Journal of Theoretical and Applied Information Technology
15th September 2022. Vol.100. No 17

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

DESIGN OF A CONCEPTUAL FRAMEWORK FOR A GAMIFIED SOCIAL MEDIA APPLICATION

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ABSTRACT

The goal of gamification is the deployment of game mechanics in real-world context for non-gaming scenarios, to drive motivation and performance regarding a given activity. Preceding research, mostly supports the hypothesis fundamental to this aim. Till date, gamification has continued to find its application in various industries and sectors. Among application area where gamification has found its usage are in social networks. Due to the commercialization of the mobile devices and user content generation, there has been the emergence of mobile social networking, which has changed the way the users relate to applications. In the search for better ways to improve user experience in mobile social networking, gamification (the use of game design elements in non-related games) can play a vital role. And considering there are many different game mechanics which can result in diverse application services. Various game mechanics were reviewed to understand the working principles and where they can be applied. Based on this review, a conceptual framework for gamified social media application was presented. The game mechanics configuration was deliberately varied, in regards to their impact on the completion of basic functionalities as well as potentially improve user engagement.

Keywords: *Gamification, Game Mechanics, Conceptual Framework, Social Media, Social Networking, User Engagement, Motivation*

1. INTRODUCTION

The globalized technological advancement and the erratic growth of internet powered communication have brought about a radical change on how the world interact. One of the 21st century advancements was the finding and development of the social media networking, which enabled the conception of diverse platforms for social collaboration. The potentials of social media networking are continuous and limitless considering connections, interrelationships, and content sharing and exchanges [1]. Social media network driven by the Internet, provides platforms for social interactions between and among individuals. The only limitation to the dynamism of social media networking is ignorance or illiteracy to maximize the potentials in the domain of communication, education, politics, economics, social or technology [1]. Although, social networking has been in existence, the phenomenon has emerged over the past ten years; with 2010 to 2013 – being an eventful period for social media. The use of social media networking services is one of the most prevalent online activities, with a projected 2.65 billion subscribers worldwide in 2018 and it's projected to increase to almost 3.1 billion subscribers in 2021. The global diffusion of social media networking is on a continuous increase and at January 2019 stood at 45%.

The structure of social media networks has evolved over time, and like with other emerging technologies, the social media has affected the way people interact. As social media networks continuously evolve and new varieties of services and applications come up, challenges faced are mostly user motivation and engagement. A way to increase user motivation and engagement is by increasing the user's contributions [2]. According to Shayla [3], sustaining growth starts with engaging users; with intention to teach and amuse users so as to improvement fulfilment and retention. Over the years, various strategies have been considered to help improve user engagement, such as employing gamification. Gamification in modern practice uses game design mechanics to measure, encouragement

and reward target user behaviors. Applying gamification to non-gaming context, these game design mechanics are catalyst for making technology extra engaging by influencing behavior and social interaction [4].

The user-centric nature of Web 2.0, brought a cooperative and participative role for users. Social interactions played a vital role in Web 2.0 applications, giving rise to social games. The unique features of social games are closely tightened with the features of social media networking [5]. Gamification and Social Media Networking has tremendous potential in user engagement. The goal of this paper is to design a conceptual framework for a gamified social media network to increase user engagement and motivation; by increasing the contributions made by the users. This can be achieved by creating a social media network application that incorporates a number of game design mechanics such as, reward points, achievements, badges, and leader board to measure user's progress and reward their effort and get recognition.

This research aims at showing that gamification offers better and improved solutions to social network administrators and subscribers facing the problem poor User Engagement possess to various Social Networks. This work would provide a gamified approach which is different from what has been proposed for social networks. Also, the solution would improve the user engagement of Social Networks by providing a way for better user interaction and experience without compromising on user satisfaction and retention. This work also made significant input to the body of knowledge on Social Network, gamification, and user engagement strategy.

2. LITERATURE REVIEW

2.1 Social Media

Social Media Network is a broader term for a set of internet-based applications and services, where users produce and share self-made content. There are six categories such as blogs, cooperative projects, social networking sites, content groups, virtual social and game worlds [6]. The core of social media networking are the users who form groups, bounded by content and events. The functionality of social media network is separated into seven components [7]:

1. The identity is the amount of information about a user.
2. The conversations signify the extent of user's communication.
3. Sharing is the amount of content distributed by users.
4. Presence is about a user's accessibility to other users.
5. Relationships signifies relationship between users.
6. Reputation is the degree significance held by a user.
7. Groups signify the communities and sub-communities created by users.

