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The Role of Gamification in Enhancing Hotel Workers' Training

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ABSTRACT

The study aimed to identify gamification's role in enhancing hotel workers' training, as one of the modern concepts in training. The study relied on a quantitative and exploratory approach to achieving its goal. A questionnaire was designed and distributed to a random sample of workers in Cairo and Alexandria's four- and five-star hotels. The analysis of the collected data relied on the statistical analysis program SPSS V.28. The study concluded that the majority of the opinions of the study sample tended to strongly agree with the elements of the gamification concept, as well as the presence of a positive and significant direct relationship between gamification as an independent variable and the training of workers in the study sample hotels as a dependent variable. Based on the results, the study recommended the importance of Egyptian hotels adopting the concept of gamification within training plans for workers, qualifying those responsible for training to develop their abilities in designing training games, and encouraging workers to participate in designing games.

KEYWORDS

Gamification, hotel workers' training, four and five-star hotels.

دور التلعيب فى تعزيز تدريب العاملين فى الفنادق

صفوت عبدالمنعم درويش

مدرس بقسم ادارة الضيافة، المعهد العالي للسياحة والفنادق كينج مريوط

الملخص

هدفت الدراسة الى التعرف على دور التلعيب فى تعزيز تدريب العاملين فى الفنادق، كأحد المفاهيم الحديثة فى التدريب ، اعتمدت الدراسة لتحقيق هدفها على المنهج الكمي والاستكشافي، تم تصميم استمارة استبيان وزعت على عينة عشوائية من العاملين فى فنادق (اربع وخمس) نجوم بالقاهرة والاسكندرية، اعتمد فى تحليل البيانات التى تم جمعها على برنامج التحليل الاحصائي SPSS V.28 ، وقد توصلت الدراسة الى أن غالبية اراء عينة الدراسة قد اتجهت نحو الموافقة بشدة على عناصر مفهوم التلعيب، كذلك وجود علاقة طردية موجبة معنوية بين التلعيب كمتغير مستقل وتدريب العاملين بالفنادق عينة الدراسة كمتغير تابع، وبناءً على النتائج أوصت الدراسة بأهمية تبني الفنادق المصرية لمفهوم التلعيب ضمن خطط التدريب للعاملين ، كذلك تأهيل القائمين على التدريب لتنمية قدراتهم فى تصميم الالعاب التدريبية، وتشجيع العاملين على المشاركة فى تصميم الالعاب.

الكلمات الدالة

التلعيب، تدريب العاملين فى الفنادق، فنادق الاربع والخمس نجوم.

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Introduction

The development and enhancement of the knowledge and skills of employees in the tourism industry, which they need to provide exceptional experiences for customers and ensure the success of the work, is of utmost importance (Attia et al., 2024). The tourism and hospitality industry, like other industries in the current era, is characterized by technological advancement and an increasingly competitive work environment (Livermore et al., 2022). Employees are always looking for new ways to stay motivated and develop, while institutions strive to increase employee satisfaction, enhance productivity, and retain top talent (Bai et al., 2020).

Despite the significance of traditional methods for training employees, they greatly lack interaction, resulting in a gap in the knowledge and skills that employees in institutions must possess to perform their tasks correctly (Eisingerich et al., 2019). Given the difficulty of maintaining effective employee engagement, some companies have started looking for modern methods aimed at instilling enthusiasm and efficiency (Getman et al., 2024) . The term gamification has only been around since 2010, but it has already been widely used in many different industries for marketing and human resources purposes (Worimegbe et al., 2020). Within this framework, the hotel and tourist sector has started to see gamification for what it is: a strategic instrument to boost staff engagement, training results, and customer experience. According to Bravo et al. (2021), there is evidence that loyalty programs that incorporate gamification can enhance consumer engagement and happiness in the hotel industry. Elgarhy et al. (2023) cite previous research showing that gamification, when combined with engaging interactive approaches, increases consumers' internal incentives and repurchase intentions in the hospitality and tourism industries. Furthermore, Xu et al. (2016) emphasized the importance of gamification in marketing tourism using mobile gaming applications, while Worimegbe et al. (2020) demonstrated that gamification enhances the consumer experience through playful interaction. Gamification relies on human tendencies for competition, achievement, recognition, and self-actualization by incorporating gamification features such as points, levels, tasks, virtual objects, environments, and rankings (Kacerauskas et al., 2023). Therefore, this study believes that the application of gamification strategies will contribute to enhancing the effectiveness of hotel staff training by highlighting the components and elements of gamification and methods of application in training. Also, due to the limited studies that have addressed the topic of the study (Al-Azab & Abdellah, 2019; Elkasrawy & Elrouby, 2019; Al-Shamekh et al, 2023; Elgarhy et al., 2023), to the best of the researcher's knowledge, the proposed study derives its significance from presenting an effective modern training method to develop the skills and knowledge of employees in Egyptian hotels.

Research questions

Does gamification enhance the effectiveness of hotel employee training?

Does gamification contribute to enhancing the motivation of hotel employees?

Do gamification elements lead to increased interactive participation among trainees?

Is gamification expected to enhance performance?

What are the obstacles to implementing gamification in hotels from the employees' point of view?

