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# Gamification Research: a 50-years Retrospective from PBLs Towards Conscious Evolution

**Gustavo F. Tondello**  
HCI Games Group  
University of Waterloo  
Waterloo, ON, Canada  
gustavo@tondello.com

**Lennart E. Nacke**  
HCI Games Group  
University of Waterloo  
Waterloo, ON, Canada  
lennart.nacke@acm.org

## Abstract

This paper presents a critical design fiction in the format of an envisioned plausible future scenario for gamification research and practice in the next years. We envision a possible path that gamification research can take that would lead it to effectively being able to help develop human potential, increase wellbeing, and contribute to conscious evolution in the future. Our goal is to promote reflection and discussion on the topic.

## Author Keywords

Gamification; Gameful Design; Design Fiction.

## ACM Classification Keywords

K.8.m. Personal Computing; Miscellaneous. H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous; K.2. History of Computing: Systems.

## Introduction

The idea of using game design elements in non-game contexts, known as *gamification* or *gameful design*, began to gain popularity starting in 2011. That year marked the appearance of both academic [4,11] and practical [16,29,30] definitions of the term, as well as suggestions for applications that inspired research in the field for the years to come.

One of the prominent suggested applications for gamification was to help fix reality by making better human beings [16], promoting Eudaimonia [5], or increasing wellbeing [3]. Three years later (2014), Calvo and Peters suggested that technology in general could be employed to improve wellbeing and help develop human potential, a movement that was named *Positive Computing* [3].

By that time, the word *gamification* had already gained popularity; however, it was frequently employed in a variety of applications with short-term consequences, such as extending user retention of a service or application [30], implementing loyalty programs [20], or persuading users to act how the designers wanted [7]. Designers also sought to employ gamification in science, education, health, and environmental issues [28]. However, many interventions and studies focused on short-term results; there was a general lack of understanding of how gamification really worked and how it influenced human motivation [10,24]. For this reason, half a decade more would still pass before applications that really helped humans develop their potential and increase their wellbeing began to be part of the mainstream gamification research and practice.

In celebration of the 50 years since gamification became an important study topic in HCI (2011–2061), the goal of this paper is to provide a summarized account of the historical facts that eventually allowed gamification to take a place in helping develop human potential and increase wellbeing. For conciseness, we focus on the 20 initial years of gamification research in HCI (2011–2031), which were decisive in successfully conducting gamification to its place in helping human flourishing.

## **A Historical Account of Gamification in HCI and Positive Computing**

### *2011–2014: PBLs and Short-term Results*

In the first years of gamification popularity, it was often seen as a business opportunity to increase revenue, either by keeping users engaged with a product or service for a longer time, by motivating user behaviour, or by implementing reward programs. Many implementations relied on very simple game mechanics or extrinsic rewards. The acronym *PBL* was created to refer to the three basic game mechanics that many defended as the base elements of any gameful system: points, badges, and leaderboards [30]. Despite some criticism [1], a plethora of gamification platforms aimed at quickly implementing this and a few additional game mechanics using a rapid implementation lifecycle. Many early implementations focused on just replacing traditional practices with their equivalent in game mechanics without any novelty. For example, employee performance evaluations were often replaced with KPIs (key performance indicators) approaches, which were measured by integrated game mechanics (such as PBLs). In schools, the grading system was often replaced with a similar evaluation system based on game mechanics (such as PBLs). Even though Kapp had suggested that gamification could be implemented in education by designing new content in a gameful way [12], this kind of application was not popular yet. A few initial attempts to use gamification to improve the user's health and wellbeing were made; however, lack of empirical evaluation often undermined the potential benefits [10,24].

Despite the initial issues, some early implementations of gamification were successful in achieving their short-term goals [10,24]. However, further investigation was

still needed before these applications could really begin to help to improve the user's wellbeing.

#### *2014–2016: Envisioning a New Future*

In 2014, Calvo and Peters suggested that gamification could make part of the broader Positive Computing movement [3]. By 2015 and 2016, several gamification researchers began to suggest new avenues for investigation that could potentially lead to new uses of gamification helping develop human potential and increase wellbeing.

This was an important turning point that allowed gamification to take its role in the Positive Computing trend.

For example, Walz and Deterding edited a book [28] in which several gamification scholars reflected on the current stage of gamification research and envisioned how it could evolve to take a role in creating a *Gameful World*. Nicholson [19] suggested a RECIPE that aimed at facilitating *meaningful gamification*, i.e., helping users find meaning and personal connections in a real-world context, leading to long-term change. Deterding [5] suggested reflecting on how to design applications to facilitate Eudaimonia, or living the good life, and to turn the designers' point of view from game mechanics to motivational affordances [6]. McGonigal [17] presented *SuperBetter*, a method aimed at teaching people how to adopt a gameful mindset to tackle life's challenges. A Workshop [23] was included as part of the ACM CHI PLAY 2016 Conference program in which researchers discussed how gamification could affect the future and engaged in a design fiction exercise aimed at uncovering new ways to look at the future with gamification.

