Gamification Model Canvas Evolution for Design Improvement: Player Profiling and Decision Support Models

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ABSTRACT

In this paper we present a Gamification Canvas Model evolution with an improved player profiling model, a new simplicity stage and decision support tooltips to connect the player analysis with aesthetics, dynamics and components. Motivation theories, behavior models and player types that back up the evolution are presented as well as examples of the new cards and the resulting integrated framework and canvas. The result of using the improved Canvas is an important reduction in the time needed to complete a full gamification workshop. Finally, specific professional sector expansions are proposed as a next step in the evolution of the Gamification Model Canvas.

CCS Concepts

• **Human-centered computing** → **Interaction design** → **Interaction design process and methods** → **User centered design**

Keywords

Gamification; Gamification Framework; Game Design; Motivation Theories; Behavior Models.

1. INTRODUCTION

By 2015 the Gamification Model Canvas (GMC) framework [2] has been used by more than 16,000 'gamificators' from more than 180 countries [Sergio Jiménez, personal communication about gameonlab.com stats]. GMC author and Gamification company AIWIN's CEO Sergio Jiménez has given more than 100 workshops to teach about this intuitive, agile, flexible and systematic tool. The GMC, which is based on the Business Model Canvas [10] and the MDA framework [7], is available as a free download or sold as a complete Toolkit. The GMC has been successfully used on many important projects in different sectors, such as banking, software consulting, pharma, etc.

Sergio Jimenez and GECON.es teams agreed to make a first evolution of the GMC by designing an improved player profiling model and decision support tooltips to connect the canvas stages.

Figure 1. The Gamification Model Canvas powers the complete Game On! Toolkit.

2. MOTIVATION THEORIES AND BEHAVIOR MODELS

One of the main reasons for player profile analysis is to connect their motivations with the behaviors to be encouraged. There are lots of theories, perspectives, schools of thought and models to explain human motivation. [11] and [12] go through the most cited motivations theories in Gamification Works. In general, different theories and models should not be interpreted as contradictory visions. Those simply focus on different aspects (some more general than others) and in many cases are complementary.

These approaches to motivation should be useful for a double purpose:

1. How much valuable are the theories of motivation in a gamification context?
2. How to incorporate the theories of motivation to our gamification framework?

The following set of approaches, theories and models will be the base of the player profiling study. The selection of the more conformed features to real situations -according to our expertise- will be applied to a new profiling stage of the GMC.

2.1 Theory of Incentives

This approach emerged in the 40-50's and describes how human behaviors are driven by external stimuli: Positives to be followed, Negatives to be avoided. These external boosts could be economic rewards or social recognition. Cultural, social and psychological factors can make a reward relevant for a specific individual but

completely irrelevant for another. Or even the same reward could be relevant for the same individual depending on its circumstances and progress in time. The theories of incentives propose a very short intervention, straight and quick on player's motivations, causing a behavioral activation depending on the capacity to connect to pleasure or pain. One of the most relevant personalities of this school of thought was B.F. Skinner with his radical conductivism, author from who we highlight The Behavior of Organisms: An Experimental Analysis [14] and Operant Behavior [13].

2.2 Drive Reduction Theory

Drive reduction theory [6] was one of the first theories on motivation based on scientific method and supported by a mathematical formula to estimate the excitatory potential [5]. This theory used to be the paradigm during 40s and 50s and influenced later theories like Maslow's hierarchy of needs [9]. It is based on the idea of the need of constantly balance of mind and body with the surrounding environment and meeting the needs that emerges to achieve that balance.

2.3 Arousal Theories of Motivation

This set of theories suggests that human beings try to keep an ideal level of arousal through a variety of behaviors. This perspective considers human being as an arousal balance seeker. When the arousal is low we fall into boredom, while when is high we get stressed. Yerkes-Dodson law [16] empirically explained the relationship between arousal and performance: performance increases with physiological or intellectual arousal up to a point where performance decreases.