Literature Review

Gamification definition

Gamification is considered one of the modern concepts that has garnered wide attention in various fields such as education, training, and hospitality, and many researchers have defined it. The literature agrees that gamification is the use of game design elements and techniques in non-game contexts to motivate and direct individuals' behavior (Mazarakis & Bräuer, 2023; Wu et al., 2024). This definition emphasizes the concept's connection to Motivational Learning Theory, where game mechanics are used as a means to enhance intrinsic motivation and achieve continuous interaction. Based on behavioral theory, gamification employs positive reinforcement methods through incentives and virtual rewards, as Alsawaier (2018) pointed out when he defined gamification as the process of using automated thinking and mechanics to attract users. This is also supported by Schöbel et al. (2020), who described gamification as a tool to provide enjoyable experiences that enhance the overall value for the customer, which aligns with the hypotheses of Social Cognitive Theory regarding the reciprocal effect between the individual and the context. Similarly, Shpakova et al. (2017) explained that integrating gamification into user interface design is a strategy to accelerate performance and facilitate transactions, reflecting its role in improving efficiency and satisfaction, especially in professional environments. Rapp et al. (2019) highlighted that gamification is not limited to motivation alone, but extends to behavior guidance and skill development, which links it to experiential learning theory.

From this perspective, gamification in the context of this study is understood as an applied extension of several theoretical foundations, such as motivation theory, behavioral reinforcement theory, and experiential learning. These theories collectively indicate that gamification can be effectively employed to improve training efficiency, increase employee engagement, and enhance expected performance, particularly in the hospitality sector. Recent literature shows the diversity of gamification applications in various fields such as business, healthcare, education, and workplace development. Mazarakis & Bräuer (2023) indicated that gamification strategies contribute to generating enthusiasm and motivating individuals by using game logic and its characteristics in non-gaming environments.

Similarly, Schöbel et al. (2020) see that gamification contributes to enhancing the value offered to customers by providing enjoyable and satisfying experiences, which aligns with the social perception theory that focuses on the reciprocal interaction between the individual and the environment. As Shpakova et al. (2017) explained, the role of gamification in improving user experience through the design of interactive interfaces aims to enhance efficiency and facilitate service processes, especially in professional environments. On the other hand, Rapp et al. (2019) presented an expanded view of gamification as a strategic tool for guiding behavior, developing skills, and fostering innovation, which reflects its close connection to experiential learning practices. Shahzad et al. (2023) emphasized the increasing importance of gamification in motivating individuals and enhancing their performance within various institutions. Krath et al. (2021) also explained that integrating elements inspired by video games into educational and training programs enhances learner engagement and interaction, especially through interactive activities, competitive

elements, and reward systems. Real-world applications, such as point systems used in credit card programs, as described by Saleem et al. (2022), provide a clear example of how gamification concepts can be transformed into practical tools to motivate performance in daily life.

Gamification and Employee Motivation

Mollick & Werbach (2015) assert that games can promote open and productive communication among employees. Khan et al. (2024) A platform including game aspects can offer a secure environment for individuals to articulate their issues, convey their viewpoints, and participate in discourse (Singh & Milan, 2025). Incorporating game features, like as incentives for active engagement or collaborative problem-solving, might incentivize employees to participate in conflict resolution initiatives (Klock et al., 2020). Games can transform conflict resolution into a communal endeavor. By seeing disagreements as puzzles or assignments, employees can collaborate to devise innovative solutions and surmount challenges. This method facilitates collaboration, cultivates a collective objective, and enhances a vibrant workplace culture grounded in teamwork (Herzig et al., 2015; Grünewald et al., 2019). Educational games may encompass activities that assist employees in cultivating vital dispute resolution skills, like active listening, empathy, and negotiating (Cardador et al., 2017). Employees can develop these abilities via interactive scenarios, simulations, or role-playing games in a low-risk setting, receiving feedback and prizes for their advancement. Improved conflict resolution abilities foster a more harmonious workplace (Clifton & Harter, 2021). Gamified methods can promote constructive behaviors that facilitate dispute resolution and boost workplace well-being. For instance, acknowledging and praising employees who proactively pursue solutions, arbitrate disputes, or demonstrate empathy might motivate others to adopt analogous behaviors. Games can cultivate a culture that prioritizes constructive conflict resolution, hence promoting a healthy and flourishing work environment (Dale, 2014; Höllig et al., 2020). A flourishing workplace is defined by elevated engagement, constructive interactions, and a nurturing environment, all of which can be enhanced through the proficient use of gamification principles (Herzig et al., 2015).

Elements and components of gamification

1- **The dynamics**

It comes in the system in a conceptual form that clarifies the nature of the relationship between players and mechanics within the system's elements, and the elements of dynamics can be enumerated as follows:

Constraints: They are the limits of the game or system, and they exist in every game, for example, the employee must complete a specific training within a set time (within 10 minutes) (An et al., 2024).

Emotions: An important element because emotions such as competition, happiness, or frustration determine the nature of the interaction with the game (Angafor et al., 2020).

The novel or stories: The most important aspect of this element is that it serves as an attraction factor for the participant, making them immerse themselves in the story, its characters, and events, and increasing their desire to be a part of it.

Progress: The player's growth and development, and their transition from one stage to another, which motivates them to play more (Alsawaier, 2018).
Relationships or social interactions: Relationships here include friendship, cooperation, and altruism, especially when playing within a team (Bahadoran et al., 2023).

