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### A STUDY OF GAMIFICATION IN PERFORMANCE EVALUATION PROCESS THROUGH MOTIVATIONAL THEORIES

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#### **ABSTRACT:**

The performance evaluation process can be classified into two major categories. The first is a 180-degree system and the second one is 360-degree approach and both have a common problem like frequency of the process and participation level. Therefore, a need to devise a new approach and restructure the process of performance appraisal, which is continuous and involves much larger decision makers is required. Applying gamification can make the process continuous and visible, which in turn may bring much larger participation and accuracy with favorable circumstances for both employee and the organization.

This paper tries to define the different attributes for a gamified system. It then co-relates gamification in the appraisal system with the different theoretical motivational theory with reference to the defined attributes. It finally concludes through the motivation theories that whether a gamified performance appraisal process increases the motivation and engagement of employees in an organization.

#### **INTRODUCTION**

In order to understand the solution better we should first understand, what gamification is and where & how it can be introduced in the process. Gamification is applying game mechanics in-order to bring in more frequent feedback and with increased level of participation. Think of gamification as playing games, every time one crosses a level it is rewarded with a point or a badge, which in turn motivates the player to look out for more. Similarly, aim of gamification is to increase motivation and engagement in employees. There have been significant analysis, which have taken place in this area to gauge the impact of gamification on the performance evaluation process (Deterding et al., 2011).

***Game Attributes***

Following attributes of gamification are of significant importance while understanding gamification through various motivation theories:

***Transparent***

Gamification is a transparent process. Every gamer i.e. participant is aware of the achievement and award ratio. In addition, his performance compared to the peers is wholly visible.

***Real Time***

Feedbacks are provided real time, which means the participant is aware of his current standing and what would be needed to improve the concern's ranking with others.

**LARGER PARTICIPATION**

The process is between not only the appraisee and the appraiser but also others, which typically includes all the teammates. This enable much larger participation in the process and lesser impacts of biases and prejudice.

***Inclusive***

Every stakeholder is involved and can participate in providing the feedback; this makes everyone feel more inclusive and involved.

***Achievements***

Everyone likes to get rewards on achieving something. Gamification enables that the achievements are well designed to motivate users to do more and get more rewards.

***Points and Badges***

Points and badges are used to demonstrate and highlight the achievements of the participant. It also keeps score of the progress. The definition, achievements and series of actions are part of designing a game based process. This is chosen carefully and often matches with level of accomplishments. Badges are also similar to points but they represent a series or aggregation of some achievements. They also serve a visual representation of the points and are often more appealing than the points.

***Leaderboards***

Leaderboards are also aggregation of the points spread over a larger duration of time and often provide the information of current achievers. This can be called as an all-time high score list. Leaderboards is a way of giving visual appeal to different aspects of achievements (Badges, Points, and Certifications etc.) compared to fellow employees. This provide the highest degree of motivation for employees seeking visibilities across the organization. However this needs a careful examination and determination at design time because this can bring in negative or left out feeling in average achievers. The number of employees shown on the leaderboard, the number of categories in which leaderboards needed to be maintained etc. are some the attributes which are to be considered for a successful implementation.

***Levels***

Level can be defined as grade or hierarchy, which employees can achieve and keep track of their achievement. Normally an employee starts at level 1 and keeps on moving to a higher level.

***Innovation and Visionary Rewards***

Gamification by design should allow innovation to be showcased in forms of higher points and levels. This would lead to a greater visibility and sense of achievements for visionaries, which normally have a very high duration of work ranging from few years to sometimes decades.

**UNDERSTANDING GAMIFICATION THROUGH MOTIVATION THEORIES*****Gamification with Respect to Skinner's Reinforcement Theory***

Skinner noticed that in his experiments with humans, if a behavior is rewarded in some way, then it is likely to be repeated, while if the behavior is punished in some way, it is less likely to be repeated (Deterding et al., 2011). Points and badges in a gamified system are awards, which can reinforce people to achieve the same, more number of times. However, points need to be carefully calibrated and scheduled so that it should not be a detraction. This schedule is known as reinforcement schedule in psychology. Skinner identified that variable-interval schedule is far more efficient for reinforcing established behaviors. It reaps far more benefits when compared to fixed interval or fixed ratio schedules. Gamification being continuous and brings in the surprise factor which is the basis of Skinner's theory.

