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Gamification Based Performance Evaluation System: A New Model Suggestion

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Abstract

This study suggests a new model of gamification based performance evaluation. In recent years, issues related to performance evaluation, its measurement and management have been on the agenda. At the same time, new applications have emerged about the digitalization of business processes, one of which is gamification. In this respect, the aim of the study is to suggest a new model of gamification based performance evaluation. The study is an exploratory research and is concerned with the creation of a new model by exploiting different theories. When the literature was examined, there were not many academic studies about gamification and performance evaluation. The main motivation for the development of such a model is the development of a new performance evaluation model against traditional performance appraisal systems. The proposed new gamification based performance evaluation model is a modality that can be characterized as more enjoyable than functionality and allows employees to engage.

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Keywords: Gamification, Performance evaluation, Performance management, Gamification based performance management model

1. Introduction

In recent years, it has been seen that the activities related to the gamification have increased and the needs of the companies have increased in the issues related to performance evaluation. In the research conducted, less than one third of the employees believe that their companies helped them to improve the performance management process and performance management is regularly among the lowest issues in employee satisfaction surveys (Pulakos, 2009). Much of the contemporary challenges faced by organizations have focused on refocusing attention to performance management systems (Buchner, 2007) and exploring ways to improve employee performance. This study focuses on the enjoyment of performance evaluation systems, which ensure that employees in performance management are integrated with the performance evaluation system, and encourage functional enhancement of employee participation. The intention of working in this context is to suggest a new model of gamification based performance evaluation.

Furthermore, in the areas of organizational development and performance management, there are very few exceptions to the study of Singh's (2012) who described gamification as a “strategic tool for corporate effectiveness”, and Vardarlier and İnan's (2017) who proposes “...a new model for the use of gamification in improving the performance of sales personnel ..” studies. In this context, we believe that this study will be beneficial both to academic literature and to practitioners. It can be said that the study will provide the following contributions to academic literature and practice:

- 1) It will contribute to the literature by expanding the boundaries of performance management and gamification,
- 2) In evaluating the performance, it will provide a new model for the use of gamification,
- 3) The practitioners will guide the gamification based performance evaluation.

Among the advantages of the study, the following can be mentioned:

- The enjoyment of functions that are important to the organization, which they describe as boring and unpleasant,
- Integration of performance management and gamification integration with each other,
- Responses to a number of questions about the proposed model of gamification based performance evaluation.

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The next parts of the study consist of four parts. In the next part, the theoretical framework that makes up the sub-structure of the study is mentioned. Performance management, performance evaluation and factors affecting performance in companies, gamification, gamification elements and gamification design are discussed in this part. In the third part, the aim of the study, the questions of the study, the scope of the study and the limits of the study are explained. The fourth part, includes a new model proposal for performance evaluation based on gamification. The fifth part includes the conclusions reached within the scope of the study and directions for future studies.

2. Theoretical Framework

2.1. Performance Management

Performance management is a term commonly used in Human Resources and has a special meaning in evaluating and managing the performance of individuals. Performance, also defined as “what you cannot measure or manage if you do not define performance” (Armstrong & Baron, 1998), is something that an organization needs to do and do well (Campbell, Gasser & Oswald, 1996). At the same time, it is said that performance is related to the results obtained as well as to doing business (Otley, 1999). According to Fitzgerald and Moon (1996), performance is a multidimensional structure that changes its measurement depending on various factors. Rogers (1994) argues that performance should be defined as results of work; strategic objectives, customer satisfaction and economic contributions of the organization because of the strongest link between them.

Performance management is a critical aspect of organizational effectiveness (Cardy, 2004). Since performance management is an important process for achieving business, it is considered to be the “Achilles Heel” in the management of human capital (Pulakos, 2009) and for this reason should be the number one priority of the managers (Lawler, 2008). There are numerous models of the performance management process (Armstrong, 2000; Cardy, 2004; Das, 2003, Murphy & DeNisi, 2008; Pulakos, 2009). Many of these models focus on a predictable set of variables for employees which includes some variables such as setting performance targets, evaluating performance and providing feedback. The models of the performance management process usually consist of a series of stages or activities, such as performance agreement / goal setting, performance monitoring / facilitation, performance appraisal and feedback, and improved performance (Armstrong, 2000; Pulakos, 2009).

