper Juul [\[ccxxxi\]](#) calls it “the paradox of failure:“

1. We generally avoid failure.
2. We experience failure when playing games.
3. We seek out games, although we will likely experience something that we normally avoid.

How do we resolve this paradox? Critics point out that failure in games is never as painful as in real life. But when you've experienced the reaction of players when they failed, it looked as real as it could be.

In her research game designer Nicole Lazzaro [\[ccxxxii\]](#) interviewed the wife of a passionate video gamer, who said:

It's easy to tell what games my husband enjoys the most. If he screams 'I hate it. I hate it. I hate it,' then I know he will finish it and buy version two. If he doesn't say this, he'll put it down in an hour.

This anecdotal evidence was confirmed by a study that Juul conducted, where he had 85 players play a game and fill out a survey. The most positive players were the ones

who failed some, and then completed the game. Those who completed the game without failing gave the game lower ratings.

Reactions to Failure

Here are the three types of reactions that players use to describe their failure. According to Juul, players attribute their failure to

1. the user *or* to the (test) game
2. be consistent *or* subject to chance or improvement
3. the general inability *or* inability in this specific task

As an example, a student in the first case may attribute the failure in a math exam to herself. This attitude has a huge influence on her next steps. A mastery-oriented player's reaction to failure will focus on how to overcome failure, while the reaction of helpless players is that nothing can be done due to lack of ability. They are more likely to give up.

There is one big difference to reactions to a failure versus a reaction to a win. A failure for which we accept responsibility will very likely lead to a search for reasons and cures for it, but a win will not force the winner to figure out what could have gone wrong and why it worked this time. Winning can be a curse for learning.

When the Axis forces in World War I lost, the monarchies ceased to exist, the empires dissolved, the militaries and societies had to change. This tabula rasa forced self-reflection and a new start. Fast forward twenty years later: Nazi-Germany invaded its neighbors with a never before seen speed. The German military structures had collapsed 20 years before and new technologies revolutionized military tactics and strategy. Germany had nothing to lose because they had already lost. The military branches integrated their tactics and applied new technologies, while the winners kept their "successful" structures, such as the French Maginot Line, which proved no match for the new way of how war was led today.

The very same lesson was taught to the Israelis in the Yom Kippur war in 1973. Their astonishing success in the 1967 war had them believing that they have everything they needed. But their neighbors attacked with new tactics and nearly succeeded.

Some make the case that in highly risky businesses, like space exploration, every successful operation should actually have a post-mortem with the question: "Why did it not fail?"

Now some players are setting themselves up to fail. By not practicing, by waiting too

long to start studying for an exam, and then even drinking or not sleeping to inhibit even more success, the players engage in a self-defeating behavior. Why are they doing this? Because the foreseeable failure will be less demotivating for them. Think about it for a moment. Assume you prepared really hard for an exam or for a contest, and spent hours, weeks, months or even years in preparation to culminate in that single moment, and then you fail, how large will be your disappointment? Very large. But if you subconsciously expect failure and prime yourself for that by even defeating your own preparation, then you will feel less demotivated when the expected outcome arrives.

Now there is not only self-defeating, but another type of failure as well, which under certain circumstances may be even harder to achieve than the actual win: we call it spectacular failure.

Spectacular Failure

When Sheryl Sandberg (now Facebook COO) was still at Google, she made a bad decision that cost the company millions. Co-founder Larry Page responded to her: “I’m so glad you made this mistake, because I want to run a company where we are moving too quickly and doing too much, not being too cautious and doing too little. If we don’t have any of these mistakes, we’re just not taking enough risk.”

Failing by losing millions is not a typical, everyday failure, but a spectacular failure.

There is also a paradox with spectacular failure: it gives the player the right to brag. One can find many videos online of spectacular examples of failure, and I don’t mean *America’s Funniest Home Videos*. Failure reels from games are so popular that they deserve their own channels. Certain types of failure require special skills, and while these failures may have originally started out as an unexpected outcome from the honest attempt to win, once players figured out how spectacularly they can fail, they focused their skills on failing even more spectacularly.

Does spectacular failure have a place at work? Certainly, when you read the comments from many different entrepreneurs. Not only Larry Page but also many others encourage risk-taking and even stated that if you haven’t failed, you didn’t take enough risks. If we can make it safe for players to fail – as games allow – we’ll create a culture of innovation and trust in an organization.

Applying Failure

Individual and organizational learning are not possible without failure. Failure keeps our behavioral system in checks and balances. It prevents us from becoming too

confident, too satisfied with ourselves, and requires us to reflect on the way we are doing things.

The life expectation of “proven ways” of how things are done is decreasing. Innovation cycles are getting faster, and companies need to experiment and fail small, often, and fast before a failure threatens the existence of the very organization.

We cannot afford to stigmatize groups or people for failing. Organizations need to create structures that encourage

- risk taking
- fast, safe, small failures
- individual and organizational learning from failure

I am not talking about mistakes here. A mistake is when you are just unprofessional and send out an email full of typos or factual errors. Failure comes from when you push the boundaries of the known and the boundary pushes back.

I mentioned before the study by researchers from MIT and UCSD[[ccxxxiii](#)] who had looked at the creative output and the impact rate of research funded by grants from either the US National Institute of Health (NIH) or the Howard Hughes Medical Institute (HHMI). The NHI's funding process emphasizes "short review cycles, pre-defined deliverables, and renewal policies unforgiving of failure" with the committee assigning scores to each research proposal. This conservative, risk-avoiding approach is partially based on the goal to not waste taxpayer money.

In contrast, the privately funded HHMI "tolerates early failure, rewards long-term success, and gives its appointees great freedom to experiment." The institute explicitly encourages researcher to "push the boundaries of knowledge." The institute assumes that a creative scientist should be able to pursue ideas without having to justify them to a panel of experts.

The results are astonishing. The research funded by the HHMI has a higher level of breakthrough innovation, a higher impact on society, creates more new keywords. But it also resulted in 35% more papers that were cited by nobody at all, and thus considered failures.

Segway's product development group celebrates what's called "Frog Day." [[ccxxxiv](#)] After a period of rapid prototyping, they award the team with the most spectacular failure an iron frog. Eric Fleming, director of marketing, explains: "We call it 'frog kissing' under the premise that you have to kiss a lot of frogs in order to find a prince."

A gamification design could allow for failure, and this could even be catering towards some of the fun motivators, such as socializing. As in a videogame where a healer attending to a warrior's wounds creates opportunities for socializing and role-play, junior and senior employees can connect across departments. Simply being able to observe the approach of one risk-taker, and applying successful approaches to one's

own project, could pave the path to organizational learning.

Analyzing what went wrong is painful. Often a lot of time was spent and emotion invested in a failed project. Rationally dissecting the failed project interferes with the feelings, especially when people just want to move on.

Emotion

"The essential difference between reason & emotion is, Reason leads to Conclusions... Emotion leads to Actions." Neurologist Donald Calne

That quote reminds me of a joke that we chemical engineers had about our fellow physicists. A physicist is a person who can explain any technical defect, but not repair it. Maybe that's also the difference between a game theorist and a gamer. You can talk about a game and why it works, but once you play it, it's a total different thing.

To play a game is an emotional gamble. Mood Management Theory[\[ccxxxv\]](#) claims that we choose entertainment to some extent by the way we can control our mood. With games we cannot predict if our emotions will be positive or negative.

Taunting and Trash Talking

Whenever I failed to kill the pigs in Angry Birds, they laugh with satisfied grunts. And this drove me nuts. I wanted to kill them and show them who's boss. Taunting creates a strong emotion to prove the other side wrong, and in a real life scenario trash talking is considered rude. But in a game taunting can be an effective tool to motivate players to re-engage and try their best, and also to bond with each other.

While you may think that insults will discourage you from playing a game, the opposite is the case. In fact trash talking walks the fine line between praise and insult. A player who just lost a game against his friend and hears him bragging how he friend beat the crap out of him, feels honored about the very fact of being trash-talked. It shows the special relationship between the two, and it shows that the other finds it worth mentioning that he won. That reflects on the playing skills of the loser, because for the winner the win was an accomplishment worth talking about.

Emotional Design

When a friend helps you move to a new place, you will very likely help him. You scratch my back and I'll scratch yours. That's what computers do as well to engage you. If you have good experiences with *Google* search results, you are more likely to answer one of their surveys, or help them tag images.

Persuasive design is Stanford professor B.J. Fogg's[\[ccxxxvi\]](#) description of how computers persuade us to do things we otherwise wouldn't do. Traits of player types such as the socializers, who play a game either for the chance to interact with others

(including computer generated characters), or computer users who felt a deeper connection with the early and primitive natural language processing program ELIZA[ccxxxvii] than with humans, give us an insight into how much we care about human connections and emotions.

We often process data and information in non-rational ways. Not only are we easily tipped over by the raw data and the sheer amount of it, the visualization of it poses another set of problems if we don't consider it displayed in a "natural" way.

Former statistics professor Edward Tufte[ccxxxviii] makes the case for focusing on the data, and toning down the "decoration" and "fancy graphics." By analyzing several examples, like the Challenger and Columbia space shuttle disasters, he demonstrates how bad data visualization has blinded the people responsible for the missions on the critical data points that predicted the disasters.

The increase in popularity of games in the past decades has given us a more complex picture. One of the secrets of games is that they prepare information for the players in a different way; they put an emotional component on it.

We know that human-interest stories are a big part of best-selling business and technology books. We remember stories better than facts. It's easy to understand why these stories are added: they help readers relate better to abstract concepts.

A result from my data-heavy doctoral thesis was the use of a visualization concept known as Chernoff faces[ccxxxix]. Instead of printing several data points in a tabular form, we used the human skill to interpret faces. This is something that we start learning as babies. "Is this a friendly face or threatening?"



Figure 31: Example of visual data display as Chernoff faces

By putting data points behind facial elements such as eyebrows, eyes, ears, lips, or nose, “good“ data will look very much like a normal face, while data points that are out of the normal range will make the face look distorted (Figure 31).

And that’s not just a theoretical feature. Such a visualization creates an immediate emotional reaction, something that we certainly want to achieve in our gamification designs.

Engagement

Gallup's long-running study[\[ccxli\]](#) on employees and engagement shows the impact of engaged and disengaged employees and the financial costs. Fifty-two percent of US employees are disengaged; 18% actively disengaged; 30% are engaged. And those numbers are worse for many other countries.

A 2012 Global Workforce Study[\[ccxli\]](#) conducted by professional services company *Towers Watson*[\[ccxlii\]](#) found that companies with high levels of employee engagement reported same-year operating margins that were nearly three times higher than companies with low levels of engagement. A recent Modern Survey study[\[ccxliii\]](#) cited even lower numbers, with only 10% of employees in the United States being fully engaged at work.

In other words: we know that engagement is crucial for the success of a company, but we have low rates of engaged employees. But what actually is engagement?

A 2012 study[\[ccxliv\]](#) from the Chartered Institute of Personnel and Development (CIPD) and Kingston University Business School's Centre for Research in Employment, Skills and Society (CRESS) says that not all engagement is equal – or with some judgmental undertone – “good”. The authors distinguish between two types:

1. Transactional engagement
2. Emotional engagement

Transactional engagement describes when employees are dealing only with the task or job at hand. While they may respond positively to engagement surveys and display engaged behaviors, they are less likely to perform well and more likely leave for a better job.

Emotional engagement describes employees who are engaged with the organization's goals, values, and the people. These employees are more likely to stay with the organization, and stay engaged, even through tough times. In conclusion

[t]he researchers identified transactional engagement as being shaped by employees' concern to earn a living and to meet minimal expectations of the employer and their co-workers. In the majority of instances, people's positive feelings about their work stemmed from the job or task itself, from the challenge, variety and autonomy that their role bestowed on them, and the gratifying ability to see the fruits of their labor. Emotional engagement, meanwhile, is associated with different aspects of work that go beyond the job

role itself, including colleagues, line managers, business unit, the organization and clients or customers. It is driven by a desire on the part of employees to do more for the organization than is normally expected and in return they receive more in terms of a greater and more fulfilling psychological contract.

High levels of transactional engagement were found to be potentially damaging for both individuals and the organizations they work for. Employees who are transactionally engaged report higher levels of stress and difficulties in achieving a work-life balance than those employees who are emotionally engaged. What's more, transactionally engaged employees are more likely to indulge in behavior, which might actually damage the organization than their emotionally engaged counterparts.

Not only do rewards have a social or transactional flavor, but the engagement as well. A transactional reward brings you only so much satisfaction, and, as it seems, transactional engagement will cost companies. According to Gallup [\[ccxlv\]](#) absenteeism in Germany cost 63% more for disengaged employees than for emotionally engaged employees, or roughly €1,900 per employee. And when it comes to creativity, emotionally engaged workers outperform the rest [\[ccxlvii\]](#).

Engaged workers also are more innovative and have more and better ideas: Seven in 10 engaged employees had an idea for improving their company in the last 12 months, compared with four in 10 actively disengaged employees. About half of all engaged employees report that their idea has been implemented. When asked whether their idea led to cost savings, increased revenue, or increased efficiency for their company or organization, nine of ten engaged employees answered yes, compared with only three in 10 actively disengaged employees.

Social rewards and social engagement help to weather stormy times and make a company stronger. These findings were also corroborated in a study done by motivation research firm *Make Their Day* [\[ccxlviii\]](#). The key take-aways from the study [\[ccxlviii\]](#) can be clustered into those 4 categories:

1. No-Dollar Rewards and Recognition Are the Most Valuable Motivators

- Free recognition and virtual rewards have become increasingly important in today's workforce over tangible, high-cost rewards.
- 83% of employees said recognition for contributions is more fulfilling than any rewards and gifts.

- 71% said the most meaningful recognition they have received had no dollar value.

2. The Type of Praise and Source Matters

- 69% said that being recognized as an individual over a team was more motivating.
- 76% found praise from their peers to be very or extremely motivating.
- 88% found praise from their managers to be very or extremely motivating.
- Only 14% said their best recognition or reward was of a gift over \$1,000.

3. Keep Employees Happy with a Fun Work Environment

- 90% of respondents said that a fun work environment is very or extremely motivating.
- A fun work environment was ranked higher than other factors such as job titles, cash equivalents, and gifts, in regards to what motivates employees.

4. Opportunities for Growth Makes Employees Stay

- The top reasons people stay in organizations are working with people they like and opportunities for growth.
- 80% said that working with people they like is highly motivating (this increases to 90% for employees 36 and older).
- 76% of respondents said opportunities for growth was the top reason they stay in an organization (this increases to 90% for millennials under 25).
- In every age demographic, opportunities for growth were more motivating reasons to stay in an organization compared to other factors such as relationship with manager and pay increases.

These findings are nothing confirm what we have already learned. Recognition instead of rewards, the right type of praise, fun at work, learning and growing keep people engaged.

The Core Engagement Loop

What elements does an engagement loop contain? The core engagement loop (Figure

32) includes four parts:

- A motivation or emotion
- A call to action
- A player engaging or re-engaging
- Feedback and/or reward

To trigger a reaction, a strong enough motivation or emotion needs to be evoked. This can be a call for help in a community. The call to action is then an activity that the player can perform to reach a goal, such as respond to a question of another community member. In the third step of the cycle, the player engages and writes a response, and receives feedback and possibly a reward. This again establishes the player as valuable participant in the community.



Figure 32: The Core Engagement Loop for a first time engagement

The motivation in the first phase must be right for the player. For each player

motivations can change over time. While a player may have become a member of a community for learning purposes, the social experience can motivate the member to staying with the community.

A call to action gives the player a goal. The goal should be clear, explicit and aligned with the mission of the system. To reach the goal, the player has to perform activities that follow certain rules. Clear and actionable feedback is given to the player during all the phases in a timely manner and at the end of the loop, eventually including a reward.

Depending on the player's skill level and status in the system, the engagement loop may look different. A rookie player's engagement loop may be limited to sharing articles, while engagement loops for a master player may include user administration, content curation, and teaching.

Churn Rates

The tough part is not so much to engage a player the first time, but keep the player engaged. In fact, the vast majority of players will not re-engage. As the analysis of churn-rates[\[ccxlix\]](#) – how many players will leave the game and never return – has shown, multiple parameters can predict whether a player is likely to re-engage on a long-term basis. A churn can be predicted with high accuracy by monitoring factors like how many levels were played in the first session, how many quests completed, and the playtime in minutes per level, the playtime per day, and what activities were performed.

In fact, according to a *Playnomics*[\[ccl\]](#)[\[ccli\]](#) study, 85% of social game players do not return to the game after the first day of playing. Engaged players with low churn probability play in their first session more than twice as long, and do more activities and quests. This has also been confirmed by social gaming data analyzed by a team of SAP analysts, where the non-churners even played 3x as much as the churners with an average of 152 minutes.

These are pretty sobering statistics. Not only do new players churn, but also veterans do. A study[\[cclii\]](#) has also dealt with the question how to predict when a long-term player is likely to leave the game forever. The results show that two weeks before a veteran leaves the game, certain behavior patterns develop that – when identified in time – can be addressed by the system operators and through reaching out to the player can reduce the churn.

Monotony

The monotony of tasks is one of the biggest challenges among factory workers. Repeating the same steps again and again without change or influence on the sequence or pace of tasks can demotivate and disengage them, numb them and make them more vulnerable to workplace accidents, lower the product quality, lead to high and costly turnover, and even to workers stealing and intentionally breaking machines[\[ccliiv\]](#).

But workers do find ways of avoiding alienation with their work.

One of the older women on the floor had a routine she followed religiously. Every day at morning coffee break she went to the corner store and bought a newspaper. She brought it to her table and then went to the bathroom for a paper towel that she spread on her table. She then proceeded to eat half of her sandwich, no more, no less, every working day. There were numerous other examples of women “setting up” their meager possessions – radios, cigarettes, and coffee cup – in similar fashion[\[ccliv\]](#).

Building relationships, engaging in acts of camaraderie, and adding routines to break up the day are common ways of dealing with work monotony. The socialist theoretician Henri de Man spoke of this as “clinging to the remnants of joy in work.” Sociologist Donald Roy wrote about a first-hand experience[\[cclv\]](#) when he joined a garment factory in New York in the 1950s.

His three co-workers interrupted the day with what Roy called “times.” There was a “Peach time,” a “Banana time,” a “Window time,” “lunch time,” “pickup time,” “fish time,” and “Coke time.” Each of these times followed a predictable routine with the ever-same outcome, but was enjoyable anyways. Banana time, for example, was a routine each morning when a banana would be stolen by the most senior worker from another worker’s lunch box. The worker who never got to eat the banana would still bring a new banana every day.

Roy mentions the havoc that he caused when he intentionally destroyed these routines. Suddenly the work became unbearable.

Boredom

Boredom is an emotional state experienced when an individual is left without anything in particular to do, and not interested in their surroundings. It is the opposite of engagement. There are five types of boredom[\[cclvi\]](#):

Indifferent Boredom

This is a pleasant form of boredom, which is experienced as relaxing. Examples are

- You go to a class, you are tired, and the class is boring. However, the boredom is experienced as rather relaxing and even positive. It is still boredom, but you like being bored.
- Zoning out on the couch in front of a marathon of trashy reality TV.

Calibrating Boredom

This is a form where an individual lets her thoughts wander, is open to new ideas but doesn't feel any motivation to actually get up and do something. It is like daydreaming, but not actively searching for new actions.

Searching Boredom

People who experience searching boredom are highly motivated to find a more interesting activity. This type of boredom can lead to innocuous behavior, like texting a friend, or may prompt violent or risky actions. However, searching boredom can also result in highly creative and positive actions, it is a big chance—it leads to actions.

If you have ever responded to the question "Why did you do it?" with "Because I was bored," you have possibly experienced searching boredom.

Reactant Boredom

When an individual can't change the circumstances — get up and leave the classroom or conference room — the experienced boredom may be accompanied by restlessness and aggression, along with the desire to do something else. An example is being trapped in a boring lecture or never-ending meeting.

Apathetic Boredom

Apathetic boredom is a very unpleasant form of boredom accompanied by a lack of

motivation. It seems to be similar to depression, and it may have more negative consequences than the other types.

Habits

In order to have people voluntarily engage with a gamified system on a regular basis we need to design it in a way that habits can be formed. A habit is a routine of a behavior that is repeated regularly and tends to occur subconsciously[\[cclvii\]](#). No rewards are required to execute a habit. Whether I check my email or Facebook-status every hour, or wash the dishes right after dinner is finished, does not require rewards.

Habits are very powerful and can make life easier and efficient; after all, I don't need to think much of what I am doing. Looking in the mirror when driving the car can be life saving. But habits can also be bad, like reaching to a cigarette right after a meal, or nail biting (which I have been doing since I was a small child).

What we as skillful gamification designers hope to achieve is not just nudging players to engage in a certain behavior, but changing that new behavior into a habit. A behavior is not effective in the long run if it seems to be forced, and the general effect is limited to the very small area where we implemented the behavior change. This may not be enough when we look at a holistic strategy of change.

Take the example of Paul O'Neill, who in 1987 took the job as CEO of Alcoa, an American aluminum company[\[cclviii\]](#). This big old company was losing to its competitors, and management and labor union were in constant quarrels. Apparently, some bad habits had penetrated the company.

Analyzing the situation under the scrutiny of the public and the shareholders, O'Neill went back to basics. He looked at what both management and the employees could agree on. And that was safety. He announced at the first meeting with shareholders and analysts that the priority of Alcoa under his command would be safety. The goal would be to have zero factory injuries.

Questions in the room were raised about profitability and product quality, but the new CEO didn't blink. He repeated that from now on safety would be the top priority at Alcoa. While this led to a panicked stampede of shareholders and analysts recommending to sell shares in Alcoa, the employees understood the message. Because safety was now a top concern, everyone was invited to contribute and make changes. When the first fatal accident occurred under O'Neil, he personally took charge of the investigations, demanded changes and encouraged suggestions for improving the situation.

This had some more effects. Because it was suddenly apparent that safety was everyone's responsibility, workers and management started collaborating on pointing

out safety hazards and possible solutions. And while they were on it, not only on safety-related issues, but also on productivity, efficiency, and innovation. A formerly hostile atmosphere turned into a collaborative and engaged environment. And the results were stunning: Alcoa went from a struggling company to one of the most profitable.

And the way he had done it was not directly aiming at the obvious problem. He aimed at an issue that seemed only indirectly related to all the other problems. But it turned out to be the key to changing bad habits and replacing them with good habits. Like in the example of the adorable boy peeing on the toilet seat, O'Neill tackled the issue through changing something that everyone cared about. And thus he solved many other problems as well.

How to Change Habits?

Habits often change in life-changing situations. A marriage, a new baby, a divorce bring so much disruption that old habits and routines are challenged and often changed permanently. But habit changes can happen through less disruptive means. Through repetition in a consistent context new habits can be formed, though this happens only slowly and is not easy.

Charles Duhigg[\[cclix\]](#) breaks his approach to change a habit into three elements:

1. The Cue
2. The Reward
3. The Routine

Whenever people feel an urge for a habit, they are requested to look at the time, space, what they were just doing, other people that are around, and the emotion they had. By analyzing this whenever the urge comes up, we get an understanding of the cue.

Then we look at what reward the habit is craving. Sometimes we need to substitute the reward with a different one to find out if this really was the craving, or if there is a hidden one.

Finally, now that we have identified the cue and the reward, we change the habit not by stopping or replacing the old routine, but by inserting a new routine. Research performed on a variety of subjects, from recovering faster from hip and knee surgery, to quitting bad habits like smoking, to learning a foreign language[\[cclx\]](#) shows one important additional “routine“ that helps: write down the goal and what will be done when an obstacle is hit. This way people get primed for what they are about to face

and know what to do. In the long run this gives them an advantage over the non-primed subjects.

Make a Plan

Making a plan is a crucial tool to change habits. In a Scottish study from 1992 elderly hip surgery patients in an orthopedic hospital were given a notebook and asked to write down the goals for every one of the 13 weeks of rehab.

When the researchers examined the patients three months later, the ones who had written out their plans had started walking almost twice as fast as the ones who had not. They had also started getting in and out of their chairs nearly three times as fast.

Similar techniques work with children as well. In the Tools of the Mind-program[\[cclxi\]](#) children learn self-regulation. With the teachers' help the children make *play plans* in which they draw what they want to play in their chosen role. When the planned play is being firefighters, the teachers first teach the kids all about firemen. Each child then takes a role and describes what they want to be and what they will do. Some will be the firefighters, others the family to be rescued, or the dispatcher. The children play 45 minutes and more in a completely self-directed way, staying in character. If a child gets distracted from the role, the teacher simply asks, "Is that your plan?" to get the child back to the role. Making a plan becomes a standard ingredient to help children pay attention and become less disruptive.

How often should you make a plan? Researchers[\[cclxii\]](#) had expected that daily plans would outperform monthly plans or no plans at all. As it turned out, the group that made monthly plans fared better in terms of improvements on study habits and attitudes. Monthly plans allow more flexibility, and even if a participant failed on one day, she was still on plan. And monthly planners also tended to stay ahead and keep making plans, while the daily planners had mostly given up.

Look for Inflection Points

The elderly patients of the orthopedic hospital had not just made a plan, but they had laid out the most mundane aspects of their daily plan. From what they would do, to what time they would leave, the route to walk, where to stop, what to wear, what pills to take if the pain became too much.

This way the patients were priming themselves for the obstacles and had solutions for them. The same happens when you learn a language. French language students who were asked to imagine what they would do once they had learned French dropped out at much higher rates than those who were asked to imagine what they would do if they ran into an obstacle while learning the language[\[cclxiii\]](#).

Reward Yourself

One of the hip surgery patients got to see his wife whom he picked up at the bus as a reward. He also put a bowl of M&Ms next to the bathroom door, so that he could take one on his way in and out.

He used several types of rewards: The M&Ms were extrinsic rewards. The big other reward – picking up his wife – was of course an intrinsic reward and shows his real motivation.

Mission 5 – Design Elements

If you think about it, Google is just a giant leaderboard.

Yu-Kai Chou

Since I started dealing with gamification, I have seen a lot of confusion about what game mechanics are. As it turns out, the whole notion of game mechanics is a notch more complicated than one may think. I will use the term *gamification design elements* as an overall reference for all those components. But this will not keep us from going through the definitions and classifications.

Game Mechanics and Game Rules

Wikipedia[\[cclxiv\]](#) defines game mechanics as

... constructs of rules intended to produce an enjoyable game or game play.

The Interaction of multiple game mechanics used in a system determines the complexity of the system. The use of many game mechanics does not necessarily make the game complex, or give it more strategic depth. Inherent complexity and strategic depth can be achieved with only few mechanics in use. Chess, for example, has only a few rules and mechanics of how the pieces can move, but it is one of the most complex games.

According to Ernest Adams and Joris Dormans in their book *Game Mechanics*[\[cclxv\]](#), the video game design community distinguishes between *game rules* and *game mechanics*:

Game rules are (printed) instructions that the player is aware of; game mechanics are hidden from the player.

Even if most videogame players don't know the rules at the beginning of the game and are on-boarded to get accustomed to the rules, game mechanics are not offered through a direct user interface. An example of a game mechanic is gravity. In Angry Birds the rules specify how many points a player gets for killing a pig, but gravity is a crucial mechanic that influences the trajectory of the bird tossed with the sling shot, as well as where the structures will fall. This behavior is typically not put into instructions for the player, but will be experienced as soon as play begins.

Jesse Schell[\[cclxvi\]](#) describes game rules as the most fundamental mechanics that

... define the space, the objects, the actions, the consequences of the actions, the constraints on the actions, and the goals. In other words, they make possible all the mechanics we have seen so far and add the crucial thing that makes a game a game – goals.

Space

Every application takes place in some kind of space. In games these can be the chess board, the soccer field, the “*Who wants to be a millionaire*”-TV-studio. In the gamification space this is the community, the transaction screen, the conference hall, or the classroom. And while some spaces can be very concrete, others are abstract

and flexible. The position of a player or game element may have a lot of influence in the current state of the game, and whether players are successful or not.

Objects, Attributes, States

In order to fill a space with meaning, you need something in it. This is typically an object that has at least one attribute, with a current state. In *Angry Birds* that would be one blue bird (the object) that can split into three birds (the attribute) and is currently not yet split (the state). In a gamified community a blog would be the object, with the text, images and videos the attributes, and the comments and hits the state.

Actions

Actions are what a player is doing with the objects in the space. Actions can be grouped into two types. The **operative actions**, where a player blogs, shares or edits something, and the **resultant actions**, which are only meaningful in the larger context. Resultant actions are tightly connected with the goals and describe how the player is using the action to achieve the goal. Examples may be to blog on a specific topic every day to become blogger of the week, or help your support colleagues to reduce the overall response times.

To make gamification or a game more interesting, Jesse Schell recommends doing the following:

1. Add more operative actions (without adding too many that don't interact with other actions)
2. Actions that can be used on many objects
3. Goals that can be achieved more than one way
4. Adding subjects increases resulting actions
5. Side effects that change constraints

The British game historian David Parlett [\[cclxvii\]](#) analyzed the different rules (see Figure 33). He also points out that not all rules are recorded.

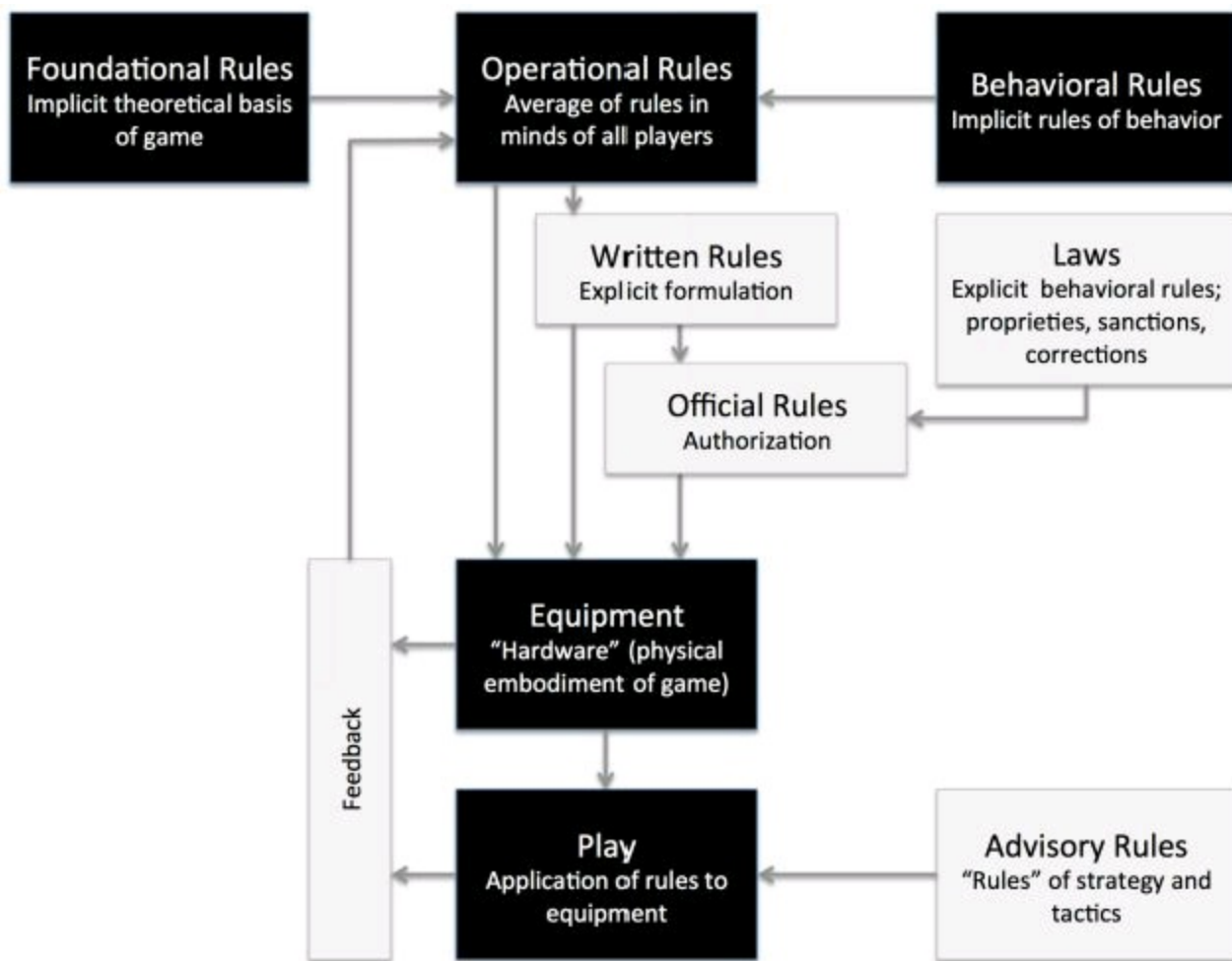


Figure 33: David Parlett's Rule Analysis

Operational rules are the ones that refer to the most basic rules of a game and are not a form of words but a set of operational procedures you apply to the gaming equipment in order to play the game. They can be verbalized, and they bring the “meaningful experience of play” to the equipment.

Foundational rules are the *mathematics* behind the game. They tell players how many fields they can go forward according to this rule.

Behavioral rules originally are unwritten, implicit rules. The gentlemen’s agreement, the appropriate time that is required to make the next move, etc. are some examples and they may be turned into written rules and become more explicit, if the underlying game is used more widely and / or setup tournament-style.

Written rules are the ones that come with the game in form of a manual. However, most players will never read these rules, but either get them explained by experienced players or game masters, or the players will be on-boarded through the game itself, especially thinking of computer-games that offer training levels or start with very few

rules before they subsequently unlock more rules and tools.

Laws are rules that come to significance once the game is played in serious and / or competitive settings like tournaments. The need arises to explicitly describe behavioral rules like sportsmanship, but also add further rules that the game itself would not need. Think here about the rules how to win not the game itself, but in the end the Superbowl or World Cup.

Official rules are the merge of written rules and law.

Advisory rules are often what you understand under “strategic rules“ that are not written down, but seen as good practices, ways to better play (and win) the game.

Feedback rules may be slight variations of a game that are tuned to the needs of the “house.“ The reasons for that may vary, like to offset missing figures or cards, add more balance to a certain move, add more challenges for experienced players etc.

To finish off the section on rules and provide you with a practical approach to rules, Parlett provided the following template for writing rules[\[cclxviii\]](#):

1. ***The name of the game.*** *This is more than interesting: you could say it is vital. The name of a game is the portal through which you pass from the real world into that special world in which games are played. The subject of how games get their names and what they mean would make an interesting paper for a future colloquium.*
2. ***Its classification.*** *This relates it to other games and should include a brief account of its distinctive points.*
3. ***Authority.*** *State the provenance of the game, sources of authority, and authority of the person drafting the description.*
4. ***Number of players, and how disposed.*** *(For example, Solo or partnership?)*
5. ***Social status.*** *(Played by men, or women, or mixed? Regarded as childish, intellectual, disreputable?)*
6. ***The gaming equipment*** *and a brief description of how it is to be manipulated.*
7. ***The aim of the game.*** *(I never cease to be amazed at how many game books say nothing about how you win the game until they have gone into*

excruciating detail of how you play it. At toy fairs, when I ask the inventor or publisher of a new game what it's all about, I usually have to interrupt them within the first half-minute to say "Yes, that's all very well, but what are you aiming to do? How do you decide who has won?")