2- **The mechanics**

According to Alibakhshi et al. (2024), these are the basic processes that drive people to interact with the game and motivate them to continue participating in it. The necessary mechanics for building a gamification system can be summarized as follows:
Challenges: These are the tasks, problems, and obstacles we face that require a solution.
Luck: It represents the random elements that appear in the game suddenly without any effort from the player, and it serves as a positive incentive for the player to continue.
Competition: It is one of the most prevalent elements in games among players, teams, and groups, and it is considered a strong motivator driven by the desire for victory (Armstrong & Landers, 2018).
Cooperation: It is more evident in team play where players collaborate to achieve a goal.
Feedback: It is the information that helps in evaluating a person's performance.
Resources: These are all the resources within the game (collecting points, medals, gold coins).
Rewards: What the player receives at the end of a certain stage or upon completing a specific task.
Transactions: What happens between the players themselves or with the game or system, such as exchanging points or items for equipment or tools, or another chance to continue (Du et al., 2020)
Substitution: Participation and exchange with players to maintain the game's sustainability by distributing efforts (appears within teams).
Winning condition: It clarifies the objectives and the actions the player must take to win.

3- **The ingredients**

It includes the largest number of game elements, which are clear and tangible, representing the actual tools we will use to build a system or environment based on gamification techniques. There are many such elements, for example: achievements, medals, addition and substitution, virtual characters, rare levels, dedication to others, the decisive challenge, and leaderboard (Bitrián et al., 2023; Mohamed, 2023).

4- **Points, badges, PBL leaderboard**

Points: Most video and mobile games rely on it and use points in two ways: exchangeable points and status points, which reflect people's performance, whether in play, work, or a classroom.
Medals: Points are somewhat similar in concept but differ in execution, where the badge is represented visually upon completing a task (Silic et al, 2020).

Leaderboard: In short, it is a ranking of individuals based on predetermined criteria, usually according to the number of points a person has accumulated during the game. Typically, the list is public, meaning everyone can see the participants' rankings, which creates an incentive for them to top the list.
Progress indicator: It is an indicator that shows you your progress in the task or game and how much is left to complete it. Despite the simplicity of the idea, it is considered a tremendous motivating and encouraging factor because the brain hates unfinished things. Seeing the indicator incomplete serves as an incentive to complete the required tasks.
Rewards and prizes (various types).
Randomness: It is granted based on the completion of a specific task without the reward recipient knowing about the reward, but its employment by system creators is a motivator for participants, making them engage more in the task to obtain more of it.
Time-limited: Receiving a reward every 6 or 12 hours, for example, from the game's time, is given by the system to the participant, providing an incentive and keeping the person continuously engaged with the game (system).
The specified: The granting of this to the participant depends on meeting certain criteria that are agreed upon in advance, such as inviting friends or promoting the game, or other activities.
Performance awards: These are the most important, especially in the application within the educational system, where they are based solely on the player's performance in the game. For example, a task may have a time limit, and the player earns a reward if they complete it within that time, or completing a certain level under specific conditions earns a reward, and so on.

5- **The stages**

The stages at the game level: where the task is distributed in the form of partial tasks and challenges that the player must complete a set of in each stage advance to the next stage. Here, the player learns new skills in each stage that qualify them to pass it and advance to subsequent stages that gradually increase in difficulty, which means they will be engaged in the game until they complete all the stages (Pradhan et al., 2023).
Difficulty levels: Most games offer levels (easy, medium, hard), and this is one of the most important factors to consider when designing a gamification system in education to ensure the system addresses the largest possible audience.

6- **Time pressures**

Time is one of the most important factors relied on in games, gamification, and more. Setting a time limit motivates participants to achieve, as the appearance of a timer in front of the player during the game and the countdown increases tension, focus, and motivation to make a quick and decisive decision (Dwi et al, 2022).

7- **Competition and cooperation**

There is no meaning to play without competition, challenge, and a continuous struggle to achieve victory, which serves as an incentive for players to improve their performance during the game, like chess, for example, or car racing games, or others. This is the case with individual games, but in team games, alongside competition and

challenge, cooperation emerges to ensure that the team reaches a common goal together, which is to overcome the opposing team (Al-Azawi et al., 2016).

8- **Types of players**

Explorers: Acquiring knowledge, exploring beyond boundaries, and finding gaps is what motivates these types of players. They enjoy gaining knowledge and showing it off to others, and they appreciate information and smart designs. They do not mind sharing exploration with others, but they prefer to work alone (Miri & Macke, 2022).

Creators: Creatives are motivated by being given opportunities to prove themselves. They love an environment that allows them to stand out with their unique experiences, leave their mark, and express their distinctiveness. They are ready to use all available tools to gain the admiration and appreciation of others. Creative players value a serious work approach and use their style, relying on their creative skills to influence others.

Competitors: Competitors are motivated by the opportunity to test their acquired skills and abilities. They love to develop their skills, showcase them, and understand their position and role within the group. They also appreciate the ability to work and build friendships through friendly competition (Leung et al., 2022).

Collaborators: Collaborators are motivated by working with others to achieve goals. They enjoy winning together and measuring success as a collaborative effort. This type of player also loves forming teams or groups and values the importance of joint cooperative work and building relationships through shared tasks (Xi & Hamari, 2020).

