

RISKS OF IMPLEMENTING GAMIFICATION: A LITERATURE REVIEW

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ABSTRACT

The term "gamification" is most often used in the modern business world as an attempt to improve employee productivity and their motivation, improve the marketing activities of the company, improve the activities in the field of finance and all other activities. Gamification is defined as the use of elements, mechanisms, and ways of thinking from video games in an environment that has nothing to do with video games. Because of its broad nature, gamification has found various benefits in different industries, which is amplified in the work-from-home and study-from-home models which became frequent during the COVID-19 pandemic.

The increasing implementation of gamification and its growing popularity is generally based on positive feedback and different benefits outlined, however potential problems and risks can be detrimental to the organization's functioning if implemented improperly. The paper focuses on the available research on the topic, to serve as a basis for future primary research.

Data analyzed shows a discrepancy on outlining benefits and drawbacks/risks in published papers. Following an in-depth analysis, it is determined that poor implementation of gamification can lead to significant problems in organization day-to-day functioning, which if not remedied can deteriorate quickly with great adverse effects. Risk management best practices can be followed to minimize potential negative effects of gamification.

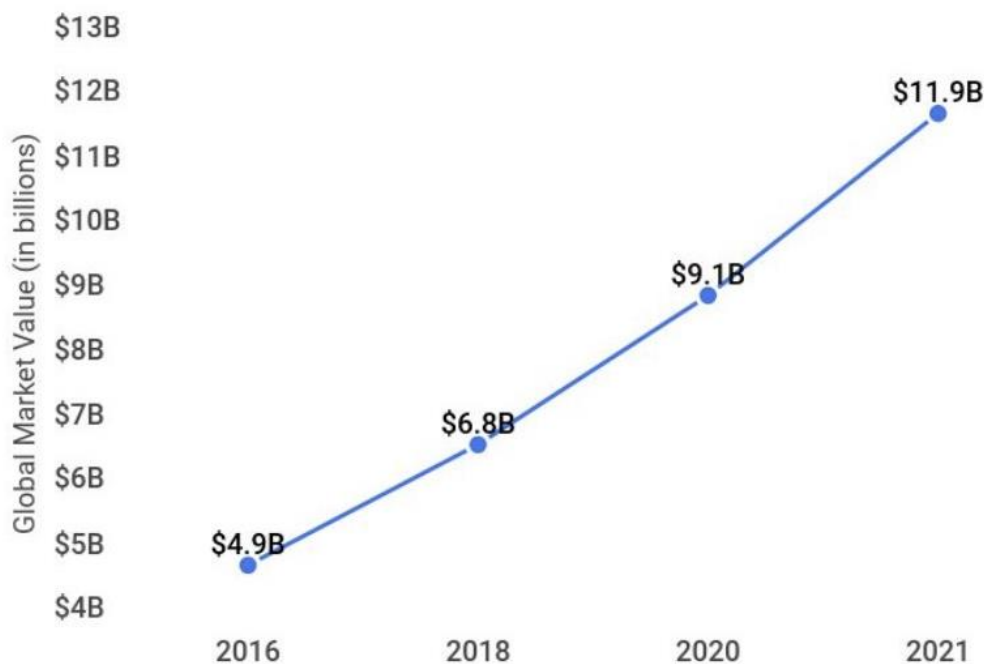
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1. INTRODUCTION

Gamification has enjoyed wide-spread popularity and use in many different context use-cases, scenarios and industries ever since the modern term has been introduced by Detering in 2011. Most of gamification definitions state that it represents the use of elements, mechanisms, and ways of thinking from video games in an environment that has nothing to do with video games (Detering et al, 2011; Van Der Boer, 2011). Gamification is concerned with positive motivation, focusing on intrinsic elements to generate a response from the individual. In the past decade, research on gamification have increased exponentially, with most of them referring to gamification as a positive influence in different business and educational contexts (Dicheva et al., 2015; Borges et al., 2014; Chans & Castro, 2021; Navarro-Espinosa et al., 2022), which motivated the business community to further experiment with various implementations. Gamification in its nature brings several elements intended for easy access:

- Developed methodologies proven in other scenarios (i.e. video games)
- Easy access to tools, platforms and other content for gamifying processes
- Minimal or non-existent capital investment to get started

These elements create an incentive in organizations, since the stated benefits of gamification can have a large impact on business operations, while the underlying investments and risks are perceived as minimal.