8. **Detailed rules of play** in the normal course of events, with specifications of what you may and may not do.
9. **Special rules** governing exceptional cases and occurrences.
10. **Penalties** and corrections for irregularities.
11. **Ending, winning, scoring, continuation** (of a multi-part game).
12. **Pay-off.** This may be money, title, prestige, or something else that you carry away with you into the real world. Just as the name of the game is the portal from which you pass out of the real world and into the play world, so the pay-off is the portal through which you pass back out of the play world and into the real world.

Goals And Goal Setting

While these are the rules that run the game, gamification designers must not forget the most important rule, on which all the other rules are based: what problem are we solving? Problems need a solution. Finding a solution and solving the problem is the goal. And they have to have three distinct qualities:

1. Goals and problems need to be concrete. If goals and problems are vague, players don't know what to do.
2. Goals need to be achievable. If the goal is unrealistic, too difficult to achieve, or conflicting, players will become frustrated and stop playing.
3. Goals need to be rewarding, the solution to a problem satisfying. Keeping the player in the right balance between difficulty and player-skills may be already rewarding enough. But you may also want to add fun and pleasure to it.

According to a series of studies conducted by Edwin Locke and Gary Latham[\[cclxix\]](#), goals that were specific and hard lead to a higher level of task performance than easy or vague and abstract goals. Generally, Locke and Latham describe four mechanisms

or mediators that influence the relationship between a goal and the performance:

1. High goals lead to greater effort and/or persistence than do moderately difficult, easy, or vague goals.
2. Goals direct attention, effort, and action toward goal-relevant actions at the expense of irrelevant actions.
3. Goal effects depend on having the requisite task knowledge and skills.
4. Goals may trigger different motivators: use one's existing skills, or pull stored task-relevant knowledge into awareness, or search for new knowledge.

To reach a goal with high performance, goal setters need to make sure not to have too many goals. Otherwise this leads to goal overload. But who's setting the goals?

1. Somebody else
2. A group where the individual is part of
3. The individual

Independent of who is setting the goals, to achieve them there are four key moderators of goal setting:

1. Feedback – important for the individual to track progress
2. Commitment – seeing the goal as meaningful and important
3. Task complexity - having the right level of self-efficacy = the individual being confident that she has the right task-specific skills
4. Situational constraints – no goal overload is occurring

But this is not all. Studies [\[cclxx\]](#) over the past decades have researched goals that were categorized into eight different clusters:

Goal Choice

When a goal is selected, there are a number of factors that influence the level at which the goals are going to be set. One is self-efficacy, then the past performance, and then various social influences. An athlete sets two types of goals: one for the season and one for the next competition. Goals for the season are typically raised, when the goals in the past season were reached, and vice-versa. But if a short-term goal (like for a competition) was not reached, then the athlete tries to overcompensate by setting the

goal for the next competition higher.

Learning Goals

When the goal requires learning, setting an ambitious goal may reduce performance, as this leads to *tunnel-vision*. Performance can be increased, if the goal is rephrased towards acquiring the skills to reach the goal, instead of reaching the goal.

New MBA students were more successful when their goals were set to *learn to network* or *master Accounting 101* instead of *reach a certain GPA*.

Framing

Whether a high goal is perceived as a threat or as a challenge has an impact on the individual's performance as well. This concept is well known as gain versus loss framing, and must be considered when defining the goal. Players who were primed to see the situation as a threat (with a focus on failure) achieved significantly lower performance than players who were primed to see the goal as opportunity. With a loss framing, players tend to take less risk, be less creative, and work less.

Affect

When a player experiences goal progress and the goal is important, difficult, and has meaning, then there was a higher correlation with feelings of success and well-being.

Group Goals

Groups add more complexity to goal setting and performance, especially when the individuals in a group have goals that conflict with the group goals. Having high personal goals that are in sync with the group goals enhance group performance.

Goals and Traits

Players who have goals that have a performance orientation tend to avoid tasks where others may judge them unfavorably. The players tend to choose easy tasks, which make them look good. Players who have goals set that focus on learning tend to choose tasks in which they can acquire knowledge and skills.

In a setting where players are oriented to reach a performance goal, a change happens that requires the players to learn and react to the new situation. Those directed towards performance fared worse than those groups who were directed towards a learning goal.

Macro-Level Goals

Setting macro-level goals across groups can help overcome conflict and dysfunctions

by having a shared vision. The boundaries that typically encircle one group were set to include all the groups and lead to cooperative goals. Growth goals combined with self-efficacy and organizational vision were found to predict future growth.

Goals and Subconscious Priming

To achieve a goal, a player does not need to always have the goal in focal awareness. Once accepted and understood, a goal remains in the subconscious part of the player's awareness and thus serves as reference point for tasks.

Skill

While space, objects, actions and rules focused on the game itself, skills focus on the player. Skills are one of the many dimensions that we use to describe and understand the players. Generally speaking, if the skills are in the right balance with the challenges of the game, players are likely to enjoy the game more and play it longer. Jesse Schell^[cclxxi] mentions these three skill types:

1. Physical skills
2. Mental skills
3. Social skills

The majority of skill types used in an enterprise context will focus on mental and social skills. Unless you plan to gamify a manual labor-intensive industry, physical skills may not be of importance. However, adding physical skills as requirement for computer-based tasks can increase the fun-factor of your gamified application.

We think of a socially skilled person as somebody good with Twitter or Facebook, but in fact that would be way too narrow. Poker, which some might misinterpret as a game of chance and as a purely competitive game, is in fact a very social game that requires skills. It requires players to read other players and bluff and coordination with teammates

Of course skills in real life and in a virtual games are often very different things. Being good at driving a car in *Grand Theft Auto* doesn't mean that in real life you are a good driver. Winning in *Monopoly* doesn't make you a good investor and real estate broker. Being a great commenter and poster in a community doesn't mean you are a good public speaker.

However, with gamification, real and virtual skills may fall together. After all, in gamification we are enhancing the business application with game design elements.

Jesse Schell recommends answering the following questions in regards to skills:

1. Which skills are required?
2. What skills are missing?
3. Which skills are dominant?
4. What's the experience created by the skills?
5. Does the game become unfair through more skilled players?
6. How can players improve their skills?
7. What's the balance between difficulty and skill?

Goal and Fairness Types

Now that we discussed goals, skill, and fairness, we can create a matrix that shows us which goals should reward what traits.

| | Skill | Chance | Labor |
|----------------------------------------------------------------------|-------|--------|-------|
| Completable Goal (Complete once) | X | X | X |
| Transient Goal (Complete many times) | X | | X |
| Improvement Goal (Goal of continuous personal improvement) | X | | |

Figure 34: Goal and Fairness Types

Goal and Happiness

The types of goals that we select have a direct impact on our happiness[\[cclxxii\]](#). Goals should be

- intrinsically rather than extrinsically motivated

- harmonious rather than conflicting with one another
- satisfy innate human needs (such as the need to be an expert in something, to connect with others, and to contribute to communities), rather than simply desiring to be rich, powerful, beautiful or famous
- aligned with our own authentic values
- reachable
- flexible
- ideally focus on attaining something rather than evading or running away from something

The pursuit of all these types of goals has been found to be associated with greater happiness, fulfillment, and perseverance.

Gamification Design Elements

We have learned that what is typically considered as game mechanics for gamification, such as points, badges, or leaderboards, are in fact not game mechanics. But what are they?

Classification

Game design components can be classified in the following categories:

1. Mechanics
2. Dynamic
3. Feedback
4. Psychology
5. Interface
6. Aesthetics
7. Motivation / Justification / Meaning
8. Rule
9. Game characteristic

Mechanics

We learned about the distinction between mechanics and rules, now lets look at different types of mechanics.

Progression

Progression is the feeling that a player gets that she is able to successively follow a sequence and move ahead. The player's experience is one of accomplishment, higher complexity, more rewarding, and pleasure.

Chance / Randomizer

Chance is an element that introduces uncertainty. Chance means surprise, and surprise is a source of human pleasure. Chance can be used for challenges and for rewards.

A randomizer is a tool that sets up a selection process in a deliberately random way and can be used for chance. Examples are dice, coin tosses, lottery drawings.

Reward schedules that are based on a variable interval or a variable ratio increase the fun for user because they are unpredictable. They also make users more attentive. If players know that a reward is coming every 30 minutes, they won't do much during

that period to earn it. But if it is unpredictable, chances are they will stay alert.

But be careful: chance as used in a lottery can create a high level of anticipation. Often, fairness is questioned. While winners will generally continue to play indefinitely, losers may quickly abandon the game, despite the random nature of the distinction between the two.

An example where a surprise reward worked very well was demonstrated by *Foursquare*. In Fall 2011, when Apple-founder Steve Jobs died, people in the Silicon Valley flocked to his home on Cowper Street in Palo Alto and to the Apple-stores to lay down flowers, half-bitten apples, Pixar toys, and Post-its on the store windows with commemorative messages. As it happened, standing outside the Apple-store on University Avenue in Downtown Palo Alto, I took out my iPhone, launched Foursquare and checked in. Up came a badge titled “Jobs: Here’s to the crazy ones. ☐ #ThankYouSteve“ (see Figure 35).

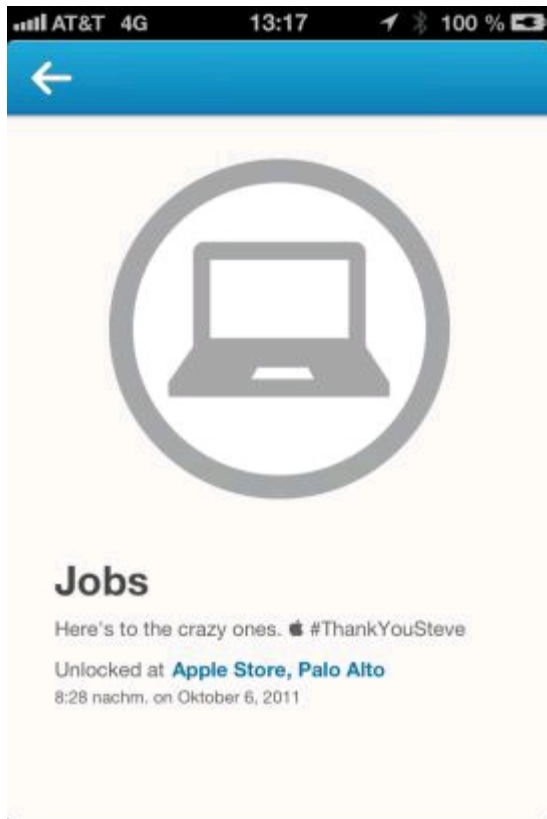


Figure 35: Foursquare badge commemorating Steve Jobs

As you can imagine, that was a surprise and a nice touch. And I keep talking about that, not least here in that book. That’s the power of chance and surprise.

Physics & Activities

What’s closer to game mechanics than classical mechanics from physics? The majority

of games make use of Newtonian mechanics, with Angry Birds and Cut the Rope being just two of the most popular. Activities, of course, include everything a player does: running, jumping, flying, killing...

Shell Game

A shell game uses a mechanic in which the player is presented with the illusion of choice but is actually in a situation that guides him to the desired outcome of the operator.

An example is how Walt Disney designed his amusement parks. While the park visitors have all freedom to choose whatever path they go, 99% of the visitors will first walk towards the castle that's visible from all sides and has the main walkways leading there.

Modifier

Modifiers are items that affect other actions when used. A modifier can be something that is won or found by a player, or can be introduced by the game master. An example would be by using a double-modifier certain activities will double the rewards.

The owner of a gamified system might want to promote certain activities, like blogging about a new product or sharing information about a specific service, and encourage people by rewarding them with twice the regular amount of points.

Scheduling

Schedules define when, how often, and how many rewards or punishment a player will receive for given activities. Reward schedules can be created with fixed or variable intervals. In a fixed interval, rewards are provided after a certain amount of time has passed. With a variable interval, a reward can come any time. A ratio schedule defines how many rewards a player gets, and the ratio may be fixed or variable.

Table 6 shows the advantages and disadvantages of the different reward schedules, and gives examples for each of them [\[cclxxiii\]](#).

| | Variable | Fixed |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interval | <p>High engagement, as it's unknown to the player when the reward comes.</p> <p>Example: Wait several minutes, a new weapon appears. Check back as often as you want but that won't speed it up. Generally players are bad at realizing that.</p> | <p>Low engagement, as the player can predict when the reward comes and is only active prior to the interval end.</p> <p>Example: Farmville, wait 30 minutes, crops have appeared.</p> |
| Ratio | <p>Consistent rate of activity, even right after a reward was achieved.</p> <p>Example: kill something like 20 ships, get a level up. Visit a couple locations (roughly five) get a badge.</p> | <p>Increased activity prior to a reward being awarded, but low activity rates right after the achievement.</p> <p>Example: write ten blogs, get a level up, visit five locations, get a badge.</p> |

Table 6: Interval and ratio reward schedules

A common mechanic is the countdown or time pressure. In order to get the reward, the activity must end before the countdown ends.

A special parameter on reward schedules is extinction. This is the term used when the completion of one or several activities stops being rewarded. An example could be that entering records for ten customer accounts is not rewarded with points anymore. Understandably, this leads to anger with the players. In order to use extinction, a combination with other elements needs to be considered, like a change of the challenge or new rewards in this new level.

Dynamics

Dynamics are results from the use of mechanics in game play. They can have negative or positive effects. If players bond after playing a game together, or certain players

enjoy a higher status amongst peers through their achievements, then this dynamic is considered having a positive effect. If the players won't do tasks because of missing rewards, then the dynamics have turned negative.

Reward schedules and dynamics can be combined. In an appointment dynamic a player may need to return at a predefined time to take some action (return after 2 hours and water your crop in Farmville), but if the player does not return, something negative happens (the crop dies). This is called avoidance dynamic.

Feedback

Whenever players do or achieve something in a game, they receive feedback. We look at in which form and what feedback is given, and by whom.

Counting Elements

Counting elements keep track of the player's progress. While players like to collect rewards, taking them away as a punishment or disincentive is something that is generally detested by the players. Counting elements can come in a variety of forms, but the overall classification distinguishes between granular and aggregated counters.

Granular

Granular feedback components are the ones that keep the count and may trigger other game mechanics. They include points, virtual currencies, steps, stars, and every other single count metric that can be imagined.

Keeping track of ones progress isn't anything recent or limited to games. Workers easing their routines with songs marked with knife-cut or chalk the progress of their singing repertoire[\[cclxxiv\]](#).

Aggregate

Aggregate feedback components are tallying up the granular mechanics based on aggregate factors like overall count, periodical count, space count (points in that level). They help to compare players to themselves (personal best), other players, or an ideal situation or goal.

Feedback components include leaderboards, progress bars, badges, levels, status, chain schedules and contingency, free lunch, virtual items, progression dynamic, or rolling physical good.

Micro-leaderboards, which display the player's rank within an area and/or social circle, are the most common. Cross-situational leaderboards, which take input from across multiple (often unequal and isolated) areas, compile those sources to an overall ranking. Players often perceive these latter types of leaderboards as unfair, as effort

required or opportunities presented in each area may differ and put players within a certain area within a lower rank.

Displaying leaderboards carries some risks. Players become acutely aware of how they fare in comparison to other players, and if they are compared to players they will never surpass, then they disengage. When a leaderboard was published ranking the compensation of American CEOs, its intent was to keep salaries in check. What happened was that the executives went to their supervisory boards and pointed out how much they are underpaid. Since then the gap between an employee's average salary and the CEO's compensation has skyrocketed.

Goods

Virtual items are special counters, as they can signify status, have a certain value, and can be traded or given away. These goods can be achieved as rewards, or by finding them in the system. The value of virtual items can also change in the course of the game, due to in-game market economics.

Some of these items are rolling physical goods. Any player can bring them into their possession as long as they meet some characteristics.

When an aggregated amount of activities has been fulfilled, a good or other reward may be available. Free lunch is the concept that is used in loyalty programs, where a customer is rewarded with a free item once he has paid and consumed a certain amount, like "drink 9 coffees and get the 10th coffee for free." Some loyalty programs have accelerators included. Instead of starting at zero, five fields may already be stamped.

A reinforcer is a reward that nudges the player towards repeating certain activities and rewards him with a special bonus, like leveling up, instead of just receiving points for each activity.



Figure 36: Foursquare Leaderboard

Feedback components like the leaderboard keep evolving. While those arcade games back in the 80s and 90s prominently displayed the all time top 10 players at the splash screen, today's leaderboards tend to include not all players, but only the ones in your social circle. And you won't even see the top ranked players, but only yourself in the middle (see Figure 36). And the points may be what is called rolling points, which means that only the points from the current period are displayed.

The logic behind those changes is clear: it's not very motivating if the top contenders are so far ahead that a player knows that she can never be on top of that list. But competing just against your social circle, and seeing the next placed player right beside you encourages the player to engage and surpass the friend. And when the points are rolling, everyone gets a chance to be on top of the list once in a while. According to an article [\[cclxxv\]](#), hacking public leaderboards over all players has become a popular sport anyways and does not reflect true achievements anymore.

Visual

The reason why people play Angry Birds is not because of the points and stars they receive when they win, but mostly because of the visual effects when they see the wobbly structures collapsing and the birds, pigs, monkeys, or balloons being

destroyed.

Visual feedback contributes to the fun. We remember that some fun motivators included visual and aesthetic elements.

Audio

People also enjoy playing Angry Birds because of the rich audio feedback. The chirping birds, the stretching leather of the slingshot, the grunting pigs, who keep taunting and trash-talking the players. If you own a force-feedback game controller for console games, you may get feedback through a rattling and vibrating controller.

Compare that to business applications of websites. Audio feedback is non-existent, or an unpleasant sound telling you that you did something wrong.

Physical

Force feedback controllers or cell phones that vibrate give a physical feedback to the player. Through shaking, rattling and other movements they provide information that can make an activity more engaging. In the most common scenarios the player tries to end the vibration immediately, by picking up the phone, or trying to overcome the obstacle or dangerous maneuver.

Social / Peer

Social feedback is one that a player gives to or receives from other players. This includes likes, shares, kudos, karma (after-life-luck-points), renpin (real-life-luck), retweets, followers, virtual currency, baozi (steamed stuffed buns), digs, and vote ups.

A special form of social feedback is one given by the administrators of the gamified system. In the *SAP Community Network*, for example, community administrators assign additional points for especially well received contributions. *Slideshare* features good presentations on their main page and thus creates more awareness on the slide deck.

System

Sometimes the sheer activity can generate feedback. While a person has created the rules for the triggers of feedback, it is given in an automated way.

Timeliness

An attribute of feedback is whether it is given in a timely manner or delayed. In a typical game of gamification setting we want to give timely feedback to the player. Learning depends on relating the feedback to the activity. Under certain circumstances delayed feedback may be wanted as a way to keep the player in an ambiguous state

about the outcome and have him interact.

Psychology

Irrationality can be used in a gamified system because, as researchers such as Dan Ariely have shown, irrationality can be predictable. When we have done things often, we tend to do them again. We created and formed a habit. We are like an object that is on its path, and where it's difficult to get the object to change trajectory. This behavioral momentum can make an application sticky, once we got the players to create this habit. But habits can lead to be regarded as irrational behavior, once the original reasons for such a behavior have gone away.

Social information is an important way of telling status and giving information about oneself. Elements that can be considered social information are the choice of avatars, clothing, armor, weapons, as well as privacy settings and with whom players share these.

Another element is behavioral contrast. Depending on the expectations, behavior can be changed. The children in day care expecting a reward for drawing, the dog expecting a treat after the bell rings, all those condition the player to behave in a certain way and expect a reward.

The experiment with the capuchin monkeys as presented by Dutch primatologist Frans de Waal [\[cclxxvi\]](#), is such an example. This behavioral contrast, in which the reaction changes based on the expectation, can be a great motivator.

Another element to keep tension and excitement high is the proper application of real-time and delayed feedback components. While a real-time feedback in a gamified system is generally desired and allows learning from the current actions, delayed feedback can bring ambiguity. Not knowing about the outcome of an activity can encourage players to continue performing certain actions due to lack of information and the uncertainty of ranking, achievements, or rewards.

Interface

The choice of the interface – on which device a gamified application can be accessed and played – influences the adoption of the game. Player styles refer to different preferences of how and where players want to interact, and offering a variation of choices can create longer and more immersed play.

Aesthetics

A design choice is how and when information is presented to the player. With the cascading information theory, only the necessary amount of information is given to the

player to complete the task. According to the Flow-theory from Mihaly Csikszentmihalyi it is a good thing to keep the player in the flow-zone. Too much information overwhelms players who don't have enough time or have not yet acquired enough skills to handle the information.

Visuals are directly related to the aesthetics and how well other gamification design components, like story and narrative, work. Visual elements allow players to better immerse in the game and bring them into the right mood.

This element appeals to fun motivators, like *experiencing beauty and culture* or *pretending to live in a magical place*. It is also a way to convey information, through the choice of graphics and their detail level, as well as the display of feedback indicators (think gauges and progress bars). In addition, visual effects can soften the effect of failure by making failure spectacular and something to brag about.

Motivation, Justification, and Meaning

Urgent optimism is an element that can drive self-motivation. It is the desire to act immediately to tackle an obstacle, combined with the player's belief of having a reasonable hope of success. Also when people think they are productive, autonomous, and creative in what they are doing, self-motivation can become a strong driver. The interesting contradiction is that working hard through a game can make you happier than not doing anything, especially when the task is meaningful.

Elements that add meaning are things like a story, putting the players into a narrative, adding fantasy to the task. While it may not be thrilling to roll two dice to get seven, "playing for the souls of the pirates" could quickly turn the very same task into a meaningful experience.

Ariely conducted experiments[\[cclxxvii\]](#), testing the hypothesis of meaning and what makes us feel good about work. Contrary to popular belief, it's not money or even joy that makes us love work, but meaning. In two experiments Ariely shows the effect of meaning to the outcome.

Example 1 – Lego Bionicle

Participants were given Lego to build Bionicle figures. For their first Bionicle, the participants were paid \$3. For their second \$2.70, their third \$2.10, their fourth \$1.80 and so on. This process was repeated until the participants refused to continue making new Bionicles.

The participants were split into two groups. Whenever participants in the first group handed over the finished figure, the experimenter set it aside, and handed the

participants new Lego-pieces to make the next one.

When the second group handed over their first Bionicle, they were also given new Lego pieces, but at the same time the experimenter started disassembling the first Bionicle in front of the participants. When the second Bionicle was done and handed over, the experimenter returned the Lego pieces of the first Bionicle to the participant and started immediately to disassemble the second Bionicle.

Participants in the first group on average built 11 Bionicles before they stopped, while the second group built only 7. The act of disassembling the Bionicle right after they were finished took the meaning out of the work for the participants. Ariely calls the former condition meaningful, the other one “sisyphic.”

One interesting fact is that the magnitude of the impact of meaning is grossly underestimated. Participants who were asked to estimate the impact of the described conditions, estimated a ratio of 8:7 Bionicles, instead of the 11:7. Giving a task meaning significantly improves the outcome.

Ariely also looked at one more condition: he analyzed the participants’ love of Lego. Those who loved playing with Legos built more Bionicles in the meaningful condition than the participants who’d stated they do not love playing with Legos. But for the second group in the sisyphic condition the number of Bionicles built was the same.

Example 2 – Finding letter pairs

In this experiment the participants received printed sheets with random letters printed on them. The task was to find letter pairs (like double A’s) and mark them. For every sheet they handed over they received a few cents less than for the former sheet. When they thought that the amount of cents is not worth the effort anymore, they stopped the task. The participants were split into three groups.

When the first group handed over each sheet, the experimenter took it, looked not more than 1-2 seconds over it, and put it on a pile of other papers. With the second group, the experimenter ignored the paper, and just put it on the pile. The third group also was ignored, but their paper was not put on a pile, but put into a shredder in front of the eyes of the participants.

How long did the participants continue doing the task? The first (“acknowledged”) group continued until the reward was on average 15 cents for the sheet, while both for the ignored“ and “shredded” group the participants stopped when the reward averaged 25 to 30 cents. Simply the acknowledgement of the experimenter taking 1-2 seconds to look over the sheet increased engagement.

Effects in Enterprise

Ariely also mentions an enterprise situation where such conditions as shown with the Bionicles and letter pairs, had a devastating effect on the motivation of employees and costs for that corporation. The team was tasked to come up with the next innovative big product for that software company in Seattle, but a week before Ariely spoke in front of them, the CEO had cancelled the project.

I stood there in front of 200 of the most depressed people I've ever talked to. And I described to them some of these Lego experiments, and they said they felt like they had just been through that experiment. And I asked them, I said, "How many of you now show up to work later than you used to?" And everybody raised his or her hand. I said, "How many of you now go home earlier than you used to?" And everybody raised his or her hand. I asked them, "How many of you now add not-so-kosher things to your expense reports?" And they didn't really raise their hands, but they took me out to dinner and showed me what they could do with expense reports.

The CEO had taken out the meaning of their work and crushed their motivation. When Ariely asked what the CEO could have done to have a less devastating effect, they answered that they could have presented the outcome and lessons learned to the other teams, or use some of the code for other projects. Thus a failure would have made sense and kept the motivation up.

More Motivators

Those employees in Seattle felt ownership of their work and task. Ownership gives people a feeling of control over “their” property, and this can very well be a knowledge domain, community, or a tangible object.

And while we talk about community (or teams and individuals), loyalty can be a strong motivator as well. In competitive situations this can turn non-competitive players into very competitive ones, because they don’t want to let the team down.

Depending on the player’s preferences and character, privacy (ownership over one’s own data) can be either a motivating or demotivating factor. Posting somebody’s location publicly can be an invitation to meet and motivate a person to do, or it can cause concern that too much information about oneself is available to strangers.

The seven sins of envy, gluttony, lust, pride, wrath, greed, and sloth can be strong motivators in game play. They are usually frowned upon as somewhat unwanted feelings and emotions, especially in a professional environment. Pride, as an example, can be both a positive thing when it is induced by the feeling of ownership and joy at an accomplishment, or negative, when somebody is too proud.

But when cleverly used in a safe environment like a game or gamified application, they can not only drive behavior in the desired direction, but also add fun to the application. Fun motivators like *being a villain* or *Being a rebel* draw their effectiveness from the seven sins.

The seven virtues of chastity, temperance, charity, diligence, patience, kindness, and humility are motivators as well. Some of them may also be strong motivators for certain players. Fun motivators that draw from that are *being a wise old men* or *honor*. An experimental game that uses the virtue of kindness is *Cruel 2 B Kind*[\[cclxxviii\]](#) aiming at being the first of two players to say something nice to each other.

Game Characteristic

Layering

Meta games are examples of layered games. Meta games are embedded within another game. These are finite games that can be embedded both in a finite or infinite game.

Viral / Collaborative

A characteristic that creates a viral effect is one when the gamified application requires players to invite other players to complete the task or proceed to the next level. A good example was a product promotion by the banana-brand *Chiquita*[\[cclxxix\]](#) in collaboration with the animation movie *Rio*. Players could win sweepstakes by completing certain activities, but could only move on to the next level when enough players had received enough rewards. While inviting additional players diminished the chances for the players to win one of the sweepstakes, nobody could move on to the next levels unless enough players participated.

The same effect is covered through the element of communal discovery. An entire community is rallied to work together to solve the task.

Beyond Points and Badges

In February 2013 many LinkedIn-users got an email congratulating them. The email that I got said “*Mario, congratulations! You have one of the top 1% most viewed LinkedIn profiles for 2012.*” I have been familiar with many of the gamification elements that this social network for professionals has been using, such as the profile completeness bar, the endorsements, the number of people that viewed my profile, the number of connections that I have, the ratings and likes on posts and many more.

But this email immediately hit the social networks with people bragging about their top 1%, 5%, and 10% LinkedIn statuses.

I thought this a brilliant tactics because it went beyond what we are used to seeing in gamification. This was not one of the standardized and predictable leaderboards, points, or badge-kind of reward, but something that came out of the blue. A snippet of information about a fact that I didn't even have the idea to ask. This apparently flattering kind of information made my day.

What were the characteristics of this reward? First, it was a surprise, an irregular reward, but it also gave information about my and others' behavior. And what's more interesting than unknown and (hopefully) flattering facts about myself? Second, I cannot expect with certainty that this information will be provided again next year, but maybe LinkedIn will tell me something else: Top 5% commenter or blog poster, or maybe I will be amongst the 1% of users growing their professional network fastest. Third, LinkedIn could do that because the company is sitting on a treasure trove of information. Fourth, they made it something special: LinkedIn did not just display this information in your profile, no, they sent you an email telling you that. And that was a unique email; I haven't gotten any similar emails since.

This hands gamification designers an additional tool for their arsenal. Gamification design elements as we know them, containing expected and necessary information for navigating the gamified system, and which are visible to the players most of the time, can easily be enhanced by those hidden gems of information that pop up on an irregular schedule with unpredictable content, with highly viral potential.

Think of a community where players are rewarded for reading, blogging, posting: the usual stuff. But once in a while an email goes out telling them that in total the word count of the articles that they read tops 150,000 per month and which brings them to the top 5% of all members. That their video-watching habits has them on a daily average at 72 minutes. Or that the ratings that they received on their comments puts them amongst the top 25% of thoughtful commenters.

Releasing these occasional snippets of information offers the gamification masters another weapon: a reason to introduce a one-time reward for "good behavior" by just recognizing that.

Competition

Isabella Barrera works at a place that many consider being the happiest place in the world. As laundry worker she takes care that the uniforms of the Disney employees remain spotless and thus makes Disneyland a magic place.

To maintain that magic, productivity measurements were put in place, as any well-run business would do. Manual tally keeping had been done for the laundry workers until

2011, when an electronic system was installed. And not only that, the daily numbers were displayed on monitors for everyone to see, with each employee's work speed on the leaderboard. And though the data has been tallied before, the very fact that this was made public changed the way it was seen by the workers. They started calling it the 'electronic whip'.

According to Barrera, the whip has led to a sort of competition among workers, some of whom have tried to race to the head of the pack. But that has led to dissension and made other employees worry that a reasonable pace won't be enough to keep the boss happy. ... employees have been known to skip bathroom breaks out of fear that their production will fall and managers will demand an explanation. They say they felt bad for a pregnant employee who had trouble keeping up. [cclxxx]

What happened here was the introduction of a competitive element for players that are neither in control of the competitive situation nor had been encouraged to compete in the past. And they had made peace with their job situation, as the next statement indicates.

They appreciate steady work with a thriving company like Disney, and many of them have 10, 20, even 30 years on the job. They say they don't expect to get rich or even make it solidly into the middle class working at the hotel. Workers have been content with hourly pay in the \$8-to-\$14 neighborhood in return for mostly free healthcare from a union plan Disney contributes to.

In most cases when somebody pitches an idea of how to gamify an application to me, they include leaderboards, points, and players competing against each other as the core elements of the gamification approach. "We can have people compete against each other and then we have a winner!"

Why do we form corporations? Because we know that together we can achieve more than as individuals. Corporations are formed to have people collaborate, work together, do something jointly. Competition is the opposite of cooperation. Just think of it: how many people can be on top of the leaderboard? One! But all others are losing. And it doesn't help if people in the competition start showing behaviors that benefit them, but ruin the company. Adding a stress element through competition on employees can never last long. It may work for some time, but it will lead to burnout and high fluctuation.

Types of Competition

Po Bronson and Ashley Merryman[cclxxxi] distinguish between adaptive ("good") and

maladaptive ("bad") competitiveness. Adaptive competitiveness is characterized by:

- Perseverance and determination to rise to the challenge, but bound by an abiding respect for the rules.
- The ability to feel genuine satisfaction at having put in a worthy effort, even if you lose.
- The fact that you don't have to be best at everything, just in the domain they train for.
- Being able to deter gratification.
- Being marked by constant strives for excellence, but not for desperate concerns of rank.

Maladaptive competitiveness on the other hand is characterized by:

1. Psychological insecurity and displaced urges.
2. A person who cannot accept the losing part of competition.
3. A person who competes when others around are not competing.
4. A person who has to be best at everything.
5. A person who doesn't stop when the whistle blows.
6. A person who drags others into competition.
7. A person who will resort to cheating when he/she can't win.

Common Reactions of Winners and Losers

Hungarian Academy of Science professor Márta Fülöp[\[cclxxxii\]](#)[\[cclxxxiii\]](#) researched the importance of fairness in competitions with over 200 secondary school students. She concluded that fairness above else determines how people respond to competitions. According to her, competitors react in four different ways.

The winners react with

1. Joy, expressed through gleeful enthusiasm and activation
2. Satisfaction at your own competence
3. Denial of the win as way of social cautiousness. Those players would feel guilty and fearful of the losers' reactions, like retaliation, so winners would mask their inner joy and not express it openly

4. Narcissistic self-enhancement, where the winners would feel a malicious superiority over the losers.

The most common reactions are the first two, joy and satisfaction about one's competence.

Losers, on the other hand, react the following ways.

1. Balance expressed by sadness and disappointment, but with a graceful acceptance of the loss and the promise to be better and give more the next time
2. Indifference, denial of loss, where they wouldn't care, feel tired and bored, and disinvest emotionally
3. Avoidance and self-devaluation, where they be their harshest critics themselves, leading to self-hatred, extreme embarrassment, and seeing themselves as liability
4. Aggression towards the winner, overcome with envy, anger and hatred of the winner

The most common reaction to losing is the first one: sadness. The other three are less common. And Fülöp also noticed that your reaction to when you win is correlated with how you react when you lose. Those who feel superior in their success are more likely to feel aggressive in their defeat.

The latter two reactions in winning and the latter three in losing are considered maladaptive competitor's responses. The others are adaptive responses, where the competitors channel their joy or frustration into a commitment to do better the next time and work harder. They become fuel for the next competition. A narcissistic winner may believe in entitlement to the win and fairness becomes less important. Narcissists are more likely to cheat.

In an interesting twist, more successful people competitively may be less happy. What is known as *counterfactual thinking* has been studied on Olympic medalists. The facial expressions of gold, silver, and bronze winners showed that bronze winners were happier than silver medalists[\[cclxxxiv\]](#). Silver medalists used an upper counterfactual thinking, comparing themselves to the gold winners, asking themselves what if they had done this and that, then they could have been on top. While bronze medalists used downward counterfactual thinking, comparing themselves to the

athletes who didn't win a medal.

Neurophysiological Background

We've certainly seen people who are hyper-competitive, while others fail under stress scenarios. And that is what can be called a distinction between *Warriors* and *Worriers*. Warriors see an opportunity to gain something, while worriers are too afraid to lose what they have and won't take the risk and challenge.

The prefrontal cortex is the part of the brain where we plan, make decisions, anticipate future consequences, resolve conflicts, and orchestrate our thoughts. Dopamine is a neurotransmitter that provides the chemical jolt in the brain's "reward center." Too much dopamine leads to an "overload". Catechol-O-methyltransferase (COMT) is an enzyme that helps to get rid of excess dopamine in the prefrontal cortex.

There are two types of this COMT: one type is slower, the other type is faster. 50% of Europeans have an equal number of both, 25% have only the fast one, and the other 25% only the slow one. While "fast COMT people" need stress to perform and tend to be good competitors, "slow COMT people" overload and tend to be not good at competitions.

But here is another twist that tells us that competition is not just black and white. "Slow COMT people" can perform very well when they are in a mastery situation. A mastery situation occurs when there is stress or competition for which they are very well trained, like pilots. They then tend to outperform the "fast COMT people." In learning situations the stress is similar for all. "Fast COMT people" then perform best, "slow COMT people" falter.

