

Identifying Game Elements and Their Effects on User Experience within the Lazada E-commerce Platform

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Abstract: Today's online businesses are trying to increase their customer base and attract lots of users incorporating different methods into their platforms, websites, and applications. One of them is gamification, which is applying game elements to a specific context. In e-commerce gamifying online shopping platforms resulted in significant advantages. As well, user experience plays an essential role in e-commerce. This study aims to identify the game elements which has effects on the user's experience in an e-commerce platform. The research examined a considerable number of widely cited gamification frameworks and subsequently identified the top three which are Mechanics, Dynamics & Aesthetics (MDA), Self Determination Theory (SDT), and Octalysis. After a thorough analysis of these frameworks, Octalysis was identified as the most comprehensive among them. More than a hundred game elements were extracted from the aforementioned frameworks. A workshop was conducted as a methodology to identify which game elements are utilized to affect the user experience. The workshop participants were selected based on their knowledge of e-commerce and experience of using the platform. As a result, nine elements (leaderboards, progress bars, profiles, social inviting, rewards, fixed intervals, feedback, badges, and connecting to social networks) were identified.

Keywords: Badges, E-Commerce, Feedback, Gamification, Leader board, Progress bar, Rewards, User Experience.

1. INTRODUCTION

Mostly As new trends continue to emerge and impact various industries, gamification also emerged as a new trend in 2010 [1]. The main purpose of gamification is to relocate game design elements to non-gaming contexts. Rising people's engagement, motivating them, and improving their experience in any context is the aim of gamification [2]. E-commerce which is very common in today's world also has taken advantage of gamification. The key goal of e-commerce for the implementation of gamification is to increase users' participation, engage them with the platform, and improve their experience [2, 3].

User experience is how a person feels while interacting with a system. The system could be any form of technology with which a human would interact. User experience is an important factor in fulfilling user's needs. Applying game elements can improve user experience significantly [4, 5]. As the world is changing rapidly with technology and everything everywhere has become online, therefore experience of users has become essential for online business activities. Businesses are working to make the online environment more enjoyable and joyful for users so that they return to the same platform over and over again [6]. Creating such an environment can be accomplished by incorporating game elements into non-game contexts. With many online shopping platforms in existence, if the user doesn't feel good with one, they may switch to others. Therefore, user experience plays an important role in the e-commerce context.

Recently Fitz-Walter, et al. [7] investigated the effects of game elements on motivation, experience, and behaviour of the new drivers. The results show that game elements positively influence the enjoyment and motivation of users in addition to improving the users' experience. Moreover, users may return to the same platform when they are rewarded for participation. Meder, et al. [3] confirmed users could be more engaged and motivated with a platform if they were rewarded. Moreover, a user will interact actively if the rewards are convertible into money or goods [3]. Hence, the positive effects of gamification are confirmed.

Meanwhile, Yudhoatmojo and Ramadana [8], examined game elements in five gamified e-commerce websites using the Octalysis framework. However, their study exclusively concentrated on the game drive aspect of the Octalysis framework, observing one game element from a few drives. As well, there is a lack of discussion regarding the impact of these game elements on user engagement and experience.

It is clear that gamification affects user experience and has some consequences. The effect of gamification on user experience has been addressed wisely. However, exactly which game element affects what area remains unclear [3, 8]. Thus, this study aims to identify the game elements from different gamification frameworks and evaluate their effect on the experience of users.

2. LITERATURE REVIEW

1. Gamification

Gamification is leveraging the benefits of game elements in a non-game context. It aims to increase users' experience [9] and engage and motivate them to the context further [10]. The idea is to bind people into other contexts as they were earlier bound to video games. As gamification captivates users and enhances their experience, many startup businesses have embraced its potential by integrating it into their operations, contributing to their overall success [11]. Gamification has been applied in different contexts, such as health [8], education [1], waste management [9], marketing [12], and e-commerce [2, 3, 8].

Hsu and Chen [9] explored the improvement of user experience in waste management. The study has found some positive effects of gamification on user experience and its consequences. Gamifying the (applying game elements in) e-commerce makes it more fun for users. E-commerce encourages participants by giving them rewards to continue shopping with the same platform. E-commerce platforms want to provide an environment where users have fun, and their needs are fulfilled. This turns them into loyal users of the same platform or brand [3].

2. Gamification Frameworks

There are more than a few hundred game elements categorized into gamification frameworks. While looking into the literature, lots of gamification frameworks could be found. Based on previous studies [13, 14], appropriately identifying the right game elements or possible combinations of game elements to achieve their objectives is a daunting task [15]. This study examined various gamification frameworks to identify the game elements. Subsequently, the selected gamified platform is evaluated to determine the applied elements. Evaluating a substantial number of the most cited gamification frameworks, the top three were selected to extract their elements. In this section, the available frameworks will be discussed and examined.

Werbach [16] presented a design framework called the D6 framework. This framework has six stages, with guidance on how to build up a gamification system. Each step starts with the letter D which is why it is called the D6 framework [17]. Marczewski [18] proposed a simpler framework called GAME. This framework proposes a two-stage approach for gamifying a context: planning and designing solutions. In planning, information such as user specifications which will be the target of the gamification system is gathered. Then, the goals and intentions of why to implement gamification are analysed. Finally, a solution will be designed with the help of game elements to enhance engagement. Observing user behaviour and assessing the outcomes are also parts of the second stage.