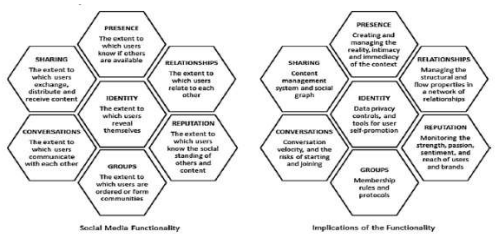

Figure 1: The Honeycomb of Social Media

2.2 Social Media Design Principles

The core design principles for social media network are [8] [9]:

1. **Individual:** This denotes the individuals who communicate in online groups.
2. **Conversation:** This denotes individuals communicating through posting, commenting and sharing information.
3. **Community:** This is developed through the communications between individuals who share similar ideas via conversation.

2.3 Gamification

Gamification, when applied in numerous contexts can achieve numerous goals. For instance, education, risk management, solving usability issues, and marketing. Gamification is the packaging for a service. At its core, the service is to enhance using a rule-based system, integrating feedback and communication mechanisms [10]. The goal is to sustenance total value creation by provisioning gameful experiences. Gamification is appreciable when game design mechanics is applied to non-gaming context like social media services, enterprise applications, communication applications and so on. Gamification is a factor of:

1. **Game Design:** Just like application requirements logic; games also require logic as a basic part of their internal designed with consideration.
2. **Behavior:** High-end user engagement can impact the target user behaviors. Whereas, engagement level is contingent on the type of the game and players.

3. **User experience:** Most interactive designs are about procedure and data efficacy, where attributes like gamefulness and playfulness, are vital in user experience strategy. Thus, designers take into deliberation the game design mechanics to produce the correct user experience.

2.4 Motivation Theory

Motivation can be defined as goal-directed behaviour. A motive is the reason for carrying out or develop an inclination for specific behaviour. Motivation stems from the strong point and direction of a behaviour and the features that encourages individuals to perform in a particular way. Motivating others involves them moving in the predefined direction so as to attain a goal. Motivating oneself involves, planning a direction individualistically and performing a series of actions to ensure the achievement of the goal. Individuals are motivated when the expected series of actions taken leads to the goal accomplishment and a valued reward that gratifies their needs and wants. Well-motivated individuals participate in discretionary behaviour. Such individuals may be self-driven, considering they are on the correct direction to achieve a desired goal. While others, need to be driven to a greater or lesser degree.

There are two categories of motivation such as intrinsic and extrinsic motivation. And they differ based on the source of pressure or pleasure that improves each of them [11]:

Intrinsic motivation: This stems from the pleasure or interest in an activity without regards to external incentives, thus, necessitating the feeling of pleasure in the activity. Amabile [12] stated, individuals are driven intrinsically when seeking pleasure, attention, gratification of interest, self-expression, or challenge at work.

Extrinsic motivation: This stems from the pleasure or interest in an activity with regards to external incentives. The source is most times from a physical environment, for example, financial benefits, better salary, incentives and promotion.

2.5 Theoretical Framework

From an intellectual viewpoint, enablement entails the worth of the work, ability, capability to accomplish the work, choice in initiating and regulating actions, and the ability to influence outcomes. Thus, portraying a practical individual's mentality [13]. The validation allows for accurate examination of individual behaviour that leads to feeling of empowerment. The theoretical framework for this study was rooted in Need Achievement Theory, Social Comparison Theory, and Self-Determination Theory. These theories can help developers know how to better engage users, and understand how users can be successful workwise.

Need Achievement Theory

In McClelland [14] viewpoint, human motivation is the encouragement of specific motives in a precise situation. And motive is a recurring concern for a goal state, which initiatives, guides and decide on the behaviour of the individual. Three motives are postulated as valuable in most behavioural understanding, such as [15]:

1. The **need for achievement** stems from the need to do better and desire to a standard of excellence. The sturdy need for achievement frequently leads individuals to evaluate themselves by measuring their improvement towards several ends. Goals are set, moderate risks are taken on prefer recreational activities during which 'score', such as points, rewards, are earned; and desires where performance statistics are clearly available, such as leaderboard.

