Original Article

Gamification in Product Design: Enhancing Marketplace Engagement

Karthik Banerjee
Boston Dynamics, USA

Abstract - *Gamification, the use of game design concepts in a setting not actually a game, has become a tactical level solution to enhance users' satisfaction with the services within digital marketplaces. From this research, the role of gamification in products as a design strategy to drive engagement, increase the products' usage, and improve the usability of the products is examined. In this paper, we elaborate on the theoretical frameworks pertaining to gamification and the origin of motivation theory and theories of behavioral psychology. Exceptions of how such features may help to enhance usage figures within the marketplace are described, with additional examples of features that comprise this Gamification. This, we explicate the processes used in the design, development, and testing of these features through a detailed methodology. The conclusion reveals the enhancement of users' experience in terms of sessions, rates of return, and conversion rates. It focuses on users' feedback and comparisons with prior literature studies, and the tension begins to explore when excessive GG undermines user engagement. Lastly, the findings section restates major findings and recommends avenues for study on the improvement of the said gamification techniques in e-Markets.*

Keywords - *Gamification, Product Design, User Engagement, Digital Marketplaces, User Experience, Motivation Theory.*

1. Introduction

Gamification refers to the strategy in which game elements and processes are used in contexts other than games to increase the amount and quality of user engagement. While earlier known in theories of marketing and education, this concept has more recently emerged in product design, especially within virtual systems. [1,2] Points, badges, and leader boards, as key tools, should be built into the business processes as additions to routine tasks to enhance the users' level of participation. The rationale of gamification is based on the fact that one of the key aspects of human nature is the competition and desire to achieve and be rewarded, which can effectively increase the positive impacts on the end user's behavior.
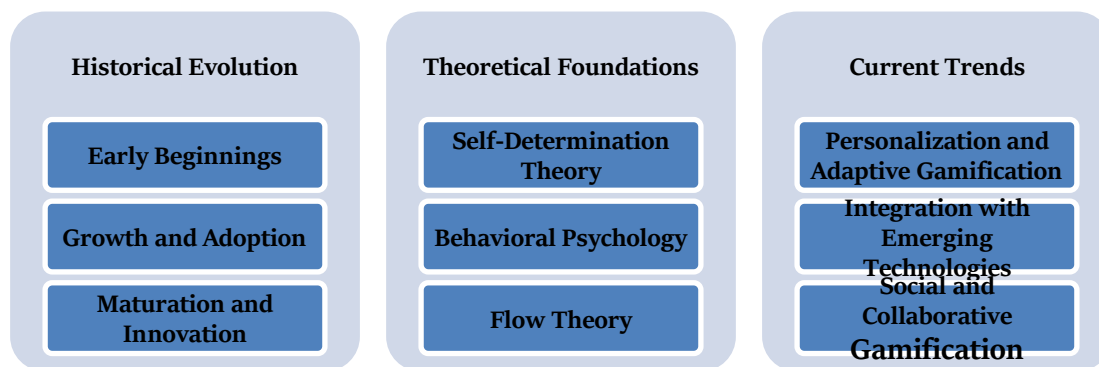

Fig 1. Evolution of Gamification in Product Design: Enhancing Marketplace Engagement

1.1. Historical Evolution
1.1.1. Early Beginnings
Gamification, the process of applying the concepts of game design in other contexts, can be traced back to reward systems, including point-based teaching and loyalty programs that use the elements of games to influence people's actions. [3] It only began to spread at the end of the 2000s due to the understanding of numerous digital platforms concerning the possibility of applying game mechanics to improve users' engagement and loyalty.

1.1.2. Growth and Adoption
Thus, the trend of adopting gamification has been rapidly growing at the turn of the early 2010s for use in education and healthcare, corporate training, and the marketing of products. I think that creating badges, using leaderboards, and proposing

challenges are often used in the present applications of e-commerce and online marketplaces, but the first experiences in using these tools in social applications were observed in such companies as Foursquare and Nike.

1.1.3. Maturation and Innovation

Over time, gamification became a bit more complex and incorporated more complex game mechanics and incorporated new technology such as AI and machine learning. This evolution has led to a policy of user experience and has supported users to closer engage with the content and with each other, within digital marketplaces.