Everything about gamification starts with games. Gaming in the current decade has grown more mature, as the Tetrad framework was proposed by [19]. The framework is composed of four categories; Mechanics, Dynamics, Aesthetics, and Technology. Each category has its elements, and these elements are seen as fundamental design characteristics while developing a game. Tetrad framework should be considered while developing a game to attract a larger audience, as it provides a comprehensive structure for game design [20].

A revolution in gamification is when the Octalysis was drafted in 2015 by a gamification expert, Yu-Kai Chou, [21]. The Octalysis framework is composed of eight categories that are called core drives in its terminology. Inside each drive, there are many game elements. Chou believes that Each core drive is a big picture of the motivations that a user feels when playing the game.

There were separate islands in the game design domain. Technical game research, game design & development, and game criticism were studied separately. To connect them, MDA was the result of a scholar's efforts. The Mechanics, Dynamics, and Aesthetics (MDA) framework was initially drafted by [22], to satisfy the requirements of a proper and prescribed proposal in the game designing domain. As a framework, from the MDA perspective, games have three main elements, there are rules to be obeyed, a working system, and most importantly fun.

In the literature on human motivation theories, the most important one is the Self-Determination Theory (SDT), formulated by psychologists [23]. There are two types of motivation, one originates from the inside of an individual and is referred to as intrinsic motivation. The other is a behaviour that is driven by a factor from the outside environment of an individual so-called extrinsic motivation [23].

To achieve the objective of this study, six mostly referred gamification frameworks were identified and evaluated. A summary of them is provided in Table 1. Of these six, three are centered around game design, and emphasize on the process of implementing game elements or features. Additionally, with the study's focus on identifying game elements within a selected gamified platform, the Octalysis, MDA, and SDT frameworks were selected for further analysis. Following an in-depth review of these three frameworks, Octalysis emerged as the most comprehensive, having a large number of game elements. All the elements from Octalysis are noted with their respective categories (that are core drives in Octalysis terminology). Elements from MDA and SDT were included in the list if a specific element was either absent or not mentioned in Octalysis.

Table 1: Summary of Gamification Frameworks

Framework	Inventor	Categories	Cited*
1 D6 Framework	Kevin Werbach and Dan Hunter	1) Define Business Objective 2) Delineate target behaviors 3) Describe your players 4) Device activity loops 5) Don't forget the fun. 6) Develop appropriate tools.	4265
2 GAME Framework	Andrzej Marczewski	1) Planning & designing, 2) Designing solutions and measuring outcomes.	592
3 Tetrad Framework	Jesse Schell	1) Story 2) Mechanics 3) Dynamics 4) Technology	5450
4 MDA Framework	Robin Hunicke, Marc LeBlanc, Robert Zubek	5) Mechanics 6) Dynamics 7) Aesthetics	4065
5 SDT Framework	Deci & Ryan, 2000	1) Autonomy 2) Competence 3) Relatedness	56987
6 Octalysis Framework	Yu-kai Chou	1) Epic Meaning & Calling 2) Development & Accomplishment 3) Empowerment of Creativity & Feedback 4) Ownership & Possession 5) Social Influences & Relatedness 6) Scarcity & Impatience 7) Unpredictability & Curiosity 8) Loss & Avoidance	1323

*Cited: from Google Scholar, encompassing information up to 2022.

3. User Experience

User experience is an increasing field of research in all contexts. In recent years different fields of research discussed user experience and factors that can affect user interaction with a system or product [7]. User experience is becoming a key term in the world of interactive product design. Meanwhile, Madu and Madu [24] revealed that if a website gives the feeling to users that their information on the website is protected, it can create a distinguished and unique experience, thus it increases the purchase intention of users.

Nevertheless, research conducted by [25, 26] indicates that users' engagement in reading feedback or reviews from other customers, as well as checking product or service ratings, can significantly impact the user experience and influence purchase intentions. Nowadays, people explore the details of a product or service across various platforms, including e-commerce websites, apps, and even YouTube [27].

Experience is the heart of entertainment in each business, it occurs when a company or any business intentionally uses all the services available in the market to engage users in a way to create a memorable event [28]. This concept underscores the importance of a holistic approach to customer interaction, where each touchpoint contributes to an overall positive and unforgettable experience.

3. RESEARCH METHODOLOGY

1. PLATFORM SELECTION

Selecting the right platform to evaluate the effects of game elements on user experience is a challenge for this study. The criticality of choosing the right platform is evident, as it serves as the foundation for data collection, laying the groundwork for the accuracy and reliability of the entire process [29]. Online shopping became more significant when the pandemic plagued the world. With the closure of brick-and-mortar shops within the years after the pandemic people were left with no option but to turn to e-commerce. When selecting the platform, the concern is to pick the one that has inclusive options, reliable services, and is fast. Users typically prefer to purchase products from a platform that offers them satisfaction and a positive experience [30].

This is often achieved when the platform is designed with careful consideration of user intentions, ensuring that the quality of the purchased items matches the offered description. Additionally, competitive pricing in comparison to other platforms, timely delivery of items, and promotions, such as vouchers, contribute to a favourable online shopping experience [31].

