A STUDY ON GAMIFICATION – A TOOL TO INCREASE EMPLOYEE ENGAGEMENT AND PRODUCTIVITY

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Abstract: ***A study on gamification-a tool to increase employee engagement and productivity, was carried out in a manufacturing company. With a sample size of 220 participants, this study investigates the effects of gamification as a strategic tool to improve worker productivity and engagement with 500 employees. This study aims to assess the effectiveness of gamified approaches in creating a more motivated and productive workforce through a thorough review of gamification strategies and their application in the workplace. This study aims to offer important insights into the possible advantages of using gamification strategies into organizational culture by looking at important indicators.***

Key words: Gamification, Employee engagement, Productivity, Gamified strategies.

I. INTRODUCTION

Over the past ten years, there has been a significant surge in popularity for the issue of gamification, which is often defined as the application of game components outside of games (Deterding et al., 2011). The use of components from game design, such leaderboards, badges, and points, spread throughout society (Rapp et al., 2019). A great deal of study has been done over the years to try and create taxonomies and frameworks for gamification and game design components. Research has looked at architectures, designs, systems, and, most recently, the impact of gamified systems (Nacke and Deterding, 2017). The application of game design concepts to reimagine and enhance human resource management (HRM) procedures and instruments has received a lot of scholarly interest lately. Within organizations, Gamification has evolved as a powerful tool to increase employee participation and output. Its effectiveness in encouraging a supportive workplace atmosphere enabling workers to do their best is being represented by most recent researches. Thus, companies have introduced aspects of games in almost everything, such as points, badges, leadership boards and rewards aimed at making them feel as challenging as well as competitive.

The capacity of gamification to leverage intrinsic motivators—like a sense of mastery and accomplishment—is one of its most noteworthy features. These motivators are frequently more powerful than extrinsic rewards by themselves. Gamified systems incentivize staff members to establish and achieve objectives, monitor their advancement, and obtain prompt feedback, so cultivating an ongoing cycle of enhancement and education. Furthermore, gamification has shown to be especially successful in attracting and retaining millennial and Gen Z workers, who grew up in a digital age defined by interactive technologies and games. By utilizing well-known gaming mechanics and interfaces, businesses can connect with these workers and create a more engaging workplace that suits their tastes and demands. Gamification also has the potential to improve cooperation and teamwork among employees in businesses. Companies can create a sense of camaraderie and shared purpose among employees by creating collaborative challenges and activities that push teamwork toward common goals. This improves relationships between coworkers and the culture of the organization while also increasing productivity.

Recent case studies have demonstrated the observable advantages of gamification across a range of industries, such as better overall performance indicators, less staff turnover, and raised employee happiness. Gamified systems have been effectively used by companies like Deloitte, Microsoft, and Google to increase employee engagement and productivity. This demonstrates the usefulness and relevance of gamified systems in the current competitive business landscape.

Future technological developments, such as those in augmented reality and artificial intelligence, should significantly expand the potential uses and capacities of gamification in the workplace. Gamification is expected to stay a useful tool in employers' toolbox for developing a driven and productive workforce as long as they prioritize employee engagement and productivity as critical success factors.

The subtle effects of gamification on worker motivation and output have been highlighted by recent studies. The significance of personalization and customization in gamified systems is one important finding. Customizing game mechanics to fit specific player preferences and job roles improves relevance and efficacy, which raises player engagement and productivity. Iteration and continuous feedback are also essential for optimizing gamified experiences. Organizations can improve game features to better correspond with desired objectives and fix any issues or bottlenecks that develop by examining data on employee interactions and performance. Additionally, the advantages of gamification can be increased by combining it with other HR efforts like performance management and training courses. Through the integration of gamified components into current workflows, organizations may establish a more comprehensive and unified strategy for staff growth and engagement. This collaboration not only optimizes the effects of gamification but also guarantees uniformity throughout HR initiatives and expedites administrative duties. Ensuring justice and preventing unforeseen outcomes are crucial when it comes to problems. Gamification ought to encourage constructive actions and results while reducing the possibility of unfair competition or systemic gaming. To keep employees' confidence and credibility, compensation systems must be fair, transparent, and communicated clearly.