2. The **need for power** stems from the need to have influence on others. In reference to Winter [16], with the needs for power, individuals often declare themselves against others in numerous ways. Thus, looking for and gaining leadership statuses, such as ranks and levels, in social groups, professional associations and organizations; they like to gather prestige assets and desire professions in which they have an impact on others.

3. The **need for affiliation** stems from the need to be part of a group or community. Individuals often choose to spend time with others of same interests and ideas; participate in collaborative and non-competitive activities.

Social Comparison Theory

Social comparison theory postulates that individuals are usually driven towards assessing their views and capabilities. Such that satisfying this need for self-evaluation requires comparing with others [17]. Statistics gathered via social comparisons can provide an understanding into individual's abilities and boundaries. Subsequently, social comparison information can be detrimental to self, leading to negative reactions [18] [19]. A model that estimates when social comparisons become detrimental to self is called the self-evaluation maintenance (SEM) model [20]. Such that individuals are driven to preserve or increase

positive self-evaluations. This drive is predominantly apparent when compared to someone who is superior (upward social comparisons). Furthermore, comparing with someone superior, have more negative self-evaluative outcomes [21].

Festinger social comparison theory postulates that [22]:
1. Individuals have the initiative to appraise their abilities.
2. Due to lack of standards of comparison, individuals seek to assess their capacities and opinions with that of others.
3. Individuals desire comparison with other whose opinions and capacities are similar.
4. Individuals of lesser ability who are forcibly compared with individuals of higher ability may experience the feelings of failure and inadequacy regarding the skill in question, and their self-esteem in general.

Self-Determination Theory

Self-determination theory is a meta-theory of human personality development and motivation; that proposes that individuals are driven towards growth and evolve by three distinctive and general psychological needs. Edward Deci and Richard Ryan, first presented the theory of motivation in 1985; suggesting that individuals are driven by a need to grow and increase self-actualization. The idea of engaging in a task for the intrinsic rewards of the behavior, plays a vital part in self-determination theory [23].

Two key expectations of the self-determination theory are [24]:
1. **Need for growth motivates behavior:** This suggests that individuals are enthusiastically geared to growth. Gaining control over tasks and challenges and experiencing new things are crucial to the development of a solid sense of self.
2. **Autonomous drive is vital:** While individuals are often driven to respond to external rewards (extrinsic motivation) such as money, prizes, and acclaim. Self-determination theory focuses principally on internal sources of motivation (intrinsic motivation) such as a need to gain knowledge or independence.

Based on self-determination theory, the following are needed for achievement of growth [24]:

1. **Competence:** Individuals need to gain mastery of an activity and acquire diverse skills. When individuals have the necessary capability to succeed, they are more inclined to take movements geared towards achieving their goals.
2. **Relatedness (Connection):** The need to experience a sense of be in the right place and attachment to others, is inherent in individuals.
3. **Autonomy:** The need for individuals to be in control of their actions and goals. The ability to take actions that will result in real change, is essential in helping individuals feel self-determined.

Two types of motivation, intrinsic and extrinsic, was outlined in self-determination theory. The elements of self-determination encourage intrinsic motivation, which initiates behavior for the reason that it's fundamentally engaging. That inborn inclination to gear towards growth is essential in intrinsic motivation. Subsequently, extrinsic motivation initiates behavior for the purpose of achieving an external goal such as financial reward or incentives. Although extrinsic motivation does not automatically encourage the elements of self-determination theory. It defines types of extrinsic motivation that can ultimately provide support for them through a process called internalization. Within extrinsic motivation, there are extrinsic (tangible such as money, gift items, sweepstakes) and intrinsic (intangible such as getting a sense of recognition) rewards. It's vital to understand that motivation continually relays to the behavior or activity, and incentives are always a result [25].

2.6 The Knowledge Behind Gamification

Gamification is simply more than rewarding points and badges; it involves understanding and influencing behaviours. Gamification has its origin in the basics of psychology and behavioural science, resting on three main factors (motivation, ability level and triggers) required to change a behaviour. Motivation and ability are trade-offs, that means low ability needs more motivation and low motivation needs small behaviour steps. If applied correctly, gamification offers an experience that is engaging and promotes learning. Storytelling is an effective gamification tool that provides a context, challenge, feedback, sense of curiosity, accomplishment, autonomy and mastery [26].