1.2. Theoretical Foundations
1.2.1. Self-Determination Theory

A primary theory which complements gamification is the Self-Determination Theory, which avers that individuals can be self-sourced with regard to motivation that strengthens the sense of autonomy, competence, as well as relatedness. [4] Hence, for motivation, gamification strategies can be sought to meet the needs of power, achievement, and affiliation.

1.2.2. Behavioral Psychology

Gamification also leans on the concept of behavioral psychology, in which rewards and feedback are used to shape people's activities. Tools like motivators, tracking, and social approvals are placed to elicit the dopamine effects in order to create patterns of use.

1.2.3. Flow Theory

Another foundational theory necessary for understanding gamification is Mihaly Csikszentmihalyi's Flow Theory, which relates to people's optimal experience during an activity. Customizing consumer's challenges and skills keeps the consumers from becoming bored, thus encouraging them to participate in the design.

1.3. Current Trends
1.3.1. Personalization and Adaptive Gamification

The new trend of shifting attention to the user has created the so-called adaptive gamification, where game elements are specific to user activity. [5] A rise in the use of big data processing and artificial intelligence in communications has occasioned this.

1.3.2. Integration with Emerging Technologies

ARG and VR, as well as blockchain technologies, present the horizons of gamification by being the technologies that make it possible, as discussed earlier in this paper. Such technologies make it possible to open new dimensions to impose value that will be convenient and entertaining for users to make more productive generated engagements.

1.3.3. Social and Collaborative Gamification

The social and collaborative aspects are now even more significant within gamification, as people understand the influence of friends' actions on their own actions. Aspects like teamwork, working in groups, social and community-related efforts and leader boards give people the feeling that they are members of a team and thus help them to achieve.

1.4. Impact on Marketplaces

Fig 2: Impact on Marketplaces

1.4.1. Enhanced User Engagement

It has been noted that through the use of gamification, there is increased usage since the engagements are made to be more fun and exciting. Points, badges, and leaderboards drive repeat usage and are critical in making health apps stickier.

1.4.2. Increased Customer Loyalty

Rewarding customers and promoting their achievements can increase their loyalty, and this is something that is promoted by gamification. Some factors contributing to such tendencies are shown in the following Scrum bunches: Meaningful digital rewards can make users come back to the application and attract others to join; Recognition of users' efforts increases the desire to stay and encourage others to use the application.

1.4.3. Improved User Experience

There is no doubt that proper application of gamification can create a large positive impact and improve the user experience with the interface and with the given application or product. In this way, even here gamified elements effectively help users to go through processes that would otherwise be difficult to perform smoothly, increasing their satisfaction with the experience.

1.4.4. Increased sales and conversion of customers

In markets and commerce, gamification increases sales and conversions because customers will perform an action for a reward, such as – writing reviews, referring friends, and buying products. Temporary missions and bonuses help to achieve certain goals and affect the audience.

2. Literature Survey
2.1. Theoretical Foundations of Gamification
2.1.1. Self-Determination Theory

Earlier, gamification was grounded in Self-Determination Theory by Deci and Ryan, which strongly focuses on intrinsic and extrinsic motivation. [6] Intrinsic motivation is the motivation that one gets when engaging in an activity of interest, while extrinsic motivation is the motivation gained when engaging in an activity in order to gain a certain reward. SDT posits that individuals are motivated to grow and achieve fulfillment through three fundamental psychological needs: three basic psychological needs, that is, need for autonomy, need for competence and need for relatedness. Autonomy means the perception of control over the actions; competence means the perceived effectiveness in the tasks, relatedness relates to feelings about the connections with the people. Specific gamified systems that effectively implement these elements can help increase users' motivation and continuance using gamification principles that meet these fundamental psychological needs. For example, giving choices to the users (control), to be precise, clear goals and feedback (self-actualization) and social interactions as well (social connectedness) help in achieving positive user engagement.

2.1.2. Flow Theory

Another supporting theory concerning gamification is called Flow theory, developed by Mihaly Csikszentmihalyi; it reflects the condition of Absorption, which defines the total concentration of an activity. Flow can also be described as the extent to which people focus on what they are doing and get engrossed in that activity, and the activity is associated with an experience of time passing quickly or being unrelated to time. This state is reached when the difficulty of the task is well matched with the person's abilities, and there is awareness of the tasks and timely feedback. Thus, applying gamification, the authors try to design experiences that would result in a state of flow as the tasks are structured in a way that meets requirements without overwhelming the users. For instance, most of the applications of game design incorporate characteristics such as increased levels of difficulty within the application as long as it does not bore the users yet does not challenge them too much to the point that they get frustrated. This way, it is possible for gamification to promote its users' satisfaction and productivity at the same time.