***Gamification with respect to Victor Vroom's expectancy theory***

Victor Vroom stated that the individual makes choices based on estimates of how well the expected results of a given behavior are going to match up with or eventually lead to the desired results. Vroom's VIE expectancy theory is often formulated using the equation (Vroom, 1964).

$$MF \text{ (motivational forces)} = V \text{ (valence)} \times I \text{ (instrumentality)} \times E \text{ (expectancy)}.$$

Looking at the equation, it suggests that employee's motivation (MF) is affected by the expectation (E) and that is, the expectations are such that the rewards are going to be high if the employees try hard. If the employees see that even after trying hard, it will not result in prosperous performance (I), the amount of effort imparted by the employee will come down due to low anticipated rewards or valence (V).

It is important to look at the attributes of the game dynamics, which would satisfy and support the expectancy theory. Transparency and real time rewards are attributes of game theory, which play an important role here. Being transparent means the employee can always compare the anticipated rewards with the achievements and the performance. In addition, the employee is aware of the peer performance and rewards so the expectancy is real and measurable. The rewards are also real time and hence the expectancy is timely adjusted.

### ***Gamification with Respect to Adam's Equity Theory***

The belief in equity theory is that people value fair treatment which causes them to be motivated to keep the fairness maintained within the relationships of their co-workers and the organization (Adams & Freedman, 1976).

|          |   |                |
|----------|---|----------------|
| Employee |   | Referent Other |
| Inputs   | = | Inputs         |
| Outcomes | = | Outcomes       |

Employees in a gamified system are always aware of their points and the referent points. They are also aware of the efforts or inputs in this case the referent employee has put in to achieve the point or a badge. Hence, the transparent system brings in the total equity and the employee can compare himself with any other employee that he may refer to. If the outcomes match, the employee feels that the treatment is fair and impartial which will incur more motivation and engagement.

### ***Gamification with Respect to Maslow's Hierarchy of Needs***

The needs hierarchy system, devised by Maslow (1954) (Maslow & Frager, 1987), is a commonly used scheme for classifying human motives. Initially a person looks for needs generated due to deficiencies but as he moves up, he looks for needs generated by achievements. Based on Maslow's hierarchy of needs, Maslow's hierarchy of needs is still the fundamental growth pattern which gamification should suffice to keep the employee motivated and involved.

At the bottom level, employees understand the basics of gamification. At this level, gamification often has low or negligible impact on the employees. Once the understanding is met and rules are agreed, employees look out for safety. Since the gamification is a transparent process with everyone has a real time and accurate view of the process, the employees feel safer than traditional system. Since everyone is contributing to the feedback, the contributors are increased and it does not depend on one appraiser, the employees have much higher degree of safety from prejudice and alliances. The third level is about belongingness need in which players need to feel inclusive of the process and should be comfortable with the game and eventually achieve the game goal. Gamification by design is more transparent and inclusive which gives a higher degree of belongingness to the employees. After achieving this level, the employees look for esteem as per Maslow.

In gamification, employee looks for levels, points and badges to show case their achievements. Leaderboards often make the employee to target and compete from peers to attain a higher degree of esteem. These leaderboards are accompanied by graphical and visual effects to fulfill the aesthetic needs of the employee looking for high esteem. Finally, there are employees that look for self-actualization and often these are visionaries. Gamification provides both short-term achievement awards and long-term achievements awards since this is a continuous process. Gamification hence motivates these visionaries and awards any innovation that is identified.