II. REVIEW OF LITERATURE

Harter J. K., Schmidt F. L., & Hayes T. L., (2023), "Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis". Harter et al. conducted a meta-analysis exploring the relationship between employee satisfaction, engagement and business outcomes at the business-unit-level. Their study revealed a significant positive correlation between employee engagement and various business performance metrics, including productivity, profitability, and customer satisfaction.

Bakker A. B., & Leiter M. P. (2023), "Work engagement: A handbook of essential theory and research".

Bakker and Leiter offer a comprehensive overview of work engagement, emphasizing its importance for organizational success. They delve into the concept's theoretical foundations, and measurement techniques and practical implications for enhancing productivity and employee well-being. Through surveys, interviews, and performance metrics, organizations can assess the level of work engagement among employees and identify strategies to foster a more engaged workforce, ultimately leading to improved productivity.

Kahn W. A., (2022), "Psychological conditions of personal engagement and disengagement at work".

Kahn presents a seminal work on the psychological conditions of engagement and disengagement in the workplace. He proposes that engagement occurs when employees experience a meaningful connection to their work, colleagues, and organization, leading to heightened levels of energy, involvement, and productivity. By conducting surveys, interviews, and performance evaluations, organizations can gauge the extent of employee engagement and take proactive measures to cultivate a more engaging work environment conducive to higher productivity levels.

Saks A. M., (2022), "Antecedents and consequences of employee engagement".

Saks examines the antecedents and consequences of employee engagement, shedding light on the factors influencing engagement levels and its impact on organizational outcomes. Through surveys, interviews, and performance metrics, organizations can assess the drivers of employee engagement, such as job characteristics, leadership styles, and organizational culture. By fostering a supportive work environment that promotes engagement, organizations can enhance employee productivity, retention and overall performance.

Rich B. L., Lepine J. A., & Crawford E. R. (2021), "Job engagement: Antecedents and effects on job performance".

Rich et al. explore the antecedents and effects of job engagement on job performance. Their research highlights the importance of factors such as job autonomy, social support, and organizational justice in fostering employee engagement and enhancing job performance. By utilizing surveys, interviews, and performance metrics, organizations can assess the level of job engagement among employees and implement strategies to optimize performance and productivity within the organization.

Werbach K. & Hunter D, (2020), "For the win: How game thinking can revolutionize your business".

Werbach and Hunter's book provides insights into how game thinking can revolutionize businesses. It explores various challenges such as resistance to change and lack of clear objectives, offering practical strategies for successful gamification implementation.

Deterding S., Dixon D., Khaled R., & Nacke L.,(2020), "From game design elements to gamefulness: Defining gamification".

This article defines gamification and discusses the transition from game design elements to gamefulness. It addresses potential challenges in gamification implementation, including concerns about fairness and transparency, and offers conceptual clarity for researchers and practitioners.

Huotari K. & Hamari J. (2020), "Defining gamification: A service marketing perspective".

Huotari and Hamari provide a service marketing perspective on defining gamification. They discuss potential challengesuch as resistance to change and lack of clear objectives, highlighting the importance of aligning gamification efforts with organizational goals.

Hamari J., Koivisto J., & Sarsa H. (2018), "Does gamification work? – A literature review of empirical studies on gamification"

This literature review by Hamari et al. examines empirical studies on gamification effectiveness. It addresses concerns about fairness and transparency, suggesting that while gamification can be effective, its success depends on various factors including clear objectives.

Morschhauser B., Hamari J., & Koivisto J., (2017). "Gamified crowdsourcing: Conceptualization, Literature review, and future agenda".

Morschheuser et al. explore gamified crowdsourcing, discussing potential challenges and barriers to successful implementation. They emphasize the importance of addressing concerns about fairness and transparency to enhance participation and engagement.

III. NEED OF THE STUDY

This study's main objective is to increase employee engagement by providing fun and interesting activities—gamification techniques being one way to achieve this. The study attempts to expand on our understanding of this phenomenon by examining the effects of gamification on employee engagement and productivity levels. Gamification has been demonstrated to increase workplace productivity by fostering a sense of accomplishment and acknowledgment upon task completion. Additionally, it fosters healthy rivalry among staff members, which promotes ongoing performance improvement. Gamified components that are included into goods or services have been shown to improve user experience and increase consumer loyalty, in addition to increasing employee engagement. By adding engaging and interactive components, consumers and brands form a closer relationship, which raises overall satisfaction.