2.2. Game Mechanics and Dynamics
2.2.1. Game Mechanics

The main components of a gamification process that is being integrated into the activity include points, a badge, a leaderboard, and a challenge. [7] Points have a certain value that lets the users know how they are faring at any one time. The concept of badges simply means achievements and things that people have accomplished, therefore providing a sense of achievement. Leaderboards help to introduce a competitive nature as users' activity is sorted by their results, showing the desire to climb the rankings. The formulation of challenges poses specific goals for the users to meet and so brings in the aspect of goal identity, which will enhance the persistence of the users. It is intended that these factors correlate with the users' practices and preferences and make the processes more entertaining. For instance, accumulating points for accomplishing various tasks gives satisfaction to the activities carried out, like innovative work incentive that awards points for a number of tasks, as opposed to the games whereby competing for high scores will compel the users to work harder and out-perform their counterparts in the same game.

2.2.2. Dynamics of Engagement

Competitiveness and cooperation are preconditions for the user to focus on the game, and achievements stimulate the user's activity by targeting the motive. It can act as a stimulus for the possibility to compete with other users and contribute to the increase of pressure towards raising the level of one's performance. This fosters social relationships and group work, hence bringing the feeling of togetherness and achievement of group goals. Organizational achievement dynamics offer a pathway for its members to achieve and accomplish organizational tasks and goals, meeting the competence and master or intrinsic motivation. All these dynamics come into play, working in synergy to make the overall user experience so interesting and rigorous. For example, where competition helps students through leader board, collaboration support by group assignment, achievement – badge or certificate.

2.3. Case Studies and Examples
2.3.1. Duolingo

Of all the firms that have applied gamification to language learning, Duolingo is one of the most successful firms. Users get points after finishing the lessons, get achievements for reaching some goals, and have streaks for days in a row. These elements stimulate the users to proceed to the next phase and maintain enhanced language proficiency. These features have values of points, badges and streaks in games that will always drive people to carry on with their learning process. Besides, Duolingo provides leaderboards and socially integrated options which make users competitive and correlated with others, which in turn increases motivation for their learning.

2.3.2. Nike+

Nike+ is a fitness tracking application where the company uploads messages and challenges the need for humans to be active. One can have goals and objectives, compete with others and get badges for the tasks done. This way of engaging the users has been efficient in encouraging individuals to change their way of life and exercise more. Nike+ uses the techniques of competition and feedback to ensure that clients stick to the recommended regimes and achieve their fitness objectives. It also proposes other features of social character where people can share – and have their results challenged by – friends, which contributes to the motivation factor.

2.4. Criticisms and Challenges
2.4.1. Potential Pitfalls

Apparently, opponents of the phenomenon described under the term 'gamification' can justifiably explain that this approach can be manipulative or even frivolous if the idea is pursued without sufficient refinement. [8] The use of external incentives like points and badges often decreases the natural interest that people have in the task at hand, which will, in turn, reduce its use once the incentive is withdrawn. This is a very common effect called the over-justification effect, the fact that extrinsic motivation decreases an individual's inherent motivation. In the same respect, there are many cases where the gamification feels unnatural and disrupts the overall 'feel' of the application. For instance, if the attached points mean that the game-type elements do not fit well in the large scheme of things or are not easy to relate to the objectives of the users, then they only serve as a distraction. Hence, the given problem categorically requires that all these elements of gamification be designed in a manner that does not undermine or distort the intrinsic motivation attached to the basic activity.

2.4.2. Balancing Design

One of the biggest obstacles in the process of gamification is the successful integration of play mechanics and user experience. Throughout the task, we established that gamified features need to complement the core product in such a way that they do not overshadow or excessive effect is created. The security of adding value to gamification is important in order to achieve the best possible results to satisfy user needs and preferences. For instance, although utilizing leaderboards is good for creating friendly rivalry, nobody needs to log into an app to discover that she or he is weak and defeated constantly. In the same way, difficulties have to be proportional to the current level of the learner's activity in order not to distract him/her with frustration but to make a task interesting. Mindful of the composed acronym MDA, drawing a good balance of gameful aspects takes into account the multifaceted desires of the users and provides a wide variety of game elements that will suit different types of users all at the same time, while at the same time maintaining the fun and relevance of the gamification process.

