THE EFFECT OF THE USE OF GAMIFICATION E-LEARNING ON EMPLOYEE ENGAGEMENT, JOB PLEASURE, AND JOB SATISFACTION IN THE BANKING SECTOR

PENGARUH PENGGUNAAN E-LEARNING GAMIFIKASI TERHADAP KETERLIBATAN KARYAWAN, KESENANGAN KERJA, DAN KEPUASAN KERJA DI SEKTOR PERBANKAN

Laverin Imelda Girsang[1], Heddry Purba[2], Francis Hutabarat[3]
Management Study Program, Adventist University Indonesia, Bandung, Indonesia[1,2,3]
laverin.imelda@gmail.com[1]

ABSTRACT
The impact of gamification e-learning on banking employees' engagement, enjoyment, and job satisfaction is the focus of this study. Many businesses are turning to e-learning to improve access and flexibility of training due to the changing digital work environment triggered by the COVID-19 pandemic. This research focuses on how gamification e-learning affects employee engagement, enjoyment at work, and job satisfaction—by conducting a quantitative study by distributing questionnaires to 114 Standard Chartered Bank employees, selected using probability sampling method through random sampling technique. The positive relationship between e-learning gamification and the three variables was processed on the SEM-PLS version 3.2.9 application. As a result of this study, gamification e-learning can significantly increase employee engagement, enjoyment at work, and job satisfaction and has a positive influence. Therefore, this study is expected to inform organizations about the importance of the gamification approach in employee training.
Keywords*: Gamification e-learning, Engagement, Enjoyment, Employee Job Satisfaction*

ABSTRAK
Dampak dari e-learning gamifikasi terhadap keterlibatan, kesenangan, dan kepuasan kerja karyawan perbankan adalah fokus dari penelitian ini. Banyak perusahaan beralih ke e-learning untuk meningkatkan akses dan fleksibilitas pelatihan karena perubahan lingkungan kerja digital yang dipicu oleh pandemi COVID-19. Penelitian ini berfokus pada bagaimana e-learning gamifikasi mempengaruhi keterlibatan karyawan, kesenangan di tempat kerja, dan kepuasan kerja, dengan melakukan studi kuantitatif melalui penyebaran kuesioner kepada 114 karyawan Standard Chartered Bank, yang dipilih dengan menggunakan metode probability sampling melalui teknik random sampling. Hubungan positif antara gamifikasi e-learning dengan ketiga variabel tersebut diolah dengan aplikasi SEM-PLS versi 3.2.9. Hasil dari penelitian ini adalah gamifikasi e-learning secara signifikan dapat meningkatkan employee engagement, enjoyment at work, dan job satisfaction serta memiliki pengaruh yang positif. Oleh karena itu, penelitian ini diharapkan dapat memberikan informasi kepada organisasi tentang pentingnya pendekatan gamifikasi dalam pelatihan karyawan.
Kata Kunci: Gamifikasi e-learning, Keterlibatan, Kesenangan, Kepuasan Kerja Karyawan.

INTRODUCTION

In general, a financial services company's human resource development department is responsible for improving employee performance and engagement. Usually, this is done through a workplace learning method that starts at the initial orientation and continues throughout the employee's career. This learning includes a variety of programs designed to develop their skills. With the advancement in digitalization, bank management also emphasizes the use of technology in *platform* Digital-based learning, this has brought the company to a more advanced level, especially since the use of information technology has changed learning from a classroom model to an online-based (Alfaqiri et al., 2022).

The difficulties that many communities and organizations are facing as a result of the COVID-19 outbreak are what led to this adjustment.

(Karakose et al., 2021). Many organizations are turning to *e-learning* because they are unable to overcome obstacles related to location and schedule (Beinicke & Bipp, 2018). With *e-learning*, employees are given the flexibility to attend learning sessions at the time they choose, from wherever they are, without being limited by distance or time (Alsubhi et al., 2019). This allows for wider, more efficient, and effective access to skills development programs.

Over the past few years, a variety of methods have been designed to encourage and assist individuals in achieving expected behaviors. Since humans naturally have a pleasure in playing, one of the developments that is increasingly attracting attention in this area is the application of *Gamification* (Koivisto & Hamari, 2019). Next (Rapp et al., 2019) explain that *Gamification* has two main aspects. To generate experiences and enhance positive abilities, gamification is a purposefully planned process that involves altering systems, services, products, activities, and organizational structures. The goal of these changes is to produce an experience similar to that obtained from playing games. Therefore, the elements and mechanics of the game are implemented in this process. The second aspect of *Gamification* is that it is a process that is constantly evolving.