Gender Differences

We've heard already that men and women are different in how and whether they compete. Richard Bartle's Player Type matrix shows that killers (the competitive group) accounts for less than 5% of all players (if this were a mutually exclusive trait and you could be only name your dominant trait like being a killer, but not a socializer, achiever, or explorer). Of those less than 5% killers among the population, nearly none are women. That does not mean that women do not compete, but they enter competitions differently, and this depends a lot on the setup as well.

Here is how competition for men works[\[cclxxxv\]](#):

- Men compete, when there is any chance to win. Even a 10% chance of winning an election will make them enter.
- Best-achieving men in a group may make other, lower-achieving men depressed. They do not lift them up to higher achievements.
- Men work in groups.

Women on the other hand look at competition this way:

1. Women compete, when there is a high chance to win, because women are better judges of their own capabilities.
2. Best-achieving women serve as “shining light” for other women; they pull lower-achieving women to new, higher levels of achievement.
3. Women work in dyads, which discourage competition but emphasize relationship. Therefore, to enter a competition, women must have a very good reason to sacrifice a relationship. When forced to do, they really feel miserable.
4. During a hormonal cycle women tend to overload faster, because of already high dopamine levels.

Note: I am aware that some of these items in the list may seem offensive for some of my readers and that they may promote gender-stereotypes that we want to overcome or had thought that we are above them. I do know that there are studies available that also talk about a male hormonal cycle. I am not making the case for one or the other and am not another male-chauvinist pig. If you feel the need to correct somebody, then approach the authors of the underlying studies – after you read the studies to understand how they came to such interpretations. Even if you feel uncomfortable with the results and think that they are certainly not true for your targeted audience, as a good gamification designer you must be aware that there may be something lingering that could endanger the success of your gamification project. The last thing you want to do is in order to please your feelings to forget that maybe your audience may actually fall under these categories. And if you forget that, then you built a gamified system that’s just not working as effectively as it could.

Cultural differences

Competition is perceived differently in various cultures. We've already heard about the "Employee of the Month" plaques in the US or the Soviet "Hero of Socialist Labour"-title award. Also that some Asian cultures tend to prefer group harmony instead of an individual outstanding and that competition would counter this immediately.

Harmony and Anger

While players from Asian cultures tend to perform better as individuals, groups from Western cultures who show a healthy level of disagreement tend to perform better in competition, as opposing opinions lead to more discussion on competitive options.

Situational anger in competitive situation can lead to more success by giving additional boost in testosterone levels. Testosterone and other hormones make us ready to act, make us feel less pain, influence how afraid and emotional we are, and how much we care about others.

Time Pressure

Having time for deliberation makes people less cooperative. Psychologist Joshua Green conducted a series of experiments[\[cclxxxvi\]](#) giving his test subjects a varying amount of time before they decided on their choices in the *Prisoner's Dilemma* and *Public Goods Game*. The faster people decided, the more they cooperated, consistent with the interesting idea that cooperation is intuitive[\[cclxxxvii\]](#).

Use Cases

Instructional Technology Professor Karl M. Kapp looked at competition in learning environments[\[cclxxxviii\]](#) and found that

"[m]ore often than not, competitive [learning] environments have a tendency to impede on the learning process[\[cclxxxix\]](#). This is in part due to the egocentric behavior that competitive environments often induce, which in turn make people less likely to help one another[\[ccxc\]](#). Competition has also been shown to have a negative effect on the self-efficacy of learners[\[ccxci\]](#). This makes players rate themselves and their teammates more harshly, especially when they loose"

This has been confirmed by other research, as authors Po Bronson and Ashley Merryman[\[ccxcii\]](#) studied research on that topic. Early studies at the end of the nineteenth and first half of the twentieth century brought confusing results, when competitive environments, including audiences, were observed. Performance improvements were not always consistent. Sometimes competition brought higher

performance, sometimes lower.

The “mystery” was lifted in 1965 when a researcher at the University of Michigan, Robert Zajonc, noticed that the key variable was whether people were in a learning phase or had already mastered the skill. If they were learning the skill, the presence of an audience, even if they were not disturbing was enough of a distraction to hamper performance. On the other hand, when the performers already mastered the skill, then the presence of an audience improved the performance.

In an article in *Vanity Fair*[\[ccxciii\]](#) author Kurt Eichenwald described the devastating effects of a competitive employee performance program at software giant Microsoft:

[...] a management system known as “stack ranking”—a program that forces every unit to declare a certain percentage of employees as top performers, good performers, average, and poor—effectively crippled Microsoft’s ability to innovate. “Every current and former Microsoft employee I interviewed—every one—cited stack ranking as the most destructive process inside of Microsoft, something that drove out untold numbers of employees,” Eichenwald writes. “If you were on a team of 10 people, you walked in the first day knowing that, no matter how good everyone was, 2 people were going to get a great review, 7 were going to get mediocre reviews, and I was going to get a terrible review,” says a former software developer. “It leads to employees focusing on competing with each other rather than competing with other companies.”

Tina Seelig, Educator on Creativity at Stanford’s d.school, mentioned in her book “*inGenius – A Crash Course on Creativity*”[\[ccxciv\]](#) one personal example of how collaboration beats competition.

My son, Josh, a sprinter at the University of Southern California, confirmed that runners almost always perform better, beating their own personal records, when they run in relay races. Being part of a team motivates them to reach deep inside to pull out a stellar performance. This effect can be employed in education, in business settings, and at home. By working together, sharing successes and failures, a creative team pushes beyond the limits inherent in working alone.

When Competition Does Or Does Not Work

Here is a summary when competition works:

- in mastery situations
- in gain-oriented situations and attitudes

- when the player is in his/her Individual Zone of Optimal Functioning (IZOF)
- when players are primed on facing obstacles, and not what they will do when they reached the goal
- with (situational) anger to a confrontation
- when there is an even matchup (you actually have a chance to win)
- when players care about the competitors (competing against your friends, not everyone in the world)
- when players care about the team
- in harmony cultures as solo competitors / in other cultures when team members quarrel a lot
- for introverts

Competition does not work in:

- learning situations
- prevention-oriented situations and attitudes
(unless when not performing means losing points etc.)
- when teams are too harmonious
- when creativity is required
- when the competition is regarded as skewed

Good Design?

Surprisingly many requests that I get for reviewing gamification designs center on the question which game design elements are best for which player types. Now if I may compare that to a brick. That's of the same type as if you asked, whether a certain brick is better for a family, for a pupil, or for a parishioner. It's the combination of bricks that makes a house, a school, or a church. The combination itself does not yet tell if this is a well-designed house, a school that makes kids feel safe and inspired to learn, or a church that has good acoustics and spiritual lightening.

The combination of gamification design elements does not tell if the gamified system will be a good one. Nor will one element tell you that a certain player type will prefer that one. It's all about the context, and the player's motivations, expectations, and problems that she has to solve.

Mission 6 – Design Process

The true power of feedback loops is not to control people but to give them control.

Thomas Goetz

Having received the box with all the building blocks for a gamification design, we need some instructions of how to assemble them into a meaningful way.

Gamification Design Thinking

Design Thinking is an empathy-based approach to innovation that puts the human in the center to improve a product, service or process to better serve the user. Design Thinking was invented by the Palo Alto-based design and innovation consultancy, IDEO.

The design thinking method fits nicely in what we need for gamification design. By learning about the problem, observing the player, and creating a player point of view, we come very close to an understanding the player's motivations. That basis allows us to take elements from our gamification toolbox, create ideas on a potential design, build a prototype and validate it with the player.

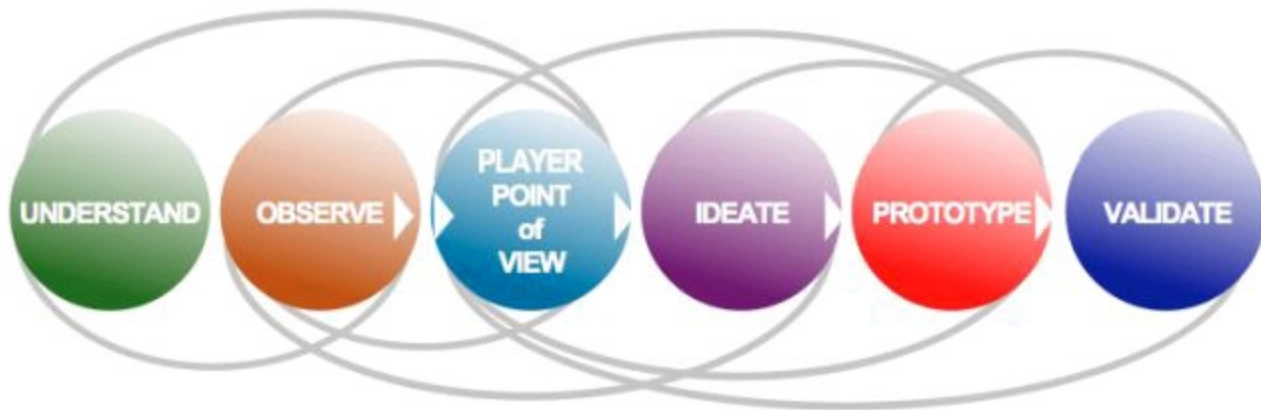


Figure 37: Gamification Design Thinking Iteration Steps

This approach is not linear, as Figure 37 visualizes. At every step the designers need to iterate back to validate their assumptions and decisions. Fail fast, fail early.

Understand

The first step of understanding the problem guarantees that we are not trying to build a solution for the wrong challenge. Asking the Five Whys, diving in to find the root-causes, and eliminating all causes that are not behavior-related are some of the steps to get a better handle on the underlying problem.

Observe

The next phase in gamification design thinking is observing players in their natural habitat. Visit them at their desk, ride with them in the passenger seat, go into the classroom. Notice the sticky notes on the monitor, the memorabilia displayed, or electronic tools used. Don't forget to take pictures.

Do not assume that you know what the user wants. Your presumed expertise can make you blind to the real needs of the player. Players are also very creative in how they use solutions.

For example, a development team responsible for the telephone conferencing system wanted to improve the software. They asked one of their top sales people for a feedback session. The sales representative immediately suggested that she was going to book a meeting room to discuss. The developers though said that they'd like to come to her office and observe her there for an hour. When they came to her office they saw family pictures, personal belongings, sticky notes on the monitor, flowerpots, and three telephones. When she started her first phone conference, she pick up the telephone receiver, dialed the number and put the receiver on the desk. Then she picked up the receiver from the second phone, dialed another number and put the receiver on the desk. She repeated that with the third telephone receiver and with her cell phone. Then she leaned over the desk and started the call with everyone on line.

This very successful sales representative had never used the telephone conference system. If the team hadn't observed her in her office, they would have built or improved a solution that this specific user never used.

Ideate

Having understood the problem and the player's motivations, it's time to find ideas how to engage the player. But how do you find ideas? One way is to be familiar with other gamification designs and examples. That may be a perfect fit for your situation. Knowing many games and mashing them up with your problem is another good

approach.

Design Thinking encourages participants to use different ways to be creative. Brainstorming, co-creation workshops, decision matrix, mind mapping, story telling are just a few of them. Whatever you chose, keep paper, sticky notes, whiteboards, stickers, and markers at hand to quickly jot down ideas and cluster observations.

The Hollywood Approach

Aspiring Hollywood screenwriters need to always be ready to pitch their script: the *abstract*, the *synopsis*, or the *mash up*. You just never know when there is an opportunity to talk about it and sell it for millions. Now one popular form is the mash-up. It works like this (10 seconds):

The movie is basically "Rocky" meets "Transformers."

And then you want to hear the big fish from the studio saying:

"That sounds like I movie I want to make."

And boom, we have Hugh Jackman starring in *"Real Steel"*.

And that strategy of mashing up is something that makes sense in gamification. Take a business problem that you want to solve, and engage the player through a gamified approach by mashing it up with a game.

Now here is the thing: don't overthink it. Don't start musing about which game is better suited for your problem or not. Just take one and apply it. Find the things in the game that you could use as elements and that are synonyms for your activities, properties, and rewards. Once you are done, explain it and discuss it.

Then take the next game and repeat this with the same problem. Vary the types of games, from board games, sports, card games, videogames, children games and so on. After several iterations, you will find that you could use some of the game elements pretty well for your system. Let's go through some examples that my workshop participants and others have discussed or mentioned. See them as what they are: imperfect, quick drafts, but a good inspiration for your own mash ups and creative approach. Pick a game design element that you like from one game, take another one from another game, and combine them in creative ways.

Here are some examples to give you an idea what others have come up with:

Trivial Voicemail

In the early 1990s, one of the voicemail pioneering companies called VMX used *Trivial Pursuit* to mash up their voice messages for testing purposes. The employees formed small teams, and the teams pulled cards with questions in voicemail style that

members of another team had to answer via voicemail messages. No direct answers were allowed, except through voicemail messages. According to people who had participated testing the game, thousands of messages were logged and the VMX employees didn't want to stop the game.

The Snake and Ladders Project Management System

Snakes and Ladders is a popular board game. The goal is to reach the last field with the highest number. Snakes (or chutes) and ladders are drawn all over the game. While ladders help you to jump to higher numbered fields, snakes (chutes) kick you down to fields with lower numbers.

A project is now nothing else than a player moving forward to reach the end within a certain number of days. Some obstacles may cost time, other factors may accelerate the project. Using days as metaphors for fields, snakes as metaphors for obstacles, and ladders as metaphors for help, a gamified project management system could use a snake and ladders style approach.

Whack-an-Email

Annoyed with the amount of emails in your inbox? Then you may want to try a mash up with Whack-a-Mole. This is a game where moles pop out of holes and the players have to hit them with a club to get them back in the hole.

Now think of a mole as a metaphor for an email. Whenever one pops into your inbox, you just "club" it and get it out and not infest your email inbox.

While this may not be the most elegant approach, it gives inspiration how to think about too many emails, and what could be effective and fun.

Quality Assurance Poker

How can you increase the quality of software code? This is the problem that one team in my workshops faced. They wanted to increase quality to keep the maintenance and support costs down. Now there are many reasons why software quality may not be up to a certain standard. The software developers may not be trained enough on code quality, or time pressure may have interfered with proper code practices and testing, missing test cases, and so on.

In this case, we mashed it with Poker. Now we can think of four attributes of software code that increase the quality: security, performance, documentation, and APIs. By assigning each code attribute to a suite of cards, such as security assigned to clubs, performance assigned to spades and so on. Each software developer starts at the bottom of the card set with a two. The goal is to get each attribute to an ace. Steps can

be achieved by following good practices, running tests, looking at performance test data, tracking how often the API is being accessed, or just by giving a session to the team about a certain attribute, such as “How to make your code more performant.”

Quality Assurance Monopoly

Instead of poker, let's use Monopoly. Software code is nothing else than property: the higher the quality, the higher the property value. Better documentation and higher performance increase the value. That means we need to find a counting system to evaluate the quality of these attributes.

But here is a twist: contrary to the board game, we want other players to use our code. The more often an API is used and software reused, the less costly and the lower the level of maintenance will be. Instead of having the players pay ever-higher prices for using high quality code, they could be paid.

Time Recording Tetris

How do you get people to record their project times in a timely manner? Mash it with Tetris! By using tiles as building blocks for hours spent on projects, filling out the puzzle becomes an engaging goal. This approach allows tackling other problems as well. If you want your players to work longer stretches without interruption on the projects, tiles with the same colors close to each other may be assigned higher values.

Creativity

A whole industry has spawned on the art of being creative and innovative. We've mentioned John Cleese[\[ccxcv\]](#) and what he suggests to get into a creative state. Psychologists Darya Zabelina and Michael Robinson[\[ccxcvi\]](#) aim in the same direction. In their study they randomly assigned a few hundred test subjects to two different groups. The first group was given the following instructions: "You are seven years old, and school is canceled. You have the entire day to yourself. What would you do? Where would you go? Who would you see?" The second group was given the exact same instructions, with the exception of the first sentence.

As a result, the test subjects from the second group didn't imagine themselves as seven-year-olds. After writing for ten minutes, the subjects in both groups were then given various tests of creativity, such as trying to invent alternative uses for an old car tire, or listing all things one could do with a brick. The students who imagined themselves as kids scored far higher on the creative tasks, coming up with twice as many ideas as the other group.

Prototype

By using tools such as pipe cleaners, tape, paper, scissors, whiteboards and markers you can quickly jot down ideas and bring them to life. Palm founder Jeff Hawkins created a wooden prototype of what became later the Palm Pilot[\[ccxcvii\]](#) on the workbench in his garage. By carrying this pretend computer around for months, pulling it out of his breast pocket to "take notes" or "look something up" he learned about his own needs and the practicability of the device. When he used his wooden block in a meeting with venture capitalists, the tone of the discussion immediately changed from skepticism to an interested conversation about the features of the product.

For a gamification design, there is no need to wait for the first screens and software demos. Within a few minutes a design can be tested with paper prototypes. Need some levels? Draw them on the whiteboard. Need some points, badges, or virtual currency?

Cut out paper slips with point values on top of them. Display the status of a player? Fold paper hats and write titles on them. Already in that phase you will see the strengths and weaknesses of the design without spending a lot of time and money.

Octalysis

Gamification pioneer Yu-kai Chou developed a framework on what he calls the *core drives*. Based on these eight core drives, and thus aptly named *Octalysis*[\[ccxcviii\]](#), Chou assigned gamification design elements to each of them.

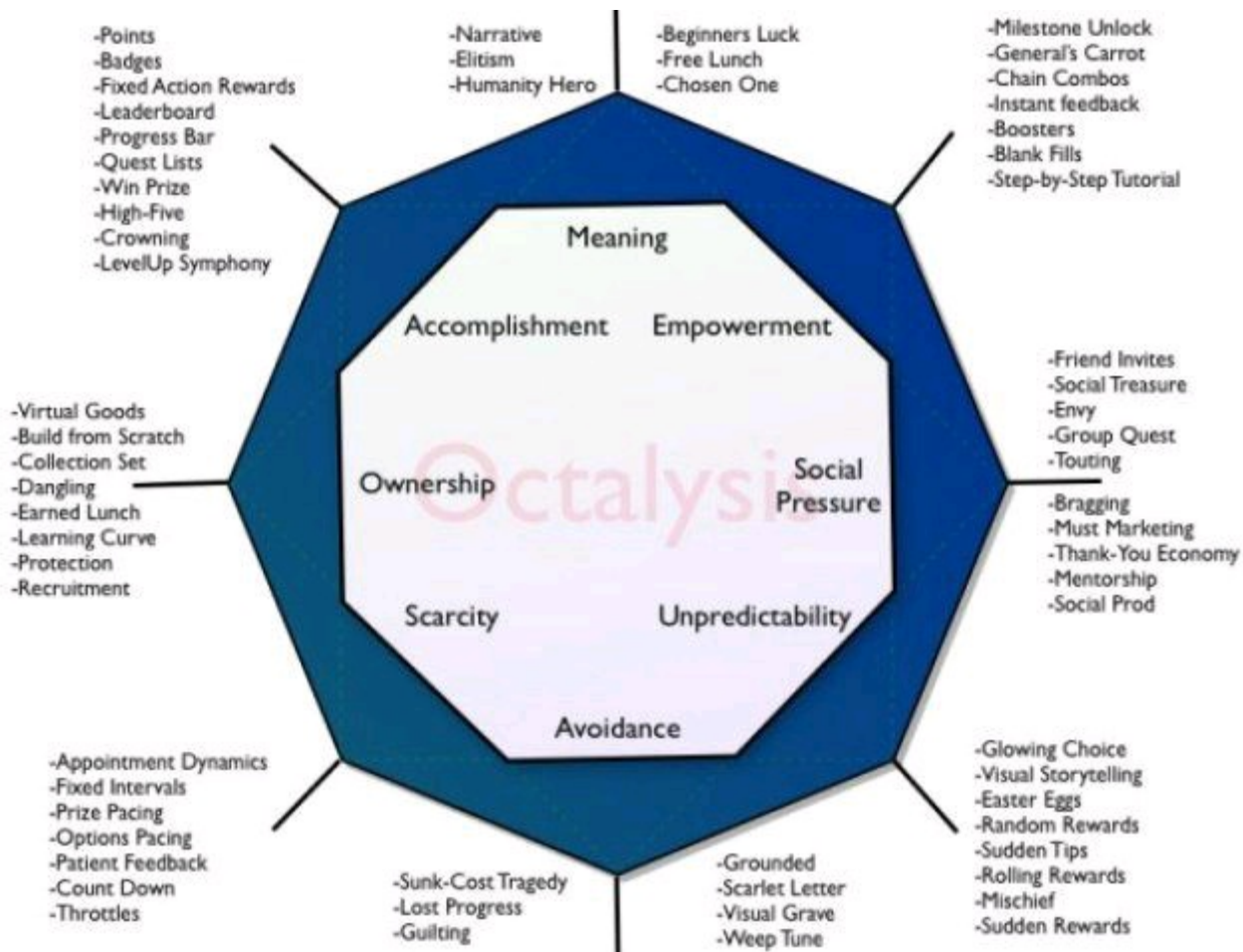


Figure 38: Octalysis - Gamification Framework © Yu-kai Chou

Chou assigned the drives on the right side to creativity, self-expression, and social aspects, which he called the right brain drives. The more logic, calculated, and ownership-serving drives on the left side are then the left brain drives. The Octalysis model also clusters in the top half the more positive motivations, and those at the bottom the more negative ones. Or respectively *white hat* and *black hat drives*.

Applying the Octalysis framework to a gamification design quickly shows which of the core drives are emphasized in the model. Mapping the framework with different phases of a player's journey and player types helps a gamification designer to balance

the drives.

The Gamification Range

How far you go with your gamification designs is up to you. Your design can start with a small progress bar such as the profile-completeness bar in LinkedIn or end in a full-blown 3D virtual world. What you choose is of course also influenced by many other factors that we already mentioned, such as type of players, and problems that you want to solve.

Solving million dollar problems does not necessarily require million dollar investments. The auction house Christie's used rock-paper-scissor against Sotheby's to win a bid to sell \$20 million worth of art. (Yes, Christie's actually played rock-paper-scissor against Sotheby's.)[\[ccxcix\]](#)

Validate

When I defined enterprise gamification I explained the meaning of “affordance for a gameful experience.” A user has the choice to enter a playful mode when using the system. While we can target that with our design and make it easier for a user to become a player, we cannot guarantee this. That means that a gamified system must adhere to the requirements of both the playability and the usability of the system. Both playability and usability testing have to be done.

Legal and governance reasons may force us to design for both types in some countries and organizations, as these influence how much of the gamification-design we can turn on.

Machinations

Machinations[\[ccc\]](#) is a conceptual framework and diagram tool that focuses on structural qualities of game mechanics. Figure 39 shows the interactive tool to make and play Machinations diagrams, created by Dutch game designer Joris Dormans.

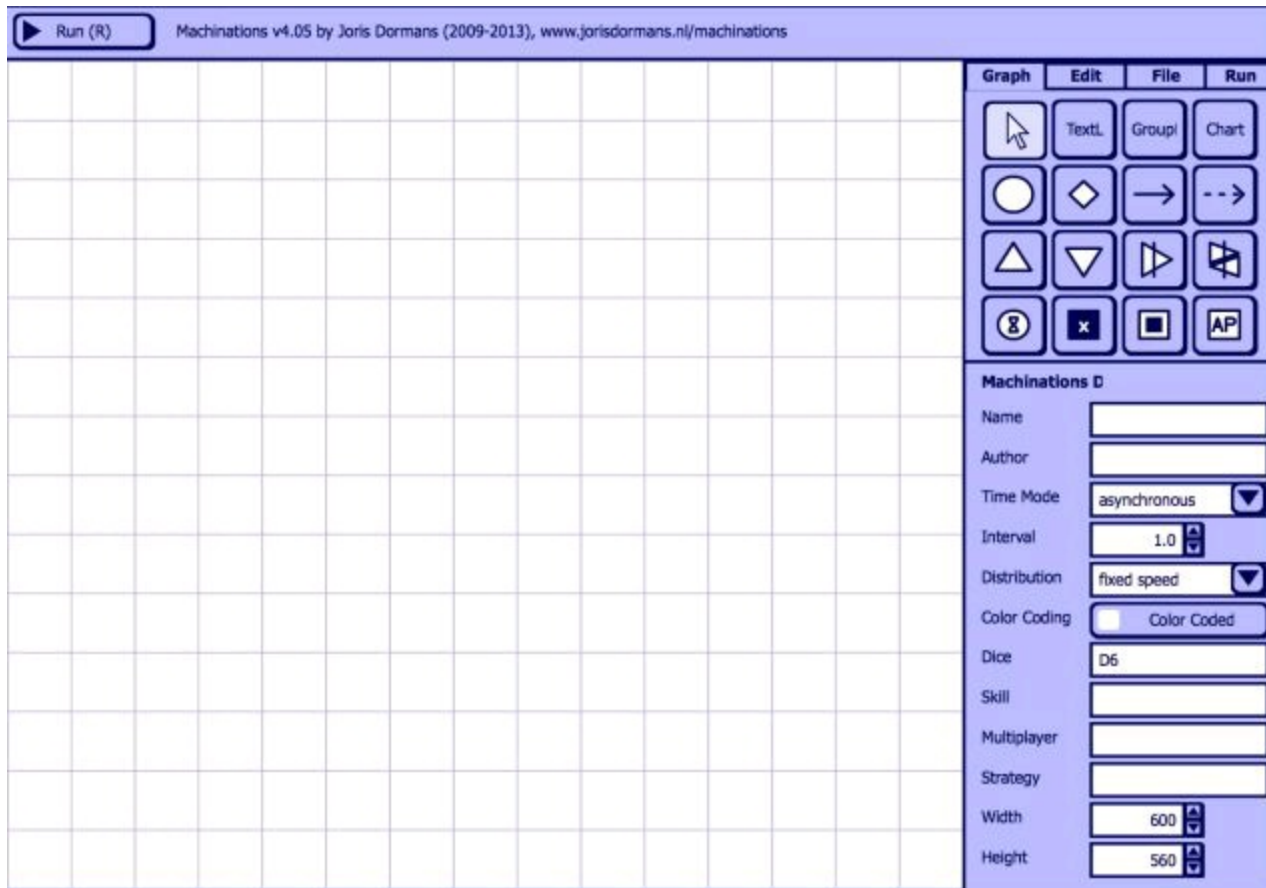


Figure 39: Machinations - Start Screen

With Machinations, gamification designers can create models to test the mechanics used and what reward amounts create a balanced system. Designers can also simulate player reactions to see whether the system stays balanced.

The modeling elements available include

- Nodes: Sources, Drains, Pools, Converters, Traders, Gates and Delays
- Connections: Resource Connections, State Connections/Triggers, Labels
- Other Elements: Registers, End Conditions, Charts, Artificial Player, TextLabels and Group Box
- Other Concepts: Time Mode and Diagram Settings

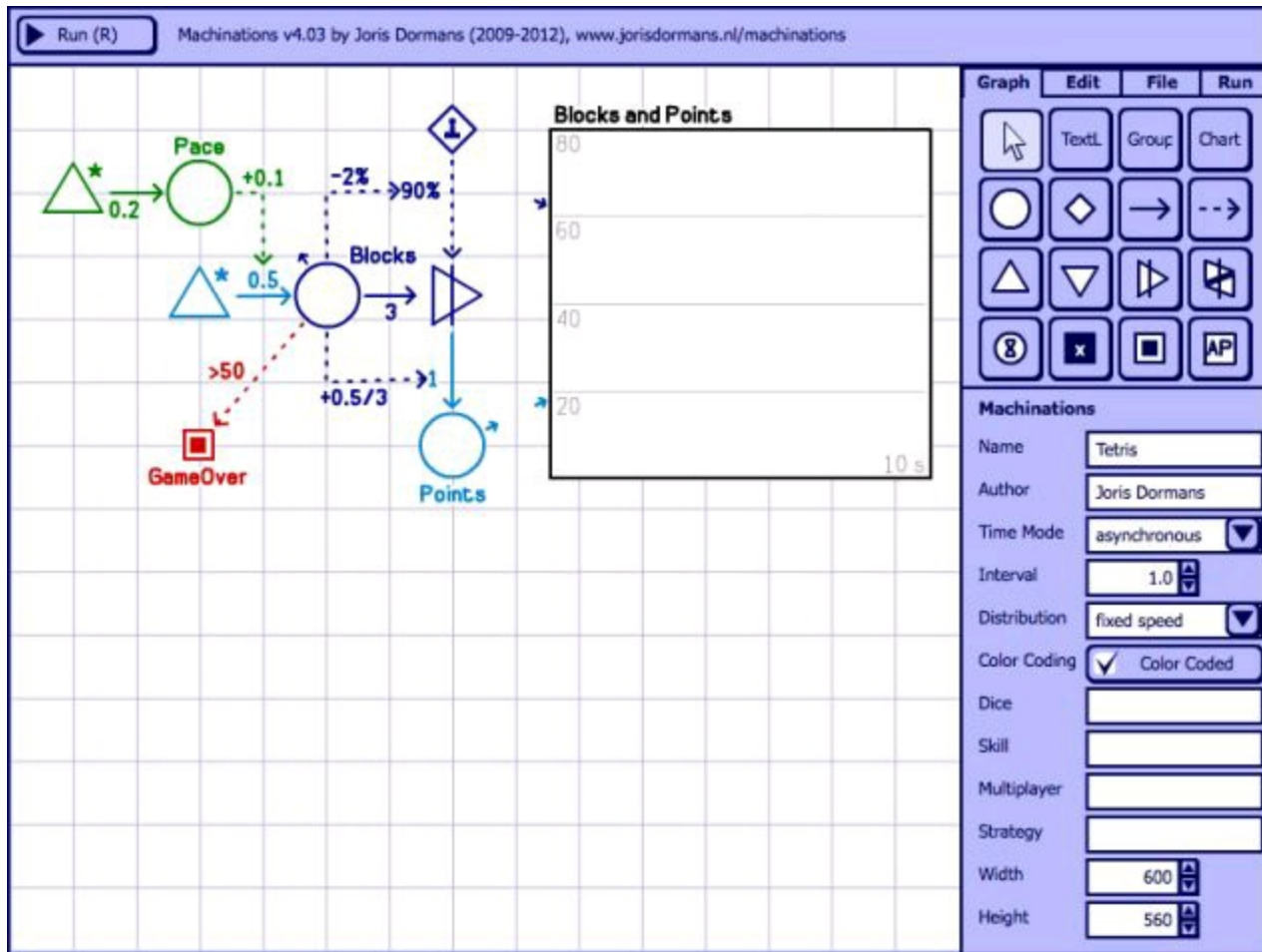


Figure 40: Machinations - Tetris

A graphical model of the game Tetris shows the dynamics of the game elements. The central element, *Blocks*, is moving with a pace that increases over time by a certain factor. Each time a line is full with blocks the line disappears and points are earned. The end condition *GameOver* is triggered when no block can be added.

The Machinations website has more game design examples[\[ccci\]](http://www.jorisdormans.nl/machinations), including Pacman, Risk, or TempleRun.

Figure 41 displays the model for a gamified startup contest. At such an event teams simulate within 24 hours the cycle that a startup normally undergoes over a period of several weeks or months. The goal is to simulate hackathons or coding contests. Within 24 hours create a prototype that can be demoed, and an audience and jury select the best idea. The startup contest includes simulated rounds of investments by “venture capitalists,” “revenue” through marketing efforts that create buzz, costs that occur through buying outside help, or time lost due to server crashes.

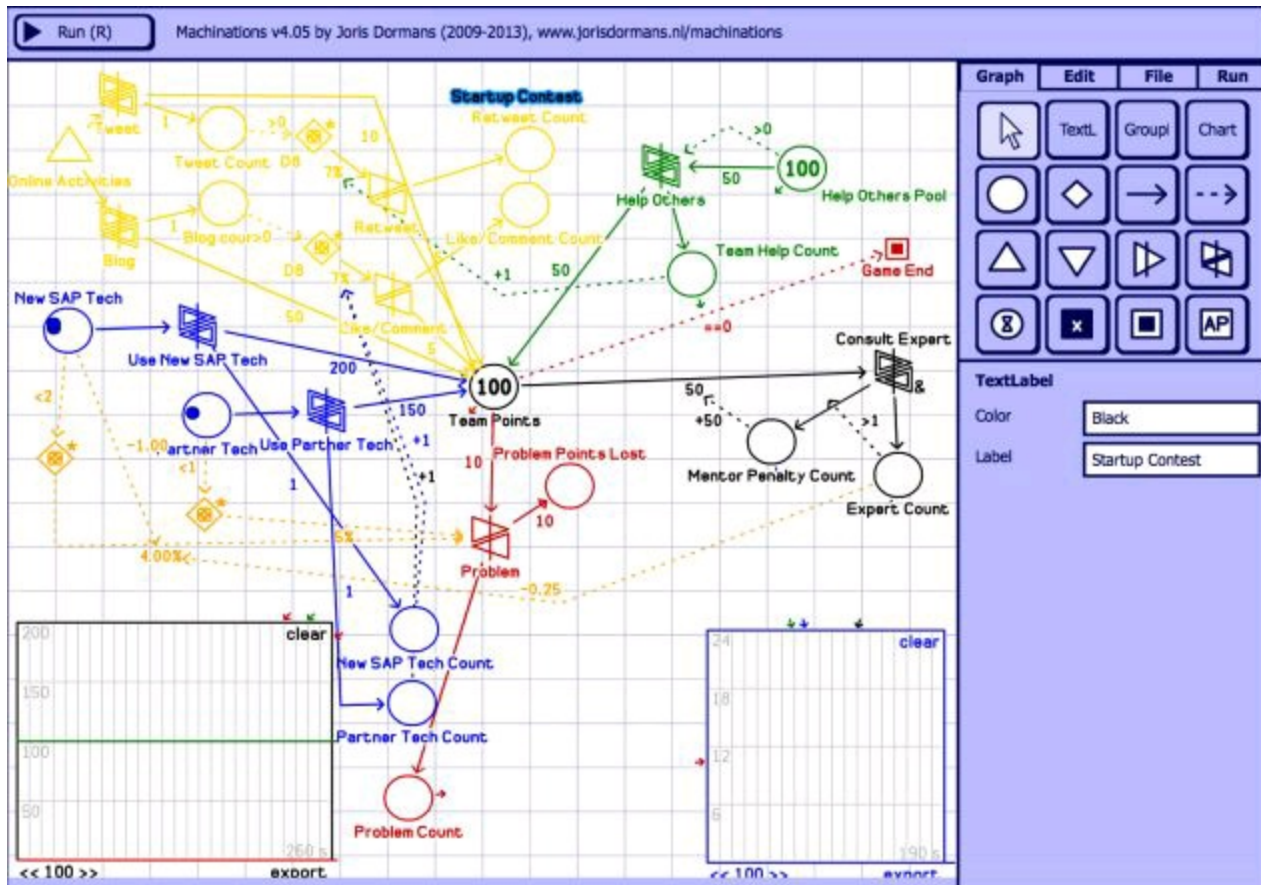


Figure 41: Machinations – Startup Contest

The model has the team in the center, with money sources and money drains point to and from the team. The top left side simulates the revenue flow through social media use, which creates buzz, and customers or users. The left side includes the use of technologies that can either simplify and accelerate the offering, or make it harder because of the complexity. The bottom simulates problems that can come up randomly and cost the team points. The use of an expert or mentor also means costs, but helping another team (“partnering”) increases the point count.