Steps to implement gamification

- Setting Goals: The goals here refer to any objective achieved through performance, such as improving the level of participation among individuals (in this stage, the goals are formulated and prioritized).
- Identifying target behaviors: Identifying several behaviors that collectively achieve the performance goal while focusing on individual needs.
- Player Classification: At this stage, participants can be classified into four different categories, which is an important step in identifying the motivations that drive each category and incorporating them into game design (Radwan & Elsaid, 2020).
- Identifying Learning Resources and Tools: At this stage, the trainer prepares the learning resources that the trainees will be directed to or the tools that will be used to gamify the content and environment (Bitrián et al., 2023).
- Introducing fun and entertainment: One of the most important elements of gamification is moving from a routine performance to fun and entertainment while achieving goals without pressure. The element of fun and entertainment in the system can be judged by whether people's interaction with it remains despite the removal of external incentives (Bassanelli et al., 2022).
- Choosing the appropriate elements and technologies: This phase is considered a cumulative phase where the summaries and data from the previous phases are employed to select the technologies included in the system, and to redevelop and enhance it each time the system is used.
- Implementation, continuous evaluation, and feedback: In the case of implementing the gamification system for the first time, we need to monitor the process, evaluate it,

and utilize feedback to develop the system and address any gaps if they exist (Xi & Hamari, 2020).

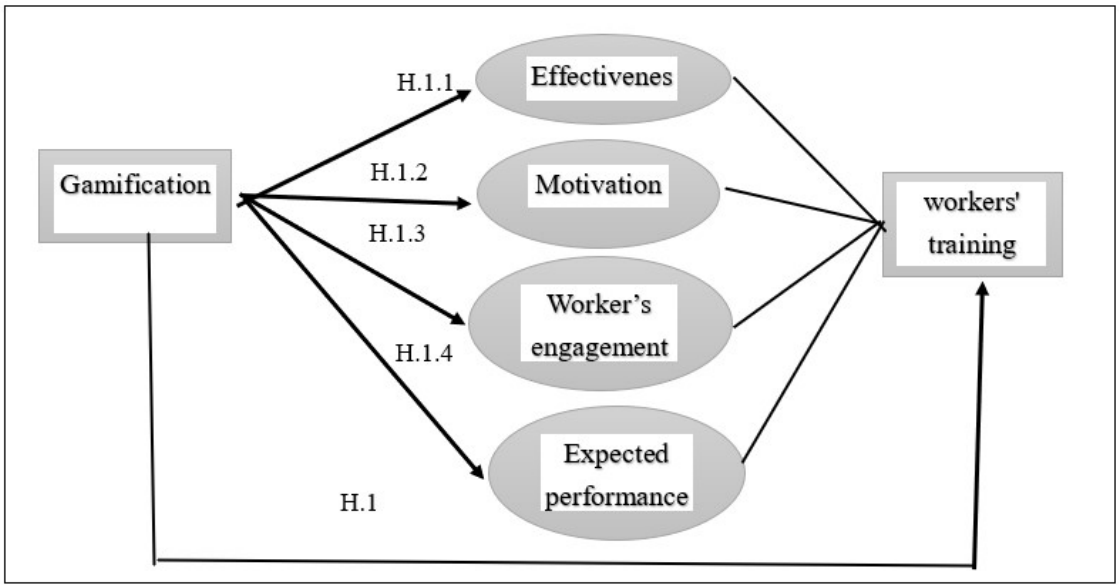

Figure1. The proposed model

Hypotheses

The main hypothesis

H.1: There is a statistically significant relationship between gamification and training.

Sub-hypotheses

H.1.1: There is a significant effect between gamification and effectiveness.

H.1.2: There is a significant effect between gamification and motivation.

H.1.3: There is a significant effect between gamification and the workers' engagement.

H.1.4: There is a significant effect between gamification and the expected performance.

Methodology

The study relied on a quantitative and exploratory approach to fulfill its goal. Based on the literature, the variables used in this study were adapted from previous findings and combined. (Figure 1), The gamification variable was measured with 11 items that included the seven elements of gamification, its benefits, and ease according to (Hamari & Koivisto, 2015; Vardarlier, 2021; Saleem et al., 2022; Bahadoran et al., 2023). The training variable was measured as a dependent variable according to: First, the variable (effectiveness) 6 items, second, the variable (motivation) 6 items according to (Attia et al., 2024), third, the variable (workers' engagement) 5 items that included physical, emotional and cognitive participation according to (Arwab, 2022). Fourth, the variable (performance) has 3 items according to Khan et al. (2024).

Sample and Data Collection

The study sample was selected from four- and five-star hotels in Cairo and Alexandria, which number 29 five-star hotels and 19 four-star hotels (Egyptian Hotel Guide, 2024). The sample was selected for its financial, human, and technological

capabilities and its continuous efforts to achieve competitiveness and develop the skills of its employees through training departments. 600 questionnaires were distributed, 480 of which were returned, 400 of which were valid for statistical analysis at a rate of 83%. The sample size was calculated based on the Krejcie and Morgan equation:

$$n = \frac{x^2NP(1-P)}{d^2(N-1) + x^2P(1-P)}$$

n= Sample size required

x^2= The value of the chi-square at a degree of freedom (1) and a significance level of 0.05 = 3.481

N= Community size

P= The percentage of the phenomenon in the community, which will be fixed in all formulas at (0.05)

d= The margin of error is the maximum amount of error allowed in the estimate. It usually takes a value of 0.05 or 0.01.