Nowadays, something that represents a definition of work and good performance is more variable (Fletcher & Perry, 2001). Fletcher and Perry (2001) state that the multidimensional and dynamic nature of performance is captured by the evolution of concepts such as emotional intelligence and the distinction between task and contextual performance (Borman & Motowildo, 1993). In this list, the concepts of adaptability (Pulakos, Arad, Donovan, & Plamondon, 2000), creativity (Tierney & Farmer, 2002) and proactivity (Bateman & Crant, 1993; Grant & Ashford, 2008), which represent the results related to the behavioral interaction, can be added effectively (Macey et al., 2009). Because of the dynamic, versatile nature of modern business, achieving performance gains in the contemporary work environment requires less “performance management” than “facilitating performance”, creating the conditions necessary to improve performance (Das, 2003). According to Pulakos (2009), a comprehensive approach to performance improvement requires control systems and performance management to coordinate step-by-step objectives.

2.1.1. Performance Evaluation at Companies

One of the important steps in performance management is performance evaluation. This is where the performance evaluation and feedback should go into effect. The fact that progress towards the targets is regularly assessed at least twice a year ensures that the attention and concentration of the working teams is intensified (Welch & Welch, 2009). In practice, more and more companies are making performance evaluation more than once a year. Thus, a process with feedback is created (Cascio & Aguinis, 2011).

In order to accurately describe performance, those responsible for performance management need to do three things. These are, respectively, setting goals, deciding to assess success, and providing progressive evaluation and feedback. Doing this informs employees about expectations from employees, how to measure performance, and where they stand at any point in time. The performance appraisal process should not be surprising, regular assessments should be made and encourage employees to be comfortable with performance evaluation. In this context, managers use three basic criteria to evaluate performance, especially to encourage good performance, which is a revolt (Cascio, 2006):

- 1) To provide sufficient rewards that employees value,
- 2) To do it on time,
- 3) To do it in a fair way.

Performance management practices are concerned with determining what goals are to be achieved, using decision rights, and measuring and evaluating performance. Edis (1995) argues that performance is something someone has left behind, and that this is beyond the scope of the goal. A manager who identifies performance enables employees or teams

to know what is expected of them and to focus on effective performance (Bernardin, Hagan, Kane & Villanova, 1998). In short, employees need to know how good performance looks and what it is. For this reason, three important factors need to be considered. These; goals, measures and evaluations.

2.1.2. Factors Affecting Performance Evaluation

Studies of factors that affect performance are one of the topics that both academics and practitioners are interested in. There are a number of factors in the literature that affect performance. It has been determined that performance is affected by a number of factors, which must be taken into account when managing, measuring, modifying, and rewarding performance (Armstrong and Baron, 1998)

- Personal factors - the person's skill, confidence, motivation and commitment.
- Leadership factors - the level of encouragement, guidance and support provided by managers and team leaders.
- Team factors - the quality of support provided by colleagues.
- System factors - work and facility systems provided by the organization (labor tools).
- Contextual factors - internal and external environmental pressures and changes.

Traditional approaches to performance relate performance differences to personal factors. In fact, personal factors can cause part or all of situational or systemic factors (Atkinson & McCrindell, 1997). In fact, the evaluation of individual performance should take into account not only the actions of the individuals (the results) but also the conditions they must carry out at the same time (Deming, 1986). This assessment process should continue to perform as a manager and a leader, because what the practitioner is doing is primarily a reflection of manager behavior in terms of training, coaching and guidance in the workplace (Isaac Mwita, 2000).

Campbell (1990) argues that the functional relationship between performance and performance attributes can be described as algebraically implicit (knowledge, skill and motivation) factors. Objectives are crucial for initiating the employee engagement process because the goals are energy, focus, and a sense of intensity or interaction. Armstrong (2000) argues that goals must add to the success of organizational goals, but allow individuals to create their own goals in a broader organizational context. Prior objectives should take into account the values and interests of employees representing their real assets, as allowing employees to be involved in setting goals can be more likely to generate participation than requiring them to satisfy the imposed goals.