Figure 42 models the SAP Community Network. In this community members can earn points by contributing answers, blog articles or posting documents, publishing and editing wiki pages.

Running such a model can quickly highlight balancing problems, such as when certain activities are rewarded with too many points in comparison to the required effort, so that players focus on those to raise in the ranking or reach the levels.

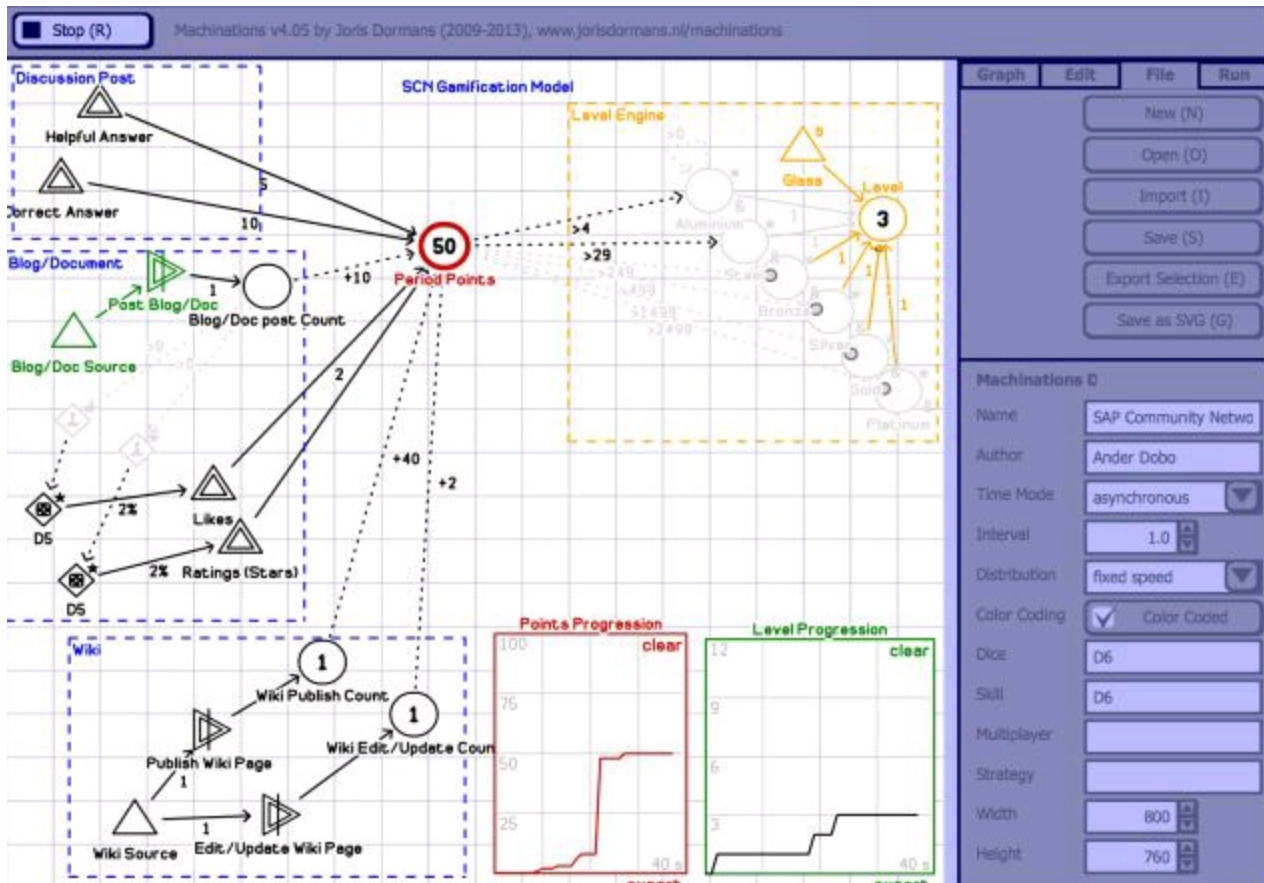


Figure 42: Machinations - SAP Community Network

Balancing

Now that the gamified application is designed, we need to balance it. And balancing is more than deciding on how many points players receive for certain activities. Balancing may also be a legal requirement to avoid discrimination. Part-time employees need to be able to have the same opportunities as full-time employees.

So far, we have looked at gamification from a one-system perspective. It's one application that is to be gamified. Within an organization it may quickly become very common to gamify several or all applications, systems, and process that employees interact with. That requires balancing the systems in regard to each other.

Balancing Within a System

Jesse Schell[\[ccci\]](#) proposes a full list of areas, where a system has to be balanced, and we take this list as a basis for our balancing steps. Now while we took many of the items from game design and applied them to gamification, the balance is certainly different. As we will see, some of the items may not be as useful for work environments as they are in games. Examples of items that may be less useful in gamification design are competition and chance.

Fairness

In a former chapter we addressed why fairness is important, and the cultural perception of it in detail. A gamified system needs to be perceived as fair by the players. That means players must have the feeling that they have equal resources and tools to accomplish the goals. When the gamified system is designed symmetrically, then it will be perceived as fair. Any resulting misbalance will come from other balancing items (such as skill).

However that does not prevent gamification designers from sometimes building asymmetrical systems. Reasons to do so are:

1. To simulate real-world situations.
2. To give players another way of exploring the game space (to encourage players to explore the game space requiring different tactics and approaches).
3. Personalization (to offer different tools for players with special skills).
4. To level the playing field (like using handicaps).
5. To create interesting situations.

Another form of what is understood under *fairness* has come up recently and been most vocally expressed by traditional video gamers. The first arcade games were practicably un-winnable, but with the home computers in the 1980s videogames became winnable. Nowadays, with mobile and social games, learning a skill is often neglected or not an important part of these games. It just requires waiting and spending time to be rewarded and win. That is deemed too easy and thus unfair by the hard-core gamers. According to them, videogames should be “fair” in the sense of rewarding skill development and not time investment. [\[ccciii\]](#)

Skill Versus Difficulty

The balance between skill and difficulty brings us back to the Flow-Theory. Skills and the level of difficulty are kept in check so that players are not venturing outside the flow-zone and becoming either frustrated or bored.

Not every subsequent level must be more difficult than the one before. It may very well be that one level is really hard, but the one right after is easier, to give the player a break and keep her engaged. An example is Angry Birds, where every fifth level is much harder than the ones before, and where it takes a good number of tries to succeed. But the level afterward is easier.

Effort Versus Success

In addition to skill vs. difficulty, the effort required to succeed needs to increase the higher the skill level of the player. While low-skilled players, also known as “rookies,” need to be given early and quick success so that they get encouraged to stay with the application, “regulars” and “masters” need to be exposed to challenges that become incrementally more difficult. If the tasks stay easy, a master may not feel challenged correctly.

Experience Versus Success

Organizations are often composed of players who have different levels of skills or experience. If a finite game requires having all employees participate, the recently hired colleagues won’t have a chance of being successful. To level the playing field, different techniques can be used to have everyone engage.

Some of these may be to increase the influence of chance, or to measure the players’ periodical achievements to their own past achievements and show a progression path. How much did a player improve this week in comparison to the same work last week?

Meaningful Choices

What is easily overlooked with all the focus on defining the rewards for activities is the range of meaningful choices. Observing the behavior of your players will tell you right away if you gave them meaningful choices. With an activity that requires low effort and offers high rewards, players will prefer this task instead of one that requires more effort. Such an over-rewarded and low effort activity leads to a dominant strategy for the players.

A balanced gamification design uses low rewards for low effort, and high rewards for high effort tasks. But this may be temporarily misbalanced for the purpose of promoting a certain activity, such as promoting blogs on a new product. Just remember, this should only be used for a limited period of time for a specific purpose.

How meaningful choices can be commonly disregarded can be seen in the mission statements of a company and the actual work done by its employees. You may brag as a company about the great customer service that you are committed to and highlight the great tools that employees have to provide good service, but when the employees are measured on how many calls they can handle in an hour, customer service will suffer.

Skill Versus Chance

In a typical work environment, good gamification designs won't use chance that often. Skill is more likely to be rewarded. But there are always exceptions. Chance may become an important design element if the playing field needs to be leveled. That could be in a setup where more experienced players compete against rookies.

Head Versus Hand

How much of the success in the gamified application is dependent on knowledge and manual skills? Are the rewards based on how fast somebody can clean out their inbox, or how smart the email-conversation is? Rewarding the wrong activity may not solve the root-cause of the problem.

Competition Versus Cooperation

For gamified systems in a corporate environment we have seen strong evidence that cooperation is preferable over competition. That means we should tilt the balance for gamification purposes towards more collaborative designs and de-emphasize competitive scenarios.

Short Versus Long

The task lengths need to be in equilibrium to avoid boredom and fear of too much time commitment on the one hand, or too short activities that don't allow players to develop

skills or meaningful experiences on the other hand.

It makes sense to estimate the times required for activities and tasks in addition to the amount of rewards. If a task is deemed too long, try to split it into multiple smaller tasks or vice versa. The length of a task (and the rewards) will vary with the level of expertise. Challenges for a rookie need to be short and easy. For a master they can be longer and more difficult, but also more rewarding.

Rewards and Punishment

The amount of rewards for certain activities needs to be balanced. Easy tasks or tasks with low risk shall be rewarded with low amounts, difficult or risky tasks should be rewarded with larger amounts. Also activities similar in their importance, risk, and difficulty should be rewarded with similar amounts.

Punishments should be balanced according to the severity of the offense, failure, or reward that can be expected in case of success. Too outlandish or unfair punishment will discourage players from taking risks, and the remaining choice(s) will be less meaningful.

Freedom Versus Controlled Experience

One of the compelling tasks of gamification is to give players autonomy. Under certain circumstances the gamified system will have to balance how many degrees of freedom the player has. In a well-designed gamified system, the player will not notice that the system has (temporarily) reduced the degree of freedom. The ultimate goal of balancing is to give the player a better experience. An example is Amazon, where during browsing products the degree of freedom seems unlimited. Suggestions and links to other products are manifold. But as soon as the shopper goes through the checkout process, the number of links is reduced dramatically to smoothly and quickly guide the user and complete the purchase, without having her sidetrack and forget to submit the order.

Simple Versus Complex

The enterprise world has the tendency to make things more complex than needed. In modern games, the standard way of onboarding players is by keeping it simple at the beginning and making the game incrementally more difficult. Making it more difficult does not necessarily mean more complexity. The rules could still be something that can be written down on a small piece of paper. We distinguish between two types of complexity:

1. Innate Complexity

2. Emergent Complexity

Innate complexity is when the rules are already very complex, with a lot of exceptions and where combinations of them lead to more complications. This complexity is very difficult to learn and discourages players. The reason why such innate complexity often comes up is the need for the designers to add rules to keep it balanced. It's like the tax code that started out with simple brackets but over the years exploded into several thousand pages, with exceptions and additions that make the tax code unreadable for most of us – and even tax attorneys. Most types of software also start out with low complexity (and few features) and over the release cycles turn into these unmanageable and unusable beasts.

Emergent complexity is when the rules are simple, but the combination of the rules or game elements creates complexity. Chess is such an example.

The goal of every good gamification designer should be to create a gamification approach that allows complexity to emerge from simple rules. Simple rules allow beginners to onboard quickly, and masters to still find new levels of complexity. Emergent complexity, which is typically acknowledged of having a simple and elegant design, is not easy to achieve. For a gamification designer it's always easier to add an exception rule to cover a design flaw. But every exception adds innate complexity and makes it more difficult for players to understand, and lowers the levels of engagement.

Detail Versus Imagination

When Stanford professor Byron Reeves in his book *Total Engagement* gives the example of a customer support center where the agents have a goal set to reach a treasure island with their pirate ship, instead of so and so many tickets to complete, he didn't give any hints on how detailed the pirate graphics should be. In fact, instead of using a phrase like “*closing a ticket*” the use of “*picking up gold*” can let the imagination of the players go wild. Jesse Schell recommends to

1. only detail what you can do well
2. give details the imagination can use
3. use familiar worlds that do not need much detail
4. use the binocular effect of showing details only at the beginning
5. give details that inspire imagination

For a gamification designer this means we don't always need to introduce fancy graphics. Often, simply changing the field names on the transaction screens and adding

some simple graphical elements can go a long way to inspire players' imagination.

Balancing Conflict of Interest

In the heat of gamification the game masters may forget that they need to add value for the player. One can recognize such a phase when certain activities in a system are assigned with reward values that aren't in line with the effort required. An example is the activity of sharing. "Share this blog, coupon, or product promotion with your friends and earn extra points!" Players that are now going after that and sharing everything for the points' sake will quickly alienate their friends and be blocked for spamming.

The conflict of interest is here to share as often as possible, while avoiding spamming your friends. How do you deal with that? By taking yourself back and creating value for the players and their friends for a long-term instead of a short-term perspective. Make commercials, write blogs, post pictures that are fun, informative, interesting, all attributes of what people could call valuable, and let the players decide on the value. What seems as a quick fix, such as increasing the points for sharing, will harm the game in the long run. Balance your interests accordingly.

Balancing Across Systems

The majority of examples today apply gamification to one application or system within an organization. But with a growing acceptance and understanding of gamification, ultimately all of them will be gamified to some extent. This brings a new challenge to a gamification designer, as an overall player score will become interesting and requested. Feeding the activities and achievements into one place will be like what a data warehouse project used to be. Data needs to be cleaned, unified, and missing elements added to allow a cross platform score.

The first challenge is how to balance achievements. Let's say we have two communities that a player participates in, one is an intranet and the other an external professional community that the player's company operates. Similar activities on both communities are blogging, liking, sharing, commenting, and rating.

As the communities are operated by different teams, and have different goals, the rewards for each activity differ in their point values.

| Activity | Intranet Point Value | Extranet Point Value |
|--------------|----------------------|----------------------|
| Blog | 20 | 40 |
| Upload image | 8 | 5 |
| Like | 2 | 2 |
| Share | 2 | 5 |
| Comment | 2 | 4 |
| Rate | 1 | 1 |

Table 7: Reward Example

Writing a blog on any system requires the same amount of effort, but the intranet-team apparently values blogs at half the value of the extranet-team. The extranet-team sees blogs as an important contribution to the value of the extranet. The point value reflects that importance. The internal community seems to value the upload of pictures, that's why this is a main activity that the intranet team wants to promote. Looking at all the activities, one can see the different preferences.

As an employee who's trying to optimize his overall point status, the most effective strategy would be to blog externally, upload images internally, and comment and share externally. The point values may also change periodically. To promote a new product the extranet team may double the blog points to 80 and increase the share points to 12. Employees who've only contributed on the intranet would quickly fall in their overall status behind the employees who contribute in both systems. We would experience an inflation of points through certain activities, and meaningful choices disappear.

As gamification designers we want to keep the game fair and balanced. A solution to this is to create a *reward master list* that includes all activities that can be done on any of the systems. Behind each activity the *gamification master* puts values that are in a balance with each other. While the intranet and extranet teams are still free to define their own reward values, change them over time, and show local leaderboards on their corresponding platforms, the overall score would be calculated through an exchange rate mechanism.

Some companies who operate reward systems faced that challenge already.

MileagePlus

MileagePlus[\[ccciv\]](#) is a frequent flyer reward program of United Airlines. Every time a MileagePlus member flies on any of the participating airlines, the traveled miles will be added to the account. Under certain circumstances, as described in the program rules, members may be eligible to receive additional reward miles. If a certain amount of miles is earned within a distinct period, members are awarded with status that allows them to get some additional benefits, including faster check-in, or access to airport lounges.

Besides flying, there are also other ways of earning miles. Staying in MileagePlus partner hotels, renting at certain car rentals, or paying purchases with a MileagePlus credit card are some of the means to earn miles. Miles can also be bought for cash.

These miles can be redeemed for flights, or other tangible services. According to different sources, the redeemable value for a single mile is in the range of 1.1 to 2.5 Cents.

From a gamification designer perspective this program is similar to having multiple systems adding points to an overall count. What's interesting for us is to see how they balance to each other. If we look at two of the most basic examples and leave any one-time sign up bonus miles, or additional bonuses for using a specific and more expensive credit card out of the calculation, we can earn miles through

- flying
- shopping with a credit card

In the past years I traveled frequently from San Francisco to Frankfurt in Germany on United Airlines. In total I accumulated 11,398 miles for each round-trip economy ticket that costs around \$1,300.

That means one dollar traveled earns 8.8 miles. In the credit card scenario one dollar earns one mile. The exchange rate between the two systems is 8.8. Table 8 gives an overview of a few of the MileagePlus program components and a rough estimate of the weighs between the rewards.

| System/Activity | Description | Money spent [US\$] | Average Miles earned | Miles/Dollar |
|--------------------------|-----------------------------------------------------------|---------------------------|-----------------------------|---------------------|
| Flying | Economy round trip flight ticked | 1,300 | 11,369 | 8.8 |
| Credit Card | Purchase paid | 1 | 1 | 1 |
| Car rental | 50-75 miles per day, estimated rental price \$50-\$75/day | 75 | 75 | 1 |
| Hotel | 250-500 miles per stay; 2 miles for \$1 spent | 2 | 1 | 2 |
| Cruise | Varying; 1 mile per \$1 spent | 1 | 1 | 1 |
| Business products | 5-7 miles per \$1 spent | 1 | 6 | 6 |

Table 8: MileagePlus Miles per Dollar Weighs

The MileagePlus program offers many more reward opportunities that can be confusing. Sign-up bonuses, bonuses for switching, bonuses for spending a certain amount within a period, limited offers, or special offers can tilt the balance of how much each system or activity contributes to the overall score.

ThankYou Rewards Network

The ThankYou Rewards Network is a loyalty reward program from the Citi banking group. So-called ThankYou points can be earned through purchases paid with a Citi credit card, by linking an online store to the ThankYou® Network, using a Citi

checking account, and other ways. Points can also be purchased. The points can be used to get rewards, which means redeeming them for products and services.

Typically, \$1 spent earns 1 point. Additional points can be added by shopping at a ThankYou partner store while using a Citi credit card. Stores may offer higher point amounts per dollar spent. Points can also be earned as a signup bonus.

Looking at the different offers, the amount of points that can be earned per dollar spent ranges from one to ten.

NikeFuel

According to Nike, *NikeFuel*[\[cccvi\]](#) counts all the activities of your athletic life, such as running, walking, or basketball. In order to measure those activities, a player needs either *Nike+* devices or software. A device can be a *Nike+ Fuelband* or *SportWatch*, or software such as the *Nike+ Running* app for the player's smartphone or the *Nike+ Kinect Training* for the *Xbox*.

The program translates activities into *NikeFuel*[\[cccvi\]](#), a point system to keep track of activities. For certain point achievements badges can be earned. Additional counters used are calories burned, steps walked or jogged, and miles traveled. According to a blog on *Mashable*[\[cccvii\]](#), *NikeFuel* are calculated corresponding to a participant's oxygen consumption to make sure that different users can be compared to each other. Because *NikeFuel* is a proprietary measure, the exact formula is not publicly available.

Balancing Methodologies

Here are several methods of how you can balance a gameful system.

Testing With Historic Data

If gamification is applied to an existing system then there may be historic data available that can be used to validate the design. Data from past activities in such a system should be used to test point assignments for tasks, see how many players reach certain levels how fast, or if there are other effects that make the system balanced. Drawbacks are that not all data that the gamification design requires may be available, or that some behavioral effects may not be properly reflected in the existing data.

Play Testing

Before you even start programming or implementing any system, do some play testing. Create paper mockups, cut out of sheets of paper money, use pawns from games, poker chips, or whatever else you can find and play through your game with your friends and

colleagues. Even if you cannot simulate every element that the final system will have, through the interaction with real players one can easily see the dynamics surfacing. This includes which activities players will tend to focus on, if the tasks and the play are interesting enough, whether there is something missing, if there are open backdoors that invite cheating, how players react, what unintended consequences there are, and so on.

Play testing can be done throughout the whole process, from the first paper mockup to the very end with your targeted players to get the design correct. The earlier you start to play test and change designs, the less costly any change will be and the more likely your gamification design will be enjoyable and robust.

Stating the Design Problem

We spent some time on understanding the problem, and this remains valid when you balance the system. Clearly state your design problem before you look for a solution.

Doubling and Halving

When you work with rewards such as points and they are not working, use the technique of doubling and halving the amount. That brings you to the right amount faster than incremental changes. If you reward sharing with five points and the play testing shows that this is not incentivizing enough, double the points. Do not just increase the value from five to six points, but increase the value from five to ten points and test again.

Training Intuition by Guessing Exactly

When you design a gamified system, make an intuitive guess what the reward values should be. Over time and with experience you will have a better understanding what ratios different activity rewards should have.

Documenting the Model

Document how your gamification design looks. Describe elements, the rationality behind something that looks random, and what the dependencies are between different activities and rewards.

Tuning the Model and Design

When you keep to the mantra of balancing throughout the whole project, then your model will become better and more robust. Write down all your observations, including the failures.

Planning to Balance

The project plan must include time for balancing prior to the launch of the system. The best approach is when you have balancing tests all along the project phase, starting on the beginning. When you push it into the launch, you may lose a lot of goodwill from players and may not have the chance to fix the problems.

Duration and Frequency

A question that comes up pretty often on gamification is how to keep players engaged. Many gamification concepts that people encounter may look interesting the first time but make them wonder why they would play it for a longer period.

Duration

Time-limited

Time-limited gamified systems are ones that run for a certain time, and then stop, but they can be started after a pause. An example for those types of systems are the ones that software giant Microsoft uses to complete very specific tasks. Ross Smith, Director of Test at Microsoft, is responsible for the *Language Quality Game*. Microsoft employees in all locations worldwide play this game, which aims at improving the quality of language in Microsoft software. Participants receive screens with the translated texts and have a feature where they can provide improved translations. Another game is called Beta, which, as the name indicates, encourages participants to re-install new releases and report errors.

These games are run in two-week intervals. With each new release the game is introduced again.

Finite

A finite game is one that has a winning condition, like a treasure hunt. The duration of the game depends on the design. It could be a gamified survey that takes 5 minutes, or a day-long scavenger hunt at a conference (such as the SAP Knowledge Quest), or up to several weeks or months or even years for a gamified project.

In contrast to a time-limited game, in some of the gamified systems the player can decide on her own to start a new game right away or later, such as to create a new project, or file another expense report.

Infinite

An example of an infinite game is a community where members help each other, or a CRM system, where players enter information about their clients. Those games never end. To keep players engaged, the gamification masters (or master players) need to hand out new missions and challenges on a regular basis. The system has to be kept fresh with new engaging gamification content. While missions and challenges end, the overall gamified system does not.

However, the gamification masters may need to consider larger changes in the gamification design every two years. Inspirations can be taken from social games and videogames, which release a new version every 12-36 months.

Frequency

It's not only important how long a game lasts, but also how often players interact with a gamification system.

1. One to several times a day (such as Facebook, Email, office products).
2. One to several times a week (such as a banking system, time recording).
3. Once a month (such as utility billing system).
4. Infrequently (such as a travel expense system for a casual traveler).
5. Only once (such as a poll, quiz, learning game...)

Depending on the player's habits, expertise, and task profile, what one player uses on a monthly basis may be a daily usage pattern by another. Think of a financially savvy investor who's checking her financial portfolio multiple times a day, while another player with less interest checks in only once a month. A consultant may use the travel expense system every week, while another player who's traveling only twice a year uses the system not more often than that.

This influences how a gamified system engages a user. A casual traveler may not be interested in becoming a master in the travel expense system. Thus we have to keep it simple, but still engaging and not frustrating. For an frequent traveler we may want to encourage certain other behaviors, like a timely recording of the expenses or other good practices.

An interesting question is whether gamification can change the frequency of players interacting with the system and if we should want to. To answer the first part of the question, the response is yes, a gamified system can change the frequency. Facebook or emails have certainly changed the amount of times a day players check the Facebook status updates or emails.

But do we want to change the frequency? That depends. There are cases where we want players to interact more often. But it has to add value for the player and the system managers. Checking the financial status of a stock portfolio is not interesting for the majority of investors, but only for those who are trading often. This behavior, of course, also adds load to the financial services system.

But the same financial system that a regular, not so savvy financial player only visited

once a month can be turned into a system that the very same player visits multiple times a day and where value is added both for the player and the system operators. An example is the *design for* a financial services system that uses a pinboard-style approach to display financial goals of their users, which they can share, pin and re-pin images, comment on each others goals and images, and start saving towards their next goals. In this case the purely administrative and trading focused platform for financial products turns into a social network for financial goals. The platform also turns the experience from transactional to social and learning interactions. As a result, additional value is created for both sides: the players have a very social and decorative experience with their friends, while the financial services company gets more business through the platform, as the players are creating more savings goals.

Solving the Engagement Frequency Dilemma

What do you do when your customers are interacting only once a month with your site, but you still want to engage them?

That's the dilemma faced by *OPower*[\[cccviii\]](#) and *WaterSmart*[\[cccix\]](#), two companies trying to help households reduce their energy and water consumption. The water and energy bills that households can access from the utilities are available in monthly or bi-monthly intervals. And that's the only time when users come to the website – not many chances for OPower and WaterSmart to give them feedback and change their behavior. Even with smart-meter-technologies being installed in many regions, there is still no timelier way to display energy consumption on a daily base or even by appliance, and give feedback about the effects of a user's actions.

Most gamification challenges discussed were either about applications with which users interacted at least once a week (like time-recording), or up to multiple times a day (Email, customer support system, development tools, sales tools). In those applications and systems it's relatively simple to use a diversity of feedback elements and incentives and assume the user's awareness of what effect caused what feedback. One gamification rule is to give feedback as immediate as possible. Feedback five months later is not helping the player to react in time and learn fast enough. The player may have even forgotten the precise details of his/her actions.

Hard-core gamers (those playing *World of Warcraft*, *Halo*, or *Skyrim*) tend to be annoyed by waiting for a game to continue, while casual gamers – which account for the majority of players nowadays – are perfectly fine waiting for hours or days until a game continues. Coming back in regular or irregular intervals as required by games like *Farmville* and *Smurfs' Village*, to water your crop, feed your chicken, harvest your Smurfberries is seen as something acceptable, and totally understandable through

the games' narratives.

How can companies like OPower and WaterSmart employ those insights? By using a number of touch-points with the players that go beyond the application itself. And by not falling into the belief they must bring the users to interact with them on a daily base. Don't force your users into a strange narrative and alienate them. Go natural with what you have. Their story is already a positive one. Let's look at it.

Today, OPower and WaterSmart put a household's consumption into context by comparing it to similar households in the neighborhood or to their friends, and their past consumption. Tips of how to reduce consumption are available on the site as well, but that's mostly it. And then of course a mission statement for the larger, worthy goal: something about saving the planet.

The goal to save the planet is a worthy one, but nobody will really care enough if there is not some law or peer-pressure involved, or if households cannot achieve an environmentally friendly goal in relatively convenient ways. Unless cost-savings are not significant (or the energy prices high enough), there is not much incentive to seriously think about a \$10 lower energy bill. The incentive is just not large enough.

Lower energy bills or smileys earned for lower consumption are extrinsic motivators, that are good in the short term, but if they are not tied to intrinsic motivators, they will not be very effective. Learning about environmentally friendly consumption behaviors, new relationships through neighborhood meetups to reach a joint goal to reduce consumption on the whole block, mastery through learning from immediate feedback about actions taken, and belonging to a greater cause (the block or street, the village, the city) are intrinsic motivators that will lead to the intended effect: saving the planet.

Somebody who has done that in a different context is behavior-change specialist David Gershon. As he describes in his book "Social Change 2.0 - A Blueprint for Reinventing Our World", he tells the story of the emergency preparedness in the aftermath of the tragic events of 9/11 in New York City. For several days after the attack, public life in the city came to a virtual standstill. No traffic coming in, no traffic coming out, and with that also no supplies for the people living there. Neighbors had to watch out for each other – a thing very uncommon in a big city, where you may not know the faces or names of even long-time neighbors. Imagine your mother, relatives or friends who live there and you want to make sure that they are fine. Who do you contact to look after them?

David developed a concept that is based on social interaction on a micro level. People living in the same street or same house have common interests: that the neighborhood is safe and clean; and that they actually would like to have an

opportunity to make contact and know each other. David's blueprint gives you a script to open the opportunity to get in touch with everyone on your block, invite them to a meeting and lead to social change on that level. Under the larger goal of preparing New Yorkers for emergencies, intrinsic motivators like relationships and belonging were fulfilled. These intrinsic goals helped New Yorkers to fulfill the abstract goal of being prepared.

With the *Cool City Challenge*[\[cccx\]](#) David is taking that concept to sustainability. By applying the blueprint to environmental challenges, the Cool City Challenge aims at helping cities to reduce their carbon footprint between 25-75%.

That's where OPower and WaterSmart can right jump in. Under the larger goal of saving the planet, they can give their users the opportunity to fulfill intrinsic goals. Let them come together, learn from each other, belong to a larger community and goal. Simple and relatively cheap measures can work wonders. Instead of having each household save energy individually, let them work toward the goal for the whole neighborhood and put up the carrot of a street festival for the participants paid by the companies. Or let the blocks decide what the savings should be used for. A block may even be defined as a community around a school or parish and the joint savings paid to finance school materials – in times of heavy budget cuts a very compelling model. And something that many members of the community actually would see as a very reasonable cause.

Cheating and Gaming the System

The first principle is that you must not fool yourself - and you are the easiest person to fool.

Richard Feynman

One of the first concerns that you may hear when you talk about gamification is “But won’t people start cheating?” Of course people will cheat. But here is the thing: people already do cheat right now. They may not be as honest as you think, and people will always cheat. The question is more of how and how much people are cheating or being dishonest.

Is Cheating Bad for Gamification?

Not all cheating is bad. There may be cheating that demonstrates very engaged behavior and may be used by the gamification designer to enrich the game. Sometimes a way to cheat may be built into the system to give the players the pleasure of taking a shortcut – without noticing that this was a wanted design. Cheat-codes to circumvent specific obstacles of finding hidden treasures (Easter eggs) may even add to the adoption of a gamified system. And players finding new ways to cheat the system may give gamification designers new ways of making the gamified design richer.

Captain James T. Kirk from the starship Enterprise famously cheated the simulation by reprogramming it. The simulation was not supposed to be winnable, but because of Kirk's cheat he could win. In that case that specific cheat was regarded as an acceptable way to show the capability of a starship commander to come up with an unusual approach to win an unwinnable situation. Much to the discontent of the rule-abiding Spock, who had programmed the simulation.

Cheating becomes a problem when the players who abide by the rules have the feeling that the game becomes unfair, or that the original purpose of the gamified approach is being diluted. And as a result these players will disengage.

In one professional community, for example, members help each other by blogging, answering questions, creating help documents and so on, points were an important factor to show expertise. As some members got goals set by their managers to reach a certain number of points within a period, some of these members figured out that by creating multiple users, they could ask a simple question with one of their users, and respond with their other user and climb up the leaderboard. As you may expect, this behavior had the law-abiding members go ballistic. They did not care so much about the points, but they found that such cheaters diluted the content by adding redundant and often overly simple questions and answers into the system, which made it harder to find the relevant content.

While a certain level of cheating will always be there, we want to keep cheating in check. For that we need to understand the reasons when and why people cheat.

The Psychology Behind Cheating

Are there ways to reduce dishonesty and cheating in a game? Dan Ariely [\[cccxi\]](#) researched, when and how much his test participants would cheat. In one study, Ariely asked a group of students and undergraduates to take a test consisting of 50 multiple-

choice questions. When the students were done, they were asked to transfer the answers from their worksheet to a scoring sheet. For every correct answer students would receive 10 cents.

Now here is the twist: the test subjects were split into four groups. The first group had to hand the worksheet and scoring sheet to the proctor. For the second group the scoring sheet had a small, but important change: the correct answers were pre-marked. Would they cheat more? Anyhow, they still had to hand over both the work and the scoring sheet. The third group finally also had the correct answers pre-marked, but the students were instructed to shred their worksheets and only hand the scoring sheets to the proctor. The fourth and final group again had the scoring sheets pre-marked with the correct answers, but the students were instructed to shred both the work as well as the scoring sheet and just take the amount of 10 Cent coins out of a jar. Both the third and fourth group had basically carte blanche to cheat to the maximum, as nobody could verify their claims. What were the results?

The first group answered 32.6 of the 50 questions correctly. The second group, with an opportunity to cheat (but the risk of being caught) got 36.2 questions correct. As the group was not smarter, they had been caught in a bit of cheating and “improving” their scores by 3.6 questions. The third group reported 35.9 correct questions. Which was about the same as the second group. The fourth group reported 36.1 correct answers.

The surprise here is not that people cheated, but that the risk of being caught did not influence their amount of cheating. The students didn’t push their dishonesty beyond a certain limit. Was there something else holding them back? Ariely, who was skeptical about the power of external controls, tried something else. In another experiment he asked two groups of students to solve a test with 20 simple problems. They were given 5 minutes to solve as many problems as they could, after which they were entered in a lottery. Once in the lottery they could win ten dollars for each problem they solved correctly.

The first group, which served as control group, had to hand the worksheets to the experimenter. The second group was asked to write down the number of correct answers and shred their original worksheet. This basically was the group that was encouraged to cheat. But the participants were given another task prior to working on the main task: half of the group was asked to write down the names of 10 books that they had read in high school. The other half was asked to write down as many of the Ten Commandments as they could remember.

The result was clear: the control group had solved on average 3.1 of the 20 problems correctly. The second group that had to recall 10 books from high school achieved an

average score of 4.1 correct answers (33% more than those who could not cheat). The third group – the one that had to recall the Ten Commandments – had on average 3 problems correctly solved. Although they were not asked to say what the Ten Commandments were about, but just to recall them, the simple request to write them down had an effect on the participants' honesty.

So, although many people cheat a little all the time, most people don't cheat as much as they could. And reminding them of morality at the moment they are tempted tends to make them more likely to be honest. A players' code of conduct that reminds players to behave ethically – similar to oaths or pledges that doctors and other professionals used to have - may be a good way for some player communities to keep cheating at a low level.

Is cheating more imminent when money is involved? After all, tangible rewards may be more tempting than just points. In one experiment Ariely put six packs of Coke cans in dormitory fridges that were accessible for all students living in the dormitory. Over the following days he frequently returned to check the Coke cans. Ariely found out that the half-life of Coke isn't very long. After 72 hours all Coke cans had disappeared.

What about money? In some of the fridges Ariely placed a plate with six one-dollar bills. After 72 hours all off the one-dollar bills were still on the plate. Now this was a stunner. People take goods, but leave the money, although both are similar from a value perspective. Is the perception of dishonesty dependent on whether we are talking money or something that is one step removed from money?

To understand this behavior better, Ariely came up with another experiment. He asked students at the MIT cafeterias to participate in a little experiment by solving 20 math problems. For every correct answer they would get 50 cents. Ariely split the students in three groups: the first group had to hand over the test results to the experimenter, who checked the answers and gave them the money. The second group was told to tear up their worksheet and simply tell the experimenter the results to receive the payments. The third group was also told to tear up their worksheet, but would receive tokens instead of cash. With these tokens they would then walk 12 feet over to another experimenter to exchange the tokens for cash.