3. Methodology
3.1. Design Process
3.1.1. Identifying Key Interactions

A step that was the beginning of designing primary user interactions of the marketplace application was described. User's personas and their journeys were designed precisely in order to identify any specific pain or gain which could be associated with the notion of gamification. [9] This step was done by examining the sections where the user may interface with, or provide feedback on the application to know where the aspects of gamification could be incorporated.

- User Personas and Journeys: Particular participants were also proposed to analyze for further breakdowns as well. Trips were applied to address the work of the target users, and the possibility of getting a job through the website was elaborated.
- Pain Points and Opportunities: An analysis of the users' feedback data and users' actions to realize that gamification can be applied in the portions where users have difficulties or, conversely, are bored.

3.1.2. Mapping User Journeys

Usage scenarios were defined with the aim of understanding the key contact points and activities that take place in the marketplace. This process included the development of vivid scenarios of users' activities ranging from the actions normally done by a sample of users starting from browsing through the products available and ending with the purchase of these products in order to discover possible points of incorporating gamified aspects into the process.

- Scenario Creation: Deriving concrete examples for the creation of prototypical activities of a typical user.
- Touchpoints Identification: Identifying strategic points that will require special attention for the introduction of the gamification elements.

3.1.3. Development of Gamified Features

They developed a points and rewards system in which the users are awarded the points depending on various activities such as buying and/or rating. These points are then earned by the user each time they shop, and they can later be used to either get a discount or an offer on the platform; this often revives the shock of the user to spend more time on the platform.

- Point Accumulation: There are activities such as buying, rating, sharing, inviting friends, and so on which the users will be rewarded with some points.
- Rewards Redemption: Thus, points can be used as payments and Coupons, discounts or vouchers, and even on some offers, or opening to specific contents.
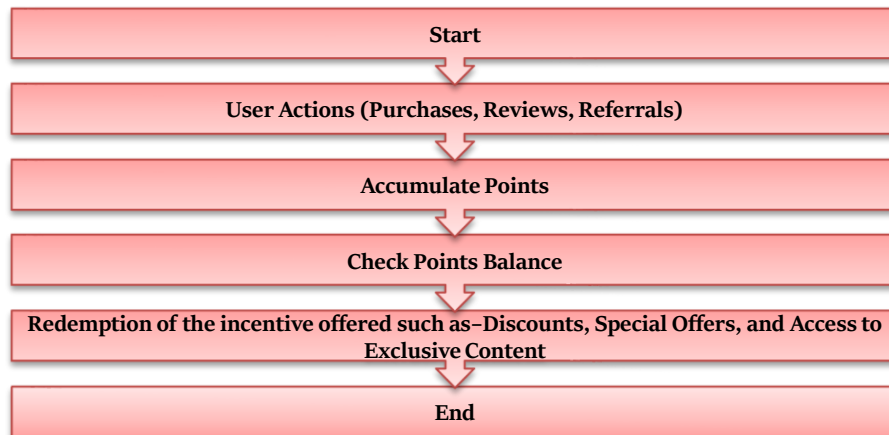
```
┌─────────────────────────────────────────────────────────┐
│                        Start                             │
└─────────────────────────────────────────────────────────┘
                           │
┌─────────────────────────────────────────────────────────┐
│      User Actions (Purchases, Reviews, Referrals)        │
└─────────────────────────────────────────────────────────┘
                           │
┌─────────────────────────────────────────────────────────┐
│                  Accumulate Points                       │
└─────────────────────────────────────────────────────────┘
                           │
┌─────────────────────────────────────────────────────────┐
│                 Check Points Balance                     │
└─────────────────────────────────────────────────────────┘
                           │
┌─────────────────────────────────────────────────────────┐
│  Redemption of the incentive offered such as–Discounts,  │
│     Special Offers, and Access to Exclusive Content      │
└─────────────────────────────────────────────────────────┘
                           │
┌─────────────────────────────────────────────────────────┐
│                         End                              │
└─────────────────────────────────────────────────────────┘
```

Fig 3: Points and Reward System Workflow

3.1.3.1 Start:

The external starting point of the points and rewards system represents the first contact of a user with the given platform. This particular stage is very important because it lays a framework for user interaction. It starts when a user registers or logs in to an account as a node where users enter the system to commence accruing or expending points. The flow of the system should be easily navigable and prompt the users to try out all the actions that they can take so as to earn points.

