

GAMIFICATION EFFECTIVENESS IN TOURISM INDUSTRY: EVIDENCE FROM HUMAN RESOURCE PROCESS TRACING

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ABSTRACT

There is a pervasive belief that irresistible organizations are forged by exceptional employees who carefully selected and possess the right competencies. The aim of this study is to delve into the true efficacy of gamification in the recruitment process, specifically within a leading railway transportation company that can have many lessons to tourism industry. To address the core concern of this research, we adopted an innovative case study research strategy called "Outcome Explain Process Tracing". This approach allowed to gather various types of data, combining insights from a thorough literature review to establish theoretical clues, alongside data from passenger surveys, interviews with managers and crews, and relevant organizational archives and documents to provide practical evidence. The results of this study demonstrate that gamified recruitment, from the perspective of key stakeholders in the process (Passengers, Managers, and Crews), has been exceptionally effective in generating a competitive advantage. The findings of this study are expected to offer substantial insights into the tourism industry, empowering it to make informed decisions when redesigning their HR (human resources) processes. The investigation's results suggest that incorporating an element of fun in HR processes can remarkably improve HR-related Key Performance Indicators. This study makes a significant contribution to the gamification literature by investigating its effectiveness within the realm of HR practices in the tourism industry.

KEYWORDS: *gamification effectiveness, process tracing, recruitment, tourism, train crew.*

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1. INTRODUCTION

Rail transport companies are placing immense emphasis on acquiring highly qualified employees, recognizing that the success of the tourism industry hinges on the behavior and service provided by their crew. Extensive research in various sectors, such as airlines, has shown that the "quality of cabin service" plays a central role in passengers' choice of companies (Bamford & Xystouri, 2005; Chang & Yeh, 2002). Rail transportation serves as a pivotal pillar of the tourism industry in numerous countries, exerting a strategic influence on the prosperity of the sector and generating sustainable economic income.

Operating in a dynamic and competitive environment, rail transport companies face the challenge of gaining a competitive advantage. The key to sustainability lies in satisfying stakeholders, emphasizing service quality, creating value, and prioritizing both internal and external customers (Chen, 2008). To achieve this, value creation and value proposition become crucial, and customers must be at the heart of all activities, including employee recruitment and training. The quality of

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human resources directly impacts service delivery efficiency, customer satisfaction, and overall service quality (Chapman & Lovell, 2006). Particularly in rail transport companies, train crews have direct interactions with customers, significantly shaping their perception of service quality. Research has consistently shown that employee behavior plays a vital role in crafting a pleasant experience and enhancing passenger satisfaction, leading to customer loyalty and advocacy for the brand (Gibbs et al., 2017).

Despite the importance of service quality, the Transporter report (2020) reveals that passenger satisfaction with rail transport has declined to its lowest level in a decade (79%). The service industry faces persistent challenges due to employee incompetence, and the nature of hospitality work, especially on trains, leads to consistently high crew turnover, estimated at around 25% (Statista, 2020). Additionally, the report indicates that 31% of new hires leave within the first six months. These concerns highlight the need for careful consideration of recruitment and training processes in the hospitality industry, specifically in the rail transport sector.

Recognizing the need for innovation, some pioneering companies in the hospitality sector, including trains, airlines, hotels, and restaurants, have discovered the secret to gaining a competitive edge over their rivals by investing in competency-based recruitment and training. Furthermore, they have begun harnessing the power of games, gamification, and serious games to facilitate their goals.

This research aims to address the primary issue of the effectiveness of gamification in the recruitment process. The effectiveness of gamifying various business processes is a global concern, yet a reliable approach and method have not yet been developed. To shed light on this subject, this study will adopt a stakeholder analysis approach, using a gamified recruitment process as a case study to trace its effectiveness.

By delving into the impact of gamification on recruitment, this research seeks to provide valuable insights for rail transport companies and the broader hospitality sector. The findings may pave the way for novel strategies to attract and retain top talent, thereby enhancing service quality, customer satisfaction, and ultimately, the success of the tourism industry. As the quest for exceptional service intensifies, embracing innovative recruitment methods and employee engagement through gamification could hold the key to a prosperous future in the rail transport and hospitality landscape.