Previous research has shown that 85 percent of employees in the global banking industry are not involved in their jobs (Gallup, 2019). When team participation decreases, job satisfaction decreases, employee loyalty decreases, production decreases, and profits decline (Nink & Robison, 2016). Given the big role *Gamification* In employee training, organizations are increasingly encouraged to use *Gamification* as a tool to make their employees more engaged and motivated.

Cases such as Xerox, Allstate, and Bridgestone Tires show the advantages of the method *Gamification*. However, due to poor design and lack of creative effort, 80% of apps *Gamification* The current business is not expected to achieve its goals (Burke, 2014). Gamification as a scary but interesting medium for businesses. However, over time many studies have found advantages from the use of *Gamification* One of them is research (Xi & Hamari, 2019) It claims that gamification might boost employee enthusiasm at work by satisfying their basic wants..

In this study, we contribute to *Gamification e-learning* through two ways. First in research (Hamza & Tóvölgyi, 2023) says implementation *Gamification e-learning* at a bank in Lebanon showed a significant increase in employee engagement, with about 65% of employees reporting higher levels of engagement after the implementation of gamification and we will investigate how the effects of using *Gamification e-learning* in Indonesian banks. Second, previous research such as (Gerdenitsch et al., 2020; Hamza & Tóvölgyi, 2023; Magioli et al., 2024) Focusing on specific aspects of *Gamification e-learning* to an aspect in *Framework* research. *Research meet* appears in forming a comprehensive model that can see the influence of the *Gamification* on several aspects in *Framework* which is more holistic.

To achieve this goal, it is important to present three *research questions*: (1) Does the use of *gamification e-learning* affect employee engagement? (2) Does the use of *gamification e-learning* affect the enjoyment of work? (3) Does the use of *gamification e-learning* affect job satisfaction?. This research begins by examining various literatures regarding

employee engagement, job pleasure, and employee satisfaction and *gamification of e-learning* to provide a strong theoretical background and then explore the various relationships that exist between *gamification e-learning* and the other three concepts. The next section is followed by a description of the methods used in this study. The results of this study are expected to help researchers and practitioners to get different insides and different views on the role of *gamification e-learning.*

THEORETICAL FOUNDATIONS

Learning in the work environment is a strategic approach to increase competitiveness and maximize the potential of financial services companies in a competitive market. A company's competitiveness is largely determined by the use of e-learning and staff learning capacity. As a result, learning is essential to raising organizational performance and effectiveness.

The Bank is constantly striving to adapt to changing demographics, environmental conditions, and competitive pressures, making mature professional development even more important (Magioli et al., 2024). Learning, an important part of the adaptation process, is closely related to Gamification, which has great potential to increase engagement, enjoyment, and satisfaction.

Previous research (Magioli et al., 2024) Discusses that there is no relationship of use *E-learning gamification* to guarantee engagement and job satisfaction and in research (Oliveira et al., 2022) Explaining that there is no effect on usage *e-learning gamification t*race pleasure. Seeing that there is no positive relationship, the researcher finally proposed an approach *Gamification e-learning* in the context of engagement, pleasure at work, and

employee satisfaction. This research is motivated by the need to explore further how Gamification *e-learning* can be strategic in engagement, work pleasure, and employee satisfaction.

The concept of *Gamification* in organizations

Learning in organizations has an important role in optimizing productivity. One important aspect of organizational learning is the process of producing, storing, and disseminating information, which also serves as a gauge of a business's effectiveness and competitiveness. (Argote & Hora, 2016). *Gamification* defined as "the process of improving services by offering an enjoyable experience to support value creation for users as a whole."(Jain et al., 2020). *Gamification* refers to the use of game elements to influence how users perceive certain tasks or activities, to increase their motivation in carrying them out. As said by (Bozkurt & Durak, 2018) *Gamification* can be applied in a variety of organizational processes and has been proven to have a positive impact (Huynh et al., 2016). A study conducted in 2016 showed that 58% of gamers are aged 30-49 years, which can increase employee motivation at work (Brown, 2016). *Gamification* plays an important role in building organizational practices by rewarding positive learning behaviors so that this can encourage a culture of learning and increase engagement in banking companies.