Lazada and Shopee are the potential e-commerce platforms for the current study. Considering the guidelines from [31], it was found that Lazada's platform is simpler and easier to use compared to Shopee's. Features such as ordering goods and completing transactions are much more user-friendly on Lazada, making them easier to understand compared to Shopee. Additionally, Lazada is better known and more easily accessible to a broader audience compared to Shopee [32]. Hence, Lazada is a much preferable option.

Lazada always tries to provide the best offers to their customers such as multiple options for payment, free returns of goods, and warranty commitments. Lazada's service is secure and fast. It provides different products from fashion, electronic devices, household goods, sports equipment, etc.[33]. Besides browsing through the website, Lazada has a mobile application as well. It was developed to increase accessibility and enhance the mobile shopping experience of users. It allows users to access it anytime, anywhere even while they are on the go [34].

2. Conducting Workshop

Workshops are sort of a methodological frame and can be used as a means, practice, or research methodology [35]. As a means, workshops are conducted to achieve a goal [36]. In practice, workshop participants will learn new competencies, practices, knowledge, or ideas[37]. As a research methodology, the workshop will have two folds. The design of the workshop will fulfil a research purpose. Meanwhile, the participants will learn something related to their interests [38]. Conducting workshops will allow the generation of reliable and valid data about our desired domain[39]. Ahmed and Asraf [40], suggest the potential effectiveness of employing workshops as a quality research approach in educational research. It contends that participants' responses during workshops contribute to enhancing the credibility and trustworthiness of the collected data. The findings indicate that workshops accommodate several characteristics of qualitative study and can be considered as a research approach [40]. The workshop is regarded as a catalyst for engagement, achieved through

collaborative discussions and constructive feedback between the facilitator and participants [40, 41]. When seeking rich and valid information, it is imperative to create an environment where participants feel valued and heard [42]. In situations where researchers require rich information, shared experiences, and collaboration with others, a workshop is an excellent choice [43].

This study aims to evaluate the effects of identified game elements on user experience in the Lazada platform by conducting a workshop. This investigation could be undertaken individually, but there was a concern about the potential bias. There are higher chances of the existence of some (categories of) products that the researcher didn't buy so far. Additionally, there are some processes, algorithms, and procedures that the researcher has not come across. When there is a requirement for valid and reliable data, it is advisable to engage in group efforts or involve multiple individuals [35, 40, 42]. In light of these, the workshop has been conducted.

The workshop participants were selected based on their knowledge of e-commerce and experience of using the Lazada platform. Considering familiarity with the concepts being evaluated, postgraduate students were chosen. They were provided with enough information to understand what gamification is, and what are the operational definition for the major gamification cores and categories. There were 11 participants in the workshop, and based on their experience, a number of the elements were listed. The flowchart of the workshop is presented in Figure 1.

After compiling the individual results, removing the overlaps, and summarizing nine (9) elements have been identified. The result shows that Rewards, Badges, Leaderboards, Progress bars, Profiles, Fixed Intervals, Feedback, Inviting Friends, and Connecting to Social Networks affect the experience of users. These elements positively affect user's experience and cause them to browse the same online platform repeatedly. The output of the workshop shapes the model of the research.

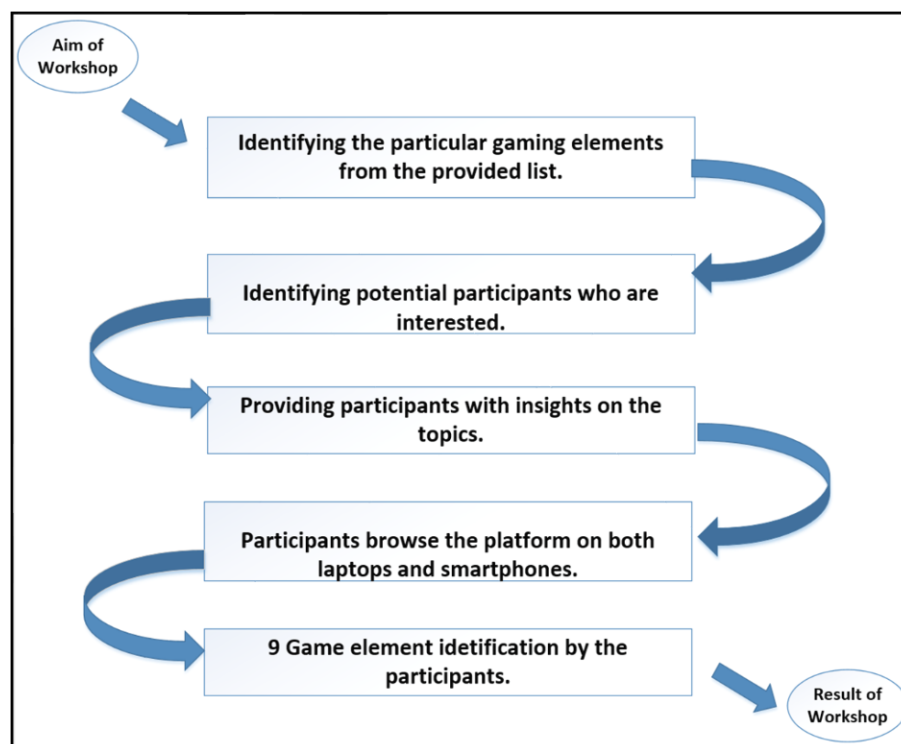


Figure 1: Workshop's Flowchart

4. PROPOSED MODEL

The model depicted in Figure 2 reflects the findings derived from the workshop. It is indicated that these elements directly affect user experience. Rewards, Leaderboards, Fixed Intervals, Progress Bars, Badges, Feedback, Profile, Connecting to Social Networks, and Inviting Friends, play a significant role in influencing users. These factors contribute to users repeatedly exploring the platform, allowing them to accumulate more experience with each browsing session.

