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UX strategy for service design combined with Gamification

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Abstract
Gamification is service design techniques using game elements and mechanics in non-games contents. It is called effective and enjoyable strategy for planning service design or redesigning business model. Gamification has been important concept in terms of contents productivity and social connectivity. User concept of gamified service have a series of step-by-step processes, Novice, Problem solver, Expert, Master, and Visionary according to the performances using game mechanics, Surprise, Customization, Collecting, Sharing, Recognition, Teamwork, Exploring, Problem-solving and Winning. But some of existing gamified services model have limitation and negative evaluation : gamification is just for fun, not for business model. So, for UX improvement of gamification, user analysis and UX strategy need to be suggested.

Keywords: Gamification, Service Design, User Experience, Collective intelligence, Customization

1 Introduction
Since entered Web 3.0 Generation, nowadays internet-based service makes structure of 'The Semantic Web' strengthened connectivity within information. Commercializing corresponding technologies, services of Web 3.0 are making the stage of take-off for information productivity and social connectivity of users. These aspects make sustainable development based on two axis, Information Connectivity and Social Connectivity.[1] [Fig.01]

![Figure 1: Development of Web services](image)

For more advanced information connectivity and social connectivity, fields of digital business management and UX strategy place a large emphasis on the intelligence consisted of those connectivities and are trying to organize effective solutions or business models. Part of this digital business development path, Garner’s annual “Hype Cycle for Emerging Technologies” is paying close attention to gamification as main digital technology which is going to be reach in technological plateau in 5-10 years[2]. Digital business are using Gamification not only as marketing tools of services or products, but also as service itself. Fun, accomplishment and incentives in gamification can bring improved user engagement to contents productivity and social connectivity in services.

But According to Gartner’s Hype Cycle for Emerging Technologies Maps the Journey to Digital Business, 2012-2014[2], Gamification has negative perspective about its future outlooks because of limitation that all fields don't have positive effect when combined with gamification. Rather, gamification can aggravate social connectivity in inappropriate fields and productivity of maladjusted user.

It is necessary to make business strategies based on UX analysis in gamified service design for recognizing gamification’s limitation, reducing in disadvantage of gamification and raising business utilization of gamification. Therefore, in this paper, through multi-dimensional analysis about user experience of gamification, deduction of UX strategy is objective for recognize gamification not just as marketing tool or instantly interesting element but as a user strategy for long-term satisfaction with the business models or brand identities.

2 Theoretical Background
2-1 Gamification

Definition of Gamification
Many types of games include game mechanics such as achievement with incentives or rewards, competitive structure with leveling systems or leaderboards, and motivation with missions and challenges that make game-play enjoyable. Likewise, with these game mechanics, gamification is the use of game mechanics to drive engagement in non-game business scenarios and to change behaviors in a target user to achieve business performances. gamification can make users engage in the interactive performance of services and have loyalty to services or brands.
Service design using gamification applied to motivate and expand user’s behaviors in various fields. It makes not only qualitative effects like service quality or initial participation of users, but also quantitative results such as reducing economic cost or achieving an aim when user use gamified services. Owing to these effects, 70% of Global 2000 companies will have at least one “gamified” application.

Gamification service designed to be accomplish 3 interactive components, Accessibility, Entertainment, Sustainability by stages. Firstly, Gamification make user can easily get initial accessibility to performance for the service. Initial access means the first stage for users to use the service and gives user the instant feedbacks such as the first accomplishment and rewards. This process make it possible to learn about rules in the service and relationship between users and services. Nextly, entertainment components in gamified service build a stage to maximize user’s voluntary participation. These entertainment components are developed by accomplishment of missions, competitive spirits amongst rivalries, given missions the degree of difficulty, and so on. Last interactive component is sustainability resulted from user engagement of the service. In the stages of game-scenario in gamified services, definition and evaluation about users’ performances in each phase can make users’ engagement and give them user identity by sustainable and developmental interactions. Sustainability components can build more effective plan for improving user’s behaviors and attitudes about service goal than non-gamified service which required same users’ behaviors.