3.1.3.2 User Actions (Purchases, Reviews, Referrals):

The main activity that can provide the user with points is the actions of a user on the site. These include making a purchase, giving a review on the purchases made, and getting friends also to join the platform. As a result of such a purchase, the user gets some amount of points which are proportional to the amount value of the purchase made. Leaving a review is for the benefit of other prospective clients, as well as for the beneficiary. The reviewer gets points, thus creating a society of shared experience. Referral encourages people to invite a new member onto the platform, whereby both the referrer and the referee will be awarded points. All these actions are usually selected with the aim of increasing the use of the application and people's loyalty to it.

3.1.3.3 Accumulate Points:

While users engage in the mentioned activities, they are rewarded certain points in their respective accounts. The points system also forms a universal record of the user and the points earned by the user, and it has an instant update of the points, which

in turn fulfills the user's need for instant pleasure. This accumulation process is successive and effective; the users are able to determine how many points they have gained from a certain activity. Gathered points are stored in the account of the user, so the user has the ability to use them to make proper actions going forward and understand his/her progress.

3.1.3.4 Check Points Balance:

Monitoring of the points is also part of the rewards system since the users need to know the number of points they have so that they can be able to use the earned points to claim the rewards. This step involves users of the reward program frequently checking their points in order to have a view of their position regarding earnings. It should be convenient for users to review their balance with the possible ability to translate points into cash. In addition, points earned should be explained in detail. This transparency fosters trust and ensures people, continue to participate in the social media platforms.

- If sufficient points have been accumulated, then go for redemption of the points: When users have attested enough points, they can move up to the reward phase of the platform. This is because for the user to start redeeming the points accrued, the system alerts the user of the available points for redemption in case they have met the right point level. This stage is simple to navigate and informs clients about necessary redemptions as well as various rewards according to the number of points that they have.
- If there are Not Enough Points, Go back to the User Actions: In case users lack sufficient points to claim for the offering, they are urged to go back to the user actions section. They are informed of the several options that they could use to earn more points on the available system, for example, more purchases required, more reviews should be written, or more friends should be referred. This loop guarantees that users are always active and participating on the platform and keeps on encouraging the users to continue to engage so that they can obtain their rewards.

3.1.3.5 Redemption of the incentives offered such as–Discounts, Special Offers, and Access to Exclusive Content:

Redemption of the points that have been accumulated is the final aim of the users with reference to the points and rewards system. In this stage, users are allowed to redeem their points for any of the following: alternative offers, further reduced prices of the products in the future, vouchers, and other form of privileges. The target customer base should be dissolved by presenting a wide variety of significant incentives that should tempt everybody. The redemption process has to be as smooth; it has to be a sufficiently positive process which is encouraging the user to continue using the product.

3.1.3.6 End:

The final phase represents that the points and rewards loop has concluded after the users have converted the points into desired incentives. But this is not the last touch point; it is the initiation of a new touch point cycle. Having tasted the realities of the rewards system means that users will be inclined to participate more in the user actions to build more points to get more rewards in the future. The end stage thus provides the signal of satisfaction as well as reinforcement for continuous patronage of the platform.

3.1.4 Badges and Achievements

That is why badges and achievements appeared, and they were to state the main life events and achievements of the user. There are badges for getting to some ranks where the user can buy or sell some quantity of products or get the rating for example, a seller – they make the user motivated.

- Milestone Recognition: It is a system of awards which are being offered for great achievements.
- Achievement Motivation: Compelling the users to perform certain tasks with the aim of being rewarded with certain honours.

3.1.5 Leaderboards

In order to try and maintain user competition, some games have incorporated the leaderboards. It can be a competition with friends or globally: depending on the concerned results, which are points scored or accomplishments earned. This competitive aspect makes the users to be more active with the platform.

- Global and Friend Competitions: Friends and other users' rankings are given in such a way that the users of the site can know their place.
- Engagement Metrics: Facts of the values and each indicator of participation as well as all achievements.

3.2. Challenges and Quests

Challenges and tasks were to be created in a way that would evoke time-specific issues in a given society in an effort to keep the respective communities busy. Some of them are procedural, and some are more specific; for instance, a user can have a task like making five purchases within a month and, in return, he/she is awarded or given, let us say, a symbol or a bonus.