What happened? The first group was, as you already know from the other experiments, the test group. They solved an average of 3.5 problems correctly. The second group who had been instructed to tear up their worksheets claimed 6.2 correct answers. Basically, Ariely could attribute 2.7 additional questions to cheating. But the participants in the third group – who were no smarter than the participants from the former two – claimed to have solved 9.4 problems. 5.9 questions more, an increase of

nearly 170%.

As soon as the non-monetary currency was inserted, people felt released from moral restraints and cheated as much as possible.

The Austrian artist and “world vagabond” Thomas Seiger^[cccxi]^[cccxi] did an interesting art project. He gave money away. He positioned himself at busy squares in cities all around Austria carrying a tray with several dozen Euros in his hand. Attached to the tray was a sign saying “Money to give away.”

After traveling through South East Asia, he realized that material possessions were interfering with his understanding of what life is and decided to sell his worldly possessions and give the money away. But this turned out to be harder than imagined. People incredulously asked him whether there was a catch? “No,” he kept replying, “take as much as you want, no strings attached.”

Still, most of the people did not take money. Those who came picked small denominations, but often they came back to return the money. They felt bad or embarrassed. “Taking money is more difficult than giving,” says Thomas. A group of seventh graders approached him as well. After some hesitation, the most courageous boy moved forward to take a coin, but immediately the girls in the group called him back harshly. In the end one of the seventh graders took out his wallet and emptied it on the tray. One after another tossed more money on the tray, ignoring the protests from Thomas.

If Seiger had given away something else, like candy or balloons, he would have run out faster of his stock. People can justify it better, like taking the balloon or candy for one’s child.

Both Ariely’s experiments and Seiger’s art project showed that dealing with cash makes us more honest. But removing us from money makes it more likely that people start cheating.

A couple of traits seem to influence the amount of cheating as well. Student’s who major in business or have divorced parents tend to cheat more for small financial gains^[cccxi], as well as people who believe in a kind and loving God, and not in an angry one^[cccxi].

This is an important lesson for gamification designers. If you reward players through extrinsic means (but not for cash), you set them up for cheating. Which means game masters will spend a significant amount of their time dealing with cheating. Another reminder that rewards should be intrinsic, and not extrinsic. At least one study points at another reason why people are cheating: they report to having more positive

feelings[\[cccxvi\]](#).

Alas, players with narcissistic behavior tend to feel entitlement to winning, therefore they are more likely to cheat.

How to Reduce Cheating?

We have a number of options to reduce cheating – beside staying away from extrinsic rewards. The first cluster of options is through a balancing act of[\[cccxvii\]](#) [\[cccxviii\]](#) value, effort, and transparency.

1. Decrease the perceived value of rewards
2. Increase the effort required to game the system
3. Shamification

By using intrinsic rewards without transferable value in the real world, or perks that have only a low exchangeable value, players will be less encouraged to cheat. To prevent getting players in the system that are just aiming for the rewards and not adding any value to the system, use rewards that have a large perceived-value differential between the target audience and the rest of the world.

The next approach is to make the combination of the rewards metrics so complex that players cannot easily understand how to game them. An example would be the *Google PageRank*. The way Google defines at what position a link comes up in the search results is a secret sauce that is also subject to constant change.

If you use metrics that are less susceptible to gaming and require high effort, you can also keep cheating at lower levels. Chief Scientist at Lithium Technologies , Michael Wu describes the following two variations to increase the required effort:

- Time-bounded, unique-user-based reciprocity metrics (or *TUUR metrics*) -
> e.g. number of *Retweets*
- Time-bounded, unique-content-based reciprocity metrics (or *TUCR metric*)
-> e.g. number of *Likes*

And then there is the opposite technique to make the rewards metrics transparent. Show the public how players achieved their rewards. This way cheating patterns can be easily detected by others and create social shame and accountability. I like to call this approach “Shamification.”

Ariely’s research showed some other elements that had an influence on dishonest

behavior. But let's look first at the ones that increase dishonesty and cheating, according to Ariely.

If players have a high ability to rationalize or are very creative, they are more likely to be dishonest at some point. They are more creative and can more easily find rational arguments why their dishonesty is not dishonest. When the players are set up with conflicting interests, then they basically must cheat to achieve them. As we know from the financial system, that short-term interests often conflict with long-term interests.

If we see immoral behaviors or live in a culture where immoral behaviors are rewarded, then people are more likely to be dishonest. Often one immoral act by the player is enough to justify future immoral behavior.

Interesting enough, altruistic behavior may encourage dishonesty. If somebody else, like a team-member with whom we have a bond, profits from our dishonesty, we are more likely to cheat for them, especially if we don't get out anything for ourselves.

Willpower is also an important factor. Willpower is a depletive resource, and when we are at a low level, our willpower may not be sufficient to resist dishonest behavior[[cccxix](#)].

Methods that decrease cheating include transparency, but also reminding players through multiple ways of morals, laws, and honor codes. But here is the twist: players must be reminded of them *before* they start playing the system. If you have players pledge (like let them repeat the honor code of the game), or give them a moral reminder (like letting them list the Ten Commandments or similar moral standards), or have them go through a process that requires them to sign to stick to the rules and not cheat, then cheating will remain at a low level. But it is important that those things are done *before* the player start interacting with the system.

A final method to be mentioned is supervision. Cheating and dishonest behavior is reduced, if players know that each of their steps is monitored. How effective that can be was studied on waiters in restaurants[[cccxix](#)]. On the other hand, Harvard professor Ethan Bernstein found that hiding from managers can have the adverse effect and increase productivity[[cccxix](#)]. What is dubbed the *transparency paradox* makes the case that less supervision can allow employees in organizational learning by slightly changing work routines to increase efficiency instead of strictly following the book and getting into lengthy discussions with management.

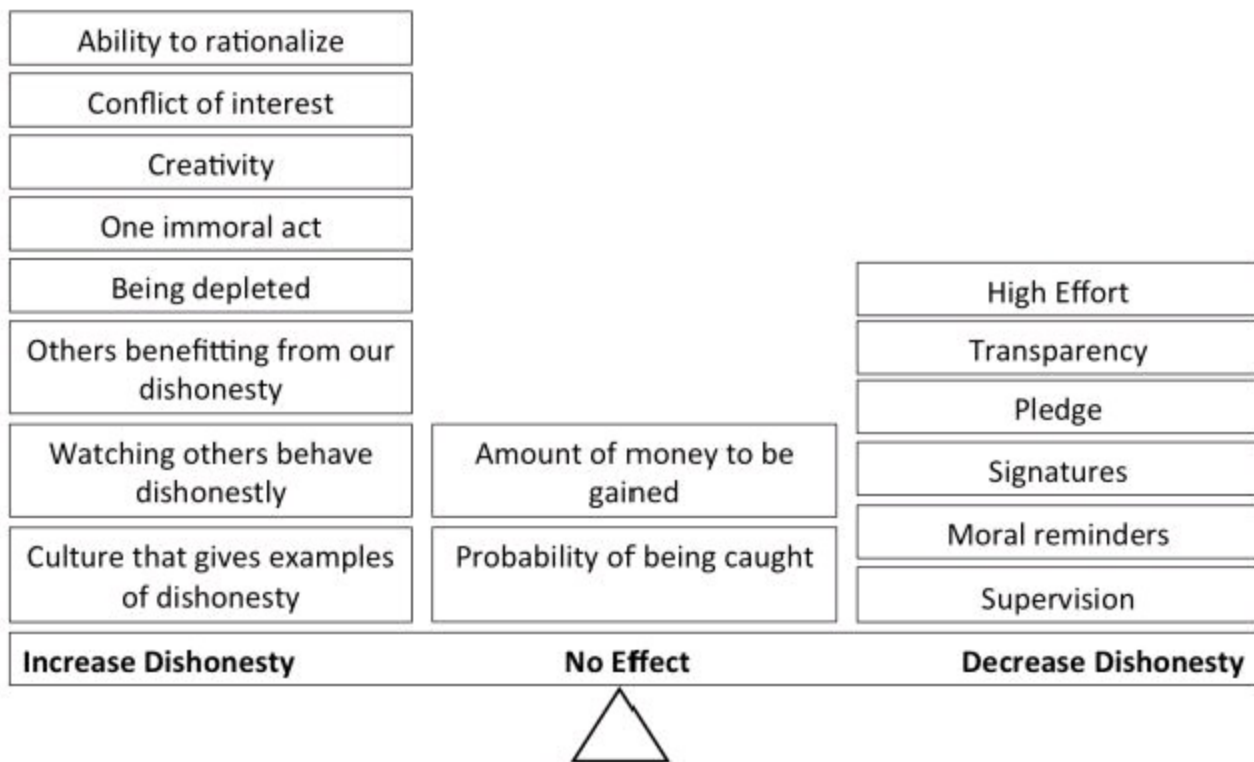


Figure 43: Factors that influence dishonesty (C) Dan Ariely

In contrast to conventional wisdom, the probability of being caught in the act of cheating or the amount of money that can be gained have no influence on how much people are going to cheat. One exception though is between men and women. While men tend to lie more than women for small monetary benefits, when the amount is increased the difference disappears[\[cccxxii\]](#).

Cheat-Detecting Software

The videogame world is all too familiar with cheating[\[cccxxiii\]](#), and while measuring and detecting cheating is never easy, a number of counter-measures to prevent cheating, or make it harder has been developed. Besides gamer etiquettes, some software solutions such as *PunkBuster*[\[cccxxiv\]](#), *Valve Anti-Cheat*[\[cccxxv\]](#), and *Warden*[\[cccxxvi\]](#) are used by online-games and MMOs to reduce cheating.

Reward System Examples

In the following, we are going to look at different gamified systems that use points and levels for rewarding and counting the activities and achievements of their players. The systems are publicly accessible, including the specific activities and rewards.

Yahoo! Answers

Yahoo! Answers is a community where members can ask questions and receive answers to any topic. Members can earn points through different activities. The scoring system^[cccxxvii] looks like this:

| Action | Points |
|--------------------------------------------------------|--------------------|
| Begin participating on Yahoo! Answers | One Time: 100 |
| Ask a question | -5 |
| Choose a best answer for your question | 3 |
| No Best Answer was selected by voters on your question | Points Returned: 5 |
| Answer a question | 2 |
| Self-deleting an answer | -2 |
| Log in to Yahoo! Answers | Once daily: 1 |
| Vote for an answer | 1 |
| Vote for No best answer | 0 |
| Have your answer selected as the best answer | 10 |
| Receive a "thumbs-up" rating on a | 1 per "thumbs-up" |

| | |
|--------------------------------------------------------------------|-----|
| best answer that you wrote (up to 50 thumbs-up are counted) | |
| Receive a violation | -10 |

Table 9: Yahoo! Answers Point System

What is interesting in this particular point system is that points can be lost. While asking a question requires the equivalent of “paying for asking,” (rule) violations and voluntary withdrawal of an answer also result in point losses.

Retention is rewarded by granting one point for one log in per day. The focus of the program is clearly to provide good answers, as they receive 10 points.

The Yahoo! Answers level system has seven levels and looks like this:

| Level | Point Range | Questions | Answers | Comments | Stars | Ratings | Votes |
|-------|-----------------|-----------|---------|----------|-------|-----------|-------|
| 7 | 25,000+ | 20 | 80 | 40 | 100 | Unlimited | 400 |
| 6 | 10,000 - 24,999 | 20 | 80 | 40 | 100 | Unlimited | 400 |
| 5 | 5,000 - 9,999 | 20 | 80 | 40 | 100 | Unlimited | 200 |
| 4 | 2,500 – 4,999 | 20 | 80 | 40 | 100 | Unlimited | 100 |
| 3 | 1,000 – 2,499 | 15 | 60 | 30 | 100 | Unlimited | 75 |
| 2 | 250 - 999 | 10 | 40 | 20 | 100 | Unlimited | 50 |
| 1 | 1 - 249 | 5 | 20 | 10 | 10 | 0 | 25 |

Table 10: Yahoo! Answers Level System

The level system is giving status and privileges. Member on higher levels can ask more questions, and answer, comment, and vote more often. This guarantees that there

is no discrepancy of members just using the system to get answers without contributing themselves. As the number of allowed questions is limited per level, members are encouraged to search first for an answer to their question, before posting the question. This way, the number of redundant questions is kept at a lower level and the Yahoo! Answer database less diluted with the same questions and responses.

The points assigned as thresholds to level up in Table 10 show the increasing efforts required. We learned that we need to make it easy for beginners and hard for masters. Plotting the increase in points for each level on a chart demonstrates that (see Figure 44).

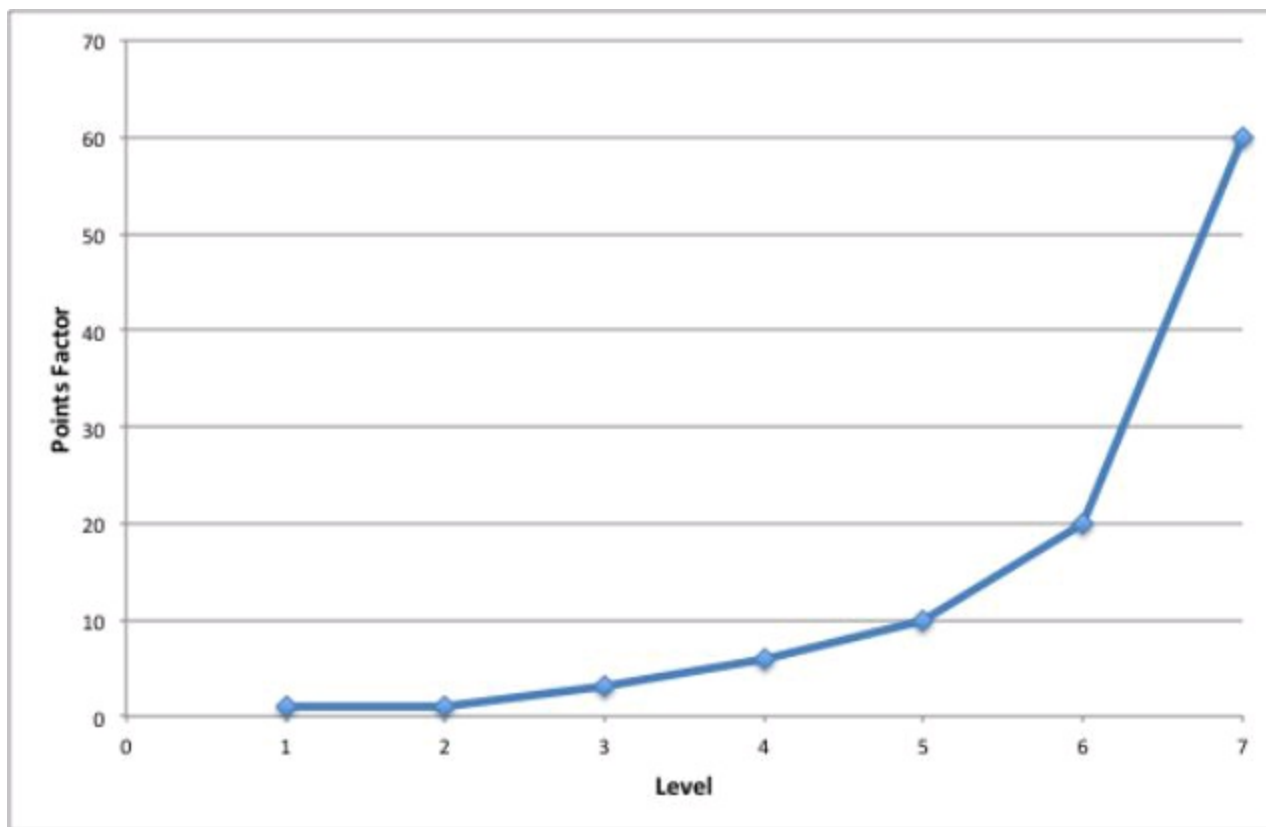


Figure 44: Yahoo! Answers points factor per level (based on first level range)

Taking as a base the 250 points that a player needs to reach level 2, every subsequent level requires more of that. Reaching level 3 needs 3x as many points than reaching level 2. Level 4 needs 6x as many points, level 5 already 10x as many, and level 6 and 7 require 20x respectively 60 times as many points than the step from level 1 to level 2.

| Level | Factor | Point Growth Rate | Borders |
|-------|--------|-------------------|---------|
| 1 | - | 0 | 0 |
| 2 | 1x | 1 | 250 |
| 3 | 3x | 3 | 1,000 |
| 4 | 6x | 2 | 2,500 |
| 5 | 10x | 1.67 | 5,000 |
| 6 | 20x | 2 | 10,000 |
| 7 | 60x | 3 | 25,000 |

Table 11: Yahoo! Answers point progression for levels

That does not mean automatically that a player has to do 60x as much to progress from level 6 to level 7 as for reaching level 2. Ideally the tasks that such an advanced player has to do are not the same that a rookie-player has to do, but more challenging, respecting the right level of mastery. To define the right activities for each level is the task for the gamification designer.

Table 11 does not only show the points factor, it also shows the growth. And with growth I mean the point ratio between each adjacent level. To reach level 3, a player needs 750 points to get from 250 to 1,000. That is 3x as many points as going from 0 to 250 (from level 1 to level 2). To reach level 4 a player needs 1,500 points, which is now 2x as much as required for reaching level 3. By plotting the numbers on a chart (Figure 45), we see a double-peak pattern, with a steep increase, a fall, and followed again by an increase.

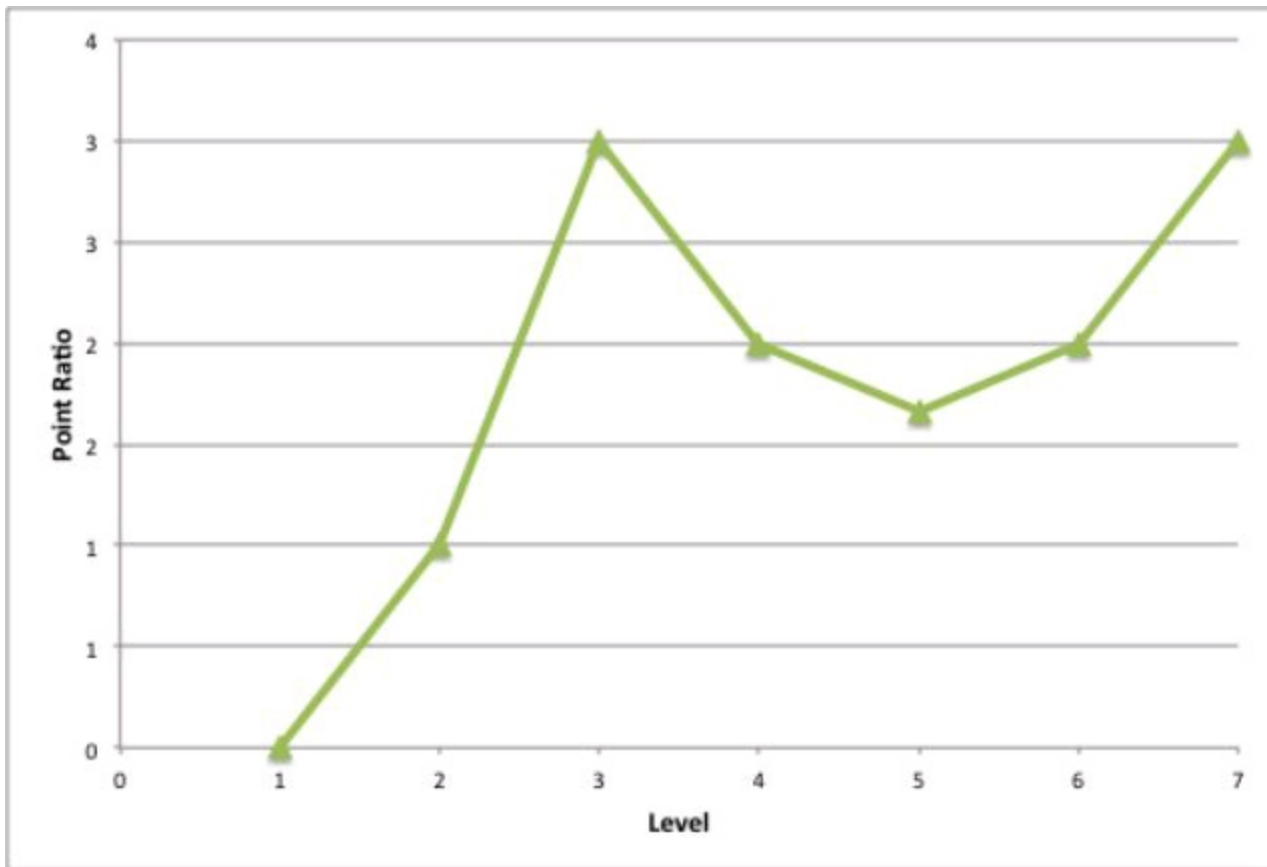


Figure 45: Yahoo! Answers point growth rate for adjacent levels

SAP Community Network

The *SAP Community Network* is a community of professionals that work with SAP products. Members of that community blog, answer questions, and create Wiki pages.

The scoring system[\[cccxxviii\]](#) looks like this:

| Contribution | Type | Points | By Whom | Comment |
|----------------------------------------|-------------------|---------------|-----------------|-------------------------------|
| Discussion Post | Helpful answer | 5 | Original poster | Limited 15 times per thread |
| | Correct answer | 10 | Original poster | Once per thread |
| Community Topic Blog / Document | Post | 10 | System | |
| | Post | Additional | Community | |
| | Likes | 2 | Community | |
| | Ratings (Stars) | Up to 5 | Community | |
| Wiki | Page publication | 40 | System | Limited to 120 points per day |
| | Page edit/update | 2 | System | Limited to 10 points per day |
| Some badges | For some missions | varying | System | |
| Taking the Annual SCN Survey | | 10 | System | Once a year |

Table 12: SCN Point System

The focus is to encourage answering questions, and posting blogs, wiki-pages, and answers of high quality. The points are displayed in rolling leaderboards over one, three, and twelve month periods. Members also keep lifetime points that are then additionally visualized through a level system. The level system looks like this:

| Level | Point Range |
|----------|-----------------|
| Diamond | 15,000+ |
| Emerald | 10,000 – 14,999 |
| Topaz | 5,000 – 9,999 |
| Platinum | 2,500 – 4,999 |
| Gold | 1,500 – 2,499 |
| Silver | 500 – 1,499 |
| Bronze | 250 – 499 |
| Steel | 30 – 249 |
| Aluminum | 5 – 29 |
| Glass | 0 - 4 |

Table 13: SAP Community Network Level System

Plotting the points' factors with a reference to the points on the first level range gives us a different progression (see Figure 46). The curve is not as logarithmical as for Yahoo! Answers. The progression has some steps in it, as in levels 4 to 5, 6 to 7, and 9 to 10. That makes sense if you design a system where each level does not represent a complete new set of mastery activities, but where multiple levels are clustered for the same skill level. The curve gives us an indication that the levels 1 to 3 are for beginners. The points to achieve motivate the new player. Crossing the threshold to level 4 and 5 is for a more skilled player, who's coming now regularly and needs to put some larger efforts in, typically with some more elaborate and also more rewarding tasks.

Once the player reached level 5, there is the next big hurdle: going to level 6. Reaching level 6 and then 7 requires significantly more than in the prior levels, and we can assume that the missions and tasks there are the right fit for this advanced

regular player.

To arrive at the master level a player has to grind, work hard, and show commitment. Of course again with tasks that earn him more points but also take more effort than before.

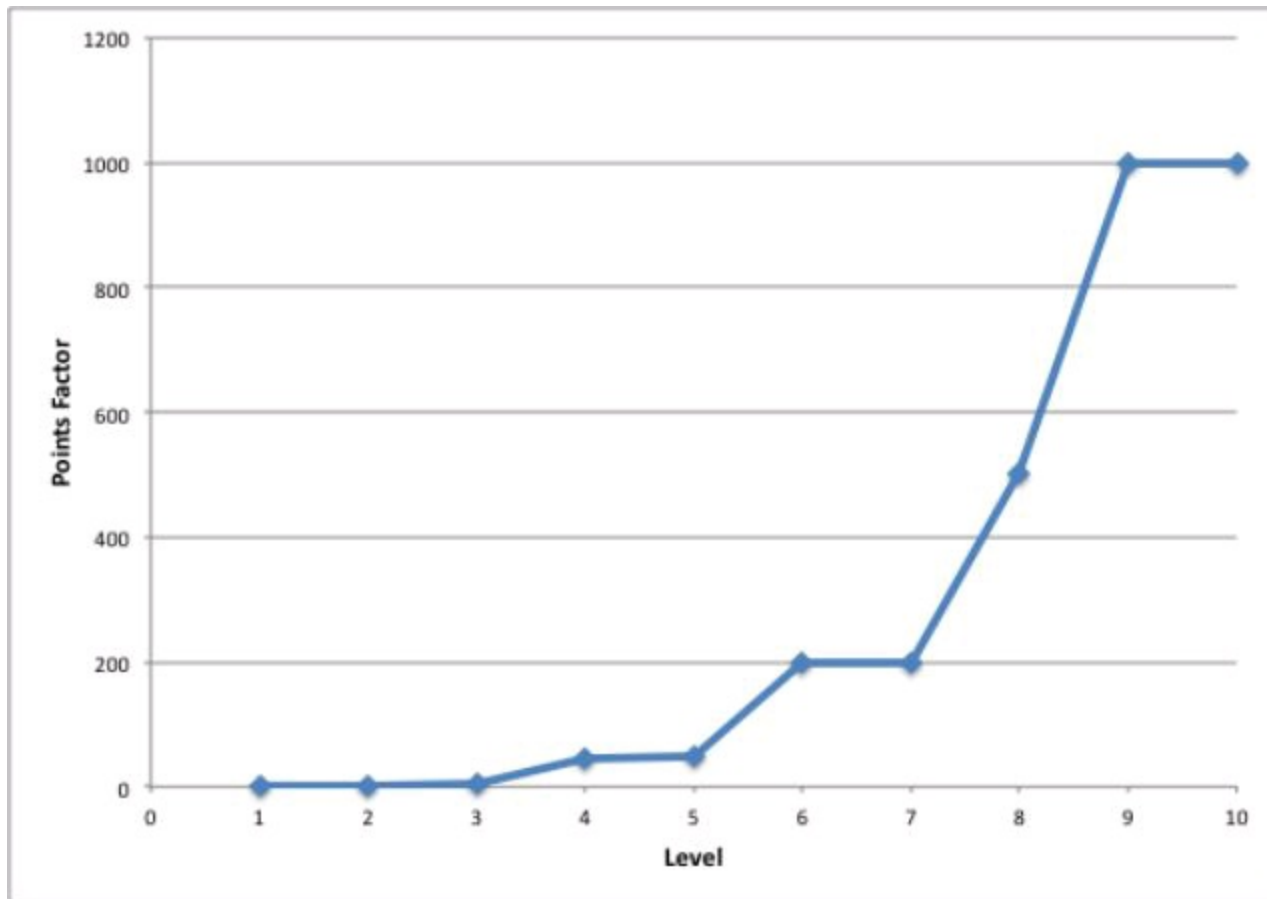


Figure 46: SAP Community Network points factor per level (based on first level range)

Not only the shape of the curve is different, the points' factors are as well. And that's because the first level requires only 5 points to cross to the next level. Leveling up is something that a new player can do pretty soon, basically in the first session in the system.

| Level | Factor | Point Growth Rate | Borders |
|--------------|--------|-------------------|---------|
| 1 (Glass) | - | 0 | 0 |
| 2 (Aluminum) | 1x | 1 | 5 |
| 3 (Steel) | 5x | 5 | 30 |
| 4 (Bronze) | 44x | 8.8 | 250 |
| 5 (Silver) | 50x | 1.1 | 500 |
| 6 (Gold) | 200x | 4 | 1,500 |
| 7 (Platinum) | 200x | 1 | 2,500 |
| 8 (Topaz) | 500x | 2.5 | 5,000 |
| 9 (Emerald) | 1,000x | 2 | 10,000 |
| 10 (Diamond) | 1,000x | 1 | 25,000 |

Table 14: SAP Community Network point progression for levels

Finally, when we look at the point growth for each subsequent level, the level design gives us a zigzag pattern, not the double-peak pattern from Yahoo! Answers. And that is perfectly fine. Successful games follow this pattern as well. In our beloved Angry Birds every few levels is a really tough challenge. Players need to try 10 or 20 times to get over the pigs to reach the next level. But the immediate level afterwards is easy. If this challenging level were followed by another tough level, the player would get exhausted and stop the game. They need this “relaxation” level that confirms to them that they are still good.

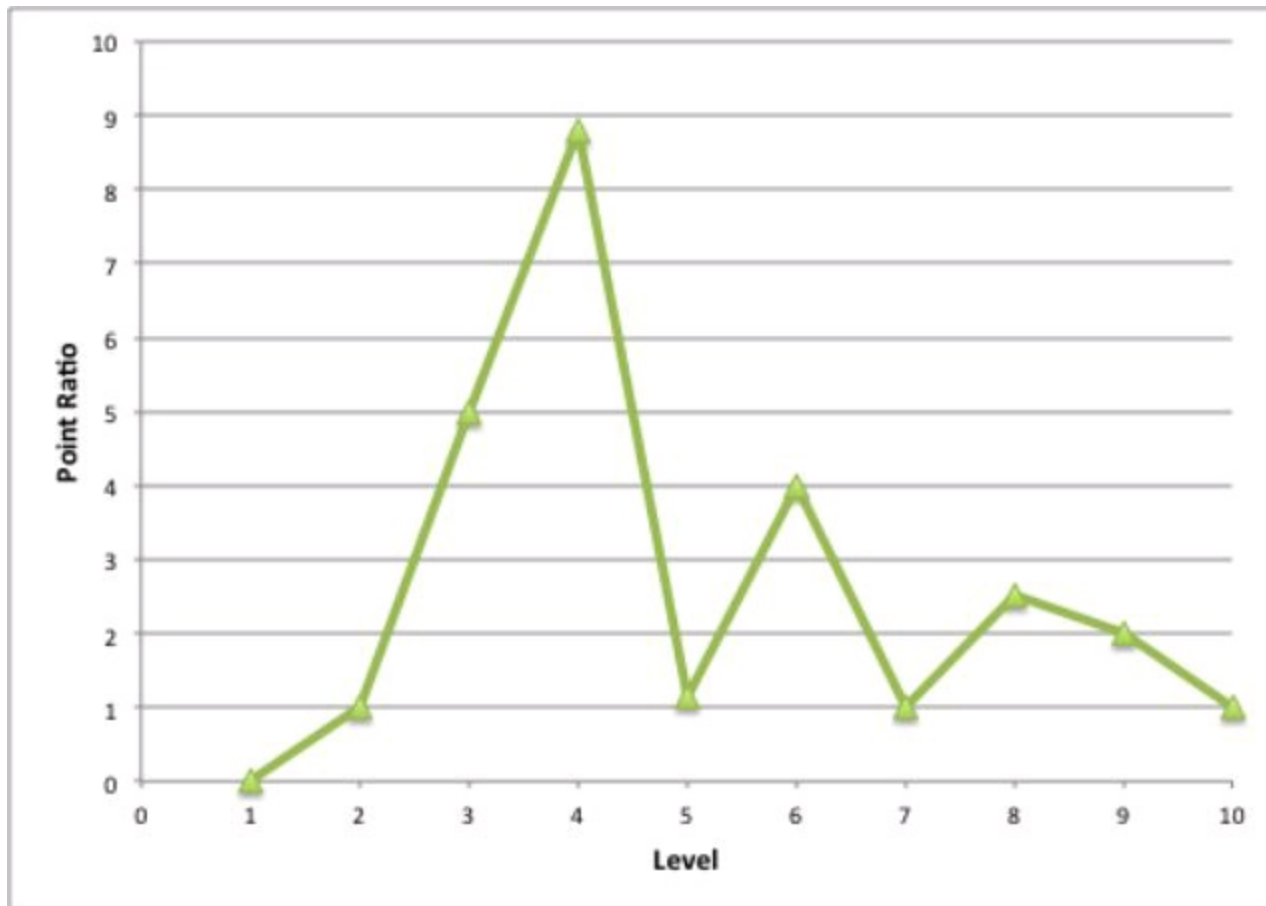


Figure 47: SAP Community Network point growth rate for adjacent levels

Beside the points the SCN also offers missions and tasks that can earn badges and additional points. Some badges are one-time badges (such as one for the first blog), completing a number of the same activities, and special badges awarded by the administrators.

Stack Overflow

Stack Overflow[\[cccxxix\]](#) is one of the many communities on the *Stack Exchange Network*. On this website programmers help each other by asking and answering.

The reputation system[\[cccxxx\]](#) looks like this:

| Contribution | Type | Points | By Whom | Comment |
|--------------|------------------------------------|---------------------|------------|--------------------------------------------|
| Question | Voted up | 5 | | |
| | Voted down | -2 | | |
| | Bounty placed | -full bounty amount | Questioner | |
| Answer | Voted up | 10 | Members | |
| | Voted down | -2 | Members | Your answer is voted down by other members |
| | Voted down | -1 | You | You vote down somebody else's answer |
| | Marked accepted | 15 | Questioner | Awarded to the responder |
| | Marking accepted | 2 | Questioner | For the marker |
| | Bounty awarded | Full bounty amount | Questioner | Awarded to the responder |
| | Bounty awarded automatically | ½ the bounty amount | System | Awarded to the responder |
| Post | 6 spam or offensive flags received | -100 | Members | Your post received them |
| Site | | 100 | | When you have |

| | | | | |
|----------------------|--|--|--|------------------------------------------------------------------------------------------------------------------------|
| association bonus | | | | reputation on one of the Stack Exch. Network sites and start being active at another site as well |
|----------------------|--|--|--|------------------------------------------------------------------------------------------------------------------------|

Table 15: Stack Overflow Reputation System

Points are limited to 200 per day, and the starting and minimum point level is 1. Members with more than 200 points on any of the Stack Exchange Network sites will receive 100 initial points on another site that they start contributing to overcome basic restrictions.

Members can also earn some privileges that are tied to the point amount. The privileges include:

1. trusted user
2. protect questions
3. access to moderator tools
4. approve tag wiki edits
5. cast close and reopen votes
6. create tag synonyms
7. edit questions and answers
8. create tags
9. create gallery chat rooms
10. established user
11. retag questions
12. view close votes
13. reduce ads
14. vote down
15. create chat rooms
16. edit community wiki
17. set bounties

18. comment everywhere
19. talk in chat
20. flag posts
21. vote up
22. create wiki posts
23. remove new user restrictions
24. participate in meta
25. create posts

Pearl.com

Pearl.com (formerly *JustAnswer*) is a website where users can have one-on-one conversations with a professional such as a doctor, lawyer, or mechanic. Members pay for having their questions answered. The amount starts at \$15, and can go up to encourage faster response-times. According to the website, the average pay for a response is \$30.

| Activity | Reward | By Whom | Comment |
|----------------------|-----------------------------|------------|-----------------------------------------|
| Asking a question | -\$15 – x amount of dollars | | |
| Answering a question | \$15 – x amount of dollars | Questioner | Only when response solved the questions |
| Rating | Stars | Questioner | Grants status for professional |
| Commenting | | Questioner | |

Table 16: Pearl.com Reward System

The professionals who are answering the questions can assign themselves to new questions, thus locking the questions so that for the moment only they can respond. Depending on their status, higher-ranking professionals can access (and lock) the questions earlier than their peers. Professionals can get to a higher status as a result of their ratings and comments they received from the members and through the number of questions answered successfully.