***E-learning* with gamification elements**

Gamification is still a relatively new concept. According to (Chou, 2015) There are various interpretations regarding *Gamification*. One of the most commonly accepted views is that *Gamification* Bringing interesting and addictive features that are usually found in games into real-world productive

activities. The goal is to influence and motivate participants to engage in the desired behavior or action. This influence will strengthen employee commitment and simultaneously increase success in achieving the expected behavior. Approach *e-learning* Simple and diverse ones generally focus on teamwork, collaboration between companies, and the development of leadership skills (Zaric et al., 2020). *Gamification* can be applied by creating competitive scenarios in organizational processes. This scenario is designed using game elements, which also contributes to increased employee productivity. Process *Gamification* increase the recognition of the management towards the employees and improve their status among their peers, which in turn increases their confidence and performance (Hamza & Tóvölgyi, 2023).

Use *of gamification, e-learning* and engagement

Gamification*, or the use of video game design features outside of games to boost user motivation and engagement, can also boost student participation and teach staff how to handle challenging situations. (Alsubhi & Sahari, 2020). According to the research that has been carried out (Jayalath & Esichaikul, 2020) a conceptual model that uses gamification to incorporate engagement and incentive design into e-learning; this approach consists of design concepts that show how the game's components link to the learning environment.. Further in the research (Thomas et al., 2022) *Gamification* It has to do with employee satisfaction and engagement. Employers may see that training based on *Gamification* can increase employee motivation and engagement, but on the other hand, they are worried about the uncertainty of the outcome of

implementing the system. Even so, job satisfaction tends to affect the level of employee engagement at work. And when a person with intrinsic motivation seeks to engage in traditional activities or *E-learning gamification* At work, he is more likely to feel more satisfied and engaged in the activities he is doing (Magioli et al., 2024). *E-learning* which is in *Gamification* able to increase employee engagement effectively and efficiently

Hypothesis 1: The use of *gamification e-learning* affects employee engagement

The use of *gamification, e-learning,* and the pleasure of working

In the context of the type of application, *Gamification e-learning* At work, should have a greater impact on the pleasure of employees in doing their duties when applied independently. User interaction with the use of the system, especially through the *Gamification* work, encourages employee behavior and increases dedication to tasks as it is associated with a sense of pleasure (Trepte & Reinecke, 2011). Inserting game elements into the work environment can increase the fun of completing work-related tasks (Cardador et al., 2017). Workers who apply *Gamification* In the tasks, of course, will not only feel the pleasure of the process of completing the task but will also feel an increase in overall job satisfaction. Employees who are more productive when using *Gamification* for one task will experience a greater increase in productivity when applying it to various other tasks (Gerdenitsch et al., 2020). This shows that designing the app *Gamification* which is interesting and fun in *e-learning* is a key factor in ensuring its sustainability and effectiveness in the workplace (Mitchell et al., 2018).

Hypothesis 2: The use of *gamification e-learning* affects work pleasure

The use of *e-learning gamification* and job satisfaction

Application *gamification Deep e-learning* has a great influence on job satisfaction, especially by creating a more interactive and engaging learning atmosphere. In defining job satisfaction, attention was directed to the evaluation of the emotional response to the overall work experience, and it was found that task performance is an important aspect of work, especially in the context of human resource management (Magioli et al., 2024). After completing *e-learning* that uses *Gamification*, employees are asked to fill out a post-exam questionnaire that is intended to measure potential changes in their learning attitudes and the results of their satisfaction levels when using the *Gamification e-learning* (Lin, 2022). Similarly, when *Gamification* meets the intrinsic needs of employees, they tend to feel that their need for autonomy, competence, and social connection is met through the work environment (Mitchell et al., 2018). Employees that are happy with their work exhibit intrinsic motivation, which results in contentment and the want to repurpose. Learning through gamification (Chauhan et al., 2021). Next (Hsu & Chen, 2018) added that employees who have learning-based activities *Gamification* can have satisfaction with what he has done and have a love for the company where they works.
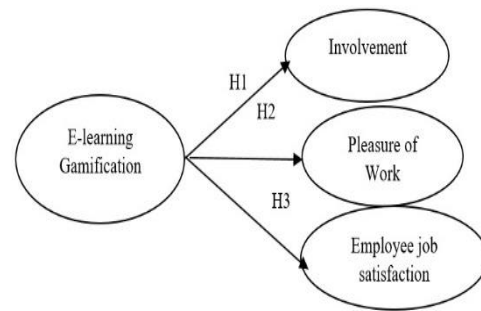**Hypothesis 3**: The use of *gamification e-learning* affects job satisfaction
Framework of Thought

Figure 1. Thinking Framework

RESEARCH METHODOLOGY
Method

This research is included in the category of quantitative research (Ali et al., 2022). The quantitative method, also known as a "questionnaire," is a data collection method that involves distributing and disseminating several questions to those surveyed. (Khawari & Santoso, 2024). This study collected data through a questionnaire distributed via the Internet to Standard Chartered Bank staff using Google Forms. The purpose of the questionnaire was to gather data from participants regarding the use of *Gamification e-learning*, engagement, pleasure at work, and employee job satisfaction. The collected data will then be analyzed by the author using the *SEM PLS,* This study uses the Likert scale, the sequence of which consists of several levels.