Each of the identified elements from the workshop has been thoroughly discussed in the sections below.

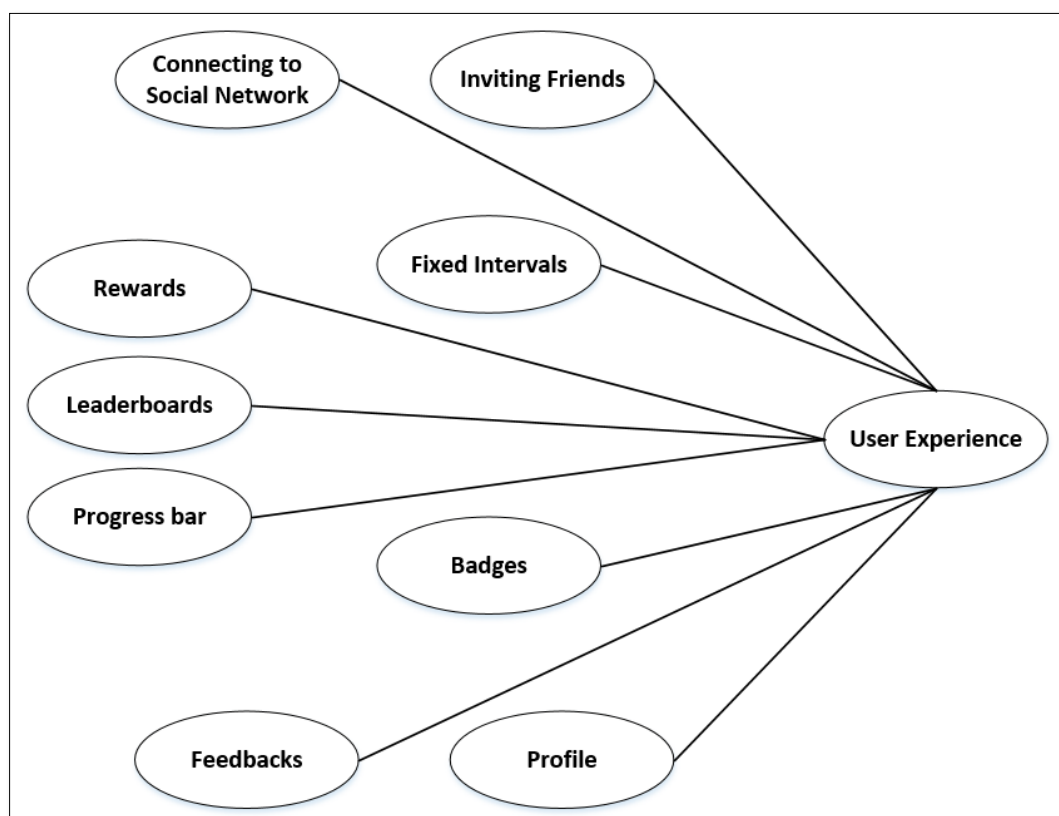


Figure 2: Research Model

1. Leaderboards

Leaderboards are the visual display of player progression and achievements [44]. Ranking, scoreboard, and rating are the alternative words for leaderboard [45]. It is the display of ranks for comparison, and it visually displays where a user stands compared to others. Most of the time users deliver feedback about their experience with a product or service through rating. Later on, these ratings could be used to score the product and do a comparison with other products in its specific domain [44]. Users actively seek information about products they intend to purchase or have already bought. Reviews and ratings play a crucial role in aiding them to make informed decisions [27, 46].

In the Lazada platform, the leaderboard displays products or sellers with the highest ratings or positive reviews, helping users make informed decisions based on the experiences of others within the same platform. On Lazada, with multiple sellers, a leaderboard could display the top-performing sellers in terms of sales volume, customer satisfaction, and experienced customers. Leaderboards not only provide recognition for the top-performing sellers but also offer transparency and guidance to users, about which sellers to choose. Seeing a seller on the leaderboard is a base for trust. As such, users are more likely to feel confident in their purchase if they know that other users had a positive experience with a particular seller within the platform.

2. Rewards

A benefit that goes together with some action or achievement is a reward [47]. In a recent study, Meder, et al. [3] described reward as receiving something good for completing a given task. Rewards come in two types of tangible and intangible, whereas people are more inclined towards tangible rewards like money. Incentives, prizes, and gifts are the substitutes for rewards.

In Lazada rewards are offered to users encouraging certain behaviors, such as making a purchase, referring friends, or remaining loyal to the platform. These rewards often take the form of discounts, facilitating savings for users when they

make a purchase. Additionally, the provision of free shipping serves as an enticing benefit, encouraging customers to increase their shopping activity and make more substantial purchases on the platform.