*Figure 1: Growth Rates of Game-based Learning Worldwide, 2019 - 2024
(Source: Statista, 2021)*

Figure 1 shows that the growth in the Gamification market has been significant, from \$4.9B in 2016 up to \$11.9B in 2021, with the North American gamification industry leading the charge, valued at \$2.72B. Recent statistics show that 72% of employees state that gamification motivates them to be more productive at work, while 67% of students agree that gamification in education can improve engagement levels and motivation (Georgiou M., 2020).

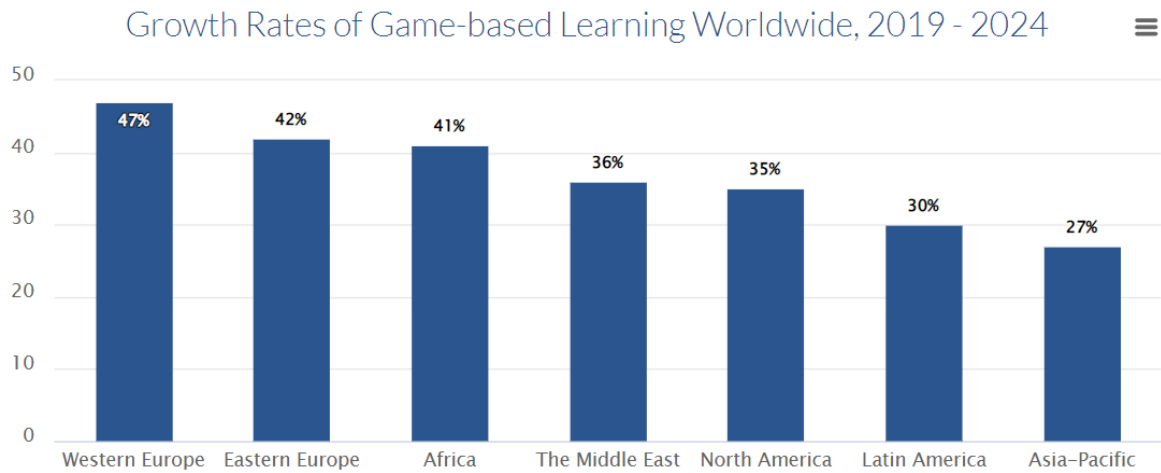


Figure 2: Growth Rates of Game-based Learning Worldwide, 2019 - 2024
(Source: Adkins S., 2019)

Data shows that there is an increasing acceptance of gamification in learning models, with Western Europe leading with 47% growth rate (actual and projected) in the period of 2019-2024, followed by Eastern Europe with 42% and Africa with 41%. The trends in gamification acceptance continue to rise, with widespread use across different continents and industries. Despite the positive influence it can offer organizations and its processes, there could be underlying potential downsides and risks that can be experienced during and after implementation, making it vital to research this area of gamification.

2. METHODOLOGY OF RESEARCH

One of the basic methodologies used is theoretical research through the analysis of secondary sources of information and data: books, academic journals, scientific publications, empirical studies, publicly available statistics, articles from the Internet and other materials relevant to the subject matter. The method of induction and deduction was used to draw conclusions from existing research on gamification. Finally, the comparative method was used to emphasize similarities and differences between the data gathered from case studies and existing research, as well as to make recommendations for further improvements.

3. RESEARCH AND DISCUSSION

Detering (2011) provided the modern definition of gamification, as the use of game design elements in non-game context. As such, gamification contains four different elements which can be identified, including elements of games (but not games in full); reflection of the way gamers think, environment not related to games (most usually a workplace); and motivation to achieve goals other than the organization/process standard reward systems. The combination of these elements is crucial for successful implementation of gamified initiatives, regardless of the company size, industry or country. Motivation is the key component of gamification, as well as a driving force behind the changes which are implemented and enforced in these types of initiatives. Extrinsic motivation in the workplace is defined as doing something because it leads to a separable outcome, meaning outside encouragement and rewards are earned from performing a task (London, 2009), while intrinsic motivation which is connected directly with

gamification is defined as the doing of an activity for the inherent satisfaction it brings (Ryan and Deci, 2000).