Population and Sample

In this study, the main data came from the population and samples, which are important elements to guarantee the validity of the research (Amin et al., 2023). The population in this study is Standard Chartered Bank employees, with a total of 114 employees selected using the probability sample method through *random sampling*. Using *random sampling* aims to ensure that because every member of the population has an equal chance of being chosen, the

final sample is more representative.. This helps reduce bias in data collection so that research results become more accurate and generalizable.

RESULTS AND DISCUSSION
Data Analysis

Partial Least Squares-Structural Equation Modeling (PLS-SEM) software version 3.2.9 was used to analyze and manage the data collected through questionnaires in this study. Smart PLS 3 is also used to evaluate conceptual models. Two main stages are involved in the data processing process. First, the validity and reliability of the research model are measured. Next, a structural assessment of the model is carried out, which includes a hypothesis test. The purpose of this study is to measure the relationship and correlation between the variables studied in the questionnaire questions. This research model was built with Smart PLS version 3, as shown below.
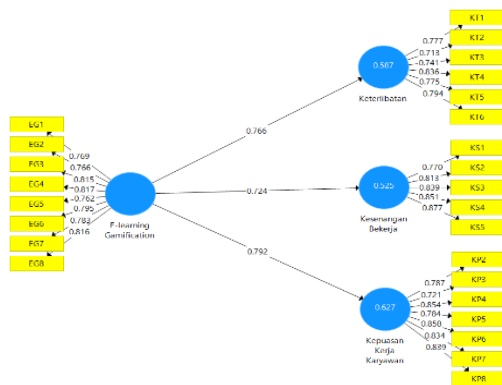

Figure 2. Model Construction

Sample Description

In this study, questionnaires were distributed to 114 respondents with various characteristics. Based on gender, 64% of the respondents were women, while 36% were male respondents (table 1). Furthermore, the majority of respondents aged 18-25 years had a percentage of 86.9%, 26-35 years old

10.5%, 36-45 years old 1.8%, and 45 years old and above 0.8% (table 2).

Table 1. Repondent data by gender

	Frequency	Percentage
Woman	73	64%
Man	41	36%
Sum	114	100%

Source: processed by the author

Table 2 Respondent data by age

	Frequency	Percentage
18-25 years old	99	86,9%
26-35 years old	12	10,5%
36-45 years old	2	1,8%
>45 years	1	0,8%
Sum	114	100%

Source: processed by the author

Outer Model Test
Validity Test

Validity tests are performed to ensure that the measurement scales included in the questionnaire are correct. In this study, *Convergent Validity (Cross Loading)* and *AVE were* used to test the validity of the data. A construct is declared valid if the value *AVE* > 0.05 and a value *outer loading* >0.7 (Hair et al., 2017).

In this study, there are 8 indicators for the use of *gamification e-learning*, namely EG1, EG2, EG3, EG4, EG5, EG6, EG7, and EG8 which have been declared valid, 7 indicators of employee job satisfaction, namely KP2, KP3, KP4, KP5, KP6, KP7, KP8 which have been declared valid. 5 indicators of work pleasure, namely KS1, KS2, KS3, KS4, and KS5 have been declared valid, 6 indicators of involvement, namely KT1, KT2, KT3, KT4, KT5, KT6 have been declared valid. There is only one indicator, namely on the job satisfaction of invalid employees, namely KP1 which has been eliminated. So according to the table In this study, *convergent validity (cross-loading)* and *AVE* were used to test the validity of the data. All research

indicators had *an outer loading* of more than 0.7, which met the criteria for the validity of the study, as shown in (table 3).

Table 3. Outer Loading

	E-learning Gamification	Employee Job Satisfaction	Pleasure of Work	Involvement
EG1	0,769			
EG2	0,766			
EG3	0,815			
EG4	0,817			
EG5	0,762			
EG6	0,795			
EG7	0,783			
EG8	0,816			
KP2		0,787		
KP3		0,721		
KP4		0,854		
KP5		0,784		
KP6		0,858		
KP7		0,834		
KP8		0,839		
KS1			0,770	
KS2			0,813	
KS3			0,839	
KS4			0,851	
KS5			0,877	
KT1				0,777
KT2				0,713
KT3				0,741
KT4				0,836
KT5				0,775
KT6				0,794

Source: SEM-PLS version 3 processed by the author

After the validity test is completed, continue the test *Average Variance Extracted (AVE)*. Where a larger AVE value indicates a better signal to explain the latent construct variable (Banyu & Purba, 2024). Value *AVE* Each indicator in the tested model exceeded the threshold of 0.5 (Aruan et al., 2024). And (table 4), which is between 0.599-0.690, shows good convergence validity and valid construct values.