3. Progress bar

A progress bar is a graphical representation used in software applications or websites to visually indicate the progress of a task or process [48]. It is used to showcase the progress of a task or action to the users. The progress bar in education visually shows which activities students need to complete and what is the next move [49]. A learning progress bar is one of the essential elements of gamification. It is a graphical bar that allows users to monitor their status. A progress indicator grows as more of the task is completed [50, 51].

The progress bar creates a sense of progression. It shows a process of moving from one step to another, starting from nothing and ending up with a full profile [49]. Also, a sense of completion seeing how close is to the end of the bar, thus, the progress bar can motivate users. The effects of the progress bar on user experience in graphical user interfaces have been studied by Myers [52]. The results show that users have a strong preference for the progress bar while completing tasks or shopping. Users found the progress bars very useful.

The findings of this study indicate that the presence of a progress bar in Lazada significantly influences users' experience. It allows users to track the status of their order, providing information on the current location of the packages, estimated delivery time, and the specific delivery personnel. This continuous visibility encourages users to engage with the Lazada platform regularly, building on the positive experiences they have gained from previous interactions.

4. Feedback

Feedback can be used to identify missing features and clarify user preferences for future improvement [53]. Positive and good feedback is the main reason that makes users motivated, engaged, and encourages them to take action [49]. Meanwhile, Bharathi, et al. [44] refers to feedback as information about a player's performance during gameplay. It is important to take positive feedback into account while designing a new product or service.

Therefore, the findings of this study reveal that the presence of feedback on the Lazada platform influences user experience. When users explore product details, they can navigate to the review section to examine feedback from other users about the same product. These feedback contributions assist users in making informed decisions on whether to proceed with the purchase or not.

5. Fixed Intervals

People want something more intensively if they are rare or only available for a limited time [54]. The reward is fixed by time and not based on engagement in the task. E.g., you get the reward every 3 units of time. Users can get it after a fixed amount of time has passed [55].

The study's findings indicate that the presence of fixed intervals significantly influenced users' experiences on the Lazada platform. Lazada offers various incentives such as free shipping vouchers, discounts, and occasional free gifts during specific periods, perhaps at the beginning or end of the month or on designated dates. Users eagerly anticipate these opportunities and actively seek to take advantage of them, experienced users are likely to share this information with their friends as well.

6. Badges

Gamification badges are the elements of gamification in the form of rewards that symbolize the achievements of a customer in the e-commerce application, and learners in the educational applications [56]. Badges are normally used to identify skills and behaviours that aren't traditionally assessed. For example, there could be some surprise early bird badge for those who buy first, or in education, there should be a badge for the most helpful participant or for those who first suggest the solution for any kind of problem. In the education sector students aren't assessed based on badges, it is only to motivate them [56, 57]. Badges in online systems aim to encourage users to contribute more and reach different levels [58]. Online reviewers can be motivated to post more reviews and provide their feedback about products by earning higher-level badges which each may be offered through the reward systems of websites [59]. E-commerce reviews help customers to know more about a product and make the right decision [60]. Badges demonstrate the choice, expertise, engagement, experience, and trustworthiness of the user in the virtual community [61].

This study's results reveal that badges significantly impact users' experiences in Lazada. Those who engage in more shopping activities are eligible for increased benefits, such as additional discounts and higher-value free shipping vouchers. Customers who shop frequently have the opportunity to receive greater discounts and enjoy more free shipping compared to others. These discounts and free shipping benefits are likely to be more substantial for products purchased repeatedly from specific stores.

7. Profile

The profile is used to measure the performance of individuals based on the pre-configured metrics. Profile plays an essential role as it displays the current state of the user [62]. The profile is not stable as the information could be changed over time, whether the profile is on an e-commerce platform or any other platform. Instructions like inviting your friends or completing your profile, won't motivate users to take action. It is perceived beneficial for the system not for the users. The service should be designed in a way that users can invite others to the website as well as complete their profile, like Dropbox. It is a file hosting service. When a user first sign-up to Dropbox, either they should pay for a lot of storage space or invite their friends (to get more space). What users do is inviting people. Therefore, to have an account in Dropbox users will invite their friends after completing their profile. This way, both targets are achieved [63].

The current study's results emphasize that maintaining user profiles on Lazada has a direct impact on user experience. Users benefit from personalized offers, encompassing product recommendations and targeted promotions based on their past purchases or browsed items. Additionally, user profiles play a crucial role in helping users efficiently manage their orders, contributing to an enhanced overall shopping experience.

8. Connecting to Social Networks

Social media plays an important role in people's lives nowadays, with people using increasingly Twitter, Instagram, Facebook, and many other social networks. People use them to be in touch with friends to organize events and discover what is trending. Previously social media (Facebook and Twitter) were used for social interaction, but now as a tool that students leverage for learning [64]. Students create virtual groups for their studies which allows everyone in the group to be available at anytime from anywhere. In e-commerce users can share any product with their friends through social media channels available [65]. However, users can only send messages to sellers when they have accounts on the e-commerce platform itself. Even users are being asked while creating an account if they want to link the platform to their social media accounts such as Facebook, Instagram, and so on [65].

The findings of this study reveal that the existence of connecting to social network functionality on Lazada affected the experience of users. The incorporation of social networks allows users to share their preferred products, purchases, or reviews within their social circles. This social sharing dynamic contributes to heightened visibility for the platform.