### 2-2 User experience in Service design

**Integrated user experience of Products and Services**

Nowadays, services and products share each definition and role, so they are making an integrated progress with supplement shortcomings of each notion. It means that experiences when users use hardware products and experiences from intangible services integrate and make an expansion of user experience. So, user experience in service design is very important for the affordances or performances with the servitized products and productized service.

**Interactions in User Experience**

Interactions between users and services can be classified into external part and internal part. External interaction is surficial area user can recognize with eyes when using services. It means acknowledgeable and behavioral touch-points between service and users. User behaviors through the service phases and related physical evidences are the external interaction. Internal interaction is the process operated by service providers according to the users’ behaviors from external interaction. These interactions occurred repeatedly from start to end of services, influencing each other. And these interactions as a communication process that user and service provider exchange intermediated by service design. Service stimulate user to recognize the service. And as a response to the stimulus, user can recognize the service, have some affection and finally experience the service. Then, service provider can suggest next performance to users, after analyzing the connotation of user’s performance. This interaction process is described simply in Fig. 2.

According to Fig 2., user experience occurs between touch-points where users and services meet. Also, the user experiences are made along the extended line of touch-points and form the comprehensive experiences set, ‘User journey’ with the service progress flow.

### 3 UX analysis in Gamification

#### 3-1 User analysis in Game

**Values for game**

Marc Leblanc defined raw materials of game in “Pyramid of Game elements”[3] as ‘MDA Framework’. Firstly, Game have Mechanics such as Challenges, Chance, Competition, Cooperation, Feedback, Resource acquisition, Rewards, Transactions and Win states. Secondly, with those mechanics, Game has grammar, Game Dynamics, inherent hidden elements that user performance drives forward by processes, for example, Constraints, Emotions, Narrative, Progressions and Relationships. Last materials are Aesthetics, which are specific instances like as Achievements, Avatars, Badges, Boss Fights, Collections, Combat, Content Unlocking, Gifting, Leaderboards, Levels, Points, Quests, Social Graph, Teams and Virtual goods, showing Mechanics and Dynamics visually.
and physically. Also, from the raw materials in ‘MDA Framework’, requirements of game UX can be resulted. Main values for game users, enjoyable elements and social satisfactions can make user’s engagement in game.

**User analysis in Game**

1) **Roger Caillois’ Categories of Game**[4]

On this study, Characters of game user can be defined as 4 categories, according to Roger Caillois’s key ideas on play, *Agon*, *Alea*, *Mimicry* and *Illinx*. Firstly, *Agon* is competitive-playing character such as typical sports or chess game. For example, mobile/web games based on social network service differentiate from other games, which have an unspecified number of the general rivalry. Social game uses *Agon* mechanics in competitive spirits among friends in social network. Secondly, *Alea* means playing attribute based on probability and randomness such as lottery and roulette. Random situations unrelated to users’ will or intentions describe Alea. That is, when arcade board game like Tetris randomly decide next brick elements and make unexpected scenarios, user can feel *Alea* in the experiences. Nextly, *Mimicry* means imitation and role-playing. Role-playing games in children’s playing culture have mimicry character, when they are shadowing and pretending to be mother and father. Mimicry is bound up in character of nowadays most online games being likely to create a virtual world by mimicking the real world. It is very important element making it possible for users to engage in the virtual world. *Illinx* means ‘vertigo’, the thrill of extreme elements in games. It attempts to disrupt regular perception patterns and user’s will or intention, for example, rollercoasters and bungee jumps. With this risk taking game playing, users experience thrills and fun that cannot be felt in real world.

Surrounding these 4 categories, game-playing environments can be divided into two opposite poles, *Paidia* and *Ludus*. *Paidia* is entertaining environment, giving users only simple fun. *Paidia* is spontaneous and uncontrolled fantasy because it has no winner or loser, like improvisational festivals or concerts. On the other side, *Ludus* requires greater amount of effort, patience and skill than *Paidia*. *Ludus* has rule-driven win or lose concept in its context which user can control with rules, manuals and instructions.