2.7 Game mechanics and Dynamics

Gamification has several successful application use cases in social media. It is an innovative way to engage and motivate using game

design mechanics. The game design mechanics used in social media services includes, but not limited to, statistics, points, leaderboards, achievements and badges, tasks, progression, and challenges. Though game design mechanics may share similarities, the usage may vary. A noteworthy fact about game design mechanics is that in most cases, multiple mechanics are used together [4] [2].

1. Rewards and Incentives: To stay viable, service providers carry out campaigns or loyalty programs to offer rewards, discounts, promotions and incentives. Rewards encourages desired behaviors.

2. Statistics and Points: Statistics are considered as measurements that reflects the activities of users or community. Points are figures awarded for making mindful choices and efforts.

3. Badges and Tasks: These are employed in many social media sites to reward users for completing certain tasks or milestones. These tasks are usually ranging from arbitrarily easy to requiring constant participation in the community. Some of the easier tasks may be arbitrarily easy or inherently tied to the core functionality.

4. Leaderboards: It is an emerging practice in applications to allocate Leaderboards in different areas across application functions. Individuals normally like to validate if they are performing well as per expectations or not. Leaderboard helps individuals to know where they stand relative to others thereby inculcating a spirit of competition.

5. Contest, Competition, Co-operation and Challenges: Contest is a grouping of missions that reward those who finish most quickly or effectively. Competition is an on-going state between users that encourage users to perform better than other users; and its closely tied to the scoring system used. Challenge is a fixed form of competition where participants have limited resources to achieve pre-defined goals. Co-operation encourages users to work together to accomplish their goals.

6. Notifications: This is used to inspire engagement when performing a desired action.

2.8 Review of Related Works

The aim of gamification is the application of game design mechanics in real-world contexts for non-gaming purposes, to foster motivation and performance regarding to a given task. And the literatures reviewed highlights the various ways in which gamification has been employed to improve user engagement.

Table 1: Categorization of Literature Reviewed

Author(s)/Year	*Problem*	*Methodology*	*Results*	*Gaps*
[27]	A peer-reviewed empirical studies on gamification	A framework was created for examining the effects of gamification by drawing from the definitions of gamification and the discussion on motivational affordances.	The review indicates that gamification provides positive effects	However, the effects are greatly dependent on the context in which the gamification is being implemented, as well as on the users using it
[28]	Effects of points (a basic element of gamification), on performance in a computerized assessment of mastery and fluency of basic mathematics concepts	Introducing a gamification element into a mathematics assessment in the form of points awarded for accurate and speedy responses	The two studies we found similar results in terms of the effect of points on performance: no effects were found on accuracy, whereas speed of response increased in the points condition. For the middle school students, only minor points effects on the likeability of the test and the perceived effort during the test were found, although most students	In addition to the limited nature of gamification features manipulated in this study, several other limitations the educational activity, domain and type of questions, and sample of participants in this study

			liked getting points during the assessment.	
[29]	Measuring student motivation, social comparison, effort, satisfaction, learner empowerment, and academic performance	Leaderboard and Badges	Students in the gamified course showed less motivation, satisfaction, and empowerment over time than those in the non-gamified class. The effect of course type on students' final exam scores was mediated by students' levels of intrinsic motivation, with students in the gamified course showing less motivation and lower final exam scores than the non-gamified class	This suggests that some care should be taken when applying certain gamification mechanics to educational settings
[30]	Talent development	Talent development gamification in selection processes	Allow analysis and provide lessons for talent development practice in a little studied area.	When sophisticated talent selection processes such as gamification are used, training and development are essential to ensure that candidates can successfully navigate the talent assessment process.
[31]	Previous studies have often treated gamification as a generic construct, neglecting the fact that there are many different game design elements which can result in very diverse applications	Badges, leaderboards, performance graph, avatar, co-operation, storyline	Badges, leaderboards, and performance graphs positively affect competence need satisfaction, as well as perceived task meaningfulness, while avatars, meaningful stories, and teammates affect experiences of social relatedness	Perceived decision freedom, however, could not be affected as intended
[32]	An exploratory study, investigating the relation between motivation and engagement of the students and gamification in training	Competition and Level	Prove that motivation decreases by comparison to the previous semester.	Overall, the decrease in using the platform was of 9.16%, from 932 visits in the first semester to 854 in the second one
[33]	The application of gamification in the context of aquariums and the tourism		Gamification can satisfy a visitor's desire to learn and enjoy the aquarium simultaneously	Gamification is limited by the visit motivation and the attitudes toward marine animals that visitors bring with them. The usefulness of gamification is limited when visitors desire relaxation during the visit.