The sample also asked about the obstacles they see as facing the application of gamification in hotels. It included five statements, and a five-point Likert scale was used, where strongly agree = 5, and strongly disagree = 1. Two electronic questionnaires were designed to collect data in Arabic and English, which included in their introduction a brief definition of the concept of gamification, its elements, and objectives. Some specialists and interested parties helped distribute the questionnaire links to the workers. Several methodological measures were taken to reduce bias in participants' responses, including ensuring data confidentiality and anonymity, which encouraged participants to answer honestly and without fear of evaluation. It was also clarified that the answers would not be used for personal evaluative purposes, but only for research purposes. The survey items were formulated in clear and neutral language to minimize the likelihood of influencing the respondent, with variation in phrasing between positive and negative to reduce the tendency to respond in the same pattern. Additionally, the survey was initially tested on a pilot sample to ensure the items were understood correctly, and the phrasing was adjusted when necessary. This study was conducted from August to October 2024.

Statistical analysis methods

The study relied on frequency tables to analyze the data obtained, calculating the mean and standard deviation. Additionally, Cronbach's alpha was used to assess the reliability and validity of the questionnaire. For hypothesis testing, Pearson's correlation coefficient was used to clarify the relationship between the study variables, and to determine the impact values of the independent variable, simple linear regression was employed.

RESULT

Table 1 illustrates the demographic characteristics of the study sample, which consists of 400 participants. It was found that the majority were males, accounting for 62.5%, compared to 37.5% females. The most represented age group was from 25 to less than 35 years old, at 52.5%, followed by participants over 35 years old (27.5%) and those under 25 years old (20%). In terms of educational qualifications, individuals holding a

bachelor's degree made up the largest percentage (67.5%), followed by those with postgraduate degrees (17.5%) and those with a high school diploma or equivalent at 15%. Regarding work experience, 40% of the sample had 3 to 5 years of experience, while 37.5% had more than 5 years of experience, and only 22.5% had less than 3 years of experience. These results indicate that the sample mainly consists of young, educated individuals with moderate to high professional experience, which enhances the credibility of the responses related to the study topic.

Table 1: Demographic characteristics of the study sample

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	250	62.5%
	Female	150	37.5%
Age Group	Under 25 years	80	20.0%
	25–34 years	210	52.5%
	35 years and above	110	27.5%
Educational Level	High School / Diploma	60	15.0%
	Bachelor's Degree	270	67.5%
	Postgraduate Studies	70	17.5%
Years of Experience	Less than 3 years	90	22.5%
	3 to 5 years	160	40.0%
	More than 5 years	150	37.5%

It is clear from Table 2 that the results of Cronbach's alpha coefficient indicate that the study tool has a high degree of internal consistency, with an alpha value of 0.988 for all items combined, which is considered very excellent according to statistical standards. The sub-dimensions of the various variables also showed values ranging between 0.895 and 0.974, indicating a good to excellent level of reliability (Nunnally & Bernstein, 1994). As for construct validity, the correlation coefficients between each item and the total score of its scale showed that all of them far exceed the acceptable value of 0.30 by a large margin, as all of them reached more than 0.90, which is strong evidence of internal consistency among the items. The literature indicates that these values indicate high consistency in measurement (Tavakol & Dennick, 2011; Pallant, 2020). In addition to the statistical results, the design of the study tool based on previous literature and peer-reviewed scientific studies enhances its face and content validity, which is one of the important indicators of the quality of measurement tools (DeVellis, 2016). Therefore, the measurement tool is considered reliable and valid for use.

Table 2: Cronbach’s alpha coefficient for the main variables

Variables	Cronbach's Alpha	Cronbach's Alpha based on standardized items	Correlation	N of Items
All	.988	.990	0.972	31
Gamification	.943	.961	0.968	11
workers' training	.974	.975	0.973	6
Effectiveness	.971	.971	0.973	6
Motivation	.955	.957	0.971	5
Worker’s engagement	.895	.898	0.962	5
Expected performance	.955	.957	0.918	3

Table 3 shows the results of the statistical analysis of the study tool items. All the arithmetic means of the items were high, ranging between 3.98 and 4.14, indicating a high level of agreement from the sample members on all the statements, which reflects a positive attitude towards gamification and its benefits on the training environment. In terms of standard deviation, the values ranged between 0.40 and 0.73, which are relatively low, indicating the homogeneity of the responses and the lack of significant variation among individuals. Most values for skewness and kurtosis fell within the statistically acceptable range (±2), which supports the normal distribution of the items and enhances the validity of the data for parametric tests. As for the Corrected Item-Total Correlation, all the values were high (mostly above 0.9), indicating a high degree of internal construct validity of the scale, and confirming the consistency of the items with the axis they belong to.

Table 3: Measurable Items

Variables	Item	Mean	Std Deviation	Skewness	Kurtosis	C-C
1	**Gamification**					
1.1	Gamification includes progress points that help in evaluating people based on their degree of interaction.	3.99	.73	0.106	0.065	0.893
1.2	Gamification divides the training process into specific levels and clarifies one of the training objectives.	4.09	.47	0.258	1.131	0.934
1.3	The challenges faced by the trainee are one of the mechanisms of the training process.	4.02	.43	1.11	2.32	0.968
1.4	The trainees' participation and interaction with each other are a basic factor in achieving the training objectives.	4.02	.43	1.112	1.322	0.967
1.5	The training process must be characterized by competition between trainees.	4.02	.43	1.131	1.254	0.961
1.6	The appearance of personal progress for each trainee, whether individually or as a team, enhances the achievement of the training objective.	4.02	.43	1.141	2.250	0.961
1.7	Including the training process on a leaderboard for trainees for evaluation and comparison enhances the training process.	4.02	.42	1.004	2.326	0.964
1.8	Gamification elements facilitate understanding and knowledge for trainees in training.	4.02	.42	1.214	1.214	0.968
1.9	Gamification elements enhance the achievement of training objectives in the hotel.	4.02	.42	1.524	1.214	0.968
1.10	Gamification elements improve the excitement, interest, and enjoyment of	4.02	.42	1.634	1.521	0.968