Figure 3: Kaleidoscope of effective gamification
(Source: Kappen and Nacke, 2013)

The kaleidoscope of effective gamification is shown in Figure 1, which outlines the four layers of gamification:

- Gamification core
- Motivated behavior layer
- Game experience layer
- Game design process layer

These four layers include the mechanics, models and actions necessary for a successful gamification implementation.

3.1. Gamification benefits

As discussed in the introductory section, gamification can offer enormous benefits for organizations, including higher engagement rates of employee at performing operational activities, improved KPIs through competitive elements, higher satisfaction levels in employees, replace monetary rewards, reduced financial and budget implications and many others. Previous research has also outlined benefits in implementing gamification in an educational environment, including:

- using games or game elements reduce mistakes from students (Hanus and Fox, 2015)
- provide relevant and real-time feedback (Kapp, 2012)
- encourages healthy competition (Camillieri et al., 2011)
- Improvements when working in groups
- increased satisfaction in repetitive activities
- overall grade improvements (Guillermo and Castro, 2021).

Since gamification focuses on intrinsic motivation, increased motivational level are more sustained than other traditional monetary incentives most commonly utilized by organizations. Another relevant aspect is that gamification may require significantly smaller budget for

implementation, since the rewards are embedded in the system and mechanisms themselves, thus making it easy for implementation for companies of any size. However, despite numerous benefits, low entry costs and seemingly easy implementation, research shows that there are significant risks, barriers and drawbacks that can occur for the organization.

3.2. Risks of implementing gamification

Related risks factors to gamification can be grouped in two main categories: design risks and implementation risks. Since gamification systems are complex and rely on motivational elements, the design aspect is crucial to ensure a successful implementation. Risks connected with designing gamification systems may include:

- **R.1 Gamification goals** – as a novel approach, organizations are enticed by the benefits of gamification, but there is no clear strategy and goal for implementation of the mechanisms, as well business process analysis (Algashami et al., 2019). Gamification processes do not represent a one-size-fits-all approach, meaning that each implementation is dependent on several factors which need to be reviewed before starting the design of the system. Personalization of the gamified system, mechanisms, awards and other elements are required, as the human factor that is involved and the main target differs greatly even between organizations of the same scope and industry.
- **R.2 Reward system** – gamification offers the opportunity to exploit non-monetary awards for intrinsic motivation, but the awards should be carefully chosen to be relevant to the participants in the new system. Otherwise, the organization risks implementing a new system for motivating employees with unattractive awards which can hinder its main goal. Low value rewards might go so far to demotivate employees instead of motivating them more, thus creating a negative effect when implementing gamification.
- **R.3 Established timeframe** – refers to time needed to design the system and the timeframe for implementing gamification strategies. Connecting with R.1, organizations often allocate minimal time and resources in developing a gamification strategy, most likely copying a successful use-case scenario from another organization. Additionally, most gamification implementations begin without a solid deadline for the end of the process, as organizations believe that it will become a permanent process in the structure.
- **R.4 Unfulfilled potential** – it is very easy to miss the potential of the gamification benefits that a certain organization can achieve. By failing to establish measurable KPIs, organizations cannot properly evaluate the success of the gamification implementation. Most comparisons and benchmarks are done with the traditional employee incentive programs, however without proper monitoring on a micro-level, it is very hard to determine the elements which function properly and those that can be improved or changed.
- **R.5 Gamification isn't suitable** – the last design risk is that gamification as a solution might not be the right strategy to motivate employees in certain cases. Even though the term is popular and the implementation can be set up easily, companies feel the need to gamify their systems just for the sake of modernizing, without evaluating the potential positive (or negative) impact it might bring.

Risks connected to the implementation of gamification may include:

- **R.6 Personal conflicts** – gamification initiatives often put competitive elements (such as leaderboards) in the processes, which are intended to create healthy competition between employees during the implementation period. However, this can easily derail the working environment if not implemented properly and communicated with the

employees. As these competitive elements make the performance metrics public, conflict happens on three levels: intergroup conflict between groups who are chasing the same gamification goals and rewards, interpersonal conflict between top performing employees who wish to outperform each other and stop collaborating with the team; and intrapersonal conflict in employees who are at the bottom of the leaderboards.