2.4 Humanistic Theory of Motivation

This movement was formed by an eclectic group of researchers on personality and experts in personal growth, therapeutic, educational and ludic theories that joined together because the lack of consensus on behaviorist and psychoanalytic theories. This humanistic approach advocates for the highest level of personal development as well as the feelings of self-determination beyond our basic needs and other desires like social recognition. The self-determination concept was settled when psychologist and humanist Abraham Maslow introduced the Hierarchy of Needs Theory [9]. Self-determination is presented as the final level of psychologic development that can be reached when all basic and mental needs have been satisfied, meaning a level full of happiness, harmony and love.

2.5 Fogg's Behavior Model

Fogg's behaviors Model [1] is not a theory but a complete framework for behavior change. The model describes that individuals can't be motivated but persuaded with triggers to drive a behavior change while avoiding simplicity/difficulty barriers. The explanation of why using triggers instead of motivators is because those are exclusively on the player side and are impossible to change. Depending on the target behavior (point, lapse or path) we would use a specific type of trigger (spark, facilitator or signal).
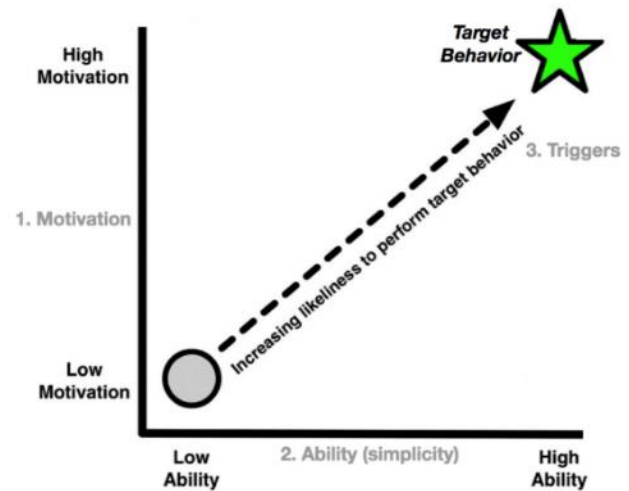

Figure 2. Target behavior, ability or simplicity and triggers of Fogg's Model. Three legs system needed to trigger the action.

2.6 Player Types Models

Bartle's Model [4] has been interpreted and remixed by many authors. One of the most important innovators on the field of gamification player profiling is Andrezj Marczewski, who introduces a Z axis of motivations (from intrinsic to extrinsic) into Bartle's profiles in order to complement the X axis (from acting to interacting) and the Y axis (from players to system) [3, 8].
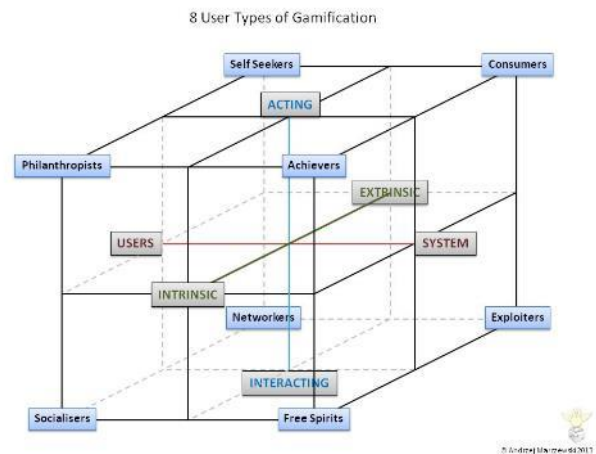

Figure 3. Intrinsic (left) and extrinsic (right) player types according to Marczewski.

2.7 Player Journey

Amy Jo Kim ideas of "The Player's Journey" [15] is a progress scale that analyzes the player evolution capabilities, an often missing feature of gamification frameworks which usually are limited to point or lapse behavior change, but not to paths.

