

UTILIZING GAMIFICATION IN A VIRTUAL ENVIROMENT – CASE STUDY IN THE REPUBLIC OF NORTH MACEDONIA

Saso Josimovski, Faculty of Economics – Skopje, saso.josimovski@eccf.ukim.edu.mk
Martin Kiselicki, Integrated Business Faculty, martin.kiselicki@fbe.edu.mk

ABSTRACT

The paper focuses on a specific kind of organizational form called "virtual teams", which through empirical research is defined along with the strengths and weaknesses it brings., Internet technologies also allow employees to work from home as part of a virtual team, leading to significant changes in the way the organization functions. The combination of virtual teams and working from home ultimately can lead to problems with the motivation of employees, which are thoroughly analyzed in the paper through the five types of intrinsic.

Primary research is conducted on employees from the Republic of Macedonia, who are part of a virtual team and work from home. The results demonstrate that there are problems with motivation, that is, four of the five internal motivators are not met. Through the implementation of the system of gamification, significant improvements have been noted, i.e., the fulfillment of four internal motivators fully and one internal motivator partially.

Keywords: virtual team, gamification, advantages, North Macedonia

JEL Classification: M52, M54

1. INTRODUCTION

Traditionally, companies operate in one or more physical locations, while with the help of Internet technologies, this mode of operation evolves through the introduction of virtual teams, where employees can be in different physical locations. Recent statistics (Society for Human Resource Management, 2012) show that 66% of multinational corporations utilize virtual teams, while 85% of employees say they have been part of a virtual team at a given time (RW3 CultureWizard, 2016). The paper focuses on the problems faced by virtual teams as an organizational model and ways to solve them through the implementation of a gamification system.

Empirical research is carried out through secondary data, obtained through a detailed overview of available literature from the theoretical aspect of virtual teams and gamification, as well as analysis of data and statistics from previously conducted research in these areas. Primary research is collected through a questionnaire conducted on the territory of the Republic of Macedonia. The questionnaire contains a combination of closed and open questions. The questionnaire is then subject to a quantitative and qualitative analysis of the obtained data.

2. LITERATURE REVIEW

Virtual collaboration is defined by Peters and Manz (2007) as a process supported by technology development, which allows employees to collaborate across different disciplines, functions, geographical position and organizations. Virtual teams include employees located in more than one location (Cascio and Shurygailo, 2003), a feature which specifies that Internet technologies must be utilized for coordination (Anderson, 2007). Virtual teams give firms the flexibility to hire skilled staff regardless of their geographical location, while employees themselves often get the chance to work from home. Recent statistics (Gallup, 2016) show that 43% of US employees reported working from home, an increase of 39% in an identical survey conducted in 2012. Part of the benefits of functioning in a virtual team include (Ebrahim et al., 2009):

1. Reduce location costs and transportation costs
2. Employment of the most qualified workers, regardless of location
3. Greater freedom for employees in the way of doing things
4. Self-assessment of the performance and accordingly, potential higher performance by the employees
5. Higher level of satisfaction by employees

Besides the advantages that look promising to combine virtual teams and working from home, there are several disadvantages that make it difficult to apply this organizational model:

1. **Lack of physical interaction** - Employees in virtual teams, especially those working from home, complain about the lack of contact with other individuals (Cascio, 2000). The virtual way of communicating only partially replaces physical contact, and has often proved to be unsustainable in the long run. The problem is increasing when members of the virtual team will not get acquainted before they start working together
2. **Complete formalization of the organizational structure** - this challenge refers to the way employees are managed (Lurey and Raisinghani, 2001). Virtual teams need to have

a number of methods for determining the actual performance of each employee, but also strict rules and channels for the communication of employees in order to maintain the organizational culture and reduce possible conflicts which would appear.

3. **Personal and cultural differences** - When it comes to organizational culture, it is easy for employees to accept and adapt when they are in a physical location, where the existing culture is manifested and visible to everyone (Ocker and Fjermestad, 2008) . Virtual teams isolate employees at different locations so that their personal values and culture are always more pronounced than the organizational culture.
4. **Lack of contact with the management team** - motivation of employees is a key aspect of the organization's functioning (Ebrahim et al., 2009). The management team usually has physical contact with the employee only once before starting work, and in certain cases (when it comes to employees from different countries) there is no preliminary contact at all. The digital way of communication has most often proven to be insufficient in motivating employees.