[34]	How changes in cycling encouragement program game mechanics affect measured bicycle riding frequency	Points	Digital encouragement and/or gamification campaigns may, if structured and managed correctly and given sufficient support and resources, offer the potential for communities to generate additional ridership and interest in bicycling while also collecting data useful to improving infrastructure planning and design decisions	Not able to estimate the level of underreporting with only one set of data.
[35]	Effect of gamification on in-store mobile advertisement	Points	Gamification is not always useful for increasing the tendency to act on offers	Engagement in a gamified shopping task is needed; otherwise, the tendency to act on offers might even decrease when gamifying
[36]	Searching for better ways to engage students and enhance their learning performance (LP)	Leaderboard	A significant improvement in the LP of students in the gamified condition was observed.	However, no interaction effect was detected, due to mediating and background variables.
[37]	A novel and promising concept for attracting and selecting prospective employees	A new gamified assessment method in employee selection that we developed following the situational judgement test (SJT) methodology	This study contributes to research on gamification and employee selection exploring the construct validity of a gamified assessment method indicating that the psychometric properties of SJTs and their transformation into a gamified assessment are a suitable avenue for future research and practice	The small sample size of 97 common test-takers is barely adequate to perform robust statistical analyses and establish the construct validity of the gamified SJT.
[38]	A gamified application for helping students learn important facts about their study program	First feature is feedback, which is expected to increase engagement, with personalized ("tailored") feedback being more effective than generic feedback. Second feature is a session limit that was designed to prevent users from "binging" the game, because this could prevent deep learning.	Generic feedback was more effective than tailored feedback. The session limit, however, did prevent binging without reducing the overall number of sessions played.	The number of Unique participants in our sample were small due to a relatively small sample population.

3. METHODOLOGY

In this section, we present the game design mechanics that would be beneficial in the design of the conceptual framework. Thus, gamification describes the game design mechanics by explaining the different resources required to complete a task; information to make appropriate decisions; series of rules to be applied when deciding and goals to achieve as a result.

3.1 Requirements of the Proposed Gamified Social Media Application

The conceptual framework was designed to meet the following requirements:

1. Profile Page

This displays user's information, giving an overall description of the user. This information includes but not limited to profile picture, username, about you, location, point counter, battles and tournament counter, follow/unfollow button, battle request button, Badges and achievements.

2. Battles

Interaction between users that can take various form (Contest, Task, Challenge, Competition) from various industries, such as art, education, social. The idea is to provide an enabling environment for users to assess their capabilities and skills with other users. Such that users can participate in contests, tasks, challenges and competitions that are timed; and win rewards such as points, levels, badges and achievements. These interactions can be performed with no previous composition or off the top of the head.

3. Tournaments

This is a hierarchical arrangement of battles under the same theme or idea. Such that users who win battles receive points and are moved to the next level of the tournament. And users who win tournaments receive achievements. While users who loss are removed from the tournament. These tournaments can range from 4-users to 16-users.

4. Leader board

This displays user ranking, levels and reputation across the application for all to see. Thus, enabling effective social comparison between users.

5. Points

Users are awarded points per battle won. The following shows the points calculation process:

$$\frac{Number\ of\ votes}{Number\ of\ total\ votes} \times \frac{100\%}{1} \quad \ldots\ldots\ldots\ldots\ldots (1)$$

$$\frac{X}{2} \times \frac{100\%}{1} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

For example, let's assume we have 1000 voters. 600 voted for user 1 and 400 for user 2. Substituting into equations (1) and (2) respectively

$$\frac{600}{1000} \times \frac{100}{1} = 60\%$$

$$\frac{X}{2} \times \frac{100}{1} = 60\%$$

$$\frac{100X}{2} = 60\%$$

$$2 \text{ x } 60\% = 100X$$

$$120\% = 100X$$

$$X = \frac{120\%}{100}$$

$$X = 1.2\%$$

Since the points per battle is 2, then user 1 is the win with 1.2% of 2. As a result, user 1 will be awarded points for winning. Also, the more points a user acquires, result in the user being awarded a badge that signifies their level of accomplishments.