Most gamification campaigns are short term. However according to the Player's Journey mature players can act as leaders for new players and as encouragers for long term engagement.
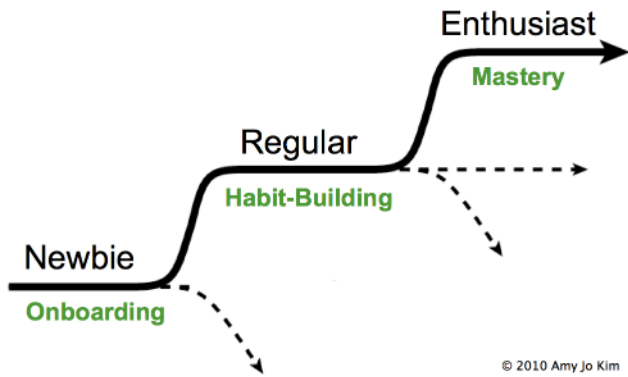
Figure 4. The phases of Player Journey according to Amy Jo Kim.

3. EVOLUTION 1 METHODOLOGY

3.1 Progression Based on Motivation Theories and Behavior Models

The following figure represents our initial understanding of user types and motivations based on previous motivation theories and behavior models studied. From this model we built up the player profiling process.
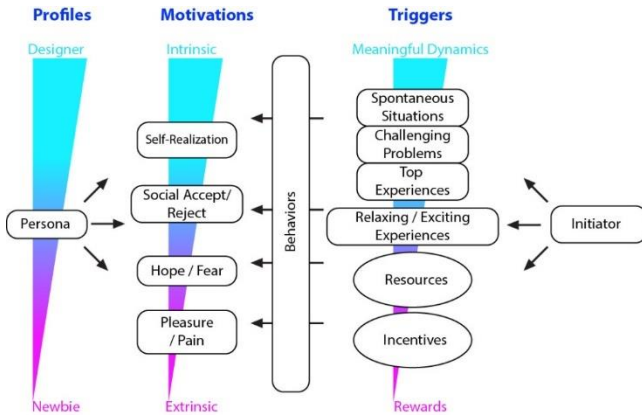

Figure 5. First approach to understand player progress based on motivation theories and behavior models.

3.2 Player Analysis

The GMC evolution new approach to player analysis follows the next steps:

1. To analyze the simplicity elements to face.
2. To analyze the motivation parameters where the user lays (aesthetics).
3. To select which triggers (mechanics) would be the most appropriate to drive the behavior change.

In the following figure we integrate Bogg's behavior types (point, lapse and path) and the simplicity analysis into the GMC process. The figure also pairs motivators to aesthetics, generating a taxonomy of aesthetics related to different motivators.
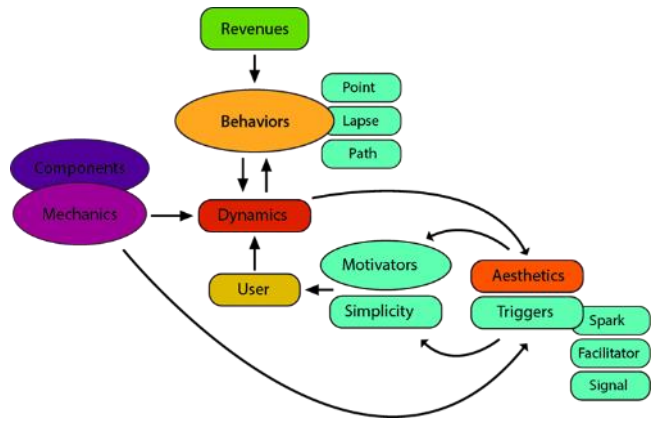

Figure 6. GMC evolution process, with Fogg's model behavior types and simplicity elements.

3.3 Personal Model

The new approach to player typologies departs from the usual static view of players to a more dynamic one. We want to model the player as in a Persona design process and walk with him in its own progress from the very first stages of the interaction taking into account how dynamics and aesthetics influence his motivations and simplicity conditions.