2.2. Gamification

An integrated theory is not yet enough, as there are not many studies on gamification. It has been pointed out that the studies about gamification are increasing rapidly (Hamari, Koivisto & Sarsa, 2014). This increase is seen both in the academic field and in practice.

There are much definitions about gamification. However, Deterding, Dixon, Khaled, Nacke and Dixon (2011a, 2011b) have made a definition of gamification based on the works of industry practitioners, academics and others to date. According to the definition of Deterding, Dixon, Khaled, Nacke and Dixon (2011a), gamification is "the use of game design elements in non-game contexts". Although different terms and definitions were introduced by researchers before this definition, they were not widely accepted.

Werbach and Hunter (2012), who see gamification as a business benefit, argue that gamification must be considered in practice. According to this, it is stated that there may be a gamification in the process of product, service and system design. According to Werbach and Hunter (2012), gamification is defined as the use of game elements and game design techniques in non-game contexts. This definition is similar to the definition of Deterding et al. (2011a).

It is known that the workings on gamification are not much in practice and in theory, and have appeared in recent years. According to this, the theories about the actuation are found in the authors' works. These studies both contribute to the literature and help shape the theory of gamification.

When the literature is examined, it is seen that the studies about gamification have been made in fields such as education, commerce, intra-organizational communication and activity, public services, social interaction, marketing, mass-based studies and environmental behavior. Nevertheless, in the areas of organizational development and performance management, there are only a few other studies (Singh, 2012; Vardarlier & İnan, 2017) on gamification.

2.2.1. Gamification Elements

The elements of gamification are composed of the mechanics of gamification and the dynamics of gamification. Gamification mechanics are a set of rules designed to produce fun games and feedback dynamics. Gamification dynamics are gamification patterns generated in response to anticipated interactions by applying a specific mechanism appropriate to the behaviors of the machine acting on the inputs of the player.

Cunnigham and Zichermann (2011) prepared a list of game elements and mechanics with examples. Among the features that should be considered here in the design are the players who will support a system, how to obtain the next step, the methods of installation (such as the process of directing new entrants to the system) and the role of the social participation cycle. Identifying and using game elements is not simple. Nevertheless, Deterding, Dixon, Khaled, Nacke and Dixon (2011a) classified game elements according to their abstraction levels. Their gaming elements have also benefited from theoretical and experimental research as far as the classification process of gaming systems is essentially subjective (Table 1).

Table 1. Classification of Game Design Elements by Abstraction Level

Level	Descriptions	Example
Game interface design patterns	Common, successful interaction design components and design solutions for a known problem in a context, including prototypical implementations	Badge, leaderboard, level
Game design patterns and mechanics	Commonly reoccurring parts of the design of a game that concern gameplay	Time constraint, limited resources, Turns
Game design principles and heuristic method	Evaluative guidelines to approach a design problem or analyze a given design solution	Enduring play, clear goals, variety of game styles
Game models	Conceptual models of the components of games or game experience	Mechanics-Dynamics-Aesthetics; challenge, fantasy, curiosity; game design atoms; core lements of gaming experience
Game design methods	Game design-specific practices and processes	Playtesting, playcentric design, value conscious game design

Source: Deterding, S., Dixon, D., Khaled, R., and Nacke, L. (2011, September). From game design elements to gamefulness: defining gamification. In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments*, (pp. 9-15), ACM.

The inclusion of game elements in business web sites makes them more playful and enjoyable because of the positive effects people have on the motivation to use serious applications (Flatla, Gutwin, Nacke, Bateman, & Mandryk, 2011). In a study by Rodrigues, Costa and Oliveira (2016), they formed elements and characteristics of gamification (Table 2).

Table 2. Characteristics and Elements of Gamification Dimensions

Gamification Elements	Gamification Characteristics
Game	Design
Product	Appearance
Security	Functionality
Process	Rules (mechanics)
Information	Objectives (goals)

Source: Rodrigues, L. F., Costa, C. J., and Oliveira, A. (2016). Gamification: A framework for designing software in e-banking. *Computers in Human Behavior*, 62, 620-634.