Table 4. AVE Results

	Average Variance Extracted (AVE)
E-learning Gamification	0,625
Employee Job Satisfaction	0,660
Pleasure of Work	0,690
Involvement	0,599

Source: SEM-PLS version 3 processed by the author

Reliability Test

In this study, two *Cronbach's Alpha approach* and *Composite Reliability were* used to test reliability. *Composite Reliability* evaluates the variable's real value, whereas *Cronbach's Alpha* evaluates the reliability's lowest bound. The data is regarded as having strong reliability if the second test value is higher than *0.7.* (Hair et al., 2017).

Table 5. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
E-learning Gamification	0,914	0,916	0,930	0,625
Employee Job Satisfaction	0,913	0,916	0,931	0,660
Pleasure of Work	0,887	0,888	0,918	0,690
Involvement	0,866	0,870	0,899	0,599

Source: SEM-PLS version 3 processed by the author

Table 6 shows that the value of *Croanch's Alpa* Each variable is between 0.866 to 0.914 which means that the data can be considered good and has a high level of confidence. In addition, the value of *Composite Reliability* obtained ranged from 0.899 to 0.931, according to the idea of (Cheung et al., 2024) that the value of *Composite Reliability* acceptable should be above 0.70, as shown by the results of the data processing (Table 5). The conclusion based on the evaluation of its validity and reliability, data analysis showed that the questionnaire given to the respondents was acceptable and qualified.

Inner Model Test
R Square

The influence of dependent variables on other variables can be measured using tests *R-Square*. According to (Herniyanti et al., 2023)

endogenous variables in a model are those whose values are not affected or dictated by other variables.. In contrast, exogenous variables are variables whose values are not influenced or determined by other variables. When compared to employee engagement, work happiness, and job satisfaction (endogenous variables), value R-squared indicates how determined gamification e-learning is (exogenous variable)..

Table 6. R Square

	R Square	R Square Adjusted
Employee Job Satisfaction	0,627	0,624
Pleasure of Work	0,525	0,521
Involvement	0,587	0,583

Source: SEM-PLS version 3 processed by the author

Value *R-Square* 0.67, 0.33, and 0.19 indicate strong, medium, and weak model indicators, according to (Ghozali & Latan, 2015). From (table 6) above, the analysis shows that employee job satisfaction, work pleasure, and engagement scored 62.7% against *Gamification e-learning*. In addition, another 37.3% was affected by other components not described in this study.

Hypothesis Test
Table 7. Hypothesis Test Results

	Original Sample (O)	Sample Mean (M)	STDEV	T Statistics	P Values
E-learning Gamification -> Engagement	0,766	0,774	0,053	14,433	0,000
E-learning Gamification -> Pleasure of Work	0,724	0,732	0,045	15,933	0,000
E-learning Gamification-> Employee Job Satisfaction	0,792	0,798	0,035	22,311	0,000

Source: SEM-PLS version 3 processed by the author

The Effect of Using *Gamification E-learning* on Engagement

Influence of the use of *Gamification e-learning* against beta acquisition engagement *score* positive. With p=0.766, the p-value is 0.000 (p<0.05) and the t-value is statistically 14.433 (>1.96) (table 7). Therefore, H3

is accepted, indicating that *Gamification e-learning* impacts engagement. This is also in line with previous research that showed a significant impact of *Gamification e-learning* on involvement, in research conducted by (Hamza & Tóvölgyi, 2023) that the use of e-learning gamification has a positive relationship and *Gamification* Proving the importance of involving employees who are oriented to knowledge. And in the research (Alsubhi et al., 2021) has the result that the use of *Gamification e-learning* efficiently and effectively creates an online learning system that is *Gamification* thus increasing engagement. Furthermore, the research conducted (Bouchrika et al., 2021) emphasizes that *Gamification e-learning* is considered a valuable tool to attract users so that they use the system and increase interactivity and engagement. Just like in the findings of this study, the results show that *Gamification e-learning* and engagement have a significant link and have a positive relationship.