Instead of assigning a role to a certain type of motivation, we assign a type of action to some motivations, giving the gamification experience designer the option to generate different triggers and, therefore, mechanics. In the following figure a user could be classified as and "explorer" because extrinsic motives (to find food) or intrinsic motives (to feel the beauty of travelling) or a combination of both.

Figure 7. Example of different motivations for a player type (Explorer) according to our revision of Bartle's and Marczewski's models.

3.4 Model FPS (Fogg Persona System)

The following figure integrates both Fogg's simplicity elements and motivations and also self-realization as well as a vertical scale of Player's Journey progress. It represents the final understanding of the process of player profiling for the evolution 1 of the GMC and from this we will build its improvements.
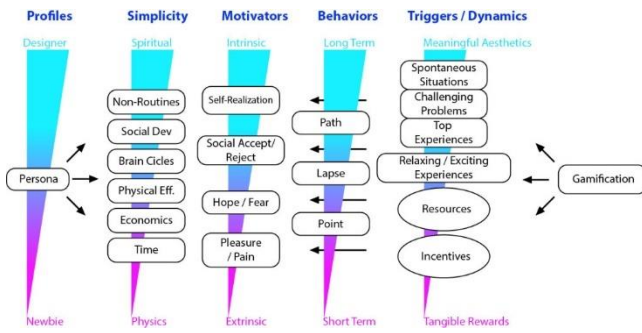
Figure 8. Integrated model of the new player profiling process.

4. GAMIFICATION MODEL CANVAS IMPROVEMENTS

4.1 GMC Level

The first new feature of the GMC is an index which assesses engagement according to how extrinsic or intrinsic the motivator is. It does it by mixing Fogg's motivators (pleasure/pain, hope/fear, rejection/acceptance/self-realization) and Maslow's motivators (physiological-safety-love-belonging-esteem). This index is represented as a visual element on each card to help decision making processes allowing designers to determine the best compatibility among the rest of the GMC layers (simplicity, aesthetics, dynamics and components). This index we call Gamification Model Canvas Level or GMC_Level and has three levels: Low, Medium and High acting as a helpful visual tooltip to connect every step of the gamification process.

4.2 Player Level and Typology

Reflecting the progress of the player within the gamified experience and according to the Player Journey, we find three basic types of players: newbie, master and designer with different roles according to their relation to the system. Each relationship depends on the expectation placed upon the system, the emotions obtained and options for interactions.

Figure 9. New Player cards showing level progress and ranked by GMC Level, based on the Player Journey.

On the other hand and following Marcezwski's player model [8] the GMC adds player typology tokens showing how the personality is reflected within the game system or gamified project.

Figure 10. Tokens representing player types ranked by the GMC Level, based on Marczewski's types.

4.3 Simplicity Elements

Fogg's model highlight the "elements of simplicity" as having a strong impact on the behavior change acceptance, and this can be applied also to gamified experiences. It is important to know players motivations but it is also important to know their problems and obstacles to change their behaviors. These elements have also been turned into cards and labeled according to their corresponding "GMC_Level".
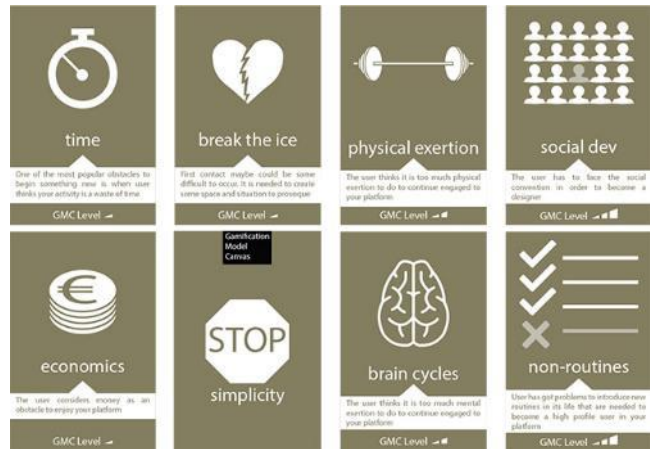

Figure 11. New simplicity cards tagged with the recommended GMC Level, based on Fogg's Behavior Model.