2. THEORETICAL FOUNDATION AND BACKGROUND

2.1. Human resources in the tourism industry

From a bibliometric perspective, research on human resources as seen in the tourism industry has a recent development. Authors' interest on this subject emerged almost four decades ago, as found in a recent search of the two keywords: "human resource" and "tourism" in the Web of Science (WoS) database (using only the title search, so the keywords had to be found together, simultaneously within the title of the articles). However, as can be seen in Figure 1, it was a shy start, followed by a period of three years of registering no articles on this subject. A fast sharp increase in the number of articles dealing with the theme of human resources in the tourism field, has been registered in 1994. Since then, there have been ups and downs in the scientific production as related to the mentioned theme. The maximum of publications is found at the 2017 level, out of a total of 141 documents.

Moving on, if taking into account the authors' affiliations, one can observe that depending on the corresponding author's affiliation, the scientific production can be seen as in Figure 2. So, the major contributors on this research theme are: Peoples Republic of China, USA, England and Canada, followed by Romania, Australia, Greece.

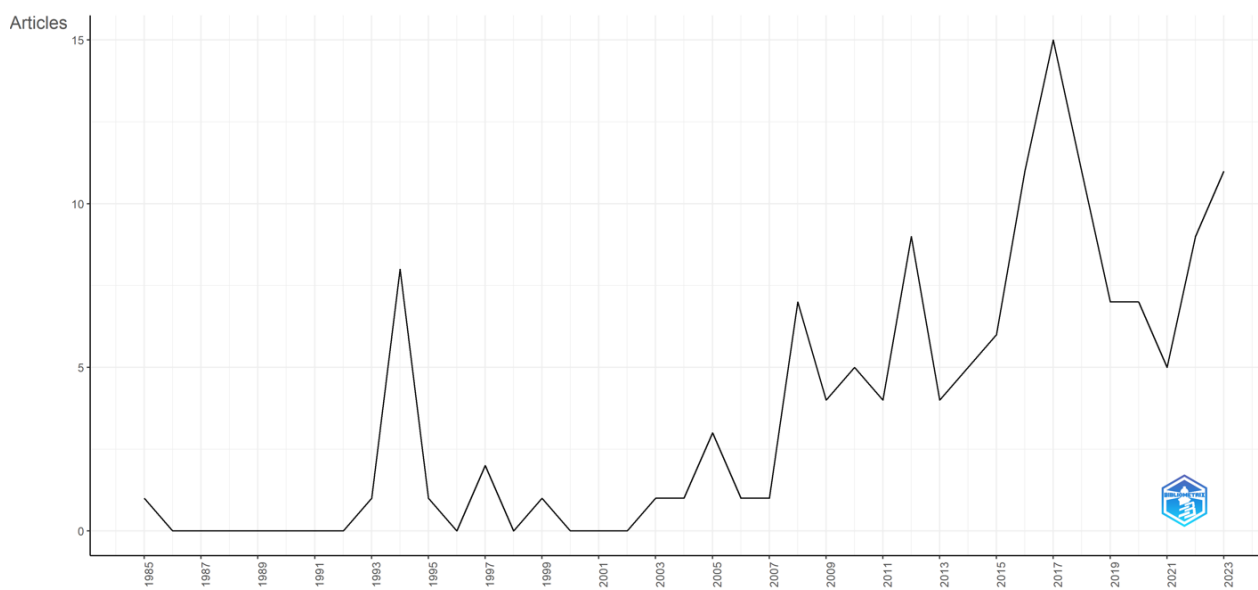


Figure 1. The annual scientific production on human resources in the tourism field
 Source: authors with Biblioshiny using Web of Science database