Some of the professionals can make five digits incomes per months. Most questioners come only once and leave the community forever.

Analysis of Applied Gamification Design Elements

LinkedIn

The professional network LinkedIn uses a number of gamification design elements.

Profile

To make the professional network valuable for all members, information about each member is required. The more data a user shares, the more valuable the network becomes for other members. When new members sign up, they tend to fill out only the most basic information. The *profile completeness bar* (Figure 48) gently nudges users to reach 100% by appealing to achieve a sense of completion. Note that while it is easy to quickly increase the percentage at the beginning, reaching one hundred percent completion requires successively more effort



Figure 48: LinkedIn Profile Completeness Bar

When you interview LinkedIn-members, most of them will tell that because of the progress bar they had filled out more information, without knowing that they were being gamified.

LinkedIn has introduced a new form of such a display, called *profile strength*. Depending on how much the circle is filled - like a cup with water - levels are assigned to it, in the example in Figure 49 it's the level *All-Star*.

Profile Strength

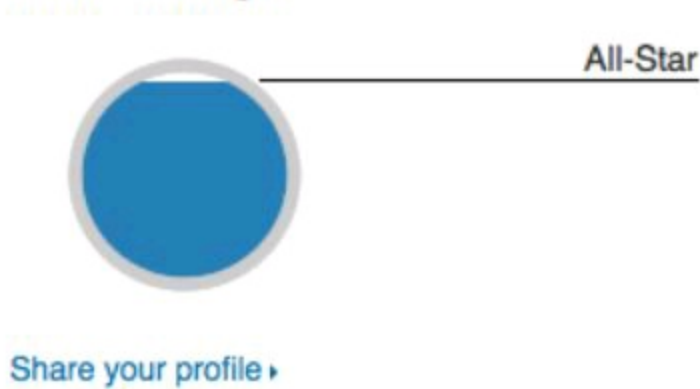


Figure 49: LinkedIn Profile Strength

The reason for this visualization has to do with a disadvantage that the original form of a progress bar for the profile completeness brings. Once the bar reaches 100%, there is no need to add more information to the profile, which would make updates such as job changes, new titles, or certifications less relevant.

Even with those two gamification design elements users could still miss out other relevant information. The profile completeness and profile strength contain self-reported qualities, which need to be verified through other channels. *Endorsements* try to fill this gap by allowing other members to report additional skills (see Figure 50).

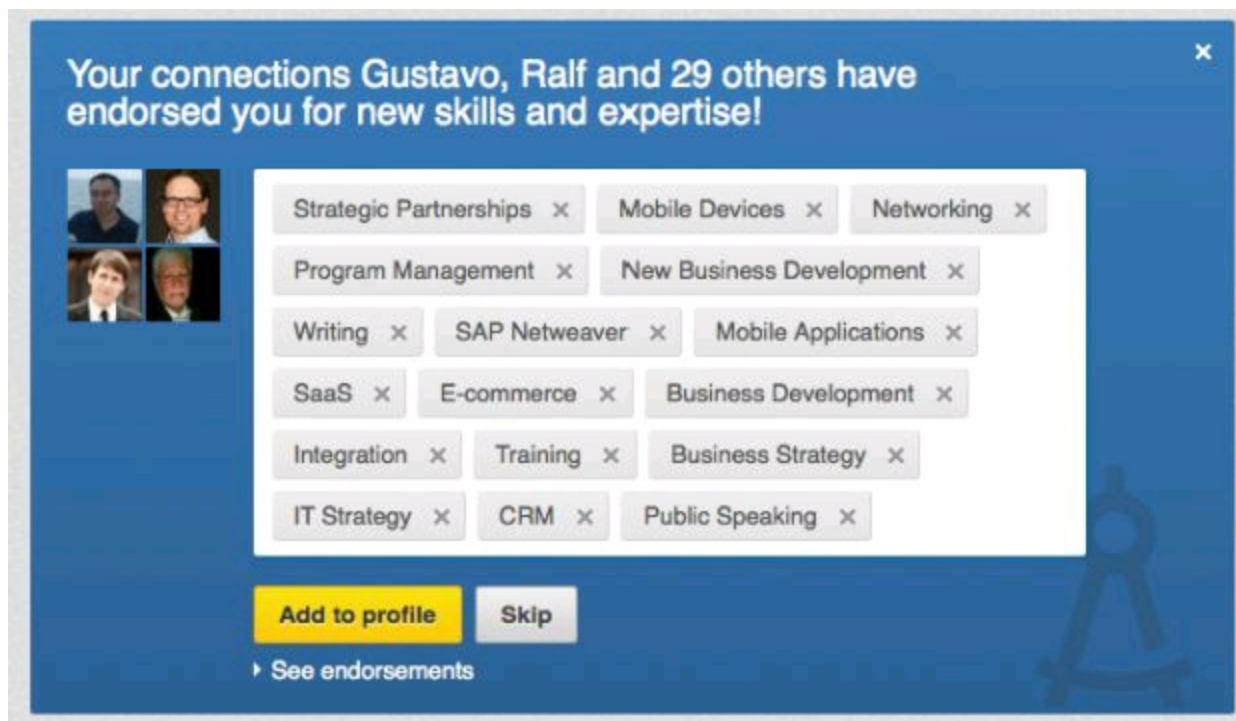


Figure 50: LinkedIn Endorsements

While not all endorsements may make sense, the overall result from the aggregated endorsements creates a relatively accurate picture of the skills and expertise of a member (Figure 51).

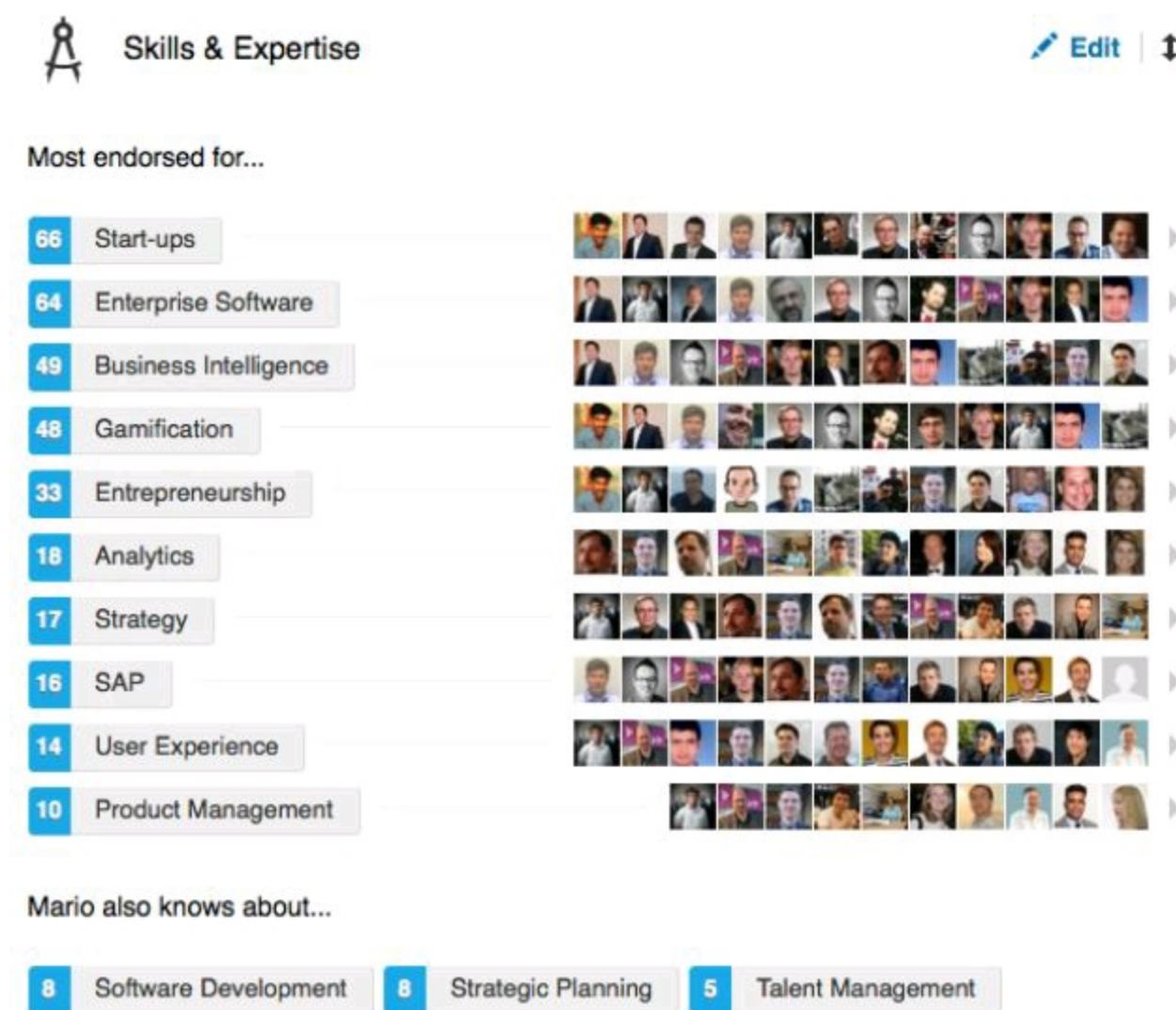


Figure 51: LinkedIn Skills & Expertise

Profile Views

The statistics on *Who's viewed your profile* give feedback on the number of views and how often a users profile has shown up in search results over the past day (Figure 52) and the past 3 days (Figure 53).

WHO'S VIEWED YOUR PROFILE

8 Your profile has been viewed by 8 people in the past day.

12 You have shown up in search results 12 times in the past day.

Figure 52: LinkedIn Who's viewed your profile - Past day

WHO'S VIEWED YOUR PROFILE

41 Your profile has been viewed by 41 people in the past 3 days.

26 You have shown up in search results 26 times in the past 3 days.

Figure 53: LinkedIn Who's viewed your profile - Past 3 days

The same numbers are plotted in a diagram over the past 90 days (Figure 54) to show the trend.

Trends

Last 90 days

How often people viewed you

887 profile views



How many times you appeared in LinkedIn Search

2,100 ▼ -4% weekly change

Figure 54: LinkedIn How often people viewed you

A *Who's viewed your profile*-dashboard also displays the last five members who have viewed the profile (Figure 55). This list is not only fulfilling the fun motivator of being the center of attention, but also encourages users to click on them to connect.

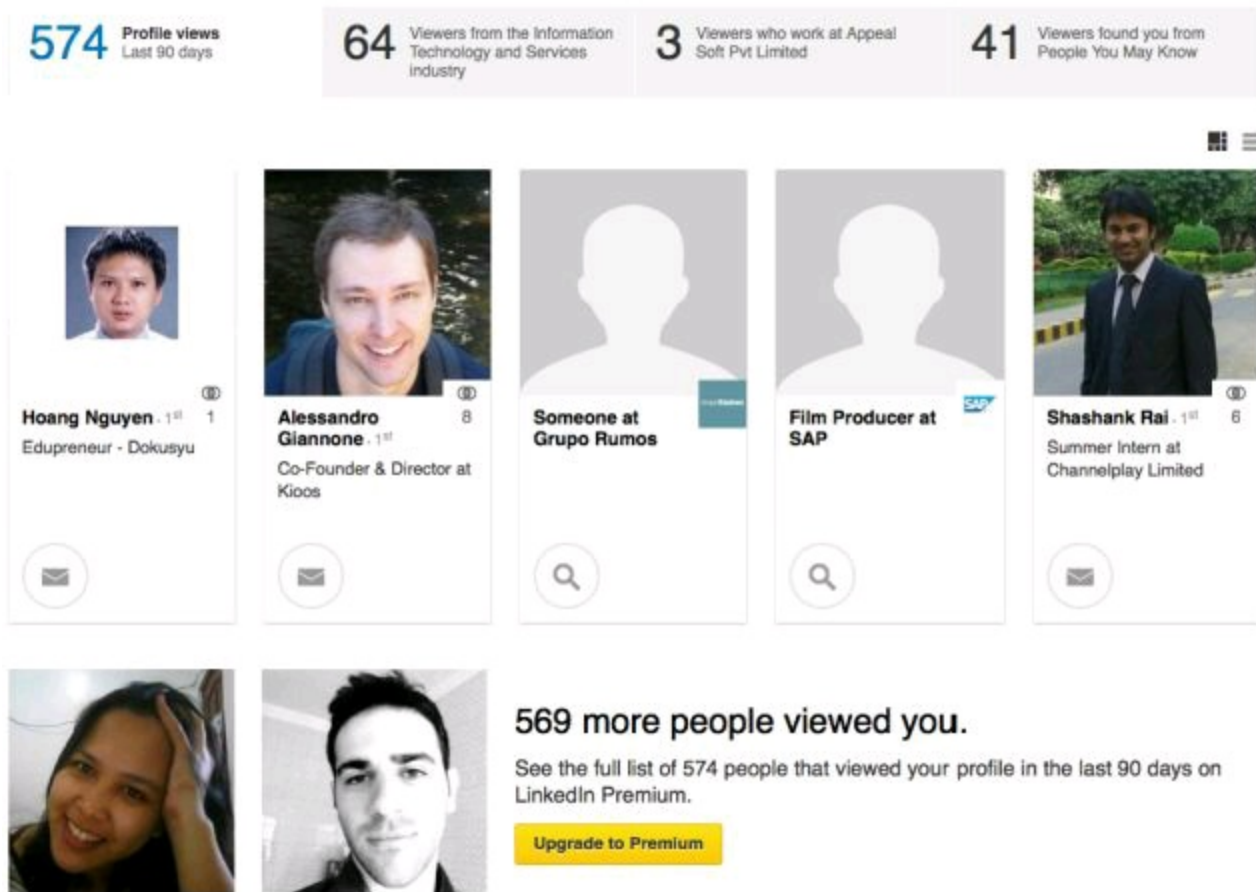


Figure 55: LinkedIn Who's viewed your profile - Overall

Updates

LinkedIn-members are not only sharing their personal and professional information, they are also encouraged to share updates, such as articles, events, jobs and other information related to their professional activities.

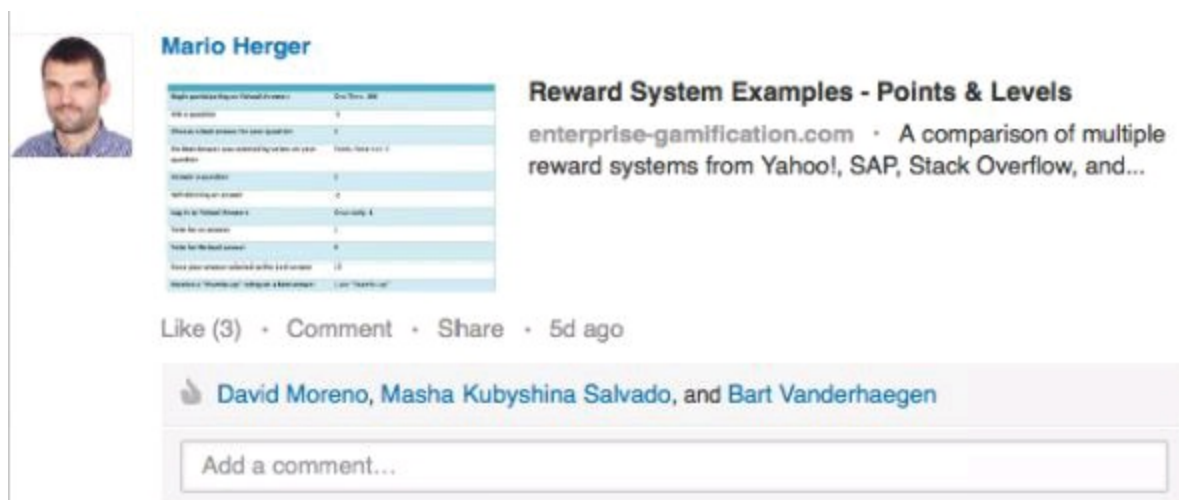


Figure 56: LinkedIn Article

The updates contain feedback design elements such as likes and comments (Figure 56).



Figure 57: Who's viewed your updates

A separate visualization breaks down how many other members have viewed the update. The breakdown is by members according to the degree of connection, displayed in Figure 57 as an example with first, second, and third degree tallying up to 202 views and 3 likes.

Network

LinkedIn-members to whom a user is connected form a user's personal professional network. Figure 58 shows the *LinkedIn Network* that a user has, including the number of (direct) connections and new members in the network from the past 3 days, based on the second and third degree connections of a user's new (first degree) connections.



Figure 58: LinkedIn Your LinkedIn Network

The more connections members have the larger the potential influence over people.

Groups

Being member of a group and posting updates and responses can increase the potential influence over people and status as expert in a community. The number of group members (Figure 59) is also an indicator for the group moderator, how successful the task was that derived from the motivation of organizing groups of people.

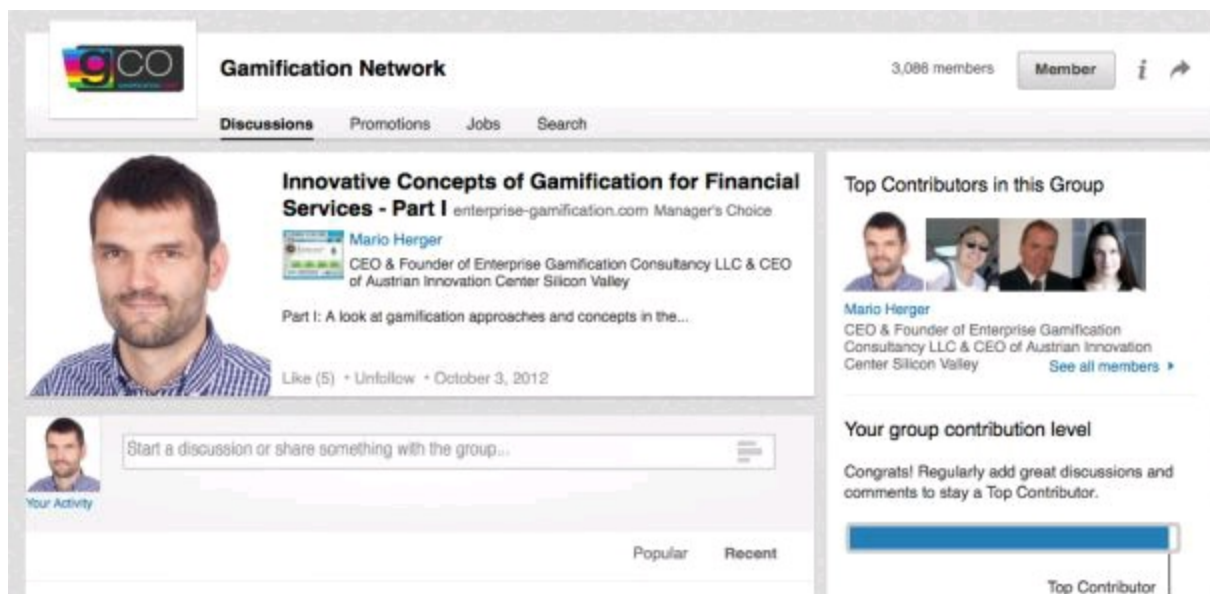


Figure 59: LinkedIn Groups

The *group contribution level* (Figure 59 and Figure 60) indicates how relevant a member's contributions to the group are and on what level the user is. Such an indicator is not catering towards competition with other members, but generally against oneself to reach a higher level, such as "*Making an impact*" or "*Top Contributor*".

Your group contribution level

You're making an impact! Reach the Top Contributor level to get a group badge.

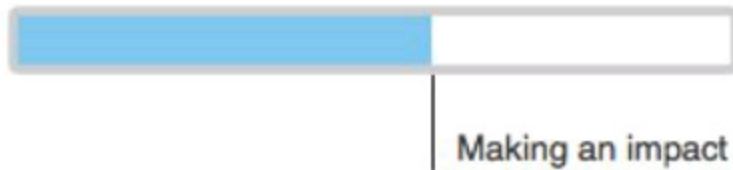


Figure 60: LinkedIn Your group contribution level

Annual Update

At the beginning of 2013 LinkedIn sent out emails to its members congratulating them to being one of the top viewed profiles in the year 2012 (Figure 61). This came as a surprise for many members and was heavily discussed and distributed over social networks, which again attracted existing members to improve their own profiles and create more updates. This also created awareness with non-members to join the professional network.

Such an email fulfills the fun motivators of being the center of attention and influencing other people.



Figure 61: LinkedIn Most viewed profiles

Amazon

Amazon has pioneered the use of many gamification design elements. We take a look at the elements that are aimed around products, or more specifically books and reviewers from a customer perspective, and describe how they work and what their purpose is.

Products

The core elements of Amazon's online store are the products. A typical product overview displays an image of the product, a name, and details prices and shipping information. In Figure 62two gamification design elements can be noticed: a rating and how many customers reviewed the book.

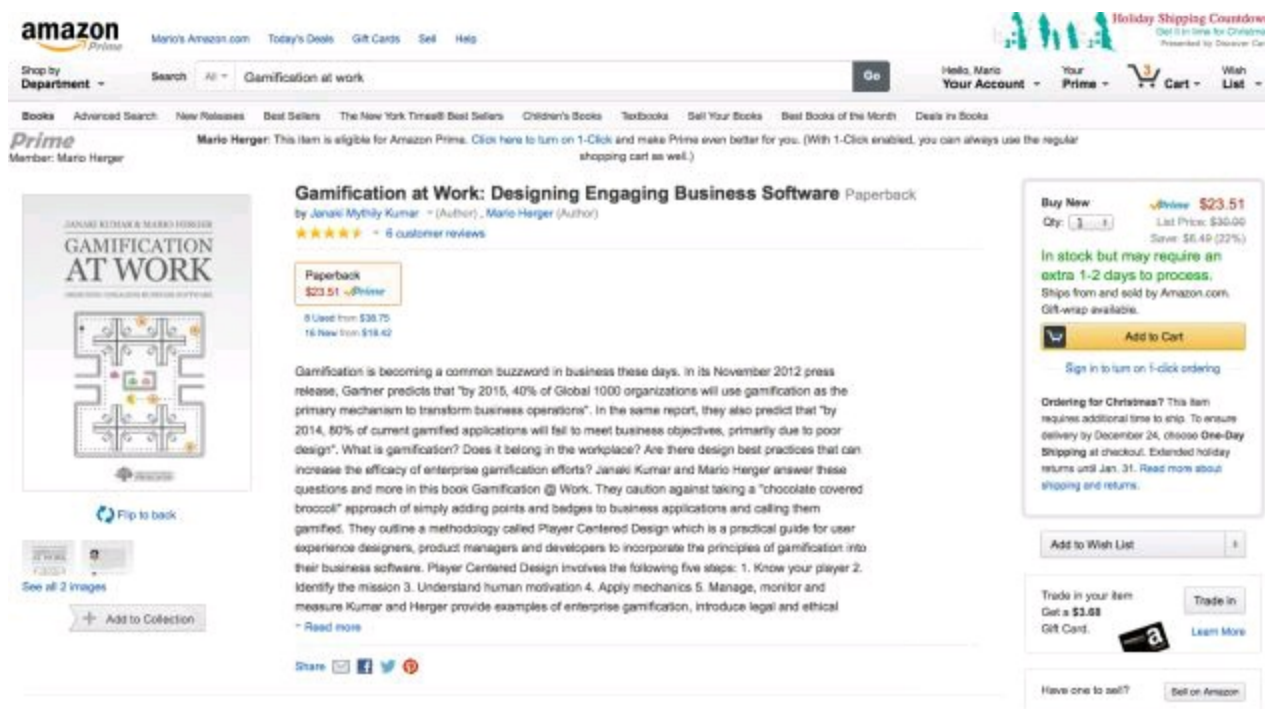


Figure 62: Amazon Product Overview

Both the rating and the reviews are feedback elements for the author and information for the customers on the product. Authors aim at having high star ratings, and many, as well as positive reviews.

The *Product Details* show even more information, such as ranks (see Figure 63).

Product Details

Paperback: 168 pages
Publisher: The Interaction Design Foundation (May 1, 2013)
Language: English
ISBN-10: 8792964079
ISBN-13: 978-8792964076
Product Dimensions: 0.4 x 7.3 x 9.5 inches
Shipping Weight: 12 ounces ([View shipping rates and policies](#))
Average Customer Review: ★★★★★ (6 customer reviews)
Amazon Best Sellers Rank: #253,697 in Books ([See Top 100 in Books](#))
#99 in [Books](#) > [Computers & Technology](#) > [Computer Science](#) > [Human-Computer Interaction](#)

Figure 63: Amazon Product Details

The star ratings - which are displayed as average - can be broken down into a detail view of how many of the one to five star ratings were given (Figure 64).

Customer Reviews



Figure 64: Amazon Customer Reviews

From the reviews a selection of quotes is compiled and displayed that should reflect the quintessence of the review about the book. This both supports to give a customer an idea about the book from a reviewer's perspective, as well as encourage the reviewer to write insightful reviews (Figure 65).



Figure 65: Amazon Customer Quotes

Author

While all the gamification design elements are feedback for the author, the author page *More About the Author* highlights author details as well as ranks the author in different book categories against other authors in the *Amazon Author Rank* (Figure 66).

More About the Author

[Visit Amazon's J. K. Rowling Page](#)



Biography

J K (Joanne Kathleen) Rowling was born in the summer of 1965 at where she earned a French and Classics degree, and where her cc Francophone Africa. She started writing the Harry Potter series duri then moved to northern Portugal, where she taught English as a for Edinburgh, where "Harry Potter & the Philosopher's Stone" was eve Philosopher's Stone" was published by Bloomsbury Children's Book second title in the series, "Harry Potter and the Chamber of Secrets

[Show More](#)

Amazon Author Rank ^{beta} [\(What's this?\)](#)

#32 Overall [\(See top 100 authors\)](#)

#15 in [Books](#) > [Teens](#)

#32 in [Books](#)

#100 in [Books](#) > [Literature & Fiction](#) > [Literary](#)

Figure 66: Amazon More About the Author

According to Amazon, the *Amazon Author Rank* is based on the sales of all of an author's books on Amazon.com and is updated hourly.

Reviewer

To give customers a sense of how recommendable a book is, buyers of a product need to be encouraged to give feedback. Reviews are important decision criteria for customers. Good reviews may result in more sales, while bad reviews not.

To get reviews for most products more gamification design elements are used. In Figure 67 a reviewer named *George Beahm* has four elements displayed:

- How many people found the following review helpful: 45 out of 49, which indicates a review that helped other customers make an informed decision and thus appeals to fun motivators such as Being a Wise Old Man and Creating Order out of Chaos.

- Badge: in this case it's the Vine Voice badge[[ccccxxxi](#)], one of many badges that Amazon uses. This specific badge indicates that this reviewer has been invited by Amazon to get early access to not yet released products, which can be a strong motivator to engage.
- Amazon Verified Purchase: this indicates that the reviewer really bought and very likely experienced the product. This element builds trust and is a badge of honor.
- Comments on Reviews: this is feedback on a review for the reviewer and can lead to more interaction or correction on a review. It helps to increase review quality.
- Report abuse: this element encourages reviewers to engage through high quality and non-abusive reviews. A reviewer could lose status because of bad behavior, which they try to avoid, especially if their reputation has been built through over a long period and a lot of effort.

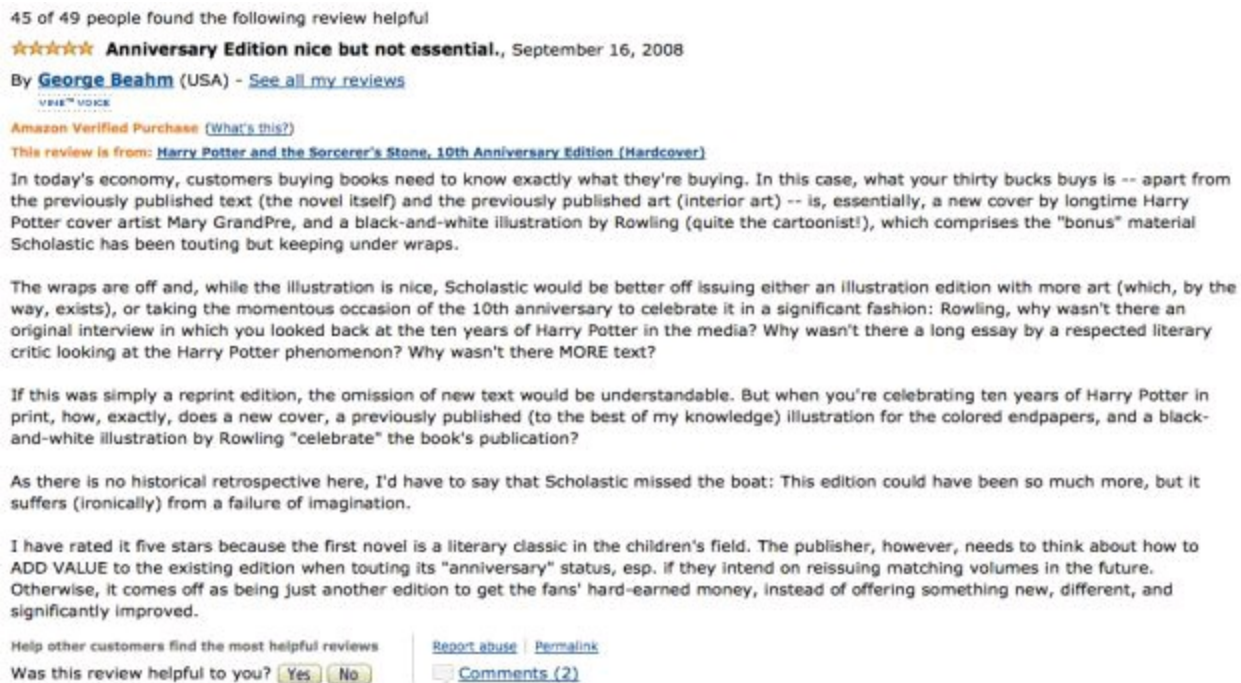


Figure 67: Amazon Review

Amazon also "pits" reviews against each other in a pseudo-Competition named *Versus* (Figure 68): the most helpful favorable review is displayed beside the most helpful critical review. Having one's review selected for such a *Versus* is an indication of the

high quality of one's review and shows that the reviewers are mastering their skill.

The screenshot shows two review sections for the book "Harry Potter and the Philosopher's Stone". The left section, titled "The most helpful favorable review", shows a 5-star review by Mike London from October 17, 2007, praising the book's magical world. The right section, titled "The most helpful critical review", shows a 3-star review by Travis Presbie from October 24, 2020, criticizing the Collector's Edition. A "Vs." icon is placed between the two reviews.

The most helpful favorable review

420 of 477 people found the following review helpful

★★★★☆ **Our first foray into Potter's world is truly magical!**

With this introductory novel was published in 1997, few would have predicted the unprecedented success this series would produce. And everything that made Harry Potter so successful is all first shown, though hardly fully explained, in this book, HARRY POTTER AND THE PHILOSOPHER'S STONE.

The novel opens with Harry living under the cupboard with his abusive aunt...

[Read the full review >](#)

Published on October 17, 2007 by Mike London

> See more [5 star](#), [4 star](#) reviews

Vs.

The most helpful critical review

156 of 176 people found the following review helpful

★★★★☆ **Love the books, but hate this Collector's Edition**

Ever since my wife coaxed me to read the Harry Potter books, I have been an immense fan of the series, right down to the Hogwarts notebook that I take to business meetings. So, when I saw a display for the Sorcerer's Stone Collector's Edition, I just had to check it out. What a disappointment. ... [Y]ou get a leather binding, shrunken cover art, and some pressed gold...

[Read the full review >](#)

Published on October 24, 2020 by Travis Presbie

> See more [3 star](#), [2 star](#), [1 star](#) reviews

Figure 68: Amazon Versus Customer

While the mentioned gamification design elements shall not only give feedback to the authors, engage reviewers, and support customers making a rational purchasing decision, the following elements appeal to the more emotional side of making a decision.

In Figure 69 the product uses the element of time pressure *Only 8 left in stock (more on the way)* are aimed to indicate that if the customer is not making quickly a decision on buying the book, the last copy may be gone. Even if there are more on the way, it may take longer to get the book into the customer's hands.

The screenshot shows the product page for "Totally Awesome Training Activity Guide Book: How to Put Gamification to Work for You [Paperback]" by Monica Cornetti. The page features a "LOOK INSIDE!" banner, a product image, and a price of \$18.51 (26% off the list price of \$24.95). A prominent green banner states "Only 8 left in stock (more on the way)". Below this, it says "Want it Monday, Dec. 23? Order within 33 mins and choose One-Day Shipping at checkout." There is also a promotion for Amazon Students: "Get \$5 For Each Friend Who Joins Amazon Student".

Click to **LOOK INSIDE!**

Totally Awesome Training Activity Guide Book: How to Put Gamification to Work for You [Paperback]

Monica Cornetti (Author)

[Be the first to review this item](#)

List Price: ~~\$24.95~~

Price: **\$18.51** [Prime](#)

You Save: **\$6.44 (26%)**

Only 8 left in stock (more on the way).

Ships from and sold by Amazon.com. Gift-wrap available.

Want it Monday, Dec. 23? Order within **33 mins** and choose **One-Day Shipping** at checkout. [Details](#)

15 new from \$19.30 **8 used** from \$16.69

Get \$5 For Each Friend Who Joins Amazon Student [Learn more >](#)

Figure 69: Amazon Time Pressure

A similar element is placed on top of the site (seen in Figure 62 and Figure 70) indicating that in order to get the products in time for Christmas, there are only 2 days left.



Figure 70: Amazon More Time Pressure

The last element uses motivators that appeal to the sense of belonging by suggesting products that were bought by customers (supposedly with similar interests) who had bought the reviewed product (Figure 71). Besides discovering more of similar products this list of recommendations lowers the threshold to buy one of these products in addition to the one in mind.

Customers Who Bought This Item Also Bought



Figure 71: Amazon Customers Who Bought This Item Also Bought

Mission 7 – Metrics, Scores and Data

Game management is accomplished by staying constantly alert and then reading and reacting to potential problem situations before they materialize. It all boils down to paying attention to details.

Jim Evans

Probably the least understood aspect of gamification is the creation of a huge data trail of the players' activities, achievements, and progress through gamified systems. This is an inherent characteristic of games. In order to reward the player, unlock features, level up, the system needs to track the players' actions. The data created serves the players by giving them feedback about their own and the other players' progress, and serves the gamification masters and managers on the overall effectiveness of the system.

Metrics

The corporate world needs hard numbers, and that boils down to the basic question: how much money can I make or save through gamification?

We've seen quite a number of examples of ROI and other improvements. There still is a certain lack of tie-in between most gamification example and ROI. What many examples that can calculate an ROI have in common is the proximity of the gamification approach to the sales process, which is directly linkable to revenue. Down the food chain, it becomes more difficult to tie the metrics to revenue. How much does gamification-driven data quality in my materials master data or the timely reporting of my employees' work hours contribute to revenue?

Part of the challenge is that the most common gamification metrics are only loosely connected to ROI. Fun, engagement, autonomy, or mastery are relatively soft concepts that are hard to put into monetary metrics. Approximating them through harder numbers like clicks, Facebook likes, re-tweets, ratings, comments, number of articles, data quality, timeliness, or allocating a percentage of certain improvements such as lower rates of sick leaves, customer satisfaction to gamification is based on assumptions, heaping estimates on estimates. Although we've seen that some reports[\[cccxxxii\]](#) give a pretty clear evidence of how much factors such as happiness indirectly influences ROI by reducing sick leaves and increase collaboration.