#### *2017–2020: Positive Gamification*

Beginning 2017 and forward, many researchers began to study and better understand the long-term effects of gamification and how they could be applied to aid human flourishing and improved wellbeing. Additional investigation also led researchers to understand how gameful applications could be personalized to be more effective in helping each particular user [2,27].

An important factor of success in leading to positive gamification was a closer partnership with positive psychology [25,26] and medical research, which enabled gameful designers to aim their applications at new goals, connected with long-term improvements in users' health and wellbeing. By partnering with positive psychology research, gameful designers were able to extend the point of view, which was previously focused mainly on motivation, to include other factors, such as positive emotions, self-awareness, mindfulness, empathy, gratitude, compassion, and altruism [3]. Positive psychology research also informed gamification on the notion that it can potentially be used to help users identify and develop their character strengths [22]. The notion that happiness and life satisfaction depend on pleasure, engagement, and meaning [21] led HCI researchers to begin investigating how interacting with technology can potentially lead to these experiences [18]. Gamification was then becoming more concerned with helping users adopt a gameful approach to improving themselves instead of just focusing on applying game mechanics to improve engagement with a system or service.

By that time, personal informatics systems [14] began to evolve into a stage where it was possible to begin tracking the cognitive capacity of an individual in

addition to their physical condition. At this point, positive gamification was often employed to try and increase the user's motivation to keep track of their data and increase the number of opportunities to experience positive emotions, engagement, and meaning. This also contributed to the overall increase in wellbeing.

#### *2021–2030: Conscious Evolution*

The evolution of gamification into positive gamification occurred at the end of the 2010s was the first essential step towards developing a tool that could really help develop human potential and improve wellbeing. Nevertheless, positive gamification was still limited by the fact that many implementations aimed to conduct the user through the path of their self-improvement. This often resulted in users failing to take a conscious approach to their evolution, which ended by hindering the potential self-improvement that could be achieved. Therefore, the second turning point occurred during the 2020s when the thought of accomplishing a process of conscious evolution [8,9] became familiar to the general population. The process of conscious evolution consists of a path for self-betterment through the comprehensive and continued action of one's conscience [9], in which the individual must plan and establish the continuity of his or her own self-improvement.

As the individuals began to pursue the path of conscious evolution on their own determination, they became more aware of the path towards their flourishing and potential development. Thus, they began to look at gamification and positive computing in general as a tool to help them carry out the determinations of their own will rather than the guide

that would tell them how to improve themselves. Several studies demonstrated that the process of conscious evolution, supported by the individual's own willpower and using positive gamification and computing as a tool to help structure their efforts, was more effective in leading to improved wellbeing than a process guided by external interventions. At the same time, researchers learned to employ the resources of personal informatics to assist the user in their quest for conscious evolution. Thus, instead of providing the user with external improvement goals, personal informatics systems were modified to aid the user in tracking the betterment of their mental and sensitive systems as a direct result of the process of conscious evolution.

#### *2031–2060: Gameful Robots*

In 2013, a group of robots arrived from the future to present a historical account of how CHI research led to the enslavement of humankind by evil robots [13]. However, they could not expect that their publication would alter the course of history. Through research on positive gamification, positive computing, and conscious evolution, CHI scholars were able to adapt the robots' design to instead have them serving humanity. Researchers realized that robots should not be able to control human's actions; instead, robots should act as tools to aid humans in their quest for conscious evolution. Then, designers were able to begin building the gameful and positive robots that nowadays are present in all households and offices. When programmed to serve humans, these robots take care of diverse tasks in order to decrease the cognitive load of humans. As a result, humans have more free time to dedicate to their conscious evolution. This was how humanity was able to alter history and avoid the timeline described by those robots from the future.

## Conclusion

This paper is written as a piece of critical design fiction [15]. Thus, its goal is to imagine an account of a plausible future scenario of gamification research and application. In particular, we focused on envisioning a possible path that gamification research could take that would lead it to effectively being able to help develop human potential and increase wellbeing in the future. Particularly, we see gamification and positive computing in general as tools that can be employed by an individual who is committed to carrying a process of conscious evolution by a determination of their own will. In this scenario, positive computing could potentially be used to help track the individual's efforts towards self-betterment, to frame the obstacles that could appear as challenges to be overcome with a gameful attitude, and to share experiences with others. This scenario carries a greater potential to improve wellbeing than applications of gamification or positive computing as external guides of the individual's self-betterment without the participation of one's conscience and willpower.

In future publications, we plan to experiment with possible design frameworks for gameful applications that could potentially lead to the fictional scenario described in this paper.

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