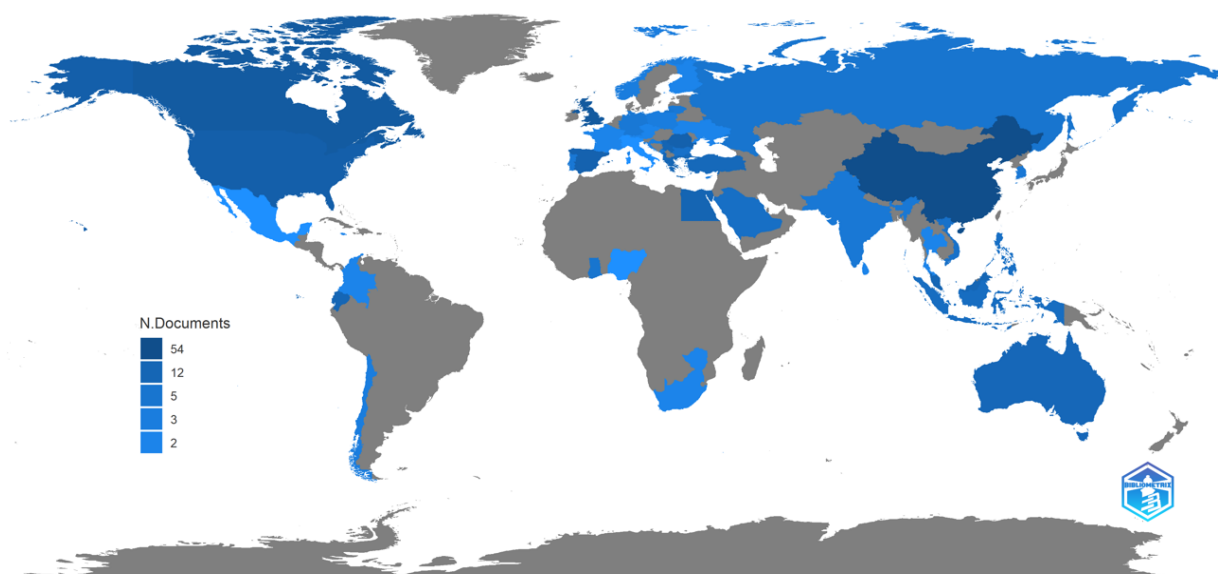


Figure 2. Country scientific production on human resources in the tourism field
 Source: authors with Biblioshiny using Web of Science database

The scientific production obtained after searching for “human resource” and “tourism” as main keywords consists mainly of articles and proceeding papers, while few documents are book reviews, book chapters, editorial material, and they are included in the Hospitality Leisure Sport Tourism (45% out of the total), Management (29% out of the total) and Business (16% out of the total) categories from Web of Science database.

The impact of all these documents can be quantified if looking at the number of citations received in time by them. All 141 documents have been cited at least 1400 times. Furthermore, according to the WoS database, the paper of Kusluvan et al. (2010) is the most cited paper, with approximately 300 citations only in WoS. However, the next three most cited papers belong to the same author,

Baum (2007, 2015, 2018), propelling him first in the most cited authors ranking, with near 500 citations.

Taking everything into account, after briefly presenting the main theme of interest from a bibliometric point of view, the paper will further focus on the gamification process in order to establish a link with HR processes.

2.2. Gamification

Gamification is a relatively new field of study. While some authors have provided structured and detailed definitions, others prefer broader definitions based on practical experiences. Unfortunately, there is no agreed-upon definition among authors. However, most authors agree that gamification involves applying game elements to non-game contexts such as learning (Kapp, 2012), value creation (Huotari & Hamari, 2012), or other non-game related areas (Deterding et al., 2011). Gamification is often defined as the process of taking something from a game, such as game design elements (Blohm & Leimeister, 2013; Deterding et al., 2011), game mechanics (Kapp, 2012; Duggan & Shoup, 2013), or game thinking (Kapp, 2012; Zichermann & Cunningham, 2011). However, Huotari & Hamari (2017) emphasize the importance of creating gameful experiences. The specific game elements used vary from definition to definition, but badges, levels, leaderboards, and points are commonly agreed upon. The goals of gamification also vary, but they usually involve motivation and engagement (Broer, 2017).

It should be noted that the essence of games and gamification is fun, and what makes a gamified process exciting and attractive are the emotional components and elements that lead to the creation of a different experience. Lazzaro has identified four different types of Fun (Table 1), at least one of which can be found in every gamified process. These categories include easy fun, hard fun, human fun, and serious fun (Seaborn & Fels, 2015; Lazzaro, 2004).

Table 1. Type of Fun

Serious Fun	People Fun	Hard Fun	Easy Fun
Relaxation	Amusement	Fiero	Curiosity
Meditate	Cooperate	Wining	Explore
Work out	Compete	Goal	Imagination
Learn	Communicate	Challenge	Interpretation
Repetition	Perform	Mastery	Investigate
Completion	Personalize	Strategy	Creativity
Collection	Characters	Power	Figure out

Source: Lazzaro (2004)

2.3. Gamified Nature of Assessment Centers

Organizations often use different approaches to identify and select competent and appropriate personnel in their recruitment and hiring process. One of the new tools that has been created in this direction and has been able to show high reliability due to its multidimensionality, is the assessment center. This assessment method implies the evaluation of participants' competencies by a group of evaluators using different exercises like games. In this process, with a combination of different tools such as interview, fact finding, role playing, teamwork, case study, presentation, case study, group discussion, etc., efforts are made to identify the candidates' competencies with a high percentage of confidence. Table 2 presents a type of fun that lies at the heart of each of these exercises to ensure that the Assessment Center is a gamified process.