6. Tasks and Achievements

7.

These are awarded to users upon completion of some pre-defined tasks and are as follows:

Table 2: An Example of Achievements and its pre-defined tasks

S/N	*Achievements*	*Pre-defined Tasks*
1	Tutorial achievements	Try out the app features
2	Completion achievements	Complete 10 battles
3	Collection achievements	Obtain at least 5 badges
4	Virtuosity achievements	Win 10 16-player single elimination tournaments
5	Hard mode achievements	Win 10 16-player double elimination tournaments
6	Special play style achievements	Win 20 battles in a roll
7	Veteran achievements	Obtain all badges
8	Loyalty achievements	For a 100 hours of play time
9	Curiosity achievements	Try out all tournament tiers
10	Luck achievements	Win 3 out of 5 simultaneous battles
11	Mini-game achievements	Win 5 4-player single and double elimination tournaments respectively
12	Multi-player achievements	Play as a team
13	Paragon achievements	Win all tournament tiers
14	"Fandom" achievements	Invite 20 friends

8. Badges

These are awarded to users to show their level of accomplishments and are as follows:

Table 3: An Example of Badges and its levels of Accomplishment

S/N	*Badges*	*Level of Accomplishment*
1	Wordsmith	50 points
2	Bragging Right	100 points
3	Street King	200 points
4	Cypher Mode	250 points
5	Beast Mode	300 points
6	Lyrical Overlord	350 points
7	Word of Mouth	400 points
8	Cypher Overlord	500 points
9	Phantom	1000 points
10	G. O. A. T (Greatest of All Time)	Win all tournament tiers

9. Social Media Features

- **Likes:** Users can like posts, battles and tournaments of other users.
- **Commenting:** Users can comment on posts, battles and tournaments of other users.
- **Sharing:** Users can share posts, battles and tournaments in-app or via other social media platforms.
- **Repost:** Users can share posts battles and tournaments on their timeline.
- **Voting:** Users can vote on battles and tournaments of other users.
- **Notification:** Email notification on new activities, newsletters, sweepstakes, promotion. And In-app notification on interaction with user's post, battle request, tournament request, won battles, voting request, friend request, reminder on ongoing battles and tournaments, received achievements and badges, tailored services and so on.

4. DISCUSSION OF FINDINGS

Ebiesuwa, Omolara, Yinka, Blaise, and Adio [39] proposed a theoretical framework of gamification, explaining how gamification works through a theoretical tool called a finite state machine (FSM). And provided a use case scenario of gamification in social media application. Thus, providing an understanding of the fundamental principles behind the operation of gamification and its applications.

According to Bista, Nepal, Colineau, and Paris [40], regardless of the differences in application usage, user engagement remains the core of their success. Consequently, gamification could be used to improve the motivation and engagement in social media. The challenges (bootstrapping, monitoring, and sustainability) in launching a new online community such as social media, can be engaged with gamification.

- **Bootstrapping** denotes the process of assembly initial members and keeping them engaged.
- **Monitoring** denotes the process of perceiving the usage of the service.
- **Sustainability** denotes the problem of sustaining the engagement.

In the context of gamification, Hamari & Koivisto [41] suggest that a group that shares similar goals and interests is important to foster meaningful interaction, mutual activities and increases perceived benefits. Furthermore, social elements are crucial in producing engaging gamified services. Thus, social media supports gamification and vice versa. However, it is noteworthy that perception of a gamified service strongly determines continuous interaction, as well as desires to recommend the service. Because, gamification at its core is about statistics, collecting these statistics and byproducts can generate a constant and prolonged drive for participation.

To further buttress the conceptual framework of a gamified social media application, a brief discussion on how the theoretical frameworks applies is presented:

Motivation Theory aims to create an environment to develop strategies and practices that will offer higher levels of performance. This includes developing an entire reward system, performance management process, and an intrinsically motivating task. Extrinsic motivator has instant and powerful effect, but essentially will not last long. The intrinsic motivators are inborn and are likely to have a deeper and last longer.