	trainees during the training process.					
1.11	Applying the gamification strategy reduces the disadvantages of traditional training methods such as lectures, seminars, and workshops.	4.03	.42	1.214	1.621	0.967
2	**Workers' training**					
2.1	**Effectiveness**					
2.1.1	The application of gamification elements enhances the effectiveness of the training process as an implementation tool.	4.03	.42	-1.012	.243	0.973
2.1.2	Gamification elements contribute to enhancing the effectiveness of trainees' performance within the training process.	4.02	.43	-1.156	.243	0.973
2.1.3	Trainees' participation in designing games contributes to enhancing trainees' interaction to achieve the training goal.	3.98	.49	-1.373	.243	0.971
2.1.4	Integrating gamification elements increases the effectiveness of the training process.	4.01	.46	-1.338	.243	0.970
2.1.5	The feedback tool (progress bar) in the gamified training program will help employees identify areas for improvement.	4.00	.48	-1.555	.243	0.973
2.1.6	The proposed gamification elements, including points, levels, and leaderboards, align with hotel employees' training objectives.	4.02	.48	-1.151	.243	0.973
2.2	**Motivation**					
2.2.1	The points system in gamification enhances my motivation in training.	4.03	.44	1.030	1.774	0.968
2.2.2	Challenges in the gamification process increase enthusiasm in the training process.	4.02	.44	1.131	1.201	0.970
2.2.3	Interacting with trainees motivates me to gain new practical experiences and skills.	4.04	.45	0.938	1.343	0.972
2.2.4	Competing in the training process makes me feel enthusiastic and motivated to reach the top	4.01	.44	1.113	1.524	0.969
2.2.5	Allowing me to know my progress through the progress bar motivates me to continue with a better level of performance in training.	4.03	.42	1.012	1.885	0.972
2.2.6	My participation in designing training games makes me more enthusiastic to participate in training.	4.03	.41	1.046	1.109	0.971

2.3	**Worker's engagement**					
2.3.1	I expect that gamification elements will contribute to the hotel staff's mastery of their work.	4.02	.41	1.082	1.342	0.958
2.3.2	I believe that gamification will enhance the staff's attempt to perform their work well.	4.02	.40	1.159	1.835	0.962
2.3.3	I expect that gamification will contribute to making the staff more interested in their work.	4.05	.48	0.647	1.910	0.961
2.3.4	I believe that gamification will enhance the curious and emotional side of the staff about work.	4.06	.44	0.738	1.878	0.957
2.3.5	I believe that gamification will enhance the staff's focus on their work.	4.04	.46	0.752	1.856	0.962
2.4	**Expected performance**					
2.4.1	I expect that applying gamification in training will make me more attentive to performing my tasks well.	4.06	.45	0.720	1.729	0.918
2.4.2	I expect that applying gamification in training will help me develop better ideas to improve my work.	4.14	.51	0.471	1.725	0.916
2.4.3	I expect that interacting in training with employees during gamification will gain me curiosity and internal interest that leads to better quality work.	4.02	.46	0.179	1.734	0.916

Table 4 indicates the opinions of the study sample regarding the obstacles that may be faced in the application of gamification in the training process in hotels. The fourth statement, which states that the high cost of applying gamification is the biggest obstacle, obtained an arithmetic mean of 4.09. The second statement, which includes that those in charge of training adhere to traditional methods, may be one of the obstacles that will face the application of gamification, obtained an arithmetic mean of 3.97. While the majority of the sample did not agree that both the human resources qualified to design the tool, as well as the obstacles related to designing the tool itself, are important obstacles facing the application of gamification. The last statement obtained the lowest level, which includes that the awareness of workers about gamification and that they are not receptive to practicing gamification is incorrect and not an obstacle, and this indicates their readiness and enthusiasm towards real participation if gamification is applied as a strategy in training.

Table 4: Obstacles facing the application of gamification in training in hotels

Phrases	Frequency					Mean	STD Deviation
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
Scarcity of qualified human resources to design the tool.	85	144	85	77	9	2.45	1.09
	%21.3	%36.0	%21.3	%19.3	%2.3		
Trainers' adherence to	0	20	37	277	66	3.97	.67

traditional methods.	0	%5.0	%9.3	%69.3	%16.5		
Obstacles related to designing the tool itself.	42	222	95	34	7	2.35	.84
	%10.5	%55.5	%23.8	%8.5	%1.8		
The high financial cost of implementing gamification.	0	4	18	313	65	4.09	.48
	0	1.0	4.5	78.3	%16.3		
Lack of awareness among employees and their unwillingness to train through gamification.	42	256	84	17	1	2.19	.68
	%10.5	%64.0	%21.0	%4.3	%0.3		

Table 5: ANOVA (One-Way Analysis of Variance)

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1403.570	4	350.893	570.067	.000
Within Groups	1227.980	1995	0.616		
Total	2631.550	1999			

Table 5 displays the results of the One-Way ANOVA test that was used to see if there are any statistically significant variations in the participants' mean replies to the five statements that reflect possible obstacles to gamification. A high F value (570.067) indicates a statistically significant difference between the means. There is a statistically significant difference between the groups, as the p-value (Sig.) = 0.000 is lower than the generally accepted significance level (0.05). This finding provides support for the alternative hypothesis, which proposes that the participants' assessments of the different obstacles differ significantly from one another, and against the null hypothesis, which claims that the means of these evaluations are identical.