9. Social Invite/Friending

A technique that today's businesses use the most is where users can invite their friends through the platforms. Many companies or businesses are seeking ways to make things more social by leveraging social media. If someone uses an application, they can easily share it with their friends on other platforms and invite them to use the same application [54]. Chou [63] states that platforms should take into consideration that users should experience the platform first and after that can invite friends.

The result of this study indicates that users share their intended purchase or their thoughts over bought items with their friends. This affected user experience in Lazada significantly. This sharing mechanism allows users to share specific products they intend to purchase or have already bought, fostering a sense of community and interaction within their social circles.

5. CONCLUSION AND FUTURE WORK

Several studies confirmed the positive effects of gamification on motivation [7], and engagement of users to a platform [3]. It has been confirmed that gamification has a significant effect on the experience of users [8], and in turn, it leads to consequences for the platform [2]. However, in the e-commerce context evaluating the effects of certain game elements on user experience is missing [3, 8].

Thus, on a theoretical level, this study's results serve as empirical evidence for the positive effects of specific game elements on the experience of users in the e-commerce context. This study contributes to the literature addressing the effects of game elements on the experience of users in an e-commerce platform. Additionally, it employs a workshop as a strategic approach to support the research methodology. From the managerial point of view, gamification has been applied extensively in different contexts to increase the engagement of users, motivate them to use the context repeatedly, and enhance their experience. The results of this study would help managers understand which game elements could be used to enhance the experience of users on the e-commerce platforms.

As this study is not free from limitations, potential directions for future research are suggested hereby. This study chooses the Lazada platform as the case study. Future studies could evaluate and identify game elements in other gamified platforms and classify their effects on user experience. This study examined the effects of specific game elements on user experience in an e-commerce context. Future studies could evaluate the effects of game elements on the engagement and motivation of users in an e-commerce context.

REFERENCES

- [1] J. Simões, R. D. Redondo, and A. F. Vilas, "A social gamification framework for a K-6 learning platform," *Computers in Human Behavior*, vol. 29, no. 2, pp. 345-353, 2013/03/01/ 2013, doi: <https://doi.org/10.1016/j.chb.2012.06.007>.
- [2] T. Mominzada, M. Z. B. Abd Rozan, and N. A. Aziz, "Consequences Of User Experience in A Gamified E-Commerce Platform," *International Journal of Electronic Commerce Studies*, vol. 13, no. 1, pp. 113-136, 2021.
- [3] M. Meder, T. Plumbaum, A. Raczkowski, B. Jain, and S. Albayrak, "Gamification in E-Commerce: Tangible vs. Intangible Rewards," in *Proceedings of the 22nd International Academic Mindtrek Conference*, 2018, pp. 11-19.
- [4] C. Liao, P. Palvia, and H.-N. Lin, "The roles of habit and web site quality in e-commerce," *International Journal of Information Management*, vol. 26, no. 6, pp. 469-483, 2006.
- [5] B. J. Pine and J. H. Gilmore, *The experience economy*. Harvard Business Press, 2011.
- [6] S. Deterding, D. Dixon, R. Khaled, and L. Nacke, "From game design elements to gamefulness: defining" gamification"," in *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments*, 2011, pp. 9-15.
- [7] Z. Fitz-Walter, D. Johnson, P. Wyeth, D. Tjondronegoro, and B. Scott-Parker, "Driven to drive? Investigating the effect of gamification on learner driver behavior, perceived motivation and user experience," *Computers in Human Behavior*, vol. 71, pp. 586-595, 2017.
- [8] S. B. Yudhoatmojo and R. Ramadana, "Analysis on gamification features usage on Indonesia ecommerce sites using Octalysis Framework," in *The 2nd International HCI and UX Conference in Indonesia, Jakarta, Indonesia*, 2016, pp. 1-5.
- [9] C.-L. Hsu and M.-C. Chen, "How does gamification improve user experience? An empirical investigation on the antecedences and consequences of user experience and its mediating role," *Technological Forecasting and Social Change*, vol. 132, pp. 118-129, 2018.
- [10] R. S. Alsawaier, "The effect of gamification on motivation and engagement," *The International Journal of Information and Learning Technology*, 2018.
- [11] J. Hamari, J. Koivisto, and H. Sarsa, "Does gamification work?--a literature review of empirical studies on gamification," in *2014 47th Hawaii international conference on system sciences*, 2014: Ieee, pp. 3025-3034.
- [12] C.-L. Hsu and M.-C. Chen, "How gamification marketing activities motivate desirable consumer behaviors: Focusing on the role of brand love," *Computers in Human Behavior*, vol. 88, pp. 121-133, 2018.
- [13] T. J. Brigham, "An Introduction to Gamification: Adding Game Elements for Engagement," *Medical Reference Services Quarterly*, vol. 34, no. 4, pp. 471-480, 2015/10/02 2015, doi: [10.1080/02763869.2015.1082385](https://doi.org/10.1080/02763869.2015.1082385).