### ***Gamification with respect to Herzberg's Motivation/Hygiene (Two Factor) Theory***

Herzberg concluded that job satisfaction and dissatisfaction were the products of two separate factors: motivating factors (satisfiers) and hygiene factors (dissatisfiers) (Herzberg, Mousner, and Snyderman, 1959, 59-83) (Herzberg et al., 1959).

#### ***Satisfiers***

Achievement, Recognition, Work itself, Responsibility, Advancement and Growth.

#### ***Dis-satisfiers***

Company Policy, Supervision, Working conditions, Interpersonal relations, Salary, Status, Job security and Personal life.

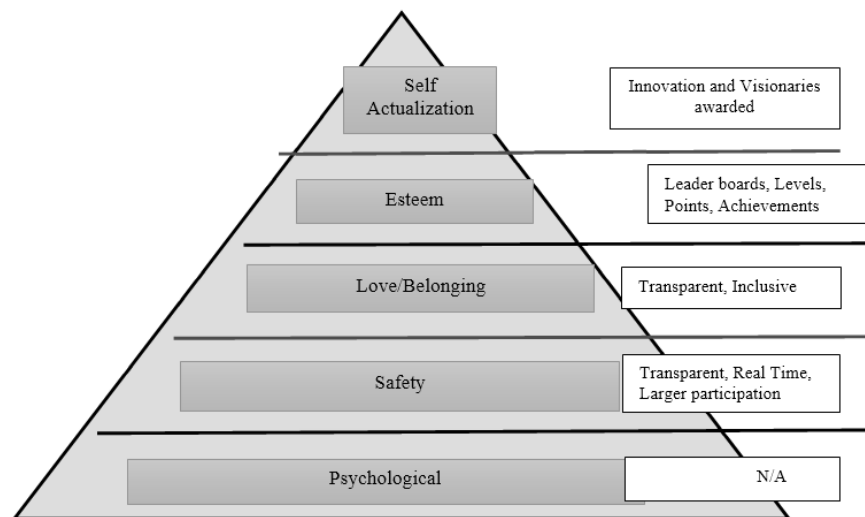
Following matrix maps the various gamification attributes with the motivation factors. The related one's are mapped as present (P) depending on whether the attributes are positively influencing the factor or not. Also the ones' that are not related to the motivation factors and are marked as not related (X).

**Table 1** Correlation of Herzberg factor with Gamification attributes (\*P–Present, X-Not Related)

| Herzberg<br>↓      | Gamification<br>Attribute<br>→ | Transparent | Real Time | Larger Participation | Inclusive | Leader boards | Levels | Points | Innovation and Visionary rewards |
|--------------------|--------------------------------|-------------|-----------|----------------------|-----------|---------------|--------|--------|----------------------------------|
| Motivating factors | Achievement                    | P           | P         | X                    | X         | P             | P      | P      | P                                |
|                    | Recognition                    | P           | P         | P                    | P         | P             | P      | P      | P                                |
|                    | Work itself                    | X           | X         | X                    | X         | X             | X      | X      | P                                |
|                    | Responsibility                 | P           | P         | X                    | P         | P             | X      | X      | P                                |
|                    | Advancement                    | X           | P         | P                    | X         | P             | P      | P      | P                                |
|                    | Growth                         | X           | P         | P                    | X         | P             | P      | P      | P                                |
| Hygiene factors    | Company Policy                 | P           | X         | P                    | P         | P             | P      | P      | X                                |
|                    | Supervision                    | X           | X         | X                    | X         | X             | X      | X      | X                                |
|                    | Working conditions             | P           | P         | P                    | P         | X             | P      | P      | X                                |
|                    | Interpersonal relations        | P           | P         | P                    | P         | X             | X      | X      | X                                |
|                    | Salary,                        | X           | X         | X                    | X         | P             | X      | X      | P                                |
|                    | Status                         | P           | P         | P                    | P         | P             | P      | P      | P                                |
|                    | Job security                   | P           | P         | P                    | P         | P             | P      | P      | P                                |
|                    | Personal life                  | X           | X         | X                    | X         | X             | X      | X      | P                                |

|               |        |      |      |      |      |      |      |       |
|---------------|--------|------|------|------|------|------|------|-------|
| Score         | 8/14   | 9/14 | 8/14 | 7/14 | 9/14 | 8/14 | 8/14 | 10/14 |
| Overall Score | 67/112 |      |      |      |      |      |      |       |