Ideally, you would be able to compare before and after gamification scenarios, or have two comparable departments, where one would use the gamified approach, while the other runs the original approach and the difference in the outcome is measured. This is something that requires a lot of effort in clinical trials or other scientific research, where only few parameters are being changed and then statistical evidence collected. In a company you cannot always keep parameters in a running operation under control.

One more challenge is the skewed perception that we define gamification mostly as fun and engagement enhancer, while in the end it's a concept that solves problems. Increased numbers of likes or retweets in a community are not an indication of a solved problem when the problem is that the quality of the knowledgebase is too low and turns customers away. Unless there is a similar situation in a related area that has already applied a similar approach to solve a problem and been successful with it. This allows us to learn from their experience. I am of course speaking about Social Media[\[cccxxxiii\]](#).

In a recent Deloitte study on social software for business performance[\[cccxxxiv\]](#), the

authors addressed the very same issues. If social media tools help to solve a problem or make your work more productive, their adoption and usefulness will be seen immediately and spread to other organizations. But don't make the mistake of focusing on adoption. It is a mistake to just report the number of likes, and posted pictures on an intranet. Skeptics will see this as a distraction to work. If one unit adopts the platform and solves problems, that is a story you should tell, and others will follow. If the whole organization adopts the platform but doesn't use it for problem solving, all your adoption numbers are meaningless.

On a macroeconomic level, social media seem to be making a dent in the real world and helping solve problems and adding value. According to a Facebook study, the service has added £2bn to the UK economy[[cccxxxv](#)], an astonishing number.

The same is true with gamification. Gamification, or the purpose of gamification, will neither lead to adoption, nor to long-term use, and not all players contribute to the real reason why we use gamification: to help us solve problems more effectively.

You may have been following a recent social media campaign failure of [McDonalds](#), where a missing, or apparently not well enough implemented social media strategy led to a backfiring[[cccxxxvi](#)]. Very likely we will never hear if and how this impacted McDonalds' business. But the brand damage is real, and you better be on the safe side and assume that in a similar situation you will see some percentage drops. Another examples was Nestle's painful social media experience with their [Facebook-page for Kit Kat](#)[[cccxxxvii](#)]. Their failure is still being quoted as a lighthouse example for a social media failure.

While luckily there have not yet been similar gamification use cases, you may have already encountered tell-tale signs of what it means not to have gamification in place: not being able to hire the best talents, not attracting the right quality of engagement for your communities, an apathetic workforce (and you may not even notice it, because you are used to this type of "energy" in your organization), or a perception of many of your colleagues and yourself that promotions in your company are unfair. An indication how much the effect could be if you do not gamify can be found in the [IBM-study](#) on a gamified Enterprise Social Network Systems[[cccxxxviii](#)]. After several months of operating the social network with gamification implemented, gamification was turned off and the engagement dropped by 50 percent.

Some More Corporate Metrics

Engagement is one of the metrics that organizations want to improve. But how do we

measure engagement?

Engagement as a metric is a composite of other metrics that show the involvement of the player with the system. Elements can be time-dependent metrics such as recency, frequency, and duration, activity-dependent metrics, such as number of likes, shares, blogs, ratings, or uploads.

Many metrics are intertwined. Less time spent on a support center call may mean more calls per hour and thus more money saved, but may also mean lower support quality. More time spent to create the knowledgebase entry may lower productivity in the short run, but may increase it in the long term.

Some User Metrics

From the user point of view success means the experience is fun, rewarding, allows socializing, and offers the right challenges and learning opportunities. But how would you measure fun? The number and volume of laughs may be the appropriate measure for a comedian, but not for a gamified system. Instead a focus on fun motivators and the number of collected items or how often somebody was rewarded as “hero“ may indicate their effectiveness. For the socializing metric it could be the number of connections or interactions between players.

Gamification Data and Standards

When a number of social media platforms were competing in the early 2000 for users, Google, MySpace and other organizations launched the Open Social standard initiative[\[cccxxxix\]](#). The intent was to create a standard for social media platforms that would allow app-developers to build apps for multiple platforms, but also for users to download their own data. While the initiative may have not achieved all of the original goals, a number of open web technologies that spun off, like *Oauth* for authorization purposes or *Activity Streams*, have found widespread use.

Gamification faces a similar challenge: we need a specification of a gamification data structure. While social media data is mainly composed of a user's contact information and a stream of interactions with the contacts, and this with a high degree of tracking control by the users, gamification data is mainly composed of a stream of interactions with the system and other players, with a low degree of activity-tracking control.

Let me explain that with an example. I will post on social media only those things that I deem worthy, or representative of myself. I love to post witty comments, links to articles that I find interesting, or pictures that I have taken during travels or fun occasions. This way I build my online-image of a witty, smart, good-looking, and adventurous guy that everyone likes. Not very different from what you aim to accomplish yourself. I will tweet about the great time that I had with my friends at a *Rammstein* concert, but not about the lone Saturday evening in front of a sad movie with hot tea, because I am down with the flu. That's why I call this data "vanity data."

Gamification data, as we understand now, is very different. A gamified system tracks my activities, my failures and achievements, and my progressions through the system. What did I do, how often, how much time did it take me, how well did I do it, what rewards did I earn, what is my current status? Looking at this data, it discloses what my skills are and how I achieved them. I am naked in front of the system. The statistics speak the "truth" (or at least a certain version of it).

We are used to these statistics from other areas, like sports, where in the recent years player-stats have become ubiquitous and even a movie[\[cccxi\]](#) was made about the magic of these stats. Also games like *World of Warcraft* make heavy use of player profiles, with statistics on the status, strengths and weaknesses of each player. In the game world the availability of such data allows players to form guilds based on the hard facts of their record and match the skills for a better guild performance.

Once gamification becomes widely adopted in organizations as a preferred way to run businesses, the way of evaluating employees changes dramatically. Companies will be

able to get the right people on the right teams and projects. And gamification data is not only valuable inside an organization. Employers and recruiters will find it easier to identify a candidate with the right level of expertise and skill for an open position.

To enable this, gamification data has to become open and encrypted at the same time. With openness I mean that each player shall have access to their data and be able to make it available to other parties. An employee could upload it to his or her professional network, share it on a recruiting platform, or upload it in the gamification platform of the new employer. To prevent manipulation of gamification data (and improving one's skills by falsifying the gamification data based competency score), the integrity of the data needs to be ensured. Maybe that could be done through encryption, maybe through a central registry that is similar to a credit-score agency. That central registry could be maintained by gamification platform providers, who today have most of the data anyway, due to the technological setup as SaaS-platform.

A company like RedCritic[\[ccccli\]](#) offers exactly such a service. While their own gamification platform can be used to enhance systems with gamification, a separate player profile website unifies the gamification data from all RedCritic-enhanced systems and offers a public competency score for each player.

Scores

Scores on Individuals

The financial services industry keeps credit scores for every financially active resident of a country, which then decide whether you get a car loan, mortgage, or new credit card. The interesting thing though is that a person who's not using any credit card, has no outstanding loan or mortgage, but pays everything in cash or from a debit account, may have a pretty bad credit score. Simply speaking, to “earn” a good credit score, you need to have an outstanding credit or credit line.

At the military, young recruits are evaluated for their suitability, both physical and mentally. When the Austrian army drafted me I had to undergo a parcourse of physical and mental exercises, which resulted in a score from 0-9 (with zero being unfit for military, and nine being fit for flying fighter jets). The impact of a bad score for the military could have reverberations into civilian life, as you may not have had the privilege to drive a car or own a weapon (which is a privilege and not a constitutionally granted in Austria). If you are interested in my score, it was an eight when I served in the army, which meant that I was still not fit enough for flying fighter jets.

You may be more familiar with SAT scores in the US. Every year thousands of students take this test to show their college readiness. The Grandes Écoles (comparable to ivy league universities) in France require a similar admission procedure through the *classes préparatoires aux grandes écoles (CPGE)*, or in English known as “preparation classes for the Grandes écoles”, that students have to finish with a test resulting in a score that allows admissions to the most prestigious colleges.

Similar scores and evaluation numbers have popped up like mushrooms in the social media space. *Klout*[\[cccxlvi\]](#), *Kred*[\[cccxlvi\]](#), *Reppify*[\[cccxlvi\]](#), or *PeerIndex*[\[cccxlvi\]](#) calculate one or multiple scores for social media users to evaluate their influence, activity, or outreach. Even if you have not signed up with those platforms you may already have your scores calculated. Once you sign up and maintain your own profile by managing your social media profiles, a more comprehensive score will be computed.

There have been reports[\[cccxlvii\]](#) of companies requiring a minimum score on these platforms for applying for a job posting. And Klout announced a partnership with some search engines, which uses influencers with high Klout scores to influence what search results other users get back, depending on how favorable or not they talk about

a product or service[\[cccxlvi\]](#). Bill Clerico, CEO of the payment processing service *WePay*[\[cccxlvi\]](#), revealed in a blog[\[cccxlvi\]](#) that his company is using social media data to enrich information about a customer's credit score, assess potential financial risks, and detect fraudulent behaviors. In other words, this is already happening, companies are already using those scores as measure for (potential) employees, as imperfect as the scores may be.

How these scores are calculated is understandably a closely kept secret. As with the *Google PageRank*, if users knew how the algorithm worked, the door for gaming it would be wide open. Klout describes that “more than 400 ‘signals’ from seven different networks” are used to compute the score.[\[cccl\]](#)

The majority of the signals used to calculate the Klout Score are derived from combinations of attributes, such as the ratio of reactions you generate compared to the amount of content you share. For example, generating 100 retweets from 10 tweets will contribute more to your Score than generating 100 retweets from 1,000 tweets. We also consider factors such as how selective the people who interact with your content are. The more a person likes and retweets in a given day, the less each of those individual interactions contributes to another person's score. Additionally, we value the engagement you drive from unique individuals. One hundred retweets from 100 different people contribute more to your Score than do 100 retweets from a single person.

PeerIndex uses similar criteria[\[cccli\]](#) to calculate users' scores across topics.

In short, we measure the ripple effect of your online voice. You create the content, people consume it, react to it and then we measure those interactions to identify your social media authority. ...

The PeerIndex algorithm recognizes the speed and quantity by which users spot, share (and thus endorse) content on any specific topic. Our content recommendation decisions can thus be used as a proxy to measure our knowledge and authority in a specific subject area. Your authority on a subject is affirmed when the content you share is approved - i.e. retweeted, Facebook Shared, +1'ed or commented on, by someone else with authority on the subject.

These examples show that scores measuring our behavior, suitability, knowledge and other criteria are ubiquitous, with or without our active participation or approval. I refer to most of the social media based scores as “vanity scores”. Vanity, because they are based on data that one mostly has under control.

Big data company *Gild*[\[ccclii\]](#) is not so much using social data but analyzes and rates

publicly available code-pieces from developers. By browsing Open Source sites, contributions from developers are evaluated on quality, and then matched with a candidate's experience, their influence, and their biography from their submitted résumés and sites including *StackOverflow* and *Github*. The resulting *Gild Score* is a measure of the developer's experience and strength.

Smarterer[\[cccliij\]](#), on the other hand, asks users to take tests in over 500 subjects to benchmark skills, let people discover where to improve and track learning.

Political campaigns are not removed from this trend either. In the 2008 presidential election Barack Obama and his team used scores to predict the behavior of individual humans[\[cccliv\]](#).

... Obama's targeters had assigned every voter in the country a pair of scores based on the probability that the individual would perform two distinct actions that mattered to the campaign: casting a ballot and supporting Obama.

Scores on Things

But not only people are being evaluated by scores; organizations, products, countries and many other things get their own scores. From restaurant ratings to product reviews scores help us make faster decisions and relieve us from having to do the due diligence ourselves. We can even find scores for companies. Stock prices, balance sheets, and the rating agencies that put rates on financial instruments and even countries are a few examples.

The result of a standardized method for assessing startups on their strengths and opportunities, regardless of their stage, market segment, and geography, is the G/SCORE[\[ccclv\]](#). This score assesses startups for the rest of us on seven dimensions: business execution and model, competitive risk, market and overall opportunity, product execution, and team.

Another company, named *StartupRanking*[\[ccclvi\]](#), aims at a similar goal. To evaluate reputation and social influence and rank startups according to the data pulled from a variety of sources.

Gamification Score

It should come as no surprise that gamification data contains extremely valuable data. For organizations, for recruiters, and of course for the players, the value is tremendous. By recording the players' activities, achievements, and progression through the systems, finding the right player (read: employee or team member) for certain challenges (read: positions or projects) becomes not only easier, but also more

reliable. No need to trust references that cannot be verified. No need to rely on résumés that can be total inventions. Even if some of the information in résumés can be checked from educational institutions (like graduation, grades, certifications), obtaining them requires effort – and as we’ve learned from past high-profile cases – even CEO candidates for large internet companies were not properly vetted[[ccclvii](#)].

A great example of such a score in action comes from the SAP Community Network (SCN), where every month two million professionals engage, blog, and help each other, and in return are rewarded with points and badges. The SCN points and the status are indications of the members’ competency, as Carter Lusher from the analyst group Ovum[[ccclviii](#)] describes:

One of the unexpected outcomes, and proof point on the impact of gamification, is how some members have used their SCN status (bronze, silver, gold and platinum) as part of their professional credentials. The crowd-sourced aspect of the quality assessment (members awarding points based on their assessment of usefulness by rating and liking content) gives SCN status validity. What is interesting is that SCN status is not only useful for SAP and within the community, but also other organizations. Employers looking to hire IT professionals with SAP product expertise are asking, “what is your SCN status?” Therefore SCN members, whether IT professionals or third-party consultants, are now adding their SCN status to resumes, LinkedIn profiles, brochures, and other documents. This is a powerful validation of the points and levels gamification.

Another unexpected outcome is that the point system also helped SAP to quickly identify collaborative and engaged thought leaders and technical experts outside and inside SAP. This gives SAP the ability to tap these individuals for their insights and advice as well as invite them to participate in programs such as SAP Mentors or to be recognized as a Member of the Month.

While I don’t want to downplay the importance of personality and chemistry between the hiring manager and the potential new hire as a crucial criterion for how well they will perform, employers still want to base their decisions on available facts. And we know that we humans are innately biased when it comes to selecting. We are more likely to hire people that are more similar to us[[ccclix](#)] than people with differing views and experiences. That’s where a gamification score can serve as a better basis for making rational decisions.

Gary Carstensen from the University of Arizona demonstrates with his *GAME Dashboard*[[ccclx](#)]. By displaying data skills, tasks, assignments, learning progress,

and other measures, both students and teachers get a better sense of the current status, and what needs to be done to improve (Figure 72).

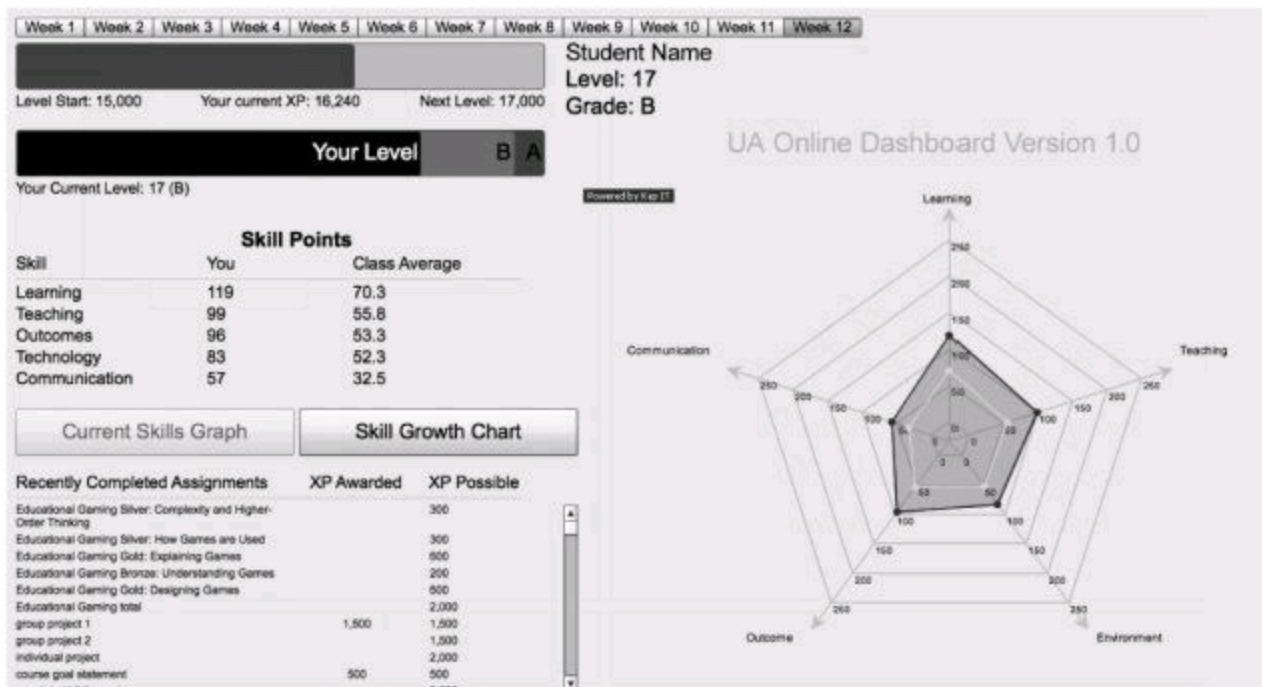


Figure 72: GAME Dashboard, featuring grade, assignment completion, and skill point information

The dashboard displays multiple measures in graphical and numerical ways in a timely manner.

Basis for a gamification based Competency Score

Building on gamification data, a gamification score would reflect a player's achievements, skills, and progression as a competency score. Data from predominantly skill and brain-based gamified applications and processes could be weighted differently from data generated by predominantly chance and hands-based systems, varying for each industry and the players and their typical tasks. A cashier at a large retailer may have metrics that are based on speedier checkout like US retailer *Target*[\[ccclxi\]](#) has been doing, or the level of service shown to a customer (and having this confirmed by the customer through a touch terminal with "smileys" or "frownies").

The social influencer site *PeerIndex*[\[ccclxii\]](#) calculates an overall score from a number of so-called *benchmark topics*. Figure 73 shows them, as well as the contribution to the overall score.



Figure 73: PeerIndex Score and Benchmark topics

The score could distinguish between character traits, like the player types that Richard Bartle has identified in his multi-user dungeons a couple of decades ago, including the collaborative, competitive, achieving, and exploring traits. Additional types could focus on how extroverted or introverted players are. Flavors may include social skills that are important in industries and roles where interacting with people is key, like the service industry.

And not only in that industry: according to a study conducted in 2009 by IBM and MIT^[ccclxiii], social data that reflects communication patterns in an organization seem to indicate the ROI of an employee. Several thousand consultants at IBM who showed strong email interaction links to a manager produced an average of \$588 of revenue over the norm, while those with weak ties to managers produced \$98 per month less.

The categorization should also be based on Frederick Taylor's and Peter Drucker's understanding of cognitive, intellectual and professionals skills that manual (Taylor) and knowledge (Drucker) work demand^[ccclxiv]. Taylor's emphasis on characteristics that fit well with manual tasks to create highly productive processes, including operations, specialized and visible

work, cost minimization, right answers, stable work with more structures and fewer decisions, command and control, or strict standards, while Drucker's emphasis for the knowledge worker focuses on autonomy, continuous innovation, workers being treated as assets, constantly changing work, work regarded as holistic, less structure, focus on the right questions and so on.

Following this, risk-taking vs. risk-aversion, cross-collaboration skills vs. silo mentality, questioning vs. subduing to authorities, could be better quantified and may help companies to match individuals better with roles and projects. That way an organization could better identify individual strengths and weaknesses of their employees. People's preferences and strengths vary between homogenous groups, and stereotypical approaches like "all sales people are competitive," or "all women just want to socialize" could be further differentiated and based on data adapted to each individual player. A gamification score sheet for players would be more accurate and objective than today's résumés.

Taking a cue from a SAP's professional network the SAP Community Network, individual evaluations could tally up to an organization's rating as well. The innovation culture and potential of a corporation is then not only based on perception, but also verifiable with employee data.

Certification of a Gamification Score

A score that can be manipulated and not verified is worth nothing. While encrypting a downloadable gamification score may sound promising, we know that no encryption will ever be safe. That means we need to emulate a model that has one or multiple clearinghouses, like the credit rating companies that collect financial information about people and entities, or the non-profit College Board that administers the SAT tests.

Theoretically, the large gamification platform vendors or operators could be the natural choice of administering a gamification score, as most of these technologies today are SaaS-based and would have the data for the applications and processes they power. It would be in the nature of their technology to have the gamification data delivered to them and compile scores. We heard about *RedCritic* as one of the first companies doing exactly that.

Or it could be a specialized entity like *Dun & Bradstreet*[\[ccclxv\]](#). This company collects information on 220 million companies worldwide and offers this information for market segmentation, credit decisions, and other purposes. A "people's Dun & Bradstreet" could compile this information on individuals. Whatever data privacy

concerns we have today with services offered by companies like Google or Facebook may only be the tip of the iceberg. The risks beside data privacy are also what procedures are being put in place to correct and protect scores.

Big Data

Data for Feedback

When was the last time that you heard a "Thank you" from your co-workers? If you can't recall, then you are not alone. In fact, whenever I ask that question in my talks and workshops, rarely anyone can remember. Why do we get no feedback or, when we do, is it always late? Because that's how our systems are built. At the beginning of the 21st century we operate in a motivational environment from the beginning of the 1900s, at work, in school, and most other environments.

The majority of us live in societies that encourage individuals to take initiative and build businesses, with the notion that if we do good work, we will be rewarded. The better we do a job, the higher our salary, our bonus, our status will be. We all know that this is not the case. How people are promoted in corporations is not always depending on the good job that they did. The better you network, socialize, kiss your way up, the more likely you will climb the career ladder.

We don't know how people got promoted to their positions or how we can get there. There is no roadmap that says that we have to win 20 customers, write five widely-cited white-papers, achieve an average of 98.5% customer satisfaction with our work for a prolonged period of six months and then are certain of getting promoted.

Because of missing and delayed feedback, we are left to guess what impact our work has, or how well we did our job. And we can't learn from our mistakes in a timely matter and become better when their feedback is so late that we long have forgotten how we did the work. And nobody else in the organization can learn from that either. But yet we in the corporate world pride ourselves on being totally objective, to be able to measure nearly everything and steer our data-driven companies based on facts.

A gamer would never accept that. How much fun would Angry Birds be if you learned only three months later that you killed the pigs? A popular game like World of Warcraft has a larger set of data and more precise KPIs of the players' skills, achievements, and progress through the system than any company has on their own employees. World of Warcraft players can see their own and the other players' stats and react to them (Figure 74).

These players are using data to form stronger guilds – "teams" in corporate speak – based on complementing skills displayed in the charts. That rarely happens on such a detailed level in the corporate world. And never on such a public level, while in those games everyone can see the data of other players.



Figure 74: World of Warcraft Combat Stats

This wouldn't be a problem if the real world were just a game. Alas, companies have real world impact, both positive and negative. But still companies operate without knowing much about their most important resource: employees.

Data for Tracking

Gamification is the way to cross the gap. By tracking activities, achievements, and progress in every application, system, and process that each of us interacts with, players generate a timely and accurate picture of their skills. You will know at every moment how everyone and the company is doing. You'll give co-workers the transparency and feedback of their progress, how well they are doing their tasks, and empower them to learn, to act autonomously, and show them a much clearer map of their career path. Managers will have an easier job: no guessing anymore, no dealing with employees complaining about a promotion. Analyze and show them the data, find behavior patterns, and it becomes clear for everyone what needs to be done to be promoted.

Big data and gamification will change the nature of recruiting and performance reviews. San Francisco based startup *Gild* scans publicly available data to find talents that are being overlooked by traditional ways of recruiting[[ccclxvi](#)]. Instead of looking at degrees from prestigious universities or references cited in the resumé,

Gild[ccclxvii], Talentbin[ccclxviii], RemarkableHire[ccclxix], or Entelo[ccclxx] browse sites such as TopCoder (Figure 75) or Stack Overflow, where programmers leave a trail of data that gives a pretty accurate estimate of their programming skills. This way they can find fitting candidates before they even applied for a job.

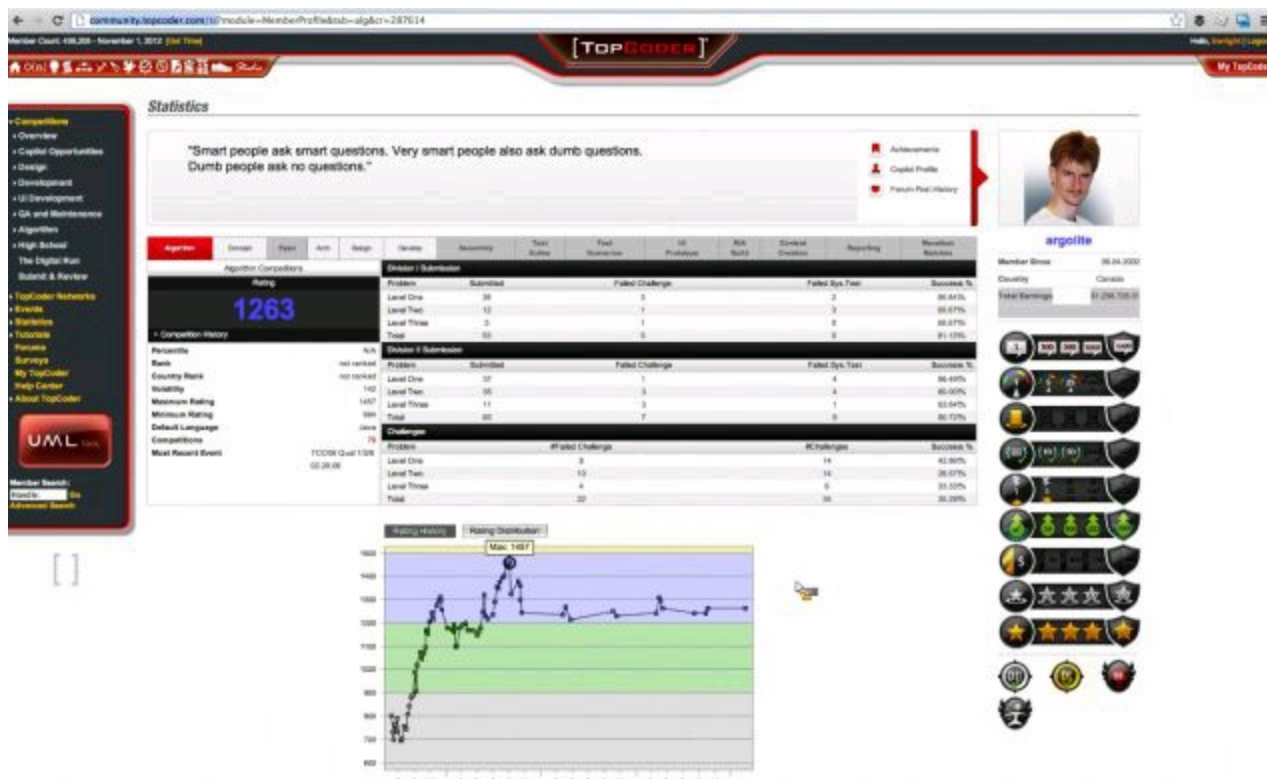


Figure 75: TopCoder User Profile

But big data is not just for recruiting. Instead of doing a recap and evaluation on past performance, the players will know all the time how they are performing. A performance review will be turned into an advisory and planning session. A manager will focus on what potential career paths the employee should take and how she can reach her goals.

With skill data available on TopCoder, SAP Community Network, Stack Overflow, Avvo, or RedCritic, reference letters[ccclxxi] as commonly used today in some European countries will become a thing of the past.

Preparing for Data Growth

In the early 2000s, the number of what we called *terabyte customers* at SAP could be counted on two hands. A decade later, nearly every startup is a terabyte customer. The explosion of data is unprecedented and companies introducing gamification need to prepare for that.

As gamification data is used for real-time feedback for players, and for later analysis,

managing it means demands on elasticity, latency, and data format flexibility [\[ccclxxii\]](#). The underlying database needs to be flexible enough to deal with peak demands, must give fast responses, and allow changes of the data format over time, when gamification designs are enhanced or added.

The way gamification technology providers are tackling the data is by either using cloud-based services, or by using in-memory database technologies. Badgeville, Bunchball, and RedCritic use SaaS-based storages that allow for flexible scaling. The SAP Gamification Platform relies on SAP HANA, an in-memory database that keeps all data available in terabytes of RAM for fast access.

Whatever solution you choose, plan for managing big data.

Mission 8 – Laws and Regulations

Labor laws, data privacy, banking laws, or basic Constitutional rights can be violated through a sloppy gamification implementation. Even if you are following the law stringently, ethical limitations can also influence the success of your gamification efforts if the gamified system is regarded as manipulative, exploitative, or violates local norms.

Legal

Labor law

Applying gamification inside a corporation or on inter-organizational transactions (B2B), where employees of organization interact with a gamified system, generates a track record of the achievements of employees. Calculation of leaderboards, the display of badges, the creation and acquisition of virtual currency or virtual goods - which under certain circumstances can be exchanged to real money – or the earning of other *benefits*, like additional vacation days or the possibility to win prizes, require the approval of a works council in countries with strict labor laws and strong labor unions.

For example, in Germany labor laws provide a legal framework which can be filled by an explicit agreement between the workers council and the organization. How much control an employer may exert is not so much derived from the laws, but from the interpretation of the laws through jurisdiction. The constitutional principal of proportionality requires that an employer can only restrict the liberty of an employee's right to personal development to the extent which is required to the need of the organization. And courts in Germany have a tendency of interpreting law in favor of employees.

Works councils want to know the following regarding data collection through gamification:

1. What is the purpose of data collection and is the amount of collected data justified?
2. Can the same purpose be reached with less data?
3. Is the data anonymous?
4. Does the data serve as basis for performance review decisions - and therefore influence decisions on salary increase, bonus calculations, promotions or layoffs?

Behavior and performance control is not regulated through a specific law in Germany, only participation or co-determination rights are. Such rights are listed in § 87 (1) of the German Corporate Code [\[ccclxxiii\]](#) (Betriebsverfassungsgesetz). The implementation and application of technical systems that can be used for behavior and performance-control require the approval from the workers council, as well as all aspects around corporate salary structures.

A manager may use the data from such approved systems to make performance reviews. But not, as soon as the collection, manipulation and use of employee-related data is neither necessary nor in proportion to the use.

Labor laws also require determining how a gamified system discriminates employees. Is the system unfair to part-time employees? Imagine a system where a certain number of activities with a certain time period are required to reach the next level or status. Would this make it impossible for part-time employees to progress? And is the system designed in a way that it uses game design elements and experiences that favor men over women?

Every IT system that allows behavior and performance-control must be reviewed and approved by the works council.

Data privacy law

Data privacy in Germany forbids the collection, processing, and use of personally identifiable data, unless laws and regulations explicitly permit, or order it, or if the person approved it (as described in the German federal privacy law §4 BDSG[\[ccclxxiv\]](#)). In the US this is different. An employee who claims data privacy violations must demonstrate a reasonable expectation of privacy[\[ccclxxv\]](#).

In a company with employees based in Germany, data privacy representatives need to approve any system before it can be used in a corporate environment. So instead of programming separate solutions for every country it's better to provide switches at the right places. We need to distinguish between two cases:

Case One: System Rollout to Your Own Users

When you roll out a gamified system to your own employees or customers, a data processing system needs to provide the following technical and legal settings that allow to

- opt-in or out of players. Whether the default is set to “opt-out“ or “opt-in” will depend on local agreements. In Germany the default will typically be “opt-in.“ In the US “opt-out.“
- opt-out whenever the players want.
- use features to delete data, delete data after a certain amount of time, enable data download and so on.

Case Two: System Delivery to a Client

When you – as a gamification provider - ship a gamified system to your corporate customer, then you need to make sure that

- per default the gamification features are turned off. The client has to actively turn gamification on.
- a legal disclaimer is displayed that requires explicit confirmation and informs your client that he understood the legal risks.
- the system has a feature for the administrator to enable opt-in or opt-out for the client's users. In case of a corporate agreement between management and works council, or national regulations, there may be no need to ask every user for an explicit approval.
- the system has a feature that can be turned on by an administrator to allow users to opt-out any time.
- every feature can be turned on or off. Corporate agreements may permit the use of only some of the gamification features.

In this case it's not necessary to program for each and every legal setting, but to offer generic tools that allow clients to customize their gamified system according to local laws, regulations, and agreements.

Example

To add life to this list of dry legal limitations, let's look at a more familiar example: users collaborating on documents. In that case the gamified system needs to provide - in a country like Germany - on/off-switches for features like these:

- On/off: Allow participants to rate skills
- On/off: Allow participants to rate participants
- On/off: Each participant is asked whether rating is allowed for him -> Display who has rated for myself -> allow only positive rating
- On/off: Ask participants to store collaboration for future use. If someone rejects the conversation must not be stored and used for future use.
- On/off: store collaboration anonymized; with or without attachments
- On/off: Participants get a full log of collaboration via Email

In any case, an employee who's opting out of the gamified system must not be

discriminated or retaliated against for not participating in such a way.

Banking and financial laws

James Gatto from the law firm *Pillsbury Winthrop Shaw Pittman LLP* [\[ccclxxvi\]](#) has been addressing a number of legal restrictions and challenges in regard to virtual currencies and assets, with a focus on US law.

The main discussions and the applicable laws and regulations circle around the following four questions:

- How was the virtual currency / asset acquired?
- How was it used?
- When was it used?
- Who used it/who was it used with?

If money, value, or valid consideration is given, legal requirements are triggered. Law enforcement and regulators view virtual currencies as potentially high-risk products and services, especially for money laundering. Therefore an analysis must consider the specific structure and facts of the program.

Players may have legal protections, some of which cannot be waived. Let's take a look at the four questions.

How was it acquired?

Depending on the way a virtual currency was acquired, certain laws and regulations may apply.

- Cash - Purchased with real money (from issuer/third party)
- Trade - Other Virtual Currency/Other Users
- No Cash
 - Earned by in-world actions/outcomes (games, etc.)
 - Sweepstakes, contests, "Gambling"
 - Acceptance of exposure to advertising
 - Release of user information
- Survey participation
- Gamification

- Gifting of currency from others
- Others

How was it used?

Was it used immediately at the time of purchase or pre-purchased for later use? In the latter case the CARD Act-style regulations become relevant. Now where the transactions so-called “cash-out“ transactions, where money was taken out of the system, or not? Here are some of the possible transactions:

- To buy in-game goods
- To buy goods or applications on platform
- To access services/features
- To buy real world goods/services
- To acquire only (Zynga poker chips)
- To exchange for other virtual currencies
- Gifting/Donating
- Redeem for cash

Let’s look at the gifting/donation section. Imagine a player in the US purchase an in-game currency by paying with his credit card. Instead of buying better armor for his character, the player decides to donate the money to another player in the system. As it turns out, this other player is in Iran. This is where the USA Patriot Act comes in, because this could be an act of supporting terrorism.

Who used with?

Was it the distributor of the virtual currency, who the money was used with or another party? The former is a closed loop, the latter an open loop scenario. Depending of who they are and where, again various laws and regulations may become relevant.