- [14] J. R. Chapman and P. J. Rich, "Does educational gamification improve students' motivation? If so, which game elements work best?," *Journal of Education for Business*, vol. 93, no. 7, pp. 315-322, 2018/10/03 2018, doi: 10.1080/08832323.2018.1490687.
- [15] A. M. Toda, P. H. D. Valle, and S. Isotani, "The Dark Side of Gamification: An Overview of Negative Effects of Gamification in Education," in *Higher Education for All. From Challenges to Novel Technology-Enhanced Solutions*, Cham, A. I. Cristea, I. I. Bittencourt, and F. Lima, Eds., 2018// 2018: Springer International Publishing, pp. 143-156.
- [16] K. Werbach, "i Hunter, D.(2012) For the win: How game thinking can revolutionize your business," ed: Philadelphia: Wharton Digital Press, 2015.
- [17] K. Julius and J. Salo, "Designing gamification," *Marketing*, 2013.
- [18] A. Marczewski, *Gamification: a simple introduction*. Andrzej Marczewski, 2013.
- [19] J. Schell, "The Art Of Game Design: A Book of Lenses. 2ª edição," Massachusetts, Estados Unidos: Morgan Kaufmann Publishers, 2014.
- [20] C. F. Hofacker, K. De Ruyter, N. H. Lurie, P. Manchanda, and J. Donaldson, "Gamification and mobile marketing effectiveness," *Journal of Interactive Marketing*, vol. 34, no. 1, pp. 25-36, 2016.
- [21] Y.-K. Chou, "Actionable gamification," *Beyond points, badges, and leaderboards*, 2015.
- [22] R. Hunicke, M. LeBlanc, and R. Zubek, "MDA: A formal approach to game design and game research," in *Proceedings of the AAAI Workshop on Challenges in Game AI*, 2004, vol. 4, no. 1: San Jose, CA, p. 1722.
- [23] R. M. Ryan and E. L. Deci, "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being," *American psychologist*, vol. 55, no. 1, p. 68, 2000.
- [24] C. N. Madu and A. A. Madu, "Dimensions of e-quality," *International Journal of Quality & reliability management*, 2002.
- [25] I. Pentina, A. Amialchuk, and D. G. Taylor, "Exploring effects of online shopping experiences on browser satisfaction and e-tail performance," *International Journal of Retail & Distribution Management*, 2011.
- [26] W. Li, F. Lan, W. Fang-hua, and G. Feng, "Empirical study on the relationship between internet based customer involvement and new product development performance based on software enterprises in China," *Journal of Industrial Engineering and Engineering Management*, vol. 4, pp. 95-101, 2007.
- [27] M. Brengman and F. P. Karimov, "The effect of web communities on consumers' initial trust in B2C e-commerce websites," *Management Research Review*, vol. 35, no. 9, pp. 791-817, 2012.
- [28] B. J. Pine and J. H. Gilmore, "Welcome to the experience economy," 1998.
- [29] D. Goshevski, J. Veljanoska, and T. Hatziapostolou, "A review of gamification platforms for higher education," in *Proceedings of the 8th Balkan Conference in Informatics*, 2017, pp. 1-6.
- [30] Y. Andrianto and A. R. Mirza, "A testing of efficient markets hypothesis in Indonesia stock market," *Procedia-Social and Behavioral Sciences*, vol. 219, pp. 99-103, 2016.
- [31] A. B. Sadewo and R. A. Baktiono, "Comparison Analysis of Online Shop between Lazada and Shopee on Students of The Faculty of Economics and Business (FEB) Narotama University Surabaya, Indonesia," *Quantitative Economics and Management Studies*, vol. 1, no. 5, pp. 346-355, 2020.
- [32] I. D. Tinambunan, "Comparative analysis of Shopee and Lazada web service: Study on Shopee and Lazada users in Jakarta City," *International Research Journal of Advanced Engineering and Science*, vol. 4, no. 3, pp. 385-388, 2019.
- [33] J. PAGKATOTOHAN, "https://www.moneymax.ph/personal-finance/articles/lazada-vs-shopee-review," Website, 2022.
- [34] A. Hussain, E. O. Mkpojiogu, N. H. Jamaludin, and S. T. Moh, "A usability evaluation of Lazada mobile application," in *AIP Conference Proceedings*, 2017, vol. 1891, no. 1: AIP Publishing LLC, p. 020059.