Gamification is defined as the use of elements of video games and a way of thinking in an environment that has no connection with video games (Detering et al., 2011); a phenomenon of developing experiences similar to video games (Hamari et al., 2014) or a process of approximation of activities to concepts similar to video games (Werbach, 2014). The pyramid of gamification that contains concepts, mechanisms and elements that influence the motivation of employees to more effectively perform their tasks (Van Der Boer, 2011). The process of effective gamification enables employees to get a sense of satisfaction by performing the activity/task itself, a design that is present in video games (Kappen and Nacke, 2013). Employee motivation (Ryan and Deci, 2000) can be intrinsic (activities that are performed because they are interested) or extrinsic (under the influence of external force). Intrinsic motivation is more difficult to achieve than extrinsic, but it is stronger and longer-lasting. There are 5 specific intrinsic motivators (Kiselicki et al., 2018), which we analyze from the aspect of the degree of fulfillment of the organizational structure with virtual teams and working from home:

1. **Autonomy** - Employees have control over time and the way they perform the activities. Through the implementation of virtual teams, employees are given full freedom to manage their time and activities, thus fulfilling this internal motivator
2. **Skills** - Improving knowledge and skills make it easier for employees to work and give them the opportunity to do activities for which they have not previously been able. From the point of view of virtual teams, knowledge sharing is limited, while the improvement of their skills depends entirely on the individual, making this internal motivator unfulfilled.
3. **Goal** - Every employee wants to feel as part of the company and contribute to its success. Through virtual teams and working from home, the employee is isolated from the rest of the company, so his perception can not be easily monitored. This internal motivator is not fulfilled.
4. **Progress** - Employees want to see progress and to know they are moving towards the goal. In virtual teams, as elaborated earlier, the way of communication with employees depends entirely on the platform being used. However, the sense of progress is most often coming from the management team, which without automated feedback implemented in the platform itself, is difficult to be consistent. Therefore, this internal motivator is not fulfilled.
5. **Social interaction** - Ultimately, employees want to be in physical contact with other individuals and interact with them on a daily basis. Through virtual teams, physical interaction is reduced to a minimum, while contacts with other employees are made

solely for activities related to the task being performed. This internet motivator is not fulfilled.

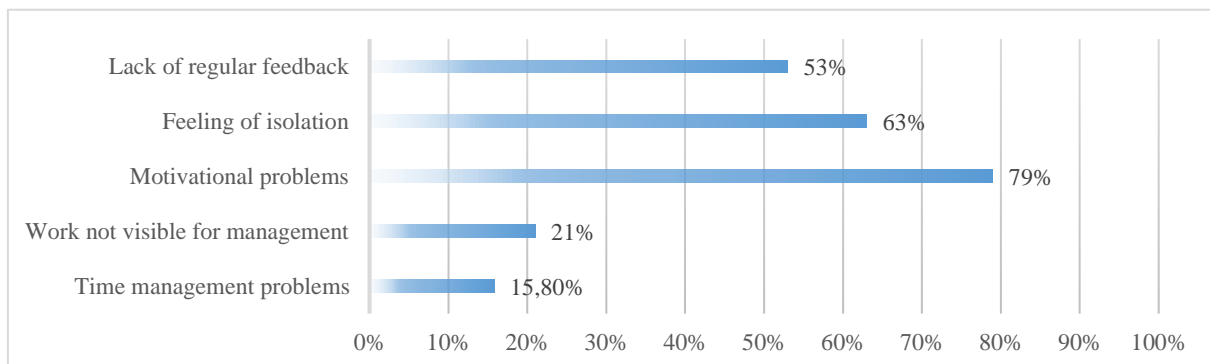
3. RESEARCH

To investigate the impact of gamification systems on the management of virtual teams, a semi-structured questionnaire in a digital form consisting of 10 questions, 7 of which are of closed type and 3 are of an open type, is implemented. Respondents are part of a deliberate sample, they can only take part in the questionnaire if they meet three conditions:

1. Full-time employees
2. Work in a virtual team
3. Work from home

Since the sample was intended, after an appropriate respondent was selected, he was encouraged to send it to colleagues who met the stated conditions. The questionnaire was conducted in the period from 15.11.2018 until 15.12.2018 through the Google Drive platform. A total of 40 respondents responded to the questionnaire, of which 80% work in a virtual team (32 respondents) and 47.5% (19 respondents) work in a virtual team and home, that is, meet all the conditions set by the questionnaire. From the aspect of industry, all valid respondents are part of companies from the IT industry (100%).