4.4 Aesthetics

Aesthetics are the main motivators acting as emotional rewards. What the player obtains from the match between what is needed to feel satisfied (desires) and what is offered (triggers),that is aesthetics.

Players' aesthetics cards are also part of the "GMC_Level" index, that is why there are lower level aesthetics (related with Pleasure/Pain) and higher level ones (related to socialization or Self-realization). Also a new feature is that each aesthetic card is also tagged with a player type code which is a recommendation based on our own experiences in gamification and workshops with the GMC.

Figure 12. New aesthetics cards tagged with recommended player types and GMC Level.

4.5 Dynamics

Dynamics are actions the players will want to do in order to feel the desired aesthetics. The new GMC replaces the original static nominative designations with verbalized expressions of actions to better express a dynamic event. For example, card named "status" becomes "to make grow the status" because it is a dynamic where the player participates actively. Dynamics cards also are now tagged with recommendations of GMC level and player type codes.

Figure 13. New dynamics cards tagged with recommended player types and GMC Level.

4.6 Components

Components are elements which combined generate the mechanics of our gamified experience. The new GMC also introduces the GMC level and player type codes in the components cards.
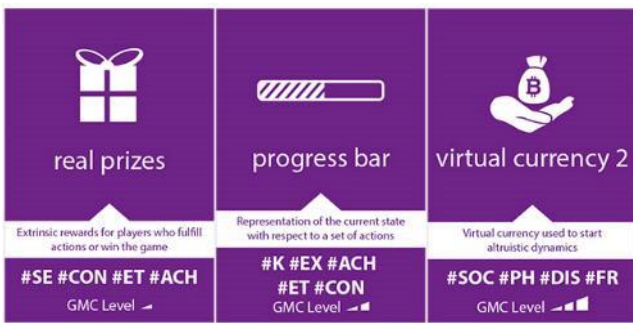

Figure 14. New components cards tagged with recommended player types and GMC Level.

5. CONCLUSIONS AND NEXT STEPS

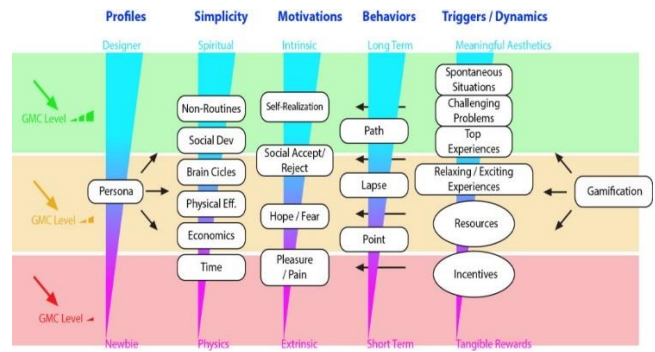The resulting integrated framework and canvas with the new simplicity stage are presented in the next figures 15 & 16:

Figure 15. Fogg's Behavior Model, Player Typology, Player Journey, Self-Realization and Levels converge to a new and better gamification framework.
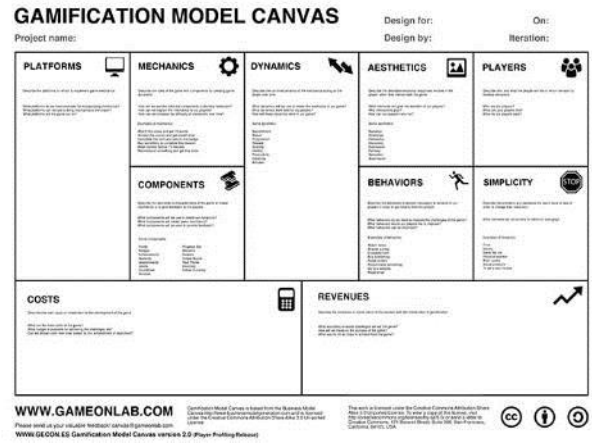

Figure 16. Gamification Model Canvas 2.0 with the new simplicity stage.