The Effect of the Use of *Gamification E-learning* on Employee Work Pleasure

Influence *Gamification e-learning* towards the pleasure of working receives a beta score *score* positive. With p=0.724, the p-value is 0.000 (p<0.05) and the statistical t-value is 15.933 (>1.96) (table 7). Therefore, H2 is accepted, indicating that *Gamification e-learning* impact the pleasure of work. This is also in line with previous research that showed a significant impact *Amification e-learning* to the sense of pleasure at work because workers will not only feel the pleasure of working, but also benefit from increasing the pleasure of work in general (Gerdenitsch et al., 2020). Furthermore, the research conducted (Lin, 2022) says that the use

of gamification *e-learning* found that the perception of ease of learning, pleasure, and useful knowledge has a positive effect so that it can obtain healthy and useful competencies in practical fields. Just like in the findings of this study, the results show that *Gamification e-learning* and the sense of pleasure at work have a positive and significant relationship.

The Effect of the Use *of Gamification E-learning* on Employee Job Satisfaction

Influence *Gamification e-learning* on employee job satisfaction received a beta score *score* positive. With p=0.792, the p-value is 0.000 (p<0.05), and the statistical value of t is 22.311 (>1.96) (table 7). Therefore, H1 is accepted, indicating that *E-learning gamification* has an impact on employee satisfaction. Previous research also stated the same thing that the influence of using *Gamification e-learning* on employee job satisfaction has a significant effect. In the research conducted by (Hamza & Tóvölgyi, 2023) There is a significant influence on job satisfaction levels, with around 67% of employees admitting that after using *Gamification e-learning*. Previous research supports and says that applying *Gamification e-learning* in the banking sector results in job satisfaction at a higher level compared to traditional training (Rodrigues et al., 2021). Further in the research (Alsadoon et al., 2022) when in a learning environment *Gamification* Satisfaction arises so that employees feel more valued and have the opportunity to succeed in an environment that encourages healthy competition and interaction when there is *Gamification*. Just like in the findings of this study, the results show that *Gamification e-learning* and job satisfaction have a positive and significant relationship.

Conclusion and Advice

This study aims to see how influential is *Gamification e-learning*. It was found that the results of the study had a relationship between *Gamification e-learning* Having a positive and significant effect on employee job satisfaction, gamification can make training more interesting and interactive. Therefore, this employee job satisfaction can be achieved through increased active participation, higher motivation, and a deeper understanding of the material. In addition, the use of *Gamification e-learning* also has a positive and significant effect on work pleasure, this improves the work atmosphere because employees feel entertained while acquiring relevant knowledge or skills. The study also found that the use of *Gamification e-learning* has a positive influence on engagement because employees who feel engaged in e-learning tend to feel more valued and motivated, which in turn leads to them being more loyal and productive at work.

Based on the findings of this study, it is recommended that further research discuss other factors that can affect the use of *Gamification e-learning* such as the cost efficiency of the implementation of gamification e-learning and further research discusses more fully the most effective elements of *Gamification* which is useful and very easy to understand. And also to see if there is an effect on the use of e-learning gamification based on gender and age. Future studies can examine whether the implementation of *Gamification e-learning* impacts different industries, such as manufacturing, healthcare, or technology, to find out if there is a difference in engagement, pleasure, and job satisfaction across different industries.

BIBLIOGRAPHY

Alfaqiri, A. S., Noor, S. F. M., & Sahari, N. (2022). Framework for Gamification of Online Training Platforms for Employee Engagement Enhancement. *International Journal of Interactive Mobile Technologies*, *16*(6), 159–175. https://doi.org/10.3991/ijim.v16i06.28485

Ali, M. M., Hariyati, T., Pratiwi, M. Y., & Afifah, S. (2022). Metodologi Penelitian Kuantitatif dan Penerapannya dalam Penelitian. *Education Journal.2022*, *2*(2), 1–6.

Alsadoon, E., Alkhawajah, A., & Suhaim, A. Bin. (2022). Effects of a gamified learning environment on students' achievement, motivations, and satisfaction. *Heliyon*, *8*(8), e10249. https://doi.org/10.1016/j.heliyon.2022.e10249

Alsubhi, M. A., Ashaari, N. S., & Wook, T. S. M. T. (2019). The Challenge of Increasing Student Engagement in E-Learning Platforms. *Proceedings of the International Conference on Electrical Engineering and Informatics*, *2019-July*(July), 266–271. https://doi.org/10.1109/ICEEI47359.2019.8988908

Alsubhi, M. A., Ashaari, N. S., & Wook, T. S. M. T. (2021). Design and Evaluation of an Engagement Framework for e-Learning Gamification. *International Journal of Advanced Computer Science and Applications*, *12*(9), 411–417. https://doi.org/10.14569/IJACSA.2021.0120947

Alsubhi, M. A., & Sahari, N. (2020). A Conceptual Engagement Framework for Gamified E-Learning Platform Activities. *International Journal of Emerging Technologies in Learning*, *15*(22), 4–23. https://doi.org/10.3991/ijet.v15i22.15443

Amin, N. F., Garancang, S., & Abunawas, K. (2023). Konsep Umum Populasi dan Sampel dalam Penelitian. *Jurnal Pilar*, *14*(1), 15–31.