Table 2. Type of Fun in Assessment Center Elements

Fun Exercise	Easy Fun	Hard Fun	People Fun	Serious Fun
Interview	Exploration Interpretation	Challenge Fiero	Relationship	Learning Narration
Presentation	Interpretation Creativity	Challenge	Relationship Compete	Think Collect
Case study	Curiosity	Problem solving power	Help	Think Complete
Group discussion	Curiosity Interpretation	Goal challenge	Cooperate Relationship	Think Narration
Teamwork	Curiosity Creativity	Fiero Goal	Cooperate Relationship	Learning Complete
Role play	Imagination	Problem solving Role play	Relationship	Think Learning
Fact finding	Curiosity Exploration	Goal Problem solving	Relationship	Narration Complete

Source: Research Findings

This matrix shows that the assessment center is a gamified process. In each of the exercises of this process, there is at least one of four types of fun. Therefore, we can analyze the assessment center as a majority type of gamification.

3. METHODOLOGY

Process-tracing methods are tools used to analyze causal mechanisms in a research context focused on a specific case. In the realm of social science, process-tracing can be divided into three forms: confirming theories, building theories, and explaining outcomes. The purpose of outcome explanation through process-tracing is to provide a concise and satisfactory interpretation for a puzzling outcome observed in a historical instance, without aiming to create or validate broader theories. This study concentrates on a significant player in Iran's rail transportation sector, established in 2014, with over 300 employees. The investigation follows the entity's journey from its beginning, where an assessment center approach was employed for personnel selection, complemented by substantial investments in competency-based training before job entry. Explaining outcomes using process-tracing involves a step-by-step research approach that seeks to uncover the complex interplay of general and case-specific causal mechanisms responsible for the discussed outcome. Theoretical mechanisms are seen as tools to help construct the best explanation for a specific result in this iterative process (Sil and Katzenstein, 2010; Friedrichs and Kratochwill, 2009; Humphreys, 2011; Jackson, 2010).

4. FINDINGS

4.1 Initial Condition (X)

Gamification or game-based process in HR is one of our research givens. The studied case permanently using Assessment Center (AC) over decade. As we explained before (Table 2) because of the game like tolls that used in AC we can accept it as an example of gamified process in HR. During the last decade, this company has held nearly 20 ACs to attract appropriate crew based on competency model.

4.2 Outcome (Y)

Customer satisfaction that will be translated to passenger satisfaction in railway industry was another given in this research. Company has an active CRM unit that per any trip collect the passenger satisfaction rate based on a questionnaire. This questionnaire has 4 clear questions about crews. Part of this data is as Table 3.

Table 3. Passenger Satisfaction

Period	Crew Availability (%)	Crew Tidiness (%)	Crew Behavior (%)	Total (%)
1	-	95.4	97.9	96
2	-	95.7	96.7	96.2
3	94	95.3	96.7	96.1
4	93.8	95.6	96.9	95.4
5	95.2	96.4	97.4	96.3

Source: adapted from CRM

Passenger satisfaction was considered as the starting point and based on that other scientific and operational evidence was collected to discover the causal relationship between X and Y.

4.3 Induction Phase

Literature review based on the research obvious clue started. At first attempt we searched in a scientific database (Scopus) to understand the effective factors on passenger satisfaction, especially in railway transportation. Then to understand the effective factor on service quality another search was conducted. Research Retroductive approach was continued until process lead to X variable in this study (e.g., gamification). Findings are as Table 4.

Table 4. Inductive Approach

Causal Path			Theoretical Fact
Service Quality	→	Passenger Satisfaction	Parasuraman et al., (1988), Chou and Kim (2009), Chou et al. (2011), Kuo and Tang (2013), de Oña et al. (2015), Eboli & Mazzulla (2015) Shen et al. (2016), Van Lierop & El-Geneidy (2016), Yilmaz & Ari (2017), Maruvada and Bellamkonda (2017), Ibrahim et al. (2020), Wang et al. (2020)
Crew Behavior	→	Service Quality	Parasuraman et al. (1988), Friman & Felleson, 2009, Chou et al. (2011), Machado et al. (2017), Yilmaz, & Ari (2017), Maruvada and Bellamkonda (2017), Ibrahim et al. (2019) Do and Vu (2020)