- Time-bound Goals: Time contingency of low availability and challenge or quest contingency.

- Rewards and Recognition: It is related to users' performance and offers motivational stimuli in the form of bonuses or other forms of appreciation for the attained challenges.

3.2.1. User Participation in Challenges/Quests
Challenges and quests are some of the most important features when using the concept of gamification to make user engagement on a platform more appealing. Through the incorporation of challenges, the activity creation is aimed at increasing the overall number of times and the level of participation. Such can range from as basic a challenge as logging into the site daily and as complex as securing a fixed number of sales within a week. Tasks can be a plus in creating an adventurous and explorative aspect of the user's total experience with the application. This will not only enhance the user involvement but will also enhance the feelings of togetherness coupled with confederacy as they have views on how they stand among other users.

Fig 4: Workflow for Challenges and Quests in the Marketplace

3.2.2. Time-bound Goals: Specific Time Frames
Habits help keep the organization active and post updates relevant and fresh, which is why time-bound goals are critical to any social media platform. As most challenges and quests within the application are time-bound, the users are compelled to complete them in record time. These deadlines help to develop the atmosphere of the competition and make people focus on their tasks. The goals may be daily, weekly and monthly, depending on the specific need of the task at hand. It aids in maintaining the energetic activity of the platform, and guaranteeing that the users are frequently rewarded and valued. Third, it creates recurrent participation since the respondents go back to the platform to emulate a continuing challenge before it ends.

3.2.3. Completion of Challenges/Quests
The completion of challenges and quests marks a significant achievement for users. This phase is crucial as it provides a sense of accomplishment and satisfaction. Successfully completing a challenge or quest not only enhances the user's experience but also reinforces their commitment to the platform. It is important to communicate the completion criteria and progress to users clearly so they remain motivated and aware of their achievements. The completion phase can also include feedback or summary screens that highlight the user's efforts and milestones, further enriching their sense of accomplishment.

3.2.4. Rewards and Recognition
Rewards and recognition are the ultimate incentives for users to participate in and complete challenges and quests. These rewards can take various forms, such as discounts, special offers, exclusive content, or virtual badges and trophies. Recognition can also be public, with leaderboards or social sharing features that allow users to showcase their achievements. Providing meaningful and valuable rewards not only encourages participation but also enhances user loyalty and satisfaction. Recognition fosters a positive feedback loop, motivating users to continue engaging with the platform and striving for further achievements. This aspect of the gamified experience is crucial for maintaining long-term user interest and involvement.

4. Testing and Iteration
4.1. A/B Testing
Some of the gamification elements, in turn, were sampled with some of the users in the frame of the A/B testing. This approach helped provide a cross-section analysis of the exposed users, [10] with the gamified features, to the non-exposed users, the outcome of which would be an illustration of the efficiency of the gamified features that were implemented.

- Test Groups: I have also made sure that I have a control and testing group that will assist in making comparisons regarding the results.
- Engagement Metrics: Main differences: Trying to establish the levels of engagement by the two groups, the following main differences have been observed.
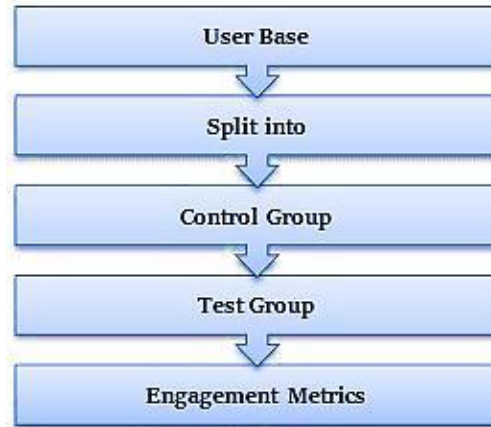
Fig 5: Diagram of A/B Testing Setup for Gamified Features

4.1.1. User Base

The user base is the overall population of the users out of whom participants are chosen for the A/B tests. This group included a cross-section of the users to ensure that the results of the test covered all species of the users. In this way, when generating the random sample from this base, it is possible to exclude certain biases and obtain statistically significant results that would demonstrate the overall experience of typical PayPal users. They are the source of users that can be used to define the control and the test groups and thus provide a solid basis for the evaluation of the game elements.