IV. OBJECTIVES OF THE STUDY

- To assess the organization's present level of worker productivity and engagement using performance measures, interviews, and surveys.
- To investigate possible obstacles and hurdles to a successful application of gamification, including reluctance to change, unclear goals, and worries about justice and openness.
- To investigate the possible dangers and disadvantages related to gamification application in the workplace.
- To comprehend how staff members feel about gamification and whether they would be open to taking part in gamified events.

- To make suggestions for creating and putting into practice effective gamification initiatives that will raise worker productivity and engagement.

V. RESEARCH METHODOLOGY

The methodical approach to solving research problems is known as research methodology. It is a science that studies how scientific research is carried out. Both primary and secondary data are being collected as part of the study's methodology.

RESEARCH DESIGN

Descriptive research methodology was used for this investigation. A study using descriptive research aims to accurately portray the participants. According to authors Creswell (2014), there is a place for the aforementioned study design in developing a deeper comprehension of a problem or issue. By using a questionnaire and data analysis, the goal is to give a thorough and in-depth understanding of these characteristics.

SAMPLING TECHNIQUE

In this study, a common kind of nonprobability sampling approach called simple random sampling is employed for sampling. The questionnaire is distributed via email and WhatsApp, and the demographic being studied is known. This approach makes it practicable and convenient to get the necessary sample size for the study.

SAMPLE SIZE

There are 500 people in the population, and 220 people make up the study's sample. The Krejci and Morgan table is used to determine the sample size.

NORMALITY TEST

H0: The data follows normal distribution
H1: The data significantly deviates from normal distribution

Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
		220	0	0.957		0
					220	
					220	
					220	
Performance	0.127					
Obstacle					220	
	0.107	220	0	0.964		0
					220	
Scrutiny	0.151	220	0	0.943		0
Engagement	0.11	220	0	0.957		0
	0.115	220	0	0.957		0

a. Lilliefors Significance Correction

From the above table, P(sig) value (0.000) and (0.000) is less than 0.05. Hence, Null hypothesis is rejected. The data deviates from normal distribution. So non-parametric tools are applied.

NON-PARAMETRIC TEST

MANN - WHITNEY U TEST

H0: There is no significant difference between means ranks of age with respect to performance, scrutiny, obstacle, engagement and engage plus.
H1: There is a significant difference between mean ranks of age with respect to performance, obstacle, scrutiny, engagement and engage plus.

Ranks

	Age	N	Mean Rank	Sum of Ranks
Performance	1	78	44.64	3482
	4	9	38.44	346
	Total	87		
Obstacle	1	78	43.4	3385
	4	9	49.22	443
	Total	87		
Scrutiny	1	78	44.4	3463.5
	4	9	40.5	364.5
	Total	87		
Engagement	1	78	44.6	3479
	4	9	38.78	349
	Total	87		
Engage plus	1	78	44.63	3481
	4	9	38.56	347
	Total	87		

Test statistics

	Performance	Obstacle	Scrutiny	Engagement	Engage plus
Mann-Whitney U	301	304	319.5	304	302
Wilcoxon W	346	3385	364.5	349	347
Z	-0.704	-0.659	-0.444	-0.659	-0.688
Asymp.Sig(2-tailed)	0.482	0.51	0.657	0.51	0.491

a. Grouping variable: Age

Inference

Since P(sig) > 0.05, we accept null hypothesis. There is no significant difference between mean ranks of age with respect to performance, obstacle, scrutiny, engagement and engage plus.

KRUSKAL WALLIS H TEST

H0: There is no significant difference between the mean ranks of respondents gender with respect to performance, obstacle, scrutiny, engagement and engage plus.
H1: There is a significant difference between the mean ranks of respondents gender with respect to performance, obstacle, scrutiny, engagement and engage plus.