Causal Path			Theoretical Fact
Competency based Training	→	Crew Behavior	Horng and Lin (2013), Kim and Park (2014), Arslan and Uzaslan (2017)
Reliable Identification	→	Competency based Training	Lievens & Thornton (2017), Lance et al. (2004), Chen (2006), Bowler & Woehr (2006), Melancon and Williams (2006), Kuncel and Sackett (2014), Speer et al. (2014), Kim and Park (2014), Jin (2018)
Candidate Engagement	→	Reliable Identification	Montola et al. (2009), Witt et al. (2011), Guin et al. (2012), Li et al. (2012), Domínguez et al. (2013), Hamari et al. (2014)
Gamification Affordance	→	Candidate Engagement	Ryan and Deci (2000), Deci & Ryan (2000), Van Vugt et al. (2006), Guo & Poole (2009), Przybylski et al. (2010), Deterding et al. (2011), Hsu et al. (2013), Kumar (2013), Liu et al. (2013), Nicholson (2013), Kim et al. (2013), Dale (2014), Deterding (2014), Rapp & Cena (2014), Hamari et al. (2014), Suh et al. (2015), Santhanam et al. (2016), Suh et al. (2017), Silic et al. (2019), Beatty et al. (2021).

Source: Research Findings

4.4 Deduction Phase

After finding the theoretical facts and creating the causal path, its turn to find practical fact inside the case to each path. Deductive approach was conducted to support the theoretical findings. These facts were prepared based on facts that gathered from interviews with crews, interviews with managers, company's archival data. Based on a semi-structured interview with crew, their attitude toward assessment centers investigated. main reasons for crews' satisfaction were the systematic process, fairness of process, using informative and game related tools, which have been able to bring a different experience of a recruiting and hiring process to them.

Table 5. Crew Interview Findings

Open codes	Sub themes	Main theme
Recruitment system based on meritocracy. Using fun exercises Using rail industry experts in the process Organized regularly and according to schedule	Systematic process	Different Experience
Warm-up meeting and explaining the process. The uniformity of the evaluation process A multitude of assessment tools	Fair process	
Judging a person's merits, not the person himself. Providing initial feedback during the process Submit detailed feedback after the process. special culture with special symbols, designs, and colors	Informative process	

Source: Research Findings

Based on a semi-structured interview with managers, their attitude toward assessment centers investigated. The main reasons for managers' satisfaction were high accuracy and reliability of the process, which provides confidence to the senior managers of the organization, high retention, and the commitment of the crews. ensuring the performance of crews in the real world, which was achieved due to their low rate of mistakes and organizational citizenship behavior (OCB).

Based on these findings the deductive approach table is constructed and practical facts and evidence to each causal path enriched (Table 7).

Table 6. Managers Interview Findings

Open codes	Sub themes	Main theme
Personalized competency model Various assessment tools Expert and professional evaluators	High accuracy and reliability of the tool	Brand Reputation
Person-job fit. Positive attitudes towards the organization Equality in access to opportunities Equality in evaluation Top managers care and follow up	High retention rate of crews	
Low job error rate Customer orientation Organizational Citizenship Behavior Excellence in hospitality Becoming a trusted brand over time	High performance	

Source: Research Findings

Table 7. Deductive Approach

Causal Path			Practical Fact
Service Quality	→	Passenger Satisfaction	Tracing the passengers' satisfaction over the years showed that it has been rating over 95 percent.
Crew Behavior	→	Service Quality	Passengers' satisfaction traced based on 5 main area: Crew Availability, Crew Tidiness, Crew Behavior, Other Services, Total Satisfaction. According to this research the rate of behavior satisfaction is above 95 percent. Based on managers opinion company's brand reputation is directly related to crews' organizational citizenship behavior, costumer intimacy and low rate of faults.
Competency based Training	→	Crew Behavior	The company has been holding 2 semesters of competency-based training each year, and the effectiveness of them are above 80 percent.
Reliable Identification	→	Competency based Training	Candidate Satisfaction about the assessment center process was determined at the end of the process and traced after staffing. The rate was over 80 percent. The company has been holding over 20 round assessment centers in near 15 years.
Candidate Engagement	→	Reliable Identification	Based on managers point of view that grounded from their experience over more than 10 years retention rate of crews who selected by this process are significant, also their performance in job strongly emphasized by their direct supervisors. Although the top managers of the company clear that the precision and reliability of the process are acceptable and lead to good person-job fit.
Gamification Affordance	→	Candidate Engagement	The candidates acclaimed that the gamified process used for selecting employees was a different experience in contrast with regular process of other firms. They evaluated this process as systematic, attractive, fair and informative.