1. Virtual Currency distributor (game publisher, site operator)
2. Third party vendors/platforms
3. Real world merchants
4. Internationally

How important it is to stick to the laws can be seen in multiple US lawsuits involving operators of virtual worlds like Linden Lab and their *SecondLife*[\[ccclxxvii\]](#)[\[ccclxxviii\]](#), or of social game companies like Zynga[\[ccclxxix\]](#).

Just as an example: if a virtual currency was bought with a real currency, such a transaction and the after effects needs to comply with the CARD Act (which regulates things like gift cards). This law basically specifies how a corporation can use the money after expiration date (in many states the money is escheated to the state, when there is no heir or owner traceable), when the value can be used as revenue in the balance sheet, if periodic service fees are permitted and what the amount of them can be, who can redeem the amount and if and when that can happen in cash. The laws also regulate when the value expires (typically after 5 years), if the issuer can charge dormancy, inactivity, or service fees. Groupon – the online coupon company – has been the target of such a lawsuit, where the expiration date was allegedly set too short[ccclxxx].

The operators also need to consider strict regulations around the record storage (there are minimum requirements), building cash reserves, money laundering (*USA Patriot Act*). Under certain circumstances a banking license may be required to offer virtual currencies. And since the economic crisis of 2008 a number of even stricter regulations were introduced to offer more consumer protection and regulate providers of financial services.

Furthermore, gambling laws and the state monopoly on them may be applicable.

List of Regulations

An inconclusive selection of laws and regulations that may affect this area include the following:

- Federal and State Regulatory Issues
 - Stored Value/Gift Cards
 - Banking / Money Transfer / Anti-Money Laundering
 - Gambling Laws/Sweepstakes/Contest Law
 - Tax (Income, Sales and Use)
 - FTC Endorsement Guidelines – using points to compensate endorsers
 - Privacy
- Terms of Use - Property Rights (ownership vs. license)
- Intellectual Property (trademark currency name, copyright appearance, patent business models and functionality)
- Transacting with Minors
- Credit Card Accountability, Responsibility, and Disclosure (CARD) Act /

Prepaid Access regulations

- USA Patriot Act
- Bank Secrecy Act
- Licensure (Banking license requirement)
- Money Service Business Registration
- Unclaimed property
- Electronic Fund Transfer Act
- Cross-Border Monetary Instruments
- OFAC Economic Sanctions
- Dodd-Frank Wall Street Reform and Consumer Protection Act
- Durbin Amendment to Dodd-Frank
- Gramm-Leach-Bliley Act
- Gambling Laws

To understand which ones may affect you, make sure to get legal advice from experts.

Properties & Assets

The discussion around virtual properties and intellectual properties has been prominent in the news in the past years. What we have become used to is reading news about music studios and record labels suing customers for copyright infringements. The reasoning of the music-sharing consumer is that “these MP3s are just bits and bytes” and that they are just using the *fair use*[\[ccclxxxii\]](#) to copy for family and friends. Music studios and artists, on the other hand, say that these are their creation protected under copyright law.

The twist with virtual and online worlds is that players are now suing game studios or other players when they lose virtual goods. The defendants claim that the virtual items and achievements are just “bits and pixels.” Sound familiar?

In a study on virtual items[\[ccclxxxiii\]](#), two Finnish researchers examined how courts in multiple countries treated virtual goods and their illegal acquisition.

Example 1: Robbery

Two players in the Netherlands figured out that they knew another player who owned some coveted items in the popular online game *RuneScape*[\[ccclxxxiii\]](#), in the real world. They used the threat of physical violence to coerce this player to handover the

two items, a mask and an amulet. The player then went to court. The court found the defendants guilty of robbery[ccclxxxiv]. For the court the virtual goods qualified as goods under Dutch law.

Example 2: Account Misappropriation

A Finnish player bought a copy of the online game World of Warcraft from an acquaintance. The acquaintance had tested the game briefly but didn't like it, so he sold his copy to his friend. The new owner of the copy started playing, enjoyed it and amassed over the period of the next two years a virtual fortune. One day when he wanted to log into his account, he couldn't access it anymore and lost all virtual possessions. As it turned out, his acquaintance had kept the master key and decided to log on after two years. By seeing all the virtual possession and doing a quick research, he understood that they were valued at several thousand Euros. He sold many of the items for virtual currency.

The second player filed a criminal case with the police. After a year of legal dispute, the players settled in court, with the defendant paying €4,000 in compensation. The loss for the victim was seen as real. The complication here was also that the game operator *Blizzard* states in the Terms of Service that a copy can only be legally purchased from Blizzard.

Example 3: Account Misappropriation

In a similar case[ccclxxxv] a British teenager, knowing the account information of his friend for the game *RuneScape*, logged in and gave away a stash of virtual money that the friend had acquired over six years. Although this virtual currency had no real world value, the court also sided with the plaintiff and sentenced the defendant to eight-month conditional discharge and order him to pay £16 compensation.

Example 4: Virtual Currency Trading

In South Korea, a country that sees itself at the forefront of the game industry and has enacted a lot of laws governing this industry, a popular game called *Lineage* and the trading of its virtual currency, *Adena*, was the center of a court case. The public prosecutor alleged that a reseller had purchased an amount of Adena worth 234 million won (€160,000) from various sources and sold it to individual players for a profit of at least 20 million won (€14,000). The discussion circled around how the currency has been generated; was it more chance or through sweat? The court decided that Lineage is a game of sweat and thus if the currency was earned through game play, it is legal to resell the currency. Trading on the currency is only illegal if it was created through cybercrime activities.

Game industry veterans, such as Richard Bartle^[ccclxxxvi], have expressed concern that courts may regard virtual items as personal property, which may conflict with the publisher's intellectual property rights.

Secondary Markets

Secondary markets are places outside of a gamified system, virtual world, or online game, where players can buy and sell items. Such a platform could be an auction system like eBay. Often EULAs and the terms of services of the platforms prohibit the use of secondary markets, although these may be unreasonable restrictions imposed by the online provider and not uphold at court in certain countries.

Benefits

With any benefit that an employee earns there are not only potential taxes dues, but there is also the question what happens when one leaves the company. As with accrued vacation days, companies may have to pay the cash-value to the player.

Taxes, Income, Revenue

With the numbers of players in online worlds and virtual games in the hundreds of millions, tax collection agencies will sooner or later consider these rewards as taxable income. Even if the operator of such a system where rewards can be gained, states that the rewards are intangible and cannot be monetized inside the platform, there may be secondary markets where this is possible.

What you need to consider is how rewards are regarded in different countries from a monetary perspective. If the gamified system includes sweepstakes or even a grand prize, a works councils will make the case that grand prizes need to be adjusted to income levels in the countries. For example a grand prize of €5,000 in Germany doesn't have the same value as in India, due to income level disparities.

And as an operator of a gamified system, when can you book an in-game purchase as revenue? Consider the *FarmVille*-example, where players can buy virtual currency with cash, and with that virtual currency you buy gasoline for the tractor. What is the right moment for the company to book this as revenue? Turns out that you can only book that as revenue once the virtual gasoline has been used in the virtual tractor.

COPPA

The *Children's Online Privacy Protection Act* [\[ccclxxxvii\]](#) is a US law that imposes certain requirements on operators of online systems that have children under the age of 13 as their audience. Simply speaking, the COPPA makes parental consent mandatory for children to use the system. The COPPA also restricts the way such a system is allowed to interact with the child. Any violations are enforced by the Federal Trade Commission and can lead to heavy penalties, as numerous cases have shown.

But why do we need to deal with children players in a book about enterprise gamification? Can't we just ignore COPPA for our purposes, because we only address adult players?

Not so fast. Even if you haven't thought so, you may quickly have children players on your systems. Imagine a sustainability application that you gamify, and the target audience are households to reduce their carbon footprint, or increase the recycling rate. Here you are addressing households, which means families. Or the very same application could be used by schools. Making this approach successful means not only to involve school staff and the community, but the students as well. Or if you build a gamified health application that encourages daily exercises to decrease childhood

obesity, then here are even more children players.

Other countries besides the US have regulations that could be applicable to such systems. In Finland there is the *Guardianship Act*, which states that minors may only perform legal acts without a guardian's consent that are of an ordinary and inconsequential nature.

COPPA compliance can be supported with tools such as the AgeCheq SDK[\[ccclxxxviii\]](#).

Additional Laws and Regulations

Germany has one regulation about *Safety and Health Protection Regulation at Work in front of a*

Monitor[\[ccclxxxix\]](#). Consumer protection laws could put a cap on virtual spending on online worlds, as in Finland. Or consider the case of Austria, where certain professions, including doctors and lawyers, cannot advertise their services. Thus a community such as Avvo or Healthtap using leaderboards ranking the work of such professionals may be regarded as advertising.

Who Owns Gamification Data?

Having successfully gamified your systems, you receive a request from a user to delete his data. And from another employee comes a request for downloading the data to bring it to her new employer. How do you react?

Case 1: Facebook

Let's look at a recent European lawsuit[\[cccxc\]](#), where Facebook was forced to change the terms of use (TOU) in regards to data privacy and protection. Law students from the university of Vienna identified a number of points in the TOU that were in violation of European law. They filed six complaints with the Irish Data Protection Commission (DPC), because this is where *Facebook International* is headquartered, and every Facebook user outside the US is protected by Irish law.

Some of the reported violations were around more transparency and control what personal data was being recorded, mechanisms to co-determinate which of these data can be used by Facebook and third parties, control over what data can be deleted (which has to be done within 40 days of a users' request), tools and processes to retrieve a copy of users' personal data, and much more. In the end, Facebook had to agree to change the terms of use and comply with Irish privacy laws.

Case 2: Professional Community

Another case came from a professional community, where individual could earn points through their contributions, sharing knowledge and helping each other. Not only individuals were ranked, but also the companies for which those individuals were working. When one of the top contributors changed employers, a dispute ensued of who owned the points, because the company suddenly lost ranking in the company leaderboard. They argued that the contributions were generated during work hours on the payroll of the company and therefore should belong to them. In the end this case was resolved through the terms of use that assign the points to the individual. Similar to who owns and can use frequent flier miles that were accrued on business trips paid by the company.

Case 3: Ownership of a Twitter-account

The third case to learn from is right now being in the court discussing the ownership on Twitter accounts[\[cccxcj\]](#). Who owns the account and the followers that were generated, when an individual worked for a company and moved to another employer?

What Can We Learn?

These examples give us a blueprint for what laws to comply with. Whatever we do with personal data – especially outside the US – offer tools and processes to give players control over their data. This is not restricted to the consumer space. Employees might have a say in who can see the data and for what purposes the data is collected and in what amount.

Technically, this could be a challenge. Gamification data will very likely represent the largest data set in an organization. And the value of the data will be of more value – in comparison to vanity data aggregators like Twitter or Facebook – as it represents the true achievements of a user.

Additionally, enabling employees to download their dataset and carry it to their new employer will need more tool support and standards. A *Gamification Data Exchange Standard* (see page 262) needs to be created so that data can be transformed between gamification platforms. And then we need to think of how users can reverse the data after times of less-than-stellar performance. Take credit scores. You don't want to have times of low achievement haunting you forever. Your *Gamification Score* should allow you to correct periods of low achievement, independent of whatever has caused them.

For yourself, your very own gamification score will allow you to determine better, what you really want and where your passion is.

Trade Laws

An interesting example of where a gamified marketing campaign violated Section 5 of the FTC Act, which prohibits deceptive acts and practices in advertising, was mentioned in Robert McHale's book "Navigating Social Media Legal Risks."

First, to be found deceptive, three elements must be shown:

1. There must be a representation, omission, or practice that is likely to mislead the consumer.
2. The act or practice must be evaluated from the perspective of a reasonable consumer.
3. The representation, omission, or practice must be *material* – that is, likely to affect the consumer's purchasing decision

The use-case was from a complaint to the FTC for investigation on an advertising campaign that PepsiCo and Frito-Lay had launched. In this gamified campaign, players (mostly teens) were invited to explore online games named *Hotel 626*, *Asylum 626*, and *Doritos Rihanna Late Night*. The games were only accessible between 6pm and 6am (thus the name 626), increasing the creep-factor. The players had to solve multiple challenges, such as doing some task or solving puzzles. Integration with social media was available as well and the games went viral. But close to the end of the game, it abruptly stopped, and players were requested to purchase a bag of Doritos Black Pepper Jack or Smoking Cheddar BBQ to use the infrared marker on the bag to unlock the ending.

The complaint for investigation brought forward to the FTC by several consumer protection agencies alleged that the promotion were deceptive acts or practices in violation of Section 5 in at least three ways^{[\[ccxcii\]](#)}:

1. Disguising its marketing campaigns as entertaining video games and other "immersive" experiences, thus making it more difficult for teens to recognize such content as advertising.
2. Claiming to protect teens' privacy while collecting and using various forms of personal information without meaningful notice and consent.
3. Using viral marketing techniques that violate the FTC Endorsement Guidelines.

Compliance

When running gamified systems, the operators must make sure to be compliant in regards to privacy and security regulations.

Privacy Compliance

According to McHale, the following privacy compliance guidelines may be required:

- If you are handling personally identifiable information on players, adopt a privacy program that is reasonably designed to protect the privacy and security of such information.
- Provide tools, controls, and procedures to identify and prevent predictable risks.
- Anything you say about how you handle player information has to be truthful, and objectively supportable.
- Whenever you implement new privacy settings that affect how this data is used you need to obtain opt-in consent from the players prior to the implementation.
- Important changes to the privacy practices should be disclosed in a clear language that non-technical and non-lawyers can understand in a conspicuous way (not merely in the privacy policies etc.)
- The organization should annually audit their privacy practices, or even have it audited by a third party.

Security Compliance

Here are some security guidelines, as seen in decisions by the Federal Trade Commission:

- Passwords must be unique and different from those of employees who have administrative control of the company's system.
- All administrative passwords must be changed periodically.
- Administrative passwords must not be stored in plain text within employees' personal email accounts.

- All passwords in personal email accounts must be encrypted rather than stored in plain text.
- Restrict each person's access to administrative controls according to the person's job.
- Provide an administrative login web page that only authorized users know.

Policies and Governance Models

Corporate gamification policy provisions should include:

- **Gamification Goals:** a charter describing the goals and reasons for using gamification in the organization will make it transparent for all parties involved, as well as give guidelines of what new gamified system should follow and accomplish.
- **Consistency:** with the companies core values and internal policies, including a list of acceptable and unacceptable behaviors, professional conduct etc.
- **Permission and parameters:** with the employees not only being gamified with systems that their employer offers, but also with systems that are required when interacting with third parties (such as vendors, customers, ...), this policy should include approved gamified systems, as well as which systems are off-limit.
- **Monitoring:** the policy should state that all activities on corporate systems and networks are monitored.
- **Copyright and Intellectual Property Rights:** players should be aware that infringing on other's copyrights, trademarks, and intellectual property is forbidden.
- **Disciplinary Action:** the policy should state the disciplinary actions that will be taken if a player violates gamification policies. We discussed cheating and other violations in other chapters.

Legal Tips for Gamification

Robert McHale[\[cccxciii\]](#) lists a number of legal-relevant Do's and Don't's in context with social media that are equally important for gamification:

DOs

- If your organization offers players a chance to earn or obtain virtual goods such as points, coins, redeemable coupons, stored credit, etc., familiarize yourself with the CARD Act. This Act generally prohibits dormancy, inactivity, and service fees and requires a minimum expiration date of 5 years from the date virtual goods were issued.
- Conspicuously disclose any “payments“ given to third-party reviewers, including free goods, points, badges, and so on. Disclosures should be made by the endorser and within the companies' promotional policies and literature.
- When requesting contact information, be sure to adequately disclose that it will be used for marketing purposes and that you otherwise are acting consistently with your company's privacy policy.
- As a company transacting in virtual goods, be sure that your end-user license agreement and terms of service (TOS) explicitly state that you own all virtual goods in your gamified system and that you can deny users access to these goods at any time and for any reasoning your sole and absolute discretion. Be sure to limit all claims that users can assert against you in connection with the offering of virtual goods.

DON'Ts

- Do not forget that leader boards, badges, and expert labels all implicate truth-in-advertisement issues (and FTC enforcement actions) to the extent that such labels imply an expert status that the user does not actually have with respect to the endorsed product. If an advertisement portrays an endorser as an expert, the endorser's qualifications must in fact give the endorser the expertise that he or she is represented as possessing.
- Do not use gamification tactics where recommendations and other communications appear to be from friends when they are not (for example, Facebook postings made without the explicit knowledge or consent of sender by definition do not honestly reflect the views of the player, and should therefore be avoided).
- If virtual currency in the form of a card, code, or other device is assessed fees or expires, do not fail to make requisite disclosures prior to purchase, on the card and with the card, in a clear and conspicuous manner.
- Do not make any representation that users have any rights or title to virtual goods earned, purchased or created by him/her, or the accounts for which they pay, including the right to buy, sell, gift, or trade any such goods. At a minimum, the EULA and TOS should specify that all virtual currency and virtual items are for the user's personal and non-commercial use, are not transferable or redeemable for any sum of money, are final and non-refundable, and can't be sold for "real" money.

The Dark Side

The truth about any technology is that you can use it both for good or bad purposes. And what's considered good or bad very much depends on your point of view (see also Table 2). Many game designers – as discussed in a previous chapter – regard gamification as something bad, or at least deeply misunderstood by gamification designers. Gamification designers see their work as something that adds real value and makes people's lives better.

There are certainly several areas, where the gamification designer could create unintended negative consequences. Knowing them can help us minimize the damage, prevent it completely, or even turn it into something positive.

Addiction

Not so much addiction in the form that we are familiar with to drugs or gambling are what we need to be concerned of on the gamification space, but as we discussed in earlier chapters, the addiction to rewards that comes with transient managers. When managers are not in for the long term they tend to promise higher rewards, which in the end damages the general motivation and interest of employees.

Enablement of Micromanaging

With gamification data, players become very transparent in how much time they spent on which tasks, and how well they did them. This opens opportunities for managers to analyze the data and micromanage. “Why did you spend 12 minutes on that task, when everyone else take only 8 minute?” “How come you focused for 2 hours here, instead of that work?”

How can gamification designers prevent such an outcome? By limiting managers’ access to player data, or by applying gamification to change this managerial behavior. I would call that meta-gamification, or the “gamification of gamification.”

Manipulation and Behavior Control

Trying to trick players into behaviors with outcomes that they wouldn’t aim for and only the benefit the owners of a system are the surest way to ruin the game.

Focus on Extrinsic Motivators

It’s so easy to slap some points and badges on a system and just create competition, that it’s already comical when yet another design is pitched with that approach. And unfortunately for us – the ones who’d like to bring gamification to the next level – even such simplistic approaches are successful. However, never forget to combine extrinsic with intrinsic motivators.

Ignoring Player Motivation

When the main motivation of gamifying a system is to benefit the managers or the company operating it, then you can’t blame anyone else but yourself for failure and backlash.

Unbalanced Gamification Systems

A system that is unfair and rewards the wrong people for the wrong things is prone to be loathed by the players and fail. Balance must be one of the project milestones.

Ignoring Player Dimensions / Discrimination

Pay attention to your player dimensions. We consider not more than two to three today with the traditional approaches, such as in user-centered designs. But ignoring them can cause trouble, when you ignore female playing preferences, or set up a design that discriminates women, or make part-time employees unable to achieve goals.

Conclusions Based on Incomplete Gamification Data

The richness of gamification data may make us forget that we still won't have all aspects of a player recorded. Some of these interactions may never be recordable, as much as we may try. Before you regard gamification data as the holy grail of knowledge about your players, step back and consider it for what it is.

Focus on Gathering Gamification Data For HR Purposes

Having now several times made the case for using gamification data to create a fairer and more objective work environment, one that supports meritocracy better than what we have today, we must not forget that this is not the original purpose of gamification. The reason why we are so excited about it is that it helps us to make work more fun. And when people have fun, they do better work. And if the design is well-done, then this benefits every party: the player, the organization, the society, the country, the planet, the universe, the aliens. Maybe also the zombies.

So when you introduce gamification for the wrong reason – although having HR help make the case is never wrong – you may not build the design in a way that really gets out the value that you could.

Mission 9 – Lifecycle and Strategy

I think it's wrong that only one company makes the game Monopoly.

Steven Wright

A gamification project doesn't start with the design and doesn't end with the launch. It starts much earlier with educating yourself and your peers on gamification and identifying potential application areas in your organization. And these are probably the easiest phases of the lifecycle. As soon as you begin pitching the idea to gamify something, you'll face ridicule and humiliation, until everyone understands that this actually makes sense. Then comes the hard work of actually gamifying work. Until you roll it out and encounter the fear that somebody will tell you "your baby is ugly." Followed by measuring and fine-tuning the system, catching the cheaters, responding to unintended consequences, re-launching, re-designing, until you retire the system.

In 1998, when I started with SAP, data warehouses had just entered the enterprise field. And there was a lot of skepticism as well. The objections didn't come from fear of too much fun at work, but from the transparency of data that business intelligence made suddenly available to everyone. The isolated data islands had created "data kings" who protected their turf, maintained and interpreted the data for everyone else. A data warehouse took that control away and suddenly everyone could interpret the data and question the data quality. That made a lot of people uncomfortable.

That may sound ridiculous from today's perspective, where data warehouses form mission critical systems for every company. Back then, this created a cultural shift in companies. This is what we have seen with social media ("we cannot share company information on social media"), cloud ("you mean corporate data resides outside the firewall?"), to mobile ("no way that you connect with your private iPhone to the company's CRM!"), but in the end all these things are more or less normal today or turning into standard business practices.

This is what we will experience with gamification. That should be reassuring for you. But that doesn't solve some of the questions and help you overcome several obstacles.

Lifecycle

Pitch

You need to talk about gamification; to your managers, your coworkers. Large companies especially seem to struggle with the term, while small and medium companies often happily embrace it. When you consider that often the very same rigid and large organizations need innovative concepts and engagement the most but also display the biggest objectives against them, then the worries of these companies are not justified.

To overcome initial objections, a good tactic may be to emphasize the engagement and behavior change elements of this concept.

To get some support, start with finding coworkers that have the same innovative restlessness and open-mindedness that you need to discuss bold and crazy ideas. But as we learned, most concepts behind gamification are nothing new. While the combination of them is novel, the individual items have been tried and tested in the past with some success. If you do have intranet or community software where you can create groups, create a gamification group that aims at education and document collection around the topic and, most important of all, helps you identify your future supporters and advocates.

Connect with external gamification experts and invite them to speak to your coworkers at internal webinars or forums. This will give welcome insights and inspiration.

Project Selection

Now that you finally got the message out and your colleagues think gamification is indeed a good idea, where would you apply it? Here are recommendations from an experienced gamification designer (me) on which areas may be the easiest and safest to start with:

1. **Marketing, Branding, Loyalty:** those have been the original drivers behind gamification. There are many use-cases available that can help in finding ideas.
2. **Training and Education:** this area has the advantage of being applicable internally. And because training is often so boring (did anyone say 500 slides in 3 hours?), everyone will be happy if you try.
3. **Community:** this is internally applicable without risking too much with

so many use-cases available that you can try it here and very likely succeed.

4. **The worst internal system (as selected by employees):** employees in every organization will be able to name at least one system that they absolutely hate and which they must use. Everyone will be thanking you on their knees when you announce that you'll gamify this application. Here's the deal: take the application, improve the application first, and then gamify it. You can then credit any improvement to gamification and be the hero.

Project Planning & Management

Now that you got a project, you need to calculate time and budget. The iterative project phases should include

- Defining the problem, specification, and metrics.
- Observing and understanding players.
- Ideating and play testing.
- Creating a gamification design.
- Evaluating and selecting technologies and vendors.
- Designing, iterating, play testing, failing, re-designing.
- Piloting the gamification design with the first real players.
- Documenting the system.
- Launching the system.
- Fine-tuning and measuring.
- Maintaining and growing the system.
- Promoting it.
- End of Lifecycle.

Player Exit Strategy

Once your finite game is over, what will you do with the engaged player community that you created? Let it fall dormant? That would be a waste of money. Unfortunately, that is more common than you think. Marketing campaigns that have gone viral and created tremendous social media buzz died a painful death once the campaign was over. And the companies didn't even realize what treasure they had.

An example was the clever and witty *Old Spice* campaign where the marketers did everything well, except that they suddenly stopped. *Procter & Gamble* had created a fan base of 600,000 and then ignored them. As this blogger[\[cccxciv\]](#) framed it

“They essentially created a one-night-stand. Huge amount of affection, but the next morning there is a note saying: “It was fun, but that was all it was. ... The thing with one-night-stands is that it can be really exciting, or a terrible experience afterwards. It all depends on people’s expectations going into it. Old Spice forgot to meet people’s expectations, and let many people down.”

Is this what you are aiming at, creating a “one-night-stand“ experience for your player community? I assume your response will be an indignant “Of course not!”

Then better think of an exit strategy when you start the project. What are you going to do with the player community after the game ended? Do you have an infinite game that you can bring your player community into, or are you planning your next finite game where you can re-engage the players that you have?

Strategy

Master Plan

One gamified system is just the beginning of a holistic gamification strategy. While you may begin applying gamification on a community, a marketing campaign, or the expense system, you must keep the larger picture of gamification in mind. Which system are infinite, which ones invite finite approaches? How can you combine them and give the impression of freshness? How do you consolidate the achievements across the board, and which departments require synchronization with their efforts? What projects are coming up where gamification has to become an integral part right from the beginning? Whom do you need to set up your master plan and how do you train them? Who will be supporting the initiative?

When or When not to Gamify

Gamifying a shitty app makes your app only shittier.

Mario Herger

There may come the moment when gamification designers realize that gamification is not the right approach to solve a particular problem; or that the underlying problem or behavior is missing certain attributes that allow the application of gamification. It starts with the basics. Is the app or system good or is it even missing the core functionality? A website that has no content will not have better content by just gamifying it. You first need to fix the original problem.

Game designer Daniel Cook evaluates the potential to change behaviors through play by asking the following questions[\[cccxcv\]](#):

1. Can the activity be learned?
2. Can the player be measured?
3. Can the player receive feedback in a timely fashion?

If you can't do one of them, then go back to the drawing board and make them doable. In gamified applications and systems we try to influence behaviors, engage, and teach skills. The activities to teach the skill or influence the behavior need to be split into the right size. As with the original notion "we want more engagement," we actually need to define what engagement is, what the activities are that are behind that, and how we can measure them and create metrics.

Kevin Werbach from Wharton Business School and Dan Hunter from New York Law School^[cccxcvi] give a systematic approach to decide on when to gamify and when not:

- Motivation: Where would you derive value from encouraging behavior?
- Meaningful Choices: Are your target activities sufficiently interesting?
- Structure: Can the desired behaviors be modeled through a set of algorithms?
- Potential Conflicts: Can the game avoid conflicts with existing motivational structures?

Examples of where gamification may not be applicable include:

1. Software purchasing decision for CIO; a CIO may not be the right target audience for gamification, as they rely on the information from their teams – the right approach may be to gamify the experience for these teams.
2. Customer acquisition: gamification may interfere with winning a new customer.
3. Funeral parlor: buying process for a coffin is certainly nothing that you want to make a fun experience.
4. A picnic, which is an unstructured activity, where gamification would create an artificial and too restraining structure.

Gamification Consulting

What's the value of bringing gamification consulting into your project? And when should you do that? If you have read this book thoroughly, you'll have learned a reasonable quantity of the gamification knowledge and best practices. That doesn't make you an expert. You also need practical experience in gamification design and to see how it performs in the wild with your players. And you want somebody with knowledge of how to build a gamification strategy that goes farther than just your community or expense system, but considers of how gamification will change the way your company is doing business.

That is where the help of a gamification consultant is useful. And the right moment to bring somebody in is when you have an understanding of what behaviors you want to change and goals to reach, but before you start elaborate discussions with gamification

technology and service companies. Knowing what you want is crucial for designing a solution. Using an independent consultant will typically get you a wider variety of approaches, an understanding what solutions are available for which challenges, and present an independent view on how viable they will be for your specific case.

A specific gamification technology provider may try to push their functionality that's working for your current challenge, but may miss alternatives and the larger strategic vision for your company.

Technology

Our Enterprise Gamification Consultancy LLC maintains a full section of gamification technologies and services on our website[\[cccxcvii\]](#). And every week we see new technologies launching. As of 2014 many of these platforms and technologies are still in a relatively early stage. I dare to say that even the ones positioning themselves in the enterprise gamification space have had very limited exposure to real enterprise software. What's listed under *enterprise* is mostly a professional community, or in the best cases a demo of a gamified sales system.

Of course quick progress will be made, and eventually we'll see really cool examples of gamified enterprise applications. But prepare yourself that many questions you have will not find a satisfying answer and that they will have to be found during the project.

Standard requirements for enterprise solutions that have been solved for other areas include single-sign-on, security, analytics, scalability, use of LDAP, multilingual support, accessibility and 508 compliance[\[cccxcviii\]](#), and so on. Especially analytics – given the importance and size of the data – seems to be a stepchild amongst gamification technology providers.

Another pain point for project owners and gamification designers is today's sharp distinction between gamification companies and game studios. If a gamification project limits itself to game design elements such as points and badges, then a gamification platform is sufficient. But as soon as a more graphical approach is required, such as in many serious games or simulations, gamification designers can benefit from involving game studios. Here it becomes messy, as the integration between these technologies needs to be custom developed, is not standardized, and not scalable for similar projects. That also means it's expensive.

Gamification Decision Engine

To support you with finding out what options on gamification designs you and your teams have, we have created the *Gamification Decision Engine*TM (GDE). This tool asks a number of questions, including the aim of the gamification design, how often the game will be played, by how many users, what budget is available and more. After five short survey screens, the GDE gives an overview of what gamification design have been created in other projects. This way a user interested in gamification design gets a clearer picture what can be expected.

A screenshot of the Gamification Decision Engine (GDE) form. The form is titled 'Workshops' and includes a sidebar with navigation links: 'ONLINE', 'NEW! Innovation & Intrapreneurship Workshop', 'THE POPCORN MODEL OF INNOVATION', 'Gamification Workshop', 'Online Workshop Also Available in German!', 'Gamification Examples', 'Conferences & Events', 'CRM', and 'Education & Training'. The main form area contains fields for 'Project Title *', 'Description *', 'Contact Name *', 'Email *', and 'Attachment'. There is a 'Browse...' button for the attachment field and a green 'Save and go to next step' button. A note at the bottom left states '* This field is required'.

Figure 76: Gamification Decision Engine - Enterprise Gamification Consultancy LLC

Mission 10 – Game On, Level Up!

A game is not won until it is lost.

David Pleat

When you think you figured it all out, then comes a game like *Flappy Bird* and makes you question all you've learned. With bad graphics, being ridiculously difficult, having not much of a gameplay, and proving incredibly frustrating, Flappy Bird became a phenomenon in late 2013 and skyrocketed to the top spot on the App store in many countries.

As gamification designers we must be prepared to change. This book made an attempt of giving you as deep an understanding as we know today. And following those rules and putting the player in the center of everything you do will help you create engaging systems. But once in a while, somebody will break the rules and create a Flappy Bird for business and succeed. Someone will bring in the gamification equivalent of relativity theory and expand our “Newtonian” gamification model.

The use of gamification is going to become ubiquitous. Mostly gamification won't be intrusive, but the designs will log data on the players' skills, they will create engagement, they will satisfy needs. Given this, gamification is far from being a fad. Even if a gamification design is finite, I'd rather be one month happier than one more month miserable. Making people happier, giving them a larger meaning, giving them a sense of accomplishment, helping them make friends will never become old-fashioned.

Like my friend and co-author Janaki Kumar said, that while her job at SAP is UX design and not gamification, whenever she sees an opportunity where the design could benefit from gamification, she “sprinkles” it on.

Ultimately, gamification will be different in ten years. Like Facebook or Twitter have evolved, so will gamification. But the core human motivations won't change. You can always be certain that humans want to socialize, that they want to learn, that they want to play and have fun.

We live in the gamification age. The game is on!

Here is how you can keep yourself in the game and level up:

First: Make it a habit to look out for applications that people are talking about. Use

them and try to deeply understand how they are working and why they are so sticky or playful. Don't just erroneously believe that spending five minutes of your time on an app will give you a deep understanding. I didn't understand Facebook when I first looked at it. But I forced myself to use it to understand why it was so popular. And then one day I had my epiphany. I had a friend doing standup comedy but I had never seen her. When I was visiting my hometown I read her status update of her rehearsing for the evening. So I went to see her that night. From that moment I understood the value of Facebook.

You need to experience this epiphany with any popular app or site in order to deeply understand it and be able to use it in your work.

Second: Play games, it's as simple as this. Find reasons to play games and not reasons why you don't have time for them. Play with friends and invite them to a videogame or board game evening. Analyze why you like/dislike the game and what makes it addictive. Analyze the game design elements, the fun motivators, the rewards and all that you can think of.

Third: Keep a playful attitude. Take a situation and consider yourself being an 8-year-old child that is allowed to get crazy with using things in ways they were not intended to be. Be curious and wondering. Consider limitations as something that you can change and see what's happening if you don't restrict yourself. Don't forget that at least once in the process there must be something silly coming out. Then you know you are doing it right.

Fourth: Try approaching boring situations with gamification. How can you gamify waiting in line, or sitting in a traffic jam? Try counting the number of people putting up make up in the morning or shaving in their cars. Make an annoyance a gamification opportunity and use it to practice and hone your skills.

Fifth: Have fun!

About the Author

I do not always gamify. But when I do, I prefer socializing. Stay engaged, my friend.

He is the most interesting gamification designer in the world.

"I help organizations make work more fun."

MARIO HERGER is CEO, founder and partner of Enterprise Gamification Consultancy LLC, a consulting group focused on gamification, innovation, social business, and intrapreneurship in the enterprise. He had been Senior Innovation Strategist at SAP Labs in Palo Alto, California and Global Head of the Gamification Initiative at SAP where he had worked for 15 years. In 2013 he co-founded and leads the Austrian Innovation Center Silicon Valley (AICSV) that connects startups and companies from Austria and Central Eastern Europe with the Silicon Valley.

In his work as gamification consultant and at SAP he has encountered and supported gamification efforts in the enterprise from multiple levels and departments, like Sustainability, On Demand, Mobile, HR, Training & Education, Banking, or Community. He has driven the awareness around gamification by organizing and leading innovation events, conducting over fifty of one or two-day gamification and innovation workshops, working with gamification platform and service-providers as well as game studios, and consulting organizations, and by adding gamification into corporate strategies.

He regularly speaks at conferences on gamification, intrapreneurship, and innovation. His large network in the gamification and innovation space allows him to pull in experts from every corner of the world into projects.

He has a Ph.D. in Chemical Engineering from the Vienna University of Technology and an undergraduate degree in International Business Management from the Vienna University of Economy.

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They are or feel watched

They expect to be evaluated

They are or feel forced to work under deadline

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Two kinds of motivation are better than one.

As long as you don't use rewards permanently, there's no problem.

Rewarding people is not only inevitable but also apparently desirable since people *want* the goodies we give them.

Let people reward themselves.

The only problem is that we are offering incentives for the wrong behaviors. If we made rewards contingent on people's doing exactly what needs to be done, the problem would disappear.

If we're worried about reducing intrinsic motivation, then what's the problem with giving people rewards for doing things they don't find interesting?

Some people are more extrinsically oriented than others. Why not give rewards to those who seem to want or need them?

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