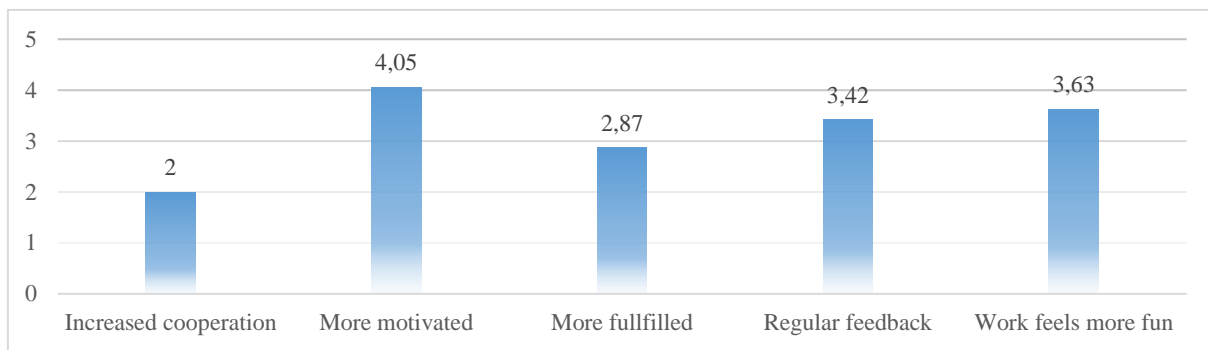
Graph 1. Problems arising from working in virtual teams from home



Source: Own research

Graph 1 demonstrates that the biggest problem faced by employees is lack of motivation to perform activities (79%), feeling of isolation (63%) and lack of timely feedback (53%). From the aspect of the process of implementation of the gamification, the majority of the respondents stated that their virtual team included ranking lists, virtual gifts, virtual avatars, gaining experience and achieving new levels and rewards, as well as changing the way tasks are delegated in order to make the narrative more fun. The next question shows us that a high degree of respondents (95%) received training before and during the implementation of the gamification system.

Graph 2. Benefits of implementing a gamification system



Source: Own research

As shown in Graph 2, the biggest improvement with the implementation of the gamification system was noted in the motivation with an average score of 4.05 (of a maximum of 5), then in the increase in the entertainment while performing the work activities with 3.63, regular feedback from management with 3.42 and a sense of fulfillment at the workplace with 2.87. The lowest level of improvement was observed in terms of increasing the cooperation in the virtual team with an average score of 2.

4. DISCUSSION AND CONCLUSIONS

Based on the research, we can look at the extent to which the five internal motivators can be fulfilled through the implementation of a system of gamification:

1. **Autonomy** - when it comes to virtual teams and employees at home, this internal motivator is fully fulfilled and there is no degree of improvement in the implementation of the gamification system.
2. **Skills** - as an internal motivator was not fully met in virtual teams and work from home, because the individual is left to work on their own improvement. This is evident in our research, where 79% of the respondents say that they lack the motivation to carry out the activities. In the gamification system there are methods for encouraging employees to improve their skills, such as virtual awards and ranking lists. Companies that have implemented gamification have seen improvement in motivation with an average score of 4.05. It can be concluded that through gamification of virtual team's this internal motivator can be fully fulfilled.
3. **Aim** - the feeling of isolation represents a big problem when connecting with the goals of the company by the employees in virtual teams, thus the internal motivator is not fulfilled. From this aspect, the system of gamification offers a limited degree of improvement, that is, usually through the transformation of the narrative of the work tasks in order to make them more entertaining, and thus easier to connect with the employees. In our research in the implementation of the gamification systems, work becomes more fun with an average score of 3.63, but this is only partially met by this internal motivator, since it is not specifically related to the goals and strategy of the company.
4. **Progress** - The research shows that more than half (53%) of respondents feel that there is lack of regular feedback from management, thereby reducing the sense of progress. Through the implementation of the gamification system, it can be seen that