Ranks

	Gender	N	Mean Rank
Performance	1	158	109.96
	2	62	111.88
	Total	220	
Obstacle	1	158	110.08
	2	62	111.56
	Total	220	
Scrutiny	1	158	110.59
	2	62	110.26
	Total	220	
Engagement	1	158	111.5
	2	62	107.95
	Total	220	
Engage plus	1	158	111.34
	2	62	108.35
	Total	220	

Test Statistics

	Performance	Obstacle	Scrutiny	Engagement	Engage plus
Kruskal-Wallis H	0.041	0.024	0.001	0.14	0.099
df	1	1	1	1	1
Asymp. Sig	0.839	0.876	0.972	0.708	0.753

a. Kruskal Wallis Test

b. Grouping variable: Gender

Inference

Since P(sig) > 0.05, we accept null hypothesis. There is no significant difference between the mean ranks of respondents gender with respect to performance, obstacles, scrutiny, engagement and engage plus.

RUN TEST

H0: The run occurs in randomness.
H1: The run does not occur in randomness.

Run Test

	Age
Test value	2
Cases < Test value	78
Cases < Test value	141
Total Cases	219
Number of Runs	2
Z	-14.691
Asymp.Sig. (2-tailed)	<.001

a.Median

Run Test 2

	Age
Test value	2.05
Cases < Test value	140
Cases >=Test value	79
Total cases	219
Number of runs	2
Z	-14.692
Asymp. Sig. (2-tailed)	<.001

Run test 3

	Age
Test value	1
Cases<Test value	0
Cases>=Test value	219
Total cases	219
Number of runs	1

a. Mode

b. All values are greater than or less than the cut-off.

Runs cannot be performed.

c. Only one run occurs. Runs test cannot be performed.

Inference

The negative Z value indicates that there are fewer runs observed than expected under randomness. The very small P value (close to zero) suggests strong evidence against null hypothesis of randomness. Therefore, based on the run test results, it can be concluded that the sequence of data points (possible related to age in this case) does not appear to be random and may exhibit some systematic pattern. Hence the run doesn't occur in randomness.

KOLMOGOROV SMIRNOV GOODNESS OF FIT TEST

H0: The engagement scores or productivity metrics among employees follow a normal distribution.
H1: The engagement scores or productivity metrics among employees do not follow a normal distribution.

Frequencies

	Age	N
Perfromance	1	78
	4	9
	Total	87
Obstacle	1	78
	4	9
	Total	87
Scrutiny	1	78
	4	9
	Total	87
Engagement	1	78
	4	9
	Total	87
Engage plus	1	78
	4	9
	Total	87

Test Statistics

		Performance	Obstacle	Scrutiny	Engagement	Engage plus
Most Extreme Differences	Absolute	0.222	0.282	0.291	0.171	0.235
	Positive	0.103	0.282	0.124	0.158	0.09
	Negative	-0.222	-0.073	-0.291	-0.171	-0.235
Kolmogorov-Smirnov Z		0.631	0.801	0.825	0.486	0.668
Asymp. Sig. (2-tailed)		0.82	0.542	0.503	0.972	0.764

a. Grouping Variable: Age

Inference

Since the P(sig) > 0.05, we accept null hypothesis. Thus, engagement scores or productivity metrics among employees follow a normal distribution.

VI. SUGGESTIONS

- Embed informative content related to health and well-being within the gamified platform, promoting increased health literacy.
- Provide regular feedback on participant performance and offer personalized suggestions for improvement, enhancing their sense of agency.
- Ensure the gamified platform is user-friendly and accessible to a diverse range of individuals, including those with varying abilities.
- Develop gamification elements that target emotional regulation, using feedback mechanisms to help participants modulate their emotional responses.
- Implement reward structures that stimulate dopamine release in response to achievements, reinforcing positive associations with desired behaviours.
- Include team-based challenges to encourage social interaction and mutual encouragement among participants.

VII. CONCLUSION

In conclusion, the project titled, "Gamification – A tool to enhance employee engagement and productivity", has provided valuable insights into the benefits and challenges faced by employees working. Through data collection and analysis, I gained a clear understanding of these techniques and ideas to improve the employees performance through gamification. The research involved in depth processes to explore the impact of gamification among employees and findings have led to the actionable suggestions. Implementing these suggestions in the organization can help the employees to increase their productivity and engagement level, ultimately which leads to increased job satisfaction. The future looks bright for the intersection of neural activity and gamification as a powerful tool in promoting p positive behavioural change and cognitive advancement.