The pdf version of the canvas can be download from http://gecon.es/wp-content/uploads/2016/04/gamification_model_canvas_v02.pdf

The main objective of the canvas is to facilitate the understanding of the gamification design to both experts and, specially, non-experts. The improvements presented in this paper have been tested at many workshops and a substantial reduction of the time required to complete a full gamification workshop with non-experts has been observed, decreasing from 4 hours to 2-3 hours. The new GMC increased agility on completing the player profiling stage and also on connecting it with the full sequence of the canvas.

Also we have introduced a way of dealing with "alpha players" (individuals during the workshop that imposed their opinion and design over the others, lowering diversity) by allowing each participant an individual design form to write down player type, simplicity elements, aesthetics, etc. after open discussion.

There are many ways in which further improve the canvas, like expansions. Experience using the GMC in events and fairs, education, health, leisure and culture, environment and tourism has shown us that both the industry, professional role, age, socio-economic status and geographic origin profoundly influence design decisions. This has put on the table the possibility of developing expansions as new cards and tokens reflecting specific professional profiles, aesthetics, dynamics and components.

6. ACKNOWLEDGEMENTS

7. REFERENCES

[1] Fogg, B. 2009. A Behavior Model for Persuasive Design. *Proceedings of the 4th International Conference on Persuasive Technology - Persuasive '09*. (2009).

[2] Gamification Model Canvas: 2013. *http://www.gameonlab.es/canvas/*. Accessed: 2016-06-03.

[3] Gamification User Types: 2013. *http://www.gamasutra.com/blogs/AndrzejMarczewski/20130318/188620/Gamification_User_Types.php*. Accessed: 2016-06-03.

[4] Hearts, Clubs, diamonds, Spades: players who suit MUDs: 1996. *http://www.mud.co.uk/richard/hcds.htm*. Accessed: 2013-06-27.

[5] Hull, C. et al. 1940. *Mathematico-Deductive Theory of Rote Learning: A Study in Scientific Methodology*. Yale University Press.

[6] Hull, C. 1943. *Principles of Behavior*. Appleton–Century–Crofts.

[7] Hunicke, R. et al. 2004. MDA: A formal approach to game design and game research. *Challenges in Games AI Workshop, Nineteenth National Conference of Artificial Intelligence* (San Jose, CA, 2004), 1–5.

[8] Marczewski, A. 2015. User Types. *Even Ninja Monkeys Like to Play: Gamification, Game Thinking and Motivational Design*. CreateSpace Independent Publishing Platform. 65–80.

[9] Maslow, A.H. 1943. A Theory of Human Motivation. *Psychological Review*. 50, 4 (1943), 370–396.

[10] Osterwalder, A. and Pigneur, Y. 2010. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Wiley.

[11] Sailer, M. et al. 2013. Psychological Perspectives on Motivation through Gamification. *Interaction Design and Architecture(s) Journal - IxD&A*. 19 (2013), 28–37.

[12] Schlagenhaufer, C. and Amberg, M. 2014. Psychology Theories in Gamification: A Review of Information Systems Literature. *European, Mediterranean & Middle Eastern Conference on Information Systems 2014 (EMCIS)* (Doha, Qatar, 2014).

[13] Skinner, B.F. 1963. Operant Behavior. *American Psychologist*. 18, 8 (1963), 503–515.

[14] Skinner, B.F. 1938. *The Behavior of Organisms: An Experimental Analysis*. B.F. Skinner Foundation.

[15] The Player's Journey: Designing Over Time: 2012. *http://amyjokim.com/blog/2012/09/14/the-players-journey-designing-over-time/*.

[16] Yerkes, R.M. and Dodson, J.D. 1908. The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology*. 18, 5 (Nov. 1908), 459–482.