through the virtual acquisition of experience and the upward movement through new levels, the employees receive a graphic representation of their skills increase, that is, the respondents agree that they lead to timely feedback with an average score of 3, 42. Through a digital representation of their character in the form of a digital avatar, employees can clearly see their level of knowledge and skills at any moment and how they have improved in the past through the acquisition of new levels and experience. Therefore, this internal motivator in the virtual teams can be fully fulfilled.

5. **Social interaction** - One of the biggest problems in managing virtual teams and employees from home is the feeling of isolation, which is present in 63% of respondents. The lack of physical contact could compensate for increased virtual connectivity with other employees, although in practice respondents agree that this collaboration among them is at least improved by implementing a gamification system with an average score of 2. This is an indicator that gamification can not fully replace physical with virtual interaction, making this internal motivator only partially fulfilled.

Before the implementation of the gamification system, the combination of virtual teams and working from home fulfilled only 1 intrinsic motivator, while the remaining 4 intrinsic motivators were not met. Primary research demonstrates that gamification can significantly improve the performance of intrinsic motivators, that is, by implementing this system, it will lead to the full implementation of 3 intrinsic motivators and the partial fulfillment of 2 intrinsic motivators. It should be noted that the gamification system is not a universal solution for all teams, because the conducted research was limited to a small number of participants, all of which were part of software companies. The research could be expanded through a case study and an analysis of existing gamification systems in order to assess the impact of the mechanisms and elements on the internal motivators of the employees.

ABSTRACT

Трудот се фокусира на специфичен вид на организациска форма наречена „виртуелни тимови“, која преку емпириско истражување е дефинирана заедно со своите предности и слабости. Интернет-технологиите им овозможуваат на вработените да работат од дома, како дел од виртуелен тим, што доведува до значајни промени во начинот на функционирање на организацијата. Комбинацијата на виртуелни тимови и работењето од дома на крајот може да доведе до проблеми со мотивацијата на вработените, кои темелно се анализираат во трудот преку петте типа на внатрешни мотиватори.

Примарното истражување се спроведува на вработени од Република Северна Македонија, кои се дел од виртуелен тим и работат од дома. Резултатите покажуваат дека постојат проблеми со мотивацијата, односно четири од петте внатрешни мотиватори не се исполнети. Преку имплементација на системот за гејмификација, забележани се значителни подобрувања, т.е. исполнување на четири внатрешни мотиватори целосно и еден внатрешен мотиватор делумно.