The elements of gamification and the gamification characteristics are important in the field of gamification. Game, product, security, process and information are elements of gamification. Design, visibility, functionality, theories (mechanics) and objectives (goals) are characteristics of gamification.

2.2.2. Gamification Design

Gamification is a design strategy that tries to reproduce the interactive powers of games without designing a complete game and imitating the key game play to apply in the non-game context (Filsecker & Hickey, 2014). Gamification is not just points and badges, but organizations see it as an effective tool to learn and improve playing and to reach business goals (Deterding et al., 2011a).

It is not simple to create interactive and well-designed applications using gamification elements. Websites are a key success factor for promoting and selling products from most organizations (Dedrick, Gurbaxani & Kraemer, 2003). Many banks in the banking sector have made significant investments in projects aiming to improve their web sites, but many have failed to meet their customers and business goals (Hsieh & Wang, 2007). Furthermore, poor interface design (Nielson, 1997), lack of website availability and customer satisfaction (Flavian, Guinaliu & Gurrea, 2006; Palmer, 2002) are among the main causes of website failures.

Gamification includes the addition of gamification elements and game characteristics in the design of business applications, websites and mobile applications. In this context, according to Hamari and Lehdonvirta (2010), gamification design is a cognitive process that allows the game process, content creation and game mechanics to have a better user experience with business software.

In fact, gamifications is obliged to develop and apply new features to traditional business practices. These new characteristics include ease of use, attractive design, points, leadership charts and prizes (Wang, 2011b). Games play an important role in reducing perception barriers such as the difficulty of human relationships with computers, lack of usefulness and security, and ease of use of computer applications (Yoon, 2009).

3. Research Methodology

3.1. Purpose of the Research

This study suggests a new model for performance evaluation with the help of the gamification elements. It has also been shown that it is also possible to integrate game based systems and processes into different areas (Cechanowicz, Gutwin, Brownell, & Goodfellow, 2013; Denny, 2013; Hamari, 2013; Von Ahn & Dabbish, 2008) in the direction of previous research on the potency of promoting user behavior of game elements. In this respect, the aim of the study is to suggest a new model of gamification based performance evaluation.

3.2. Scope and Limits of the Study

Issues related to performance evaluation in the performance management process have been on the agenda of corporate companies in recent years. However, employees' more playful and enjoyable attitudes than functionality have led to the majority of organizational processes, and systems being digitized and managed through digital applications. Gamification with its own place among these applications is used in different strategies of organizations. In this direction, the scope of the study is concerned with the preparation of a gamification based performance evaluation model. Performance management, performance evaluation, gamification, gamification elements and play design are among the topics mentioned in the scope of the study.

In this study is proposed a new model for performance evaluating based on gamification. This model is applicable to enterprise companies and can be created with support from teams of important information technologies, performance evaluators and managers, whether they are in the design, implementation, measurement or even the processes of the model.

The model is proposed in the study is generally proposed without regard to the sector, but it should be noted that the application of sector in each sector must take account of sector characteristics. The first of these boundaries did not reveal the applications associated with the performance evaluation. The biggest limitation of the work is that the theoretically proposed model is not designed and tested for its applicability. At the same time, there are few studies in the literature about gamification and performance evaluation. Within these constraints, we tried to answer a number of research questions and developed a new model.

3.3. Questions of the Research

This study is concerned with the proposal of a new model for gamification based performance evaluation. The questions of the research in this direction are as follows:

Research question 1 (RQ1): How can the performance evaluation system be entertained?

Research question 2 (RQ2): Why should a gamification based model be used to evaluate performance?

Research question 3 (RQ3): At what stages should a gamification based performance assessment system be prepared and implemented?

Research question 4 (RQ4): How can the design of a gamification based performance evaluation system be achieved?

Research question 5 (RQ5): What are the advantages of the gamification based performance evaluation model?