- [35] R. Ørngreen and K. Levinsen, "Workshops as a Research Methodology," *Electronic Journal of E-learning*, vol. 15, no. 1, pp. 70-81, 2017.
- [36] P. Mishra and M. J. Koehler, "Technological pedagogical content knowledge: A framework for teacher knowledge," *Teachers college record*, vol. 108, no. 6, pp. 1017-1054, 2006.
- [37] P. Durance and M. Godet, "Scenario building: Uses and abuses," *Technological forecasting and social change*, vol. 77, no. 9, pp. 1488-1492, 2010.
- [38] E. Baran, E. Uygun, T. Altan, T. Bahcekapili, and H. Cilsalar, "Investigating technological pedagogical content knowledge (TPACK) in action: workshop design cases," in *EdMedia+ Innovate Learning, 2014: Association for the Advancement of Computing in Education (AACE)*, pp. 1536-1541.
- [39] R. Wakkary, "A participatory design understanding of interaction design," *environment*, vol. 5, p. 18, 2007.
- [40] S. Ahmed and R. M. Asraf, "The workshop as a qualitative research approach: lessons learnt from a "critical thinking through writing" workshop," *The Turkish Online Journal of Design, Art and Communication*, vol. 2018, pp. 1504-1510, 2018.
- [41] L. Li, Z. Wu, and L. Lu, "Research on Visualization Technology of Production Process for Mechanical Manufacturing Workshop," *Applied Sciences*, vol. 13, no. 17, p. 9754, 2023.
- [42] S. A. Lain, "Hold steady in the wind: Reclaiming the writing workshop," *Montana*, vol. 40, 2017.
- [43] J. E. Dodgson, "About research: Qualitative methodologies," *Journal of Human Lactation*, vol. 33, no. 2, pp. 355-358, 2017.
- [44] A. K. B. G. Bharathi, A. Singh, C. S. Tucker, and H. B. Nembhard, "Knowledge discovery of game design features by mining user-generated feedback," *Computers in Human Behavior*, vol. 60, pp. 361-371, 2016.
- [45] K. Seaborn and D. I. Fels, "Gamification in theory and action: A survey," *International Journal of human-computer studies*, vol. 74, pp. 14-31, 2015.
- [46] O. Badran and S. Al-Haddad, "The Impact of Software User Experience on Customer Satisfaction," *Journal of Management Information and Decision Sciences*, vol. 21, no. 1, pp. 1-20, 2018.
- [47] T. D.-L. Guin, R. Baker, J. Mechling, and E. Ruyle, "Myths and realities of respondent engagement in online surveys," *International Journal of Market Research*, vol. 54, no. 5, pp. 613-633, 2012.
- [48] M. Ohtsubo and K. Yoshida, "How does Shape of Progress Bar Effect on Time Evaluation," in *2014 International Conference on Intelligent Networking and Collaborative Systems, 10-12 Sept. 2014 2014*, pp. 316-319, doi: 10.1109/INCoS.2014.85.
- [49] G. Kiryakova, N. Angelova, and L. Yordanova, "Gamification in education," *2014: Proceedings of 9th International Balkan Education and Science Conference*.
- [50] F. G. Conrad, M. P. Couper, R. Tourangeau, and A. Peytchev, "The impact of progress indicators on task completion," *Interacting with computers*, vol. 22, no. 5, pp. 417-427, 2010.
- [51] D. A. Filvà, M. J. C. Guerrero, and M. A. Forment, "Google analytics for time behavior measurement in Moodle," in *2014 9th Iberian Conference on Information Systems and Technologies (CISTI), 2014: IEEE*, pp. 1-6.
- [52] B. A. Myers, "The importance of percent-done progress indicators for computer-human interfaces," *ACM SIGCHI Bulletin*, vol. 16, no. 4, pp. 11-17, 1985.
- [53] M. Almaliki, N. Jiang, R. Ali, and F. Dalpiaz, "Gamified culture-aware feedback acquisition," in *2014 IEEE/ACM 7th International Conference on Utility and Cloud Computing, 2014: IEEE*, pp. 624-625.
- [54] Y.-k. Chou, *Actionable gamification: Beyond points, badges, and leaderboards*. Packt Publishing Ltd, 2019.
- [55] K. M. Kapp, *The gamification of learning and instruction: game-based methods and strategies for training and education*. John Wiley & Sons, 2012.

- [56] L. Solutions. "How Gamification Badges Motivate Learners to Succeed." <https://www.lambdasolutions.net/blog/how-gamification-badges-motivate-learners-to-succeed#:~:text=What%20are%20Gamification%20Badges%3F,symbolize%20the%20achievements%20of%20learners>. (accessed 1 Nov 2022, 2022).
- [57] J. Hamari, "Do badges increase user activity? A field experiment on the effects of gamification," *Computers in Human Behavior*, vol. 71, pp. 469-478, 2017/06/01/ 2017, doi: <https://doi.org/10.1016/j.chb.2015.03.036>.
- [58] Z. Zhang, Q. Ye, R. Law, and Y. Li, "The impact of e-word-of-mouth on the online popularity of restaurants: A comparison of consumer reviews and editor reviews," *International Journal of Hospitality Management*, vol. 29, no. 4, pp. 694-700, 2010.
- [59] M. Mkono, "A netnographic examination of constructive authenticity in Victoria Falls tourist (restaurant) experiences," *International Journal of Hospitality Management*, vol. 31, no. 2, pp. 387-394, 2012.
- [60] A. G. Mauri and R. Minazzi, "Web reviews influence on expectations and purchasing intentions of hotel potential customers," *International journal of hospitality management*, vol. 34, pp. 99-107, 2013.
- [61] P. Kollok, "The production of trust in online markets," *Advances in group processes*, vol. 16, no. 1, pp. 99-123, 1999.
- [62] D. Rajanen and M. Rajanen, "Personalized Gamification: A Model for Play Data Profiling," in *DDGD@ MindTrek*, 2017, pp. 26-33.
- [63] Y. Chou, "Actionable Gamification: Beyond Points, Badges, and Leaderboards.[SI: sn], 2015," *Citado*, vol. 7, p. 32.
- [64] E. Roesch. "How Gamification And Social Networking Impact Learning: Communication Is The Key." <https://elearningindustry.com/social-networking-impact-learning-gamification-communication-key> (accessed 3 Nov, 2022).
- [65] K. Venkatesan, "Kausik Mondal, Abhishek Kumar, "Enhancement of social network security by Third party application", " *International Journal of Advanced Research in computer science & software Engg*, vol. 3, no. 3, pp. 230-237, 2013.