4.1.2. Split into

Dividing a large number of users into separate groups is an essential process of A/B testing. This involves dividing users into two groups: The control group and the test group refer to them. These divisions should also be done randomly so that each of the groups that will be formed is demographically similar to the other group so that no bias influences the results. The first objective is to assemble sets of participants that are as similar as possible so that the variations in the engagement measures might be reasonably attributed to the differential elements of the gaming paradigm shift. Benjamin isolated the control and experimental groups so that an effective comparison of users' activities could be made.

4.1.3. Control Group

The comparison group refers to a group of users who remain on the platform to use it like before but with the tweak of missing parts of facility gamification features. This group helps in making comparisons with the rest as they are the normal users, who actively use the platform. The absence of exposure to the elements of gamification in the control group would make it possible to assess the impact of the different features against a background of the behaviour and engagement statistics of this group. Data collected from the control group is necessary to determine what aspects of the users' interaction and activity were affected by the introduction of the game mechanics.

4.1.4. Test Group: Gamified Features

The test group comprises customers who are selected to engage with the modified application that contains the new gamification elements. Such features could be points and rewards schemes, challenges and quests, among others, that would help in improving the level of users' engagement and interaction. This way, when incorporating these features into the test group, one can see its users' reactions and, correspondingly, compare the engagement KPIs with those of the control group. The test group furnishes the data that can be used to analyze how the gamification strategies affected the number of and the sorts of actions taken by the users.

4.1.5. Engagement Metrics

These were done for each of the two groups but were not transformed for the purpose of the analyses. Main engagement indicators serve as variables defining the performance of the gamified elements. In this case, the parameters could entail the number of frequent users who log into the platform, the amount of time spent by the user on the platform, the extent of purchases made, the participation form in challenges, and the overall review done by the user. In this way, having calculated the above-stated metrics for the control and test groups, it is possible to find out the particular influence of the gamified features. To their advantage, the quantifiable parameters make it possible to detect patterns, consider the level of customer satisfaction, and assess the impact of a gaming approach. To summarize, the comparative analysis is crucial for the evaluation of the corresponding features' implementation and improvement on the discovered platform(s).

4.2. User Feedback

The attitude toward the gamified elements was assessed quantitatively in regard to a user's perception following the results obtained from the questionnaires and interviews. All such insights were incorporated in improvements in the subsequent versions of its design over the users' requirements and expectations regarding the locations of the gamification elements.

5. Metrics Tracked

The parameters specified herein included general session time or the total time spent during the exercise and the ratio of rates of return to the site or application, as well as the conversion rate used in the assessment of the nature and efficiency of the gamification strategies that were applied. [11] These metrics gave the fundamental numerical indication of the users' interactions with the features and their efficiency.

Fig 6: Metrics Dashboard for Tracking User Engagement

- Session Duration: Learning the time that the users spend on the business platform.
- Return Rate: All the time the users spend on their respective visit to the platform duration of the visit.
- Conversion Rate: Regarding the indicators that are used when analyzing activity and using ready-made templates of metrics important for observing the user's activity, it is necessary to draw attention to the section where the percentage of users completing some number of targeted actions is tracked, for example, purchase.

6. Results and Discussion

6.1. User Engagement Metrics

6.1.1. Session Duration

Thus, adding up various elements related to games raised the level of the time spent in an extended range of the session which marked the sign of the higher engagement level. The users spent more time on average on the website, viewing products and gambling.

Table 1: Session Duration

Metric	Before Gamification	After Gamification	Percentage Increase
Session Duration	10 minutes	13 minutes	30%

6.1.2. Return Rate

More than 25 % returned shows that the user is retaining more in terms of the cash and this is better than the record that was beget before. The visitors were getting occupied with the points earning, challenge completing, and other initiatives provided on the site so that they could come back to the site again.

Table 2: Return Rate

Metric	Before Gamification	After Gamification	Percentage Increase
Return Rate	40%	50%	25%

6.1.3. Conversion Rate

The conversion rate raised to 20 % up, this was in proportion with satisfaction level and readiness to make purchases. The features of gamification forced the users to continue using the platform, searching for other items to purchase in order to make as many transactions as possible.

Table 3: Conversion Rate

Metric	Before Gamification	After Gamification	Percentage Increase
Conversion Rate	5%	6%	20%

6.2. User Feedback

6.2.1. Positive Responses

Points received from the users pointed to the positive perception of the use of gamified elements, especially satisfaction and motivation. Clients stated that the idea of points and rewards influenced their decisions to engage more often with the application.