Overall gamification satisfies and improves 67 out of the 113 identified scenarios. Hence a direct 60% increase in the motivational satisfaction. In addition, the grid shows that gamification can help achieving a high motivation and high hygiene organization.



**Figure 1** Maslow's Theory with Respect to Gamification

### ***Gamification with Respect to Locke's Goal Setting Theory***

Goal-setting theory (Locke & Latham, 2002) has been used for more than two decades to explain how to motivate people to perform better in work-related tasks by setting and monitoring goals. The two core findings from empirical studies that led to the development of goal setting theory (Locke, 2013) were as follows:

1. There is a linear relationship between the degree of goal difficulty and performance. The linearity of this relationship was supported in several empirical studies, except when the individual reached the limit of their ability to perform the task or when commitment to a highly difficult goal collapsed.
2. Difficult goals lead to higher performance than no goals at all or abstract goals such as "do your best." Therefore, goal-setting theory puts forward that optimal performance is achieved when goals are specific (the objective to accomplish is clear) and difficult (the achievement of the goal requires considerable effort).

The following elements as potential mechanisms for goal setting in gamification: badges, leaderboards, levels, and progress bars, rules, goals, challenges, points, achievements, and rewards. However, game design plays an important role here since the design should be such the goals and rewards should be consistent and proportional. The difficulty should be increased proportionally through the game design so that the leaderboards should represent the higher degree of difficulty when compared to points and badges.

## **GAMIFICATION WITH RESPECT TO MCGREGOR'S X Y THEORY**

### ***Impact of gamification on Theory X Model***

This theory is based on an understanding that workers are primarily lazy and have a practice of evading work because primarily they do not like working for organization (Stagner & McGregor, 1961). Gamification attributes as if transparency brings out theory X employees including them in the larger workforce. In addition, since it is real time there is a constant push towards achieving goals and targets.

### ***Impact of Gamification on Theory Y Model***

This theory is based on an understanding that workers have an ambition, and they are self-controlled and self-motivated (Stagner & McGregor, 1961). Therefore, employees like their job duties and enjoy their work. Gamification helps the Theory Y employees by providing them the right platform where they can show their capabilities and achievements through attaining higher levels, badges and leaderboards.

### ***Gamification with Respect to McClelland's Need Theory***

McClelland's identified three motivators that he believed we all have viz. a need for achievement, a need for affiliation and a need for power (Johnson and McClelland, 1984).

#### ***Achievement***

Gamification ensures that the goals are set and a continuously worked upon to accomplish this goal.

The employees are consistently monitoring their achievements hence more often than not they take calculated risks to accomplish their goals.

The review and feedbacks on their progress and achievements are a continuous process in a gamified system.

Every employee is part of the gamified system but the assessment is based on his individual.

#### ***Affiliation***

Since everyone is part of the process, gamified system ensures that the individual is inclusive part of the larger group.

Badges, Points and level ensures that the individual performance is the criteria for which he is liked, and will often go along with whatever the rest of the group wants to do.

Gamification is itself transparent and a continuous process and hence the risk and uncertainty associated to diminishes as the model matures.

#### ***Power***

Leadership boards and larger participations are the gamification attributes which enables the participant to provide a sense of control over others.

The visibility of the leaderboards enables the participant to enjoy status and recognition. It also helps the participant to have healthy and enjoyable competition.

## CONCLUSION

All the major motivational theories suggest that if gamification is employed by carefully planning through employee centric design, theoretically it will increase the motivation of the employees. Additionally, a gamified system would also result in much more engaged employees.

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