Клучни зборови: виртуелни тимови, гејмификација, предности, Северна Македонија

ЈЕЛ класификација: M52, M54

REFERENCES

- [1]. Anderson, A.H., et al. „Virtual team meetings: An analysis of communication and context“. *Computers in Human Behavior*, 2007. 23: p. 2558–2580
- [2]. Ale Ebrahim, Nader and Ahmed, Shamsuddin and Taha, Zahari. „Virtual Teams and Management Challenges“. 1st Executive MBA Conference, Tehran, Iran, May 18-19, 2009.
- [3]. Cascio, W.F. and S. Shurygailo. „E-Leadership and Virtual Teams“. *Organizational Dynamics*, 31(4): p. 362-376. 2003.
- [4]. Cascio, W.F. „Managing a virtual workplace“. *The Academy of Management Executive*, 14(3): p. 81-90. 2000
- [5]. Detering S., Dixon D., Khaled R., Nacke L. „From Game Design Elements to Gamefulness: Defining “Gamification”“, *MindTrek’11*, Tampere, Finland. 2011
- [6]. Gallop. *State of the American Workplace Report*. 2016, available at http://www.gallup.com/file/services/176708/State_of_the_American_Workplace (accessed on 08.07.2019)
- [7]. Hamari J., Sarsa H., Koivisto J. „Does Gamification Work? — A Literature Review of Empirical Studies on Gamification“, 47th Hawaii International Conference on System Sciences. 2014
- [8]. Lurey, J.S., M.S. Raisinghani. “An empirical study of best practices in virtual teams“, *Information & Management*, 38(8): p. 523-544. 2001.
- [9]. Kappen, D.L., Nacke, L.E. „The kaleidoscope of effective gamification: deconstructing gamification in business applications“. *Proceedings of the First International Conference on Gameful Design, Research, and Applications - Gamification ’13*, pp.119–122. 2013
- [10]. Ocker, R.J. and J. Fjermestad. „Communication differences in virtual design teams: findings from a multimethod analysis of high and low performing experimental teams“. *The DATA BASE for Advances in Information Systems*, 39(1): p. 51-67. 2008
- [11]. Peters L.M., Manz C.C. „Identifying antecedents of virtual team collaboration“, *Team Performance Management: An International Journal*, Vol. 13 Iss ¾, ss. 117-129, 2007.
- [12]. Ryan R., Deci L. „Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions“, *Contemporary Educational Psychology* 25, 54–67. 2000
- [13]. RW3 CultureWizard. *Trends in global virtual teams report*. 2016, available at <http://info.rw-3.com/virtual-teams-survey-0> (accessed on 07.06.2019)
- [14]. Society for Human Resource Management. *Virtual teams*. 2012, available at <http://www.shrm.org/research/surveyfindings/articles/pages/virtualteams.aspx> (accessed on 10.06.2019)
- [15]. Timbal, A. and Mustabsat, A. „Flexibility or Ethical Dilemma: An Overview of the Work from Home Policies in Modern Organizations around the World“, *Human Resource Management International Digest*, 24(7). 2016
- [16]. Van Der Boer, P. „Introduction to Gamification“. whitepaper, available at <https://www.cdu.edu.au/olt/ltresources/downloads/whitepaper-introductiontogamification-130726103056-phpapp02.pdf> (accessed on 20.05.2019)
- [17]. Werbach K. „(Re)Defining Gamification,, Springer Lecture Notes in Computer Science Vol. 8462. 2014

ANNEX 1 – QUESTIONNAIRE FOR GAMIFICATION



Анкета за гејмификација во образование

Почитувани, ви благодариме за учество во овој прашалник, која е дел од истражувањето за научен труд. Вашите одговори се од огромно значење, но учеството е доброволно и може да се откажете од прашалникот во секој момент.

Одговорите на прашањата се целосно заштитени и доверливи, при што ќе бидат кодирани и прикажани како вкупни статистики, а не како посебни индивидуални податоци.

Ви благодариме однапред за соработката и одвоеното време.

* Required

Кој е вашиот статус на вработување *

- Полно работно време
- Парцијално вработен
- Невработен

Во која индустрија функционира вашата компанија?

Дали работите во виртуелен тим? *

- Да
- Не

Дали постојано работите од дома? *

- Да
- Не

Кои се главните проблеми со кои се соочувате при работење од дома во виртуелен тим? *

Пробајте да ги согледате проблемите пред имплементација на систем за гејмификација

- Проблем при менаџирање на време и распределување на обврските
- Мојата работа не е целосно видлива за менаџмент тимот
- Проблем со мотивација да ги извршувам обврските
- Чувство на изолација и недостаток на интеракција
- Не добивам навремен фидбек за моите активности

Дали во вашата компанија е имплементиран систем за гејмификација? *

- Да
- Не
- Не знам

Кои елементи на гејмификација се имплементирани?

Дали добивте обука за користење на системот за гејмификација? *

- Да
- Не

По имплементација на системот, оценете го степенот на подобрување на следните аспекти: *

Оценете ги изјавите од 1 (нема подобрување) до 5 (најголемо подобрување)

	1	2	3	4	5
Постои поголема соработка во тимот	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Се чувствувам помотивиран да ги извршувам активностите	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Се чувствувам поисполнет во работата	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Добивам редовен фидбек за моите перформанси	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Работата е позабавна	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Дополнителни коментари:

наведете дополнителни коментари кои не се опфатени во прашањата

Submit

Never submit passwords through Google Forms.