6.2.2. Concerns and Improvements

Few remarks could be noted, such as the possible excessive use of game elements; this decision was further improved in the following modifications of the application by maintaining an optimal ratio between the game's and its functional components. Another primary consideration was to make sure that the respective changes made under the scope of gamification were improving and not worsening the user experience.

6.2.3. Comparison with the Existing Works

When comparing our results with those of other authors, it becomes possible to conclude that the results obtained in our research correlate with data indicating that the use of gamification increases users' satisfaction when applied to well-designed systems. However, it does it in a way that stresses the importance of balance as well as the ways in which such designs can be problematic should they not be done right. Research also underpins our results stating that gamification grounded in the contexts of service marketing literature could enhance engagement to a significant extent.

7. Conclusion

7.1. Summary of Findings

Therefore, this research helps to demonstrate that gamification of websites can help enhance the degree of user interaction with online markets. Based on such implementation it has been disclosed that with regard to usage, satisfaction, and business loyalty – game mechanics play a critical role. That is why the essence of such a process can be explained with reference to the analysis of user motives and the operacionalization of elements stimulating these motives.

7.2. Implications for Practice

In terms of significance, this research provides the practitioners with a use of the concept of gamification to the products that the practitioners develop. This should focus on the significance of the coordination of the above advances working between the game and the user for the accomplishment of the maximum results. Therefore, organizations require focusing on extrinsic value through gamification; in fact, it must enhance the value of the product or the service provided.

7.3. Future Research Directions

It is noteworthy that some possible topics which may seem pertinent for the subsequent research in the given field are the secondary or ensuing consequences of gamification, potential negative impacts, and utilizing novel technologies such as AI in the context of gamified LE. Concerning the flow of the mappings between the binary variables and prescriptions, it appears that the results could be further advanced with the investigation done into extrinsic motivation only, not mentioning intrinsic motivation in gamification at all.

References

[1] Gamification in Product Design: Engaging Users through Game Elements, smartico, online. https://smartico.ai/gamification-in-product-design/

[2] F. H. Permana, P. W. Handayani and A. A. Pinem, "The Influence of Gamification on Brand Engagement and Brand Awareness in Online Marketplaces," 2021 International Conference on Advanced Computer Science and Information Systems (ICACSIS), Depok, Indonesia, 2021, pp. 01-06, doi: 10.1109/ICACSIS53237.2021.9631349.

[3] Who started gamification?, spinify, Online. https://spinify.com/blog/gamification-history/#:~:text=The%20gamification%20history%20spans%20years,with%20the%20S%26H%20Green%20Stamps.

[4] Gamification in Action: Theoretical and Practical Considerations for Medical Educators, selfdeterminationtheory, 2018. online. https://selfdeterminationtheory.org/wp-content/uploads/2020/10/2018_RutledgeWalshEtAl_Gamification.pdf

[5] Schöbel, S., Schmidt-Kraepelin, M., Janson, A., & Sunyaev, A. (2021). Adaptive and personalized gamification designs: Call for action and future research. AIS Transactions on Human-Computer Interaction, 13(4), 479-494.

[6] Krath, J., Schürmann, L., & Von Korflesch, H. F. (2021). Revealing the theoretical basis of gamification: A systematic review and analysis of theory in research on gamification, serious games and game-based learning. Computers in Human Behavior, 125, 106963.

[7] Game mechanics and game dynamics, biworldwide, online. https://www.biworldwide.com/gamification/game-mechanics/#:~:text=What%20are%20game%20dynamics%3F,Competition

[8] 10 Gamification pitfalls to avoid when designing online training, cypherlearning, online. https://www.cypherlearning.com/resources/infographics/business/gamification-pitfalls-to-avoid-when-designing-online-training

[9] Gamification in Digital Product Design: Strategies to Enhance User Experience, aguayo, online. https://aguayo.co/en/blog-aguayp-user-experience/gamification-in-digital-product-design/

[10] Gamification in Usability Testing: A Comprehensive Approach to Innovative UX Research, medium, online. https://odettejansen.medium.com/gamification-in-usability-testing-a-comprehensive-approach-to-innovative-ux-research-754b5b24bd21

[11] Gamification Metrics and KPIs, mambo, online. https://mambo.io/gamification-guide/gamification-metrics-and-kpis

[12] A/B testing for games, playstrict, online. https://www.playstrict.com/blog/a-b-testing-for-games