4. Model Suggestion for Gamification Based Performance Assessment

4.1. Gamification Based Performance Assessment Model

The gamification based performance evaluation model is based on the addition of game elements to the traditional performance evaluation system, the redesign of the web or mobile interface, and the preparation and execution of reward

programs. The preparation and implementation of a gamification based performance evaluation system is possible in the following six stages:

- First Stage – Team Creation and Preparation
- Second Stage – Determination of Targets for Performance Measurement
- Third Stage – Determination of Rewards and /or Badges to be Awarded in the Case of Achieving Targets
- Fourth Stage – Design of Gamification
- Fifth Stage – Pre-test of Prepared Application / Model
- Sixth Stage – Implementation of a Gamification Based Performance Evaluation System.

Each of these stages has its own characteristics. These properties are the attributes that must be observed at each step. Each stage can differ from the characteristics of the applied industry and even from the culture of any organization. However, the features related to the stages of the gamification based performance evaluation system are given below.

First Stage – Team Creation and Preparation

This phase consists of bringing together the parties involved with the performance evaluation system and bringing together the necessary information and technology related to the formation of the system and the team formed.

Second Stage – Determination of Targets for Performance Measurement

In the second stage, the targets have to be determined in order to perform the performance assessment. Goal setting has a proven record of success in improving performance in various settings and cultures (Latham, 2004, 2011; Locke, 2004; Locke & Latham, 2002; Matsui, Kakuyama & Onglatco, 1987), but the elements of the underlying theory may not generalize in all cultures (Gelfand, Erez, & Aycan, 2007). It is important to determine whether the measurement goal will evaluate performance outcomes or behavior. For this reason, an organization should distinguish between behavior and measurement devices. By quantifying objectives and measuring whether they have been achieved, organizations reduce and eliminate ambiguities and confusion about goals, and provide consistency and focus to fulfill their mission. Focusing on the involvement of employees in the performance appraisal process can encourage more performance to be achieved through a unique focus on performance.

Third Stage – Determination of Rewards and /or Badges to be Awarded in the Case of Achieving Targets

This phase concerns the determination of the awards and / or badges to be awarded in the event of reaching the targets. Particularly in gamification literature, there are reward systems and badges in particular to show success. Badges are one of the most common mechanics investigated in gamification activities and studied in various contexts. (Hamari et al., 2015). According to Hakulinen, Auvinen and Korhonen (2013), the badge is a graphical symbol that appears to be the end user when it reaches success. Badges have no practical value to users. In other words, badges are not worth the money in a game or learning environment. Instead, the motivation to follow the badges stems from the emotional rewards of achieving a challenging goal (Hakulinen, Auvinen & Korhonen, 2013). According to a study by Montola, Nummenmaa, Lucero, Boberg, and Korhonen (2009), the use of success badges affects users' behaviors even though there is no concrete value of badges (eg monetary value).

Werbach and Hunter (2012) examine gameplay as a rewarding game (eg, self-motivating) as a more effective and rewarding alternative to traditional motivational structures. Rewards represent a positive external influence. Cameron and Pierce (2002) state that “external awards are prizes that come from outside and are usually organized by others”. Cognitive theorists argue that rewards are detrimental to people's motivations and their subsequent participation by weakening perceptions of personality and autonomy and / or diverting perceived motivation to external causes. According to Deci, Koestner and Ryan (1999), if the performance standards are adhered to, it is likely that the awards



are perceived as control, the perception of autonomy is weakened, and therefore the motivation inherent in people is reduced.

The preparation of an organization-approved reward program for performance evaluation (Cascio, 2006) may have positive results for motivating employees. In this context, managers should give their employees awards shortly after significant successes. According to Cascio (2006), an employee emphasizes the importance of evaluating a grant after signing a large contract or granting it some rights and a reasonable time to succeed if it completes an assigned project before time and budget, relative to others. If there is excessive delay between effective performance and rewarding, the reinforcement theory says that the award has lost its potential to motivate subsequent high performance (Sweetman & Luthans, 2010).

Fourth Stage – Design of Gamification

This stage is concerned with the design of the gamification. Furthermore, Werbach and Hunter (2012) argue that gamified systems do not necessarily have to be game-like, and instead they advocate the use of human psychology. According to Daniels (1989), the performance management model, the systematic use of the premises, and the consequences for improving existing behavioral performance. A target asks for behavior and follows a result. An understanding of how these elements interact will enable managers to analyze performance problems, take corrective actions, and design work environments and management systems where high performance will prevail and current behavior will change (Isaac Mwita, 2000).