Testing study hypotheses

H.1: There is a statistically significant relationship between gamification and training

Table 6: Tests of normality

Variabel	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Gamification	.027	400	.200*	.997	400	.765
Workers' training	.027	400	.200*	.997	400	.765
Effectiveness	.027	400	.200*	.993	400	.061
Motivation	.024	400	.200*	.998	400	.861
Worker's engagement	.036	400	.200*	.997	400	.605
Expected performance	.030	400	.200*	.996	400	.532

Table 6 demonstrates the normality of the research variables by the Kolmogorov-Smirnov test and the Shapiro-Wilk test, revealing that all significance values exceeded 0.05, hence suggesting a statistically significant normal distribution of the data.

Table 7: Pearson's correlation coefficient

Sig	Pearson Correlation
.000	.189**
** *Correlation is significant at the 0.01*	

Table 7 shows the Pearson correlation coefficient between gamification as an independent variable and employee training as a dependent variable, where the Pearson coefficient value is .189**, which is a weak positive value between the two variables. It is also a statistically significant value as the p-value is 0.00, which is less than 0.05, indicating the acceptance of the main hypothesis of the study.

Sub-hypotheses

H.1.1: There is a significant effect between gamification and effectiveness.

H.1.2: There is a significant effect between gamification and motivation.

H.1.3: There is a significant effect of gamification and the workers' engagement.

H.1.4: There is a significant effect between gamification and the expected performance.

Table 8: Linear regression results for the effect of gamification on sub-variables

Dependent variables	R	R^2	B	Beta	Sig.	Interpretation
Effectiveness	.200	.040	.196	.200	.000	A significant positive relationship, with a weak effect size.
Motivation	.099	.010	.094	.099	.047	A significant positive relationship at 0.05, the effect is very weak.
Workers' engagement	.014	.000	.010	.014	.773	There is no statistically significant relationship.
Expected performance	.184	.034	.166	.184	.000	A significant positive relationship, with a limited but clear impact.
Significant correlation at the level of p>0.05						

Table 8 shows the results of the simple regression analysis to examine the effect of the gamification variable on the dependent variables. The effect of gamification on the variable effectiveness. The relationship was positive and statistically significant (B = 0.196, Sig. = .000), with a coefficient of determination R^2 = 0.040, indicating that gamification explains only 4% of the variance in effectiveness, meaning the effect is present but weak. The effect of gamification on the variable motivation. The relationship is also positive and significant at the 0.05 level (B = 0.094, Sig. = .047), but the effect is considered very weak (R^2 = 0.010). The effect of gamification on the variable workers' engagement. The relationship is not statistically significant (Sig. = .773), which means that gamification does not significantly affect engagement according to these results. The effect of gamification on the variable expected performance. The relationship is positive and significantly strong (B = 0.166, Sig. = .000), and the effect of gamification here explains 3.4% of the variance in expected performance.

Table 9: Results of hypothesis tests.

Results of hypotheses	
H.1: There is a statistically significant relationship between gamification and training.	Supported
H.1.1: There is a significant effect between gamification and effectiveness.	Supported
H.1.2: There is a significant effect between gamification and	Supported

motivation.	
H.1.3: There is a significant effect between gamification and the workers' engagement.	Not supported
H.1.4: There is a significant effect between gamification and the expected performance.	Supported

Conclusion

The study aimed to identify the role of gamification in enhancing hotel workers' training. Through reviewing the literature and the results of the field study, the study reached:

- Through the results of the opinions of the study sample towards the concept of gamification and its components as one of the modern methods in training, the response of the majority of the sample's opinions was in agreement with the vocabulary of the gamification variable, which includes the benefits and facilities resulting from gamification in training. This shows the extent of hotel workers' awareness and understanding of the importance of gamification as a technological mechanism and a modern method of training, and that gamification will eliminate the negatives of traditional training methods, as well as the high-level response towards gamification elements including (progress points - stages - challenges - participation - competition and personal progress). This shows the extent to which the training process needs such dynamic elements in training. This result is consistent with the study (Xu et al., 2017; Attia et al., 2024).
- The results of the study showed a high response regarding their question about the extent of the impact of the application of gamification on the effectiveness of training, as it is clear that the study sample understands and realizes the importance of the program and methods of implementing training based on the principle of effectiveness through the effectiveness of the trainees themselves, which is provided to them by feedback, progress bar, and leaderboards. The presence of this mechanism contributes to enhancing effectiveness, which leads to the success of the training in achieving its goal. This result is consistent with the study of Khan (2024) and Abril et al. (2024).
- The study concluded that the gamification components including (points - challenges - interaction - competition - progress bar - the participation of the workers themselves in designing training games), as the results showed regarding the motivation variable, contribute greatly to motivating workers during their training and ensuring continuous participation in training and enhances their enthusiasm towards training and acquiring new skills and knowledge to achieve leadership, and this is consistent with the study (Leung et al., 2022; An et al., 2024).
- The study concluded that gamification achieves the greatest impact when applied, based on the opinions of the study sample in both the expected performance from applying gamification as well as the interaction of workers. This result was consistent with the study (Bravo et al., 2021; Benitez et al, 2022; Thomas & Baral, 2023).
- The study also concluded that the most important obstacles that may face gamification in hotels, according to the results of the study, are the financial cost as well as the adherence of those responsible for training to traditional training methods. This shows the extent to which hotel workers are aware of modern technological progress, and that there is no difficulty in designing technological training games, and

that there are qualified specialists who can do this, and this is consistent with the study (Al-Azab & Abdellah, 2019).