- **R.7 Indifference** – employees can show indifference in participating in gamification systems due to various factors: feeling left behind on leaderboards, unattractive reward system, not understanding the process of gamification and its rules, poor communication and a host of other issues. Depending on specific employee traits and demographic characteristics, enticing certain individuals to participate may show as an impossible task to complete.
- **R.8 Performance degradation** – even a well-designed gamification system can lead to loss of performance in certain employees. Due to the nature of converting activities into a new narrative, not understanding the rules or other factors, work performance in employees might actually decrease after gamification of their working processes (Toda et al., 2018).

3.2. Best practices for minimizing risks in implementation

Organizations can address the perceived risks in implementing gamification with best practices from successful implementations:

| Best practice | Risks contained |
|----------------------------------|--|
| Gamification management | Gamification goals Reward system Established timeframe Performance degradation Gamification isn't suitable |
| Gamification outsourcing | Reward system Established timeframe |
| Gamification involvement | Personal conflicts Indifference |
| Gamification risk mapping | Established timeframe Personal conflicts Performance degradation |
| Gamification monitoring | Gamification isn't suitable Personal conflicts Indifference Performance degradation |

*Figure 4: Gamification risk best practices
(Source: Own research)*

Through the implementation of outlined best practices, organizations can minimize the occurrence of risks throughout the implementation of gamified systems, as well as minimize their impact (or eliminate them completely) if they arise, as shown in figure 4.

- **Gamification management** – the best practice involves adding a preparatory phase in gamification systems development, with top level management and the people responsible for implementation heavily involved, dedicating time on researching all perceived risks, as well as developing the management and implementation documents. This type of approach will eliminate a host of potential risks, including gamification goals, rewards systems, established timeframe, performance degradation and

gamification not being suitable. Although this best practice results in additional time being added before the implementation period, it may bring large potential benefits during and after implementation. The recommendation of the authors is to include this stage as a default in all gamification implementations

- Gamification outsourcing – addressing two perceived risks, the reward system and established timeframes. As gamification deals with psychological aspects such as motivation, organizations may benefit in contacting and employing experts in the field in their future implementations. This will minimize the risk of inadequate rewards and intrinsic motivators which may hinder the entire initiative.
- Gamification involvement – as the users of the gamified systems, employees at each level (strategic, but as well as tactical and operational) can be given a voice in the preparation and implementation phases of gamification. The feedback from users is critical to design a gamified system, as well as to spot potential involvement issues and/or conflicts.
- Gamification risk mapping – the process of risk mapping is a critical stage in gamification implementation. As with other initiatives, risks are unique for each organization and setting, so dedicating time in developing potential risks in implementation can lead to generating risk management strategies and addressing the issues proactively.
- Gamification monitoring – concerned with several risks, such as personal conflicts, indifference, performance degradation and gamification not being suitable. Daily and weekly monitoring activities, along with well established and communicated KPIs minimize the potential to have low engagement levels of users.

4. CONCLUSION

Due to the popularity of the term and its widespread use, coupled with low costs for implementation, organizations are keen to give gamification a chance, as it can be seen that there is little to lose. Gamification implementations can vary greatly in their success based on several risk factors. As outlined in the paper, despite the promised benefits, gamification effects can also range to being non-existent to even having adverse effects and actually damage the organizational processes, working structure and employee motivation. The paper identified 8 perceived risk factors that are mostly seen in unsuccessful implementations of gamification. Due to the nature of the risk factors and fragile structure of gamification, it would only take the presence of one risk factor to result in a failed implementation. Organizations can minimize the presence of risk factors by implementing one or several of the presented gamification risk best practices.

The paper is based on secondary data and part of the authors deeper research in gamification initiatives, which include various primary research activities. As such, it is limited in reviewing existing secondary data and utilizing different methodologies to develop new interpretations and conclusions in the field. The research can be expanded by utilizing primary data in the form of controlled experiments and questionnaires, which will further test risk management best practices in gamification both within a physical and virtual environment.

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