Need Achievement Theory made effort to elucidate and forecast behavior and performance based on the need for achievement, need for power, and need for affiliation. Fundamentally, this suggests that individuals are driven in varying degrees by their need for achievement, need for power, and need for affiliation. Such that the needs are developed during an individual's lifetime and can be exhibited in combination. This established the importance of each motive, their varying levels and relative dominance. Thus, the strength of a motive is

often the most suggestive of performance and success.

Considering the possibility that individuals have a general desire or drive to know how good they are at various activities. Also, there is a possibility that individuals want to determine that they are good at the activities. Through their lifetime development process, individuals learn the usefulness of knowing how to effectively accomplish various activities (self-evaluation). Giving a fairly precise knowledge of their capacities and skills, thus are able to avoid various occurrence of physical and social disasters (self-improvement). And these motives can be situationally induced or enhanced (self-enhancement). For instance, if an individual has a choice of competing for rewards or points against others; he/she is suddenly very interested in how well he/she does against others.

The self-determination theory proposes that individuals can develop self-determination, when the need for competence, relatedness (connection), and autonomy are satisfied. It is vital to understand that self-determination attained automatically, continual sustenance is required. Such that the inclination to be either active or passive is mainly conditioned by the social conditions. Emphasizing the importance of social support, through relationships and interactions with others, personal growth and wellbeing can be either fostered or thwarted. Though social support is vital, other factors can support or hinder self-determination for growth are:

- **Extrinsic motivators occasionally lower self-determination.** Autonomy can be weakened if extrinsic reward is given for intrinsically motivated behavior. With an increasing control of behavior by external rewards, intrinsic motivation diminishes.
- **Positive feedback and self-determination boost.** Giving encouraging reassurance and feedback on performance can increase intrinsic motivation. This helps to feel more capable, a key requirement for personal growth.

As a benchmark to ascertain if the design meets the desired specifications, van-Roy and Zaman [42] 9 theory-based Gamification Heuristics was utilized. This way, the question on how to improve gamification design from the viewpoint of the gamified system characteristics, the situational factors that co-shape the effects of gamification, users and context characteristics.

Table 4: The 9 Theory-based Gamification Heuristics and Challenges of the Gamified Social Media Application

Challenges	***Heuristic***	***Attributes***
Support learner's autonomy	Avoid obligatory uses	Users are allowed to participate as they see fit
	Provide a moderate number of meaningful options	There are a number of activities and option for users to choose from
Support learner's competence	Set challenging, but manageable goals	There are activities such as competitions, challenges, tasks and contest to enable users achieve goals
	Provide positive, competence-related feedback	There are points, badges and achievements to be earned upon completion of an activity
Support leaner's relatedness	Facilitate social interaction	Users can interact in a fun way, form groups and social relationships
Interplay between needs	When supporting a particular psychological need, wary to not thwart the other needs	There is an interplay between intrinsic motivation and engagement of users
Integration of gamification into the activity	Align gamification with the goal of the activity in question	The game design mechanics are closely tied to the theme of the application
Contextual characteristics	Create a need-supporting context	The application supports the needs self - evaluation and -determination
Individual characteristics	Make the system flexible	Variety of users are supported by the application so as to satisfies their personal needs and preferences

5. CONCLUSION

Gamification makes a structure more game-like. More precisely, the application of game design mechanics to a non-gaming context. We theorized that the benefits of gamification are dependent on the game design mechanics employed and its impact on motivation and engagement. Based on various research into motivation, social media network and gamification, a conceptual framework for the effective application and understanding of gamification was proposed. The conceptual framework proposes that gamification is effective to the degree of game design mechanics used, and contributes to any clear system goals. The conceptual framework posits three key drivers: intrinsic motivation, game mechanics and immersive dynamics. For effective engagement in gamified system, users must obtain and process feedback, that is, information given after certain participations. Lack of feedback can lead to decrease in participation and failure of a gamification platform. If the system has a clear purpose, gamification is only effective as long as it contributes to that purpose. As well as, aligning the purpose of the system with user goals. Of course, the proposed conceptual framework needs experimental testing to determine its reliability.

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