-The results of the regression analysis showed that gamification contributes to varying degrees in explaining the changes in some variables related to the performance of hotel employees in the study sample. It was found that there is a statistically significant positive relationship between gamification and training effectiveness, motivation, and expected performance.

-The study results showed that gamification can contribute to improving certain aspects, such as effectiveness, motivation, and expected performance, but the impact remains limited, reflecting the need to integrate gamification within broader strategies that include training, interaction, and organizational support to enhance effectiveness. These results align with the findings of Zhou & Wang (2020), which confirmed that the use of gamification in hotel training programs led to a significant increase in employee motivation and performance, although the impact was greater when gamification was combined with a supportive organizational environment. The study by Kim (2018) in the tourism sector also supported these findings, as it showed that gamification is a good motivator in training activities, but it is not sufficient on its own to achieve sustainable employee engagement.

-The study results did not show a statistically significant relationship between the variable "gamification" and the variable "employee engagement" in the hotel work environment, which indicates that merely incorporating game elements does not automatically ensure an increase in employee interaction or their commitment to the tasks assigned to them. This result aligns with the findings of the study by Garris et al. (2017), conducted in several major hotels, which showed that gamification might contribute to attracting attention and improving short-term performance, but it was not sufficient to generate sustainable engagement, especially if not supported by motivational leadership methods or an encouraging organizational culture. The study also showed that employees in work environments subjected to high pressure or bureaucracy do not interact with gamification elements with the same level of enthusiasm compared to those working in more flexible environments. This reinforces the hypothesis that the actual impact of gamification on engagement requires supporting factors that go beyond simple visual or motivational design.

Table 10: Comparison between the current study results and previous studies

The Axis	Study results	Literature Review	Highlights
Effectiveness	A statistically significant positive relationship (r = .200, Sig. = .000)	Zhou & Wang (2020): A clear positive relationship with Effectiveness	Agreement in the result
Motivation	A weak significant relationship (r = .099, Sig. = .047)	Kim (2018): A significant positive impact when integrating gamification with various methods.	Convergence with differences in the magnitude of impact
Worker's engagement	There is no significant relationship (r = .014, Sig. = .773)	Garris et al. (2017): Gamification alone is not enough to enhance engagement without organizational support.	Agreement with an environmental and regulatory interpretation

Expected performance	A statistically significant relationship (r = .184, Sig. = .000)	Kim (2018): Improvement in employees' immediate performance through gamified training	Agreement with a difference in focus

Recommendations

Through the literature and results, the study recommends:

- Adopting the gamification strategy as one of the modern training methods for training in Egyptian hotels.
- Encouraging hotel workers to participate with their ideas through workshops to provide recommendations for training and motivational games that can be designed.
- Qualifying those responsible for training in hotels to be able to design integrated training programs for all areas of hotel work in the form of training games.
- Human resources should develop a mechanism to identify the extent of new employees' awareness during personal interviews of the concept of gamification and the extent of their enthusiasm and orientations to deal with motivational games, to identify their needs, and motivate them to train through gamification.
- Collaborating with various gamification platforms to offer gradual gamification programs to encourage employees to participate, as well as to mitigate the cost of establishing a complete gamification platform.
- Providing incentives to those in charge of training to encourage them to innovate and deliver gradual and engaging programs that develop hotel employees' skills and encourage them to practice gamification.

Limitations and future research

The current study aimed to highlight the importance of gamification as a modern training tool that has been the focus of much scientific research in various sectors. However, since the concept is new and has not been widely applied in the training of Egyptian hotel workers, one of the study's limitations was the inability to use the pre- and post-comparison method after applying gamification to the workers. Rather, it relied on the workers' awareness of this concept through what was presented in the questionnaire or personal experiences, as well as the nature of humans in their inclination or practice of games. The sample size may also be one of the study's limitations. The cross-sectional design of the study limits the ability to infer causal relationships between variables. Also, relying on data collected through self-administered questionnaires may expose the results to potential bias, as participants might tend to provide socially desirable answers. Additionally, the study's focus on hotels as the sample within a specific cultural and geographical context may limit the generalizability of the results to other sectors or communities. The study's reliance on a quantitative approach may not fully capture the depth of participants' experiences or motivations. Therefore, the study recommends conducting longitudinal studies. To track the long-term impact of gamification and identify causal relationships between variables. Using qualitative methods such as interviews or focus groups, to explore employees' perceptions of gamification more deeply. Studying different organizational environments, such as small hotels or restaurant chains, to examine the variation in results based on context. Finally, integrating actual behavioral data alongside surveys to improve result accuracy and reduce self-bias.

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