2) **Bartle’s player types**[5]

Bartle classified game users into four types by two axis, social-relationship tendency and behavior-centered tendency of game users.

![Figure 3: Bartle's player types](image1)

3) **User analysis**

User analysis in Gamification can be resulted from the previous analysis about game mechanics and characteristics of game players.

![Figure 4: User analysis based on Game theories](image2)

3-2 UX model in Gamified Service

**User analysis in Game**

Game user experiences and evolves with various game mechanics and along the degrees of user’s engagement. In this Fig. 4, schematization of user evolution progress, Game user’s evolution progress is destined to stage of mastery. Based on original research by Dreyfus for the U.S. Army in the 1980s, Dreyfus classified five core levels of user progression to mastery, Novice, Problem solver, Expert, Master, and Visionary.

![Figure 5: User evolution in Gamified Service](image3)
User performances with Gamification Mechanics

Gamification is the process of using game thinking and game mechanics to solve problems and engage users. Zichermann suggested entertaining elements of Gamification based on those of Jon Radoff. [6] Table 1

Table 1: Zichermann’s Gamification Mechanics

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<tr>
<th>Behaviors people feel fun</th>
<th>Game Mechanics to create player engagement</th>
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<tr>
<td>Pattern Recognition</td>
<td>Memory-game interactions / Combining like items / Earn and burn</td>
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<tr>
<td>Collecting</td>
<td>Collectible virtual objects / Scarcity / Return / Trading mechanisms</td>
</tr>
<tr>
<td>Unexpected Surprise</td>
<td>Slot machines / Easter eggs, hidden objects / Unexpected dynamism</td>
</tr>
<tr>
<td>Organizing and Creating order</td>
<td>Time, job, throughput challenges / Combining like items / Organizing groups</td>
</tr>
<tr>
<td>Gifting</td>
<td>Easily transferrable virtual items / Gift reminders and recommendations / Karma points</td>
</tr>
<tr>
<td>Recognition for Achievement</td>
<td>Badges, trophies / Contests, Game shows, Award shows / Kudos systems</td>
</tr>
<tr>
<td>Leading Others</td>
<td>Team-based or cooperative challenges / Levels associated with leadership / Long-term, “epic” challenges</td>
</tr>
<tr>
<td>Fame, Getting Attention</td>
<td>Leaderboards based on player feedback, scores and promotion / Large or out-of-scale promotional opportunities</td>
</tr>
<tr>
<td>Being the Hero</td>
<td>‘Rescue the maiden’, ‘Friends ask for help, you respond’</td>
</tr>
<tr>
<td>Gaining Status</td>
<td>Badges, trophies, levels / Scarce, limited-edition items / Priority access</td>
</tr>
<tr>
<td>Nurturing, Growing</td>
<td>Tamagotchi-style / Points that expire / Pyramid scoring</td>
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Classified experiences in Table 1 direct user’s experience journey in the game processes and how to feel fun in game mechanics. These game mechanics can bring user’s engagement in the gamified services.

So, in this paper, experiences of game user reclassified according to meaningful performances of user evolution progress - Surprise, Customization, Collecting, Sharing, Recognition, Teamwork, Exploring, Problem-solving and Winning. And these user performances can be applied to user evolitional development in gamified services like schematization in Fig 6.

Respective user performances in Fig 5 can be maximized in the indicated user stages. Users from Novice stage Problem solver stage are defined as ‘light-user’. That is, users in high level of user engagement, from Expert to Visionary, can be called as ‘heavy-user’. It means that determinants of customer loyalty such as satisfaction or affective response in non-gamified services correspond to user engagement in gamification. And this implies that the characters or needs of user in gamified services can be changed by the degrees of user engagement. Therefore, it has to be considered that user experiences in gamified services have different user performances in each stage and different user’s needs, unlike the concept of user in non-gamified services.