Source: Research Findings

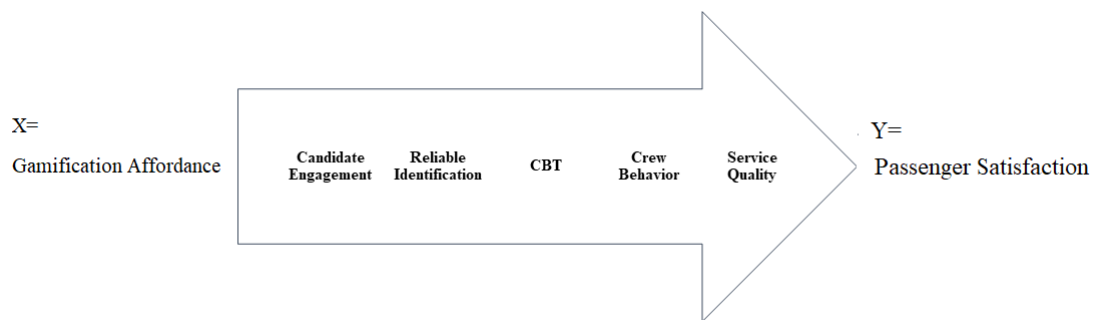


Figure 3. Articulated Causal Mechanism
 Source: Research Findings

Each of the potential causal mechanisms is described, in turn, drawing upon evidence collected from the case study and interpreted in relation to the mechanism's contribution to the outcome, drawing upon the literature to support this interpretation and extend it. The evidence is presented in a summary table (Table 4 and 7) for each causal mechanism. The articulated causal mechanism is presented in Figure 3.

5. CONCLUSIONS

Based on the research findings, it became evident that service quality is influenced by multiple factors, and one of the crucial determinants is the behavior of the crew as perceived by passengers. The good manners and behavior displayed by the crew are rooted in how well they are trained, based on a carefully designed competency model and job training requirements analysis. The effectiveness of training process was found to be pivotal in shaping the behavior of the employees. To achieve an effective training, the assessment of employees plays a critical role. Among the reliable tools for assessment, the assessment centers stood out as a powerful and reliable method. Previous research has consistently demonstrated the validity of assessment centers in predicting employee performance and success in their roles (Thornton III & Rupp, 2006).

One of the significant reasons for the high validity of assessment centers lies in their gamified and game-based nature. As supported by a reputable study by Jones et al. (2019), gamification in assessment centers has been found to enhance engagement, promote a "flow" effect, and encourage individuals to reveal their true potentials and characteristics. Games, with their interactive and engaging nature, create an environment where employees can comfortably disclose their skills and abilities, leading to more accurate assessments.

When comparing the findings of this research with previous studies, it is evident that gamification's influence on assessment centers aligns with the positive impact of gamification in various business processes, including employee training and development (e.g., Hamari et al., 2014; Koivisto & Hamari, 2019). The use of gamification in recruitment and training processes has been associated with higher levels of employee motivation, satisfaction, and performance. Moreover, the interactive and engaging nature of games is attributed to the affordance they offer to participants. This aligns with the principles of Self-Determination Theory (Deci & Ryan, 2000), which suggests that when individuals have a sense of autonomy, competence, and relatedness, they are more likely to be intrinsically motivated and engaged. Gamified assessment centers provide an environment that fosters these psychological needs, making them a powerful tool for employee assessment.

In conclusion, this research sheds light on the crucial factors that influence service quality in rail transport companies and how effective employee training plays a pivotal role in shaping crew behavior and, consequently, customer satisfaction. The study adopts an inductive approach, considering customer, employee, and managerial perspectives, to explore the influence of

gamification in the recruitment process, particularly within assessment centers. Gamification's effectiveness in recruitment can be extended to the European tourism industry, which relies heavily on a skilled and customer-focused workforce.

Practical implications are notable, as gamification in assessment centers attracts, evaluates, and retains top talent. Dynamic and interactive recruitment experiences attract qualified candidates, enhancing service quality and competitive advantage. The research provides rail transport and hospitality sectors with guidance on competency-based training aligned with service goals.

The findings extend beyond rail transport, with applications in hospitality, airlines, and customer-focused industries. Embracing gamification improves service quality and customer satisfaction while highlighting its broader potential in enhancing employee performance. However, limitations exist. Further research should assess sustained impacts of gamified assessment centers on performance and service quality. Exploring specific gamification elements and their effects on diverse employee groups can refine recruitment and training strategies.

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