Picture 1. Gamification Based Performance Evaluation Model

Fifth Stage – Pre-test of Prepared Application / Model

Shapiro and Varian (1999) stated that users play online games primarily for good experience and enjoyment. Wang (2011a) states that games are powerful motivators of human behavior and that software applications are changed for gamification. In this context, it is necessary to carry out preliminary testing of the application /model prepared at this stage, to listen to the opinions of the employees and to study again all the details that may cause problems in the future.

Sixth Stage – Implementation of a Gamification Based Performance Evaluation System

This is the stage in which the system has been prepared, pre-tested and, as a result, no problems are encountered.

4.2. Advantages of the Gamification Based Performance Evaluation Model

According to Pulakos, Mueller-Hanson and O'Leary (2008), it is difficult to manage and determine targets for workers in economies where knowledge and service intensity are dominant; because such studies are more varied and precise. For this reason, contemporary performance management processes should focus on establishing conditions for participation of knowledge workers in order to facilitate the desired integrated performance in advanced economies. In other words, modern performance management is concerned with managing the context in which performance occurs because performance is related to managing itself (Jones, 1995). This general idea has been expressed by Miller (1977) 30 years ago, and that increasing the productivity of knowledge workers should focus on the neighborhood in which the work is completed.

Taking all of these into consideration, the gamification based performance evaluation model proposed in this study has some advantages. Among these advantages are the following:

- 1) Gamification based performance evaluation gives employees a playful and enjoyable experience,
- 2) Gamification based performance assessment helps to make a personalized measurement because each employee is made towards their own goals and characteristics,
- 3) Because acting is more about emotions than functionality, and offering pleasurable experience, it can also increase employee commitment,
- 4) Gamification based performance evaluation ensures that employees are able to achieve goals that they have been given for easier and more enjoyable fun.

In addition, the use of different incentives can improve performance (Bonner & Sprinkle, 2002); however, measuring and rewarding only a portion of the performance may cause undesirable effects on overall performance (Burgess & Ratto, 2003; De Bruijn, 2002; Van Thiel & Leeuw, 2002; Smith, 1995; Tirole, 1994; Gray & Jenkins, 1993). Empirical, broad-based evidence of the performance implications of various performance management practices in public (Van Helden, 2005; Merchant etc., 2003; Heinrich, 2002) and private organizations is not large.

5. Conclusions

There are many models within the scope of performance evaluation. In this study, a new model proposal was given about the gamification based performance evaluation system. In order to prepare and implement a gamification based performance evaluation system, a six-stage process must be successfully completed. According to this, in addition to

information and technology, participation of employees and managerial support is needed in performance evaluation process. A six-step process has been developed in the study and the steps to be taken at this stage have been noted. In this study, which is a model proposal for a gamification based performance evaluation system, some questions were tried to be answered in accordance with the aim of the study. In this context, it is clarified why the gamification based performance evaluation model is needed, how to design this model and the advantages of this model.

Although the performance evaluation is at the center of performance management (Cardy, 2004), the whole process includes all organizational policies, practices and design characteristics that interact to produce employee performance. This integrated perspective represents a structured approach to strategic human resource management and argues that instead of a single activity, human resource modeling is necessary to achieve organizational goals (Delery & Doty, 1996). When examined in this context, the fact that the performance-based performance evaluation model is not only limited to performance management units and that the studies are carried out in each sub-unit of strategic human resources will make the big picture clearer. As Armstrong (2000) points out, the performance management process presents an opportunity for integration of all human resource strategies. Accordingly, it is suggested that future studies should be carried out in order to improve the practices based on gamification in the sub-units of human resources, especially in processes related to career planning, rewarding, training, certification and appointment.

Nowadays, the increase in the importance given to the performance evaluation in companies and parallel to this, finding the place of gamification based applications in each area suggests that the play based performance evaluation model suggested in this study is also applicable. In this respect, we believe that the study will contribute to the academic literature and be beneficial to practitioners.

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