4 UX Strategy in Gamification

So far, this research dealt with what is the concept of user experience in game and how to how to adopt user analysis in game into gamified services. In this chapter, UX strategy for business about how to apply gamification to its service design models and which value could be added to existing gamified service models will be suggested based on previous analysis.

Most of gamified services have service models making users grow with accomplishments and rewards, compete with other users and achieve aims. In this service process, gamification users who started from individual accounts develop network between others. And this network works as a communication tool for users. In case of LBS gamification service, “foursquare”, users check in the place where they visited, and get badges or ‘mayor’ positions as rewards for the accumulative performances. And then users can form network by sharing these individual information and competing with other users. In another case, “JAWBONE UP”, health-related application with wearable device, motivates users with the goals entered by users and give some statistics about individual records when users achieve the goals. Also, “JAWBONE UP” users can share the individual information with other users. These gamification service models have values to improve user engagement.

Regard of that, when designing gamification services, UX designer requires not only Engagement loop with repeated pattern, ‘Achievement ➔ incentives ➔ Growth ➔ Competition ➔ Achievement’, but also Progression loop for improvement of gamified service models. Therefore, suggestion of suitable UX strategies is needed for gamification business models.

4-1 UX strategy 1 : Collective Intelligence with Gamification

First user experience strategy starts from the problems of most existing gamification service models. Most of gamified services provide only sharing information and competitive experience, not additional values beyond them. For the additional values, information connectivity built by networking within users and communities deserves special emphasis. Then, Information connectivity can yield new area of knowledge based on Collective Intelligence. Collective Intelligence is
shared or group intelligence that emerges from the collaboration, collective efforts, and competition of many individuals and appears in consensus decision-making. It is used to archiving, competition, collaboration or expectation. In the case of “foursquare”, local related information collected by users can develop the progress of service model toward providing a new form of contents, a map, or route information. And “JAWBONE UP” can form a new information area like as the pool of medical information based on user groups’ dietary and sleep cycle information. In other words, Information collected by networking in user experiences can be developed the gamification service model into combination with Collective Intelligence service. [Fig. 7]

![User development in Gamification]

![Badges and 'Expertise' leveling system of "Foursquare"](image7)

![Goal system for user motivation of "JAWBONE UP"](image8)
4-2 UX strategy 2: Customization with Gamification

Gamified service designer and provider can get the comparative advantages over the non-gamified service in aspects of more interactive touch-points in gamified service process which respective users can experience. Furthermore, beyond the interactive experience, gamification users have autonomous experiences journey with each challenge given by gamified services. These two advantages will be effective materials for using to analyzing performances reflected user’s needs. It means that respective user experiences in the gamification have meaningful personal characteristics one by one, which made in the experiences of gamified service such as following quests or challenges. These personal characteristics from user experience from each performance routes can create user’s unique contents of storytelling based on user needs. Namely, gamified service and user can create user’s own storytelling with constant interactions. With these personal storytelling made by user experiences, user needs in each service stages make it possible to analyzing the user segment in detail.

So gamified services can promotes toward the “Customized services” based on user storytelling creating own personal information constantly during the usage of gamified services. Also the account of gamified service can expand its roles as a virtual personal agent. In the case of “foursquare”, if user checked in specific places iteratively, system can recommend customized transportation information or local information as the customization in the gamified service. Likewise, “JAWBONE UP” can be connected with personal training service or customized health care programs based on user’s personal information from the gamified services.

5 Conclusion and Suggestion for following research

This research discussed user experience analysis in gamification: Analysis on Game mechanics, Definition and roles of user concept and user experiences in gamification models, UX strategies proposal to service design models combined with gamification. Objective of this research was to provide opportunities of gamification, as an effective service design tool for creating additional value to users, not as ‘time-killing’ or ‘just-for-fun’. And following research developed from this analysis will be able to suggest strategical UX frameworks for commercializing the gamification in designing services. With the frameworks, gamification service design modeling will be suggested in the following research, using UX strategies in this paper, Collective Intelligence and Customization.

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