Argote, L., & Hora, M. (2016). *Organizational Learning and Management of Technology*. https://doi.org/10.1111/poms.12667

Aruan, S. H., Purba, H., & Hutabarat, F. (2024). Pengaruh Penggunaan Layanan Influencer, Konten Pemasaran Digital, Dan Perasaan Senang Dalam Berbelanja Terhadap Niat Membeli Di Media Sosial Tiktok Sebagai Moderasi Adaptasi Informasi. *Journal of Economic, Bussines and Accounting (COSTING)*, *7*(4), 7051–7064. https://doi.org/10.31539/costing.v7i4.9895

Banyu, G., & Purba, H. (2024). *Factors that influence trust in facebook collaborative filltering recommendations on purchase intention*. 7, 6201–6216.

Beinicke, A., & Bipp, T. (2018). Evaluating Training Outcomes in Corporate E-Learning and Classroom Training. *Vocations and Learning*, *11*(3), 501–528. https://doi.org/10.1007/s12186-018-9201-7

Bouchrika, I., Harrati, N., Wanick, V., & Wills, G. (2021). Exploring the impact of gamification on student engagement and involvement with e-learning systems. *Interactive Learning Environments*, *29*(8), 1244–1257. https://doi.org/10.1080/10494820.

2019.1623267

Bozkurt, A., & Durak, G. (2018). A systematic review of gamification research: In pursuit of homo ludens. *International Journal of Game-Based Learning*, *8*(3), 15–33. https://doi.org/10.4018/IJGBL.2018070102

Brown, J. A. (2016). Exploring the next generation of older gamers: Middle-aged gamers. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, *9755*, 308–318. https://doi.org/10.1007/978-3-319-39949-2_30

Burke, B. (2014). *Gamify : how gamification motivates people to do extraordinary things*. Bibliomotion, Inc. https://www.academia.edu/13447850/Gamify_how_gamification_motivates_people_to_do_extraordinary_things

Cardador, M. T., Northcraft, G. B., & Whicker, J. (2017). A theory of work gamification: Something old, something new, something borrowed, something cool? *Human Resource Management Review*, *27*(2), 353–365. https://doi.org/10.1016/j.hrmr.2016.09.014

Chauhan, S., Akhtar, A., & Gupta, A. (2021). *Gami fi cation in banking : a review , synthesis and setting research agenda*. *June*. https://doi.org/10.1108/YC-10-2020-1229

Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. C. (2024). Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations. In *Asia Pacific Journal of Management* (Vol. 41, Issue 2). Springer US. https://doi.org/10.1007/s10490-023-09871-y

Chou, Y.-K. (2015). *Actionable Gamification: Beyond Points, Badges, and Leaderboards*. Createspace Independent Publishing Platform.

Gallup. (2019). *Gallup's engagement and development perspective paper to learn*. https://www.gallup.com/workplace/355082/employee-engagement-strategy-paper.aspx#ite-355085

Gerdenitsch, C., Sellitsch, D., Besser, M., Burger, S., Stegmann, C., Tscheligi, M., & Kriglstein, S. (2020). *Electronic Commerce Research and Applications Work gami fi cation : E ff ects on enjoyment , productivity and the role of leadership*. *43*(July). https://doi.org/10.1016/j.elerap.2020.100994

Ghozali&Latan. (2015). *Partial least squares konsep, teknik dan aplikasi menggunakan program SmartPLS 3.0 untuk penelitian empiris*. Semarang Badan Penerbit Universitas Diponegoro.

Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management and Data Systems*, *117*(3), 442–458. https://doi.org/10.1108/IMDS-04-2016-0130

Hamza, I., & Tóvölgyi, S. (2023). The Effect of Gamified E-learning on Employees' Engagement A Case Study of a Lebanese Bank. *Periodica Polytechnica Social and Management Sciences*, *31*(1), 80–89.

https://doi.org/10.3311/PPso.1961 6

Herniyanti, H., Widagdo, P. P., & Kamila, V. Z. (2023). Pengukuran Penerimaan Website Mulawarman Online Learning System (MOLS) Pada Universitas Mulawarman Menggunakan Theory Of Planned Behavior (TPB). *Adopsi Teknologi Dan Sistem Informasi (ATASI)*, *2*(1), 1–10. https://doi.org/10.30872/atasi.v2i1 .274

Hsu, C., & Chen, M. (2018). Computers in Human Behavior How gami fi cation marketing activities motivate desirable consumer behaviors : Focusing on the role of brand love. *Computers in Human Behavior*, *88*(May), 121–133. https://doi.org/10.1016/j.chb.2018 .06.037

Huynh, D., Zuo, L., & Iida, H. (2016). *Analyzing Gamification of " Duolingo ."* 268–277. https://doi.org/10.1007/978-3-319-50182-6

Jain, M., Shetty, D. K., Naik, N., Maddodi, B. S., Malarout, N., & Perule, N. (2020). Application of Gamification in the Banking Sector: A Systematic Review. *Test Engineering and Management*, *83*(April), 16931–16944. https://www.researchgate.net/publ ication/341089982_Application_o f_Gamification_in_the_Banking_ Sector_A_Systematic_Review

Jayalath, J., & Esichaikul, V. (2020). Gamification to Enhance Motivation and Engagement in Blended eLearning for Technical and Vocational Education and Training. *Technology, Knowledge and Learning*, *0123456789*. https://doi.org/10.1007/s10758-020-09466-2

Karakose, T., Yirci, R., & Papadakis, S.

(2021). Exploring the interrelationship between covid-19 phobia, work–family conflict, family–work conflict, and life satisfaction among school administrators for advancing sustainable management. *Sustainability (Switzerland)*, *13*(15). https://doi.org/10.3390/su1315865 4

Khawari, A. F., & Santoso, B. (2024). *Pengaruh Survei Keterlibatan Karyawan Terhadap Kinerja Karyawan Di Perusahaan Start Up*. *3*(1).

Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. *International Journal of Information Management*, *45*(October 2018), 191–210. https://doi.org/10.1016/j.ijinfomgt .2018.10.013

Lin, J. (2022). *The Effects of Gamification Instruction on the Roles of Perceived Ease of Learning , Enjoyment , and Useful Knowledge toward Learning Attitude*. *21*(2), 81–91.

Magioli, M., Huat, S., & Andy, B. (2024). *The impact of gamification on training , work engagement , and job satisfaction in banking*. 362–384. https://doi.org/10.1111/ijtd.12324

Mitchell, R., Schuster, L., & Jin, H. S. (2018). *Gami fi cation and the impact of extrinsic motivation on needs satisfaction : Making work fun ? November 2017*. https://doi.org/10.1016/j.jbusres.2 018.11.022

Nink, M., & Robison, J. (2016). *The Damage Inflicted by Poor Managers*. Business Journal. https://news.gallup.com/businessj ournal/200108/damage-inflicted-

poor-managers.aspx

Oliveira, W., Hamari, J., Joaquim, S., Toda, A. M., Palomino, P. T., Vassileva, J., & Isotani, S. (2022). The effects of personalized gamification on students' flow experience, motivation, and enjoyment. *Smart Learning Environments*, *9*(1). https://doi.org/10.1186/s40561-022-00194-x

Rapp, A., Hopfgartner, F., Hamari, J., Linehan, C., & Cena, F. (2019). Strengthening gamification studies: Current trends and future opportunities of gamification research. *International Journal of Human Computer Studies*, *127*, 1–6. https://doi.org/10.1016/j.ijhcs.2018.11.007

Rodrigues, M., Sereno, M., & Ang, A. (2021). *Title: Effects of gamification in the banking industry: A comparison analysis between gamified and non-gamified training*.

Thomas, N., Baral, R., & Crocco, O. (2022). *Gamification for HRD: Systematic Review and Future Research Directions*. https://doi.org/10.1177/15344843221074859

Trepte, S., & Reinecke, L. (2011). *The Pleasures of Success : Game-Related Efficacy Experiences as a Mediator Between Player Performance and Game Enjoyment*. *14*(9), 555–558. https://doi.org/10.1089/cyber.2010.0358

Xi, N., & Hamari, J. (2019). International Journal of Information Management Does gamification satisfy needs ? A study on the relationship between gamification features and intrinsic need satisfaction. *International Journal of Information Management*, *46*(December 2018), 210–221. https://doi.org/10.1016/j.ijinfomgt.2018.12.002

Zaric, N., Lukarov, V., & Schroeder, U. (2020). A fundamental study for gamification design: Exploring learning tendencies' effects. *International Journal of Serious Games*, *7*(4), 3–25. https://doi.org/10.17083/ijsg.v7i4.356