



Licenciatura em
Gestão de Sistemas e Computação

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Título do Trabalho
Gamification – The power of motivation using Octalysis Framework

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Aos meus avós.

"Play is the highest form of research."

Albert Einstein

Abstract

In the context where the strong technology advance transforming patterns and creating new obstacles, the capacity for the companies to innovate represents a competitive advantage. In this real-time world to have innovation, companies need dedicated employees fully engaged and it is used in organizations in order to change the behavior of the workforce as well to engage and make them more effective.

This work aims at analyzing the effectiveness of the gamification process in the present day scenario. Special focus lies on answering the leading question whether and when gamification can be used as a tool for motivation.

Thus, the present work aims to find the applicability of gamification in the enterprise context with the help of octalysis framework. It also gives a clear understanding on the concepts of gamification and gives an in-depth review on all the elements such as mechanics, design, etc. that go into it and the measures of the effectiveness of the process with the help of various frameworks and studies that have already been done.

To achieve this goal it was performed an exploratory scientific journey using the techniques of bibliographic reviews and content analysis, in order to develop a small prototype using gamification. By reviewing the literature, recommendations and conclusions are drawn that would help understand how to make the gamification process effective in the present day scenario and also gives insights into future of gamification.

For future work, as research continues, an empirical research is proposed.

Keywords: Gamification, motivation, strategy, engagement, human-focused design, octalysis framework.

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1. Introduction

As the world is evolving, Gartner predicts that more than 70% of Global 2000 organizations will have at least one gamified platform by 2014 (Gartner, 2011) and According to a report done by P&S Market Research, the global gamification market size was \$960.5 million in 2014 and is expected to reach \$22,913.0 million by 2022, at a compound annual growth rate (CAGR) of 41.8%, as seen in Figure 1.

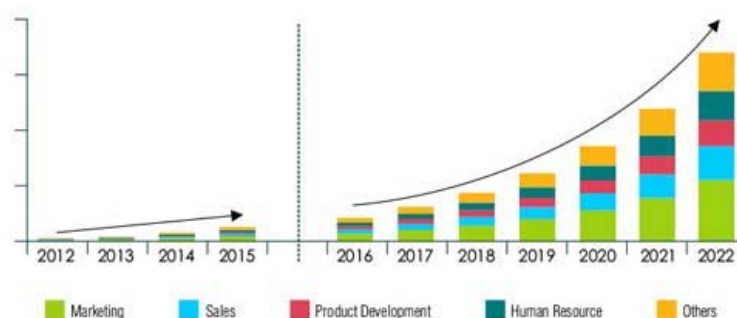


Figure 1 – Gamification Market Forecast

Source: <https://www.psmarketresearch.com/market-analysis/gamification-market>

If we take a look at the United States which is the largest gaming market in the world, regarding a recent report, research shows that 67% of US households own a device that is used to play video games and the annual US video content spend in 2016 was \$24.5 billion (ESA 2017) and regarding to Australian market where the total sales achieved in digital video games was \$2.96 billion (IGEA 2017), in fact we can assume that people who enjoy playing games has increased in the last years. Besides this by 2018, everyone under 25 will be a Digital Native; a generation that will drive a change in behaviors, attitudes, skills and work styles (Basso, 2008, p. 3).

This leads to a major subject that is ‘Gamification’, because “The same incentives that inspire game players to strive for the next level in a computer game can also inspire employees to reach for a higher level of performance and engagement - if they are properly applied” (Olding, 2012).

Gamification was included in the Gartner Hype Cycles for Emerging Technologies right at the peak of inflated expectations with the plateau to be reached in five to ten years (cf. Figure 2).

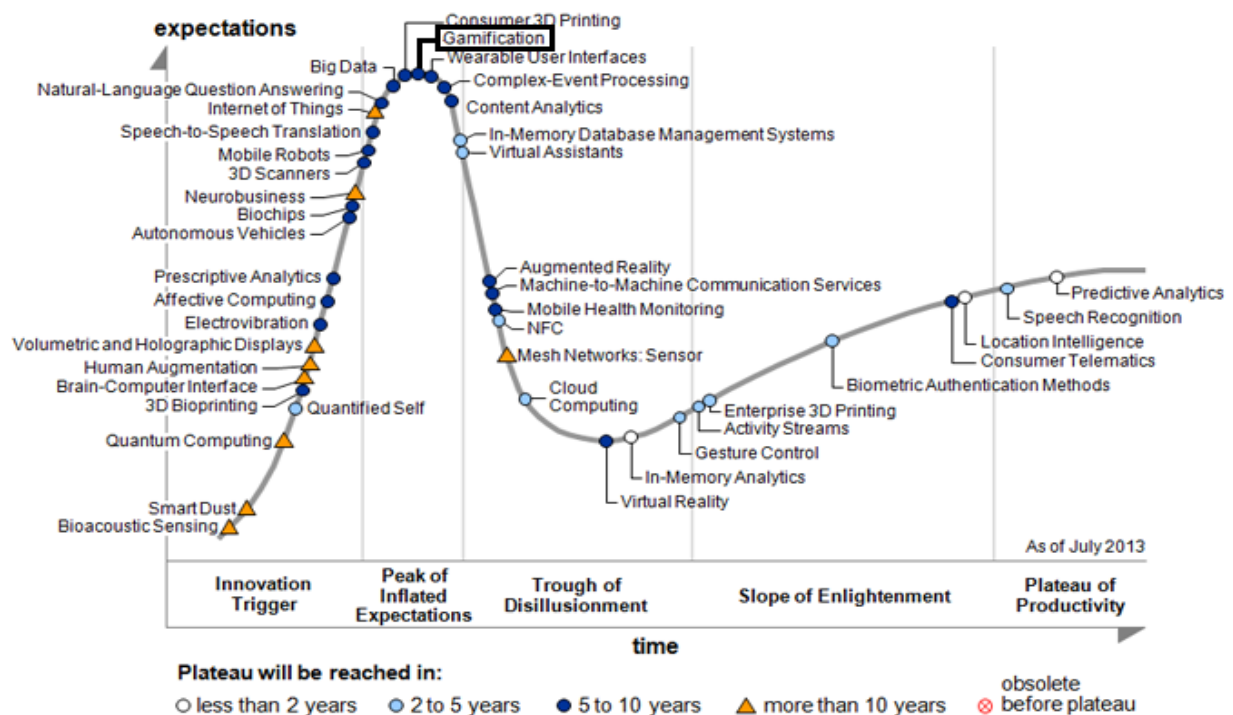


Figure 2 – Gartner’s Hype Cycle for Emerging Technologies 2013

Source: <https://www.gartner.com/newsroom/id/2575515>

The author of this report states: “As gamification moves from being leveraged by a limited number of leading-edge innovators to becoming more broadly adopted by early adopters, it is important that CIOs and IT leaders understand the underlying principle of gamification and how to apply it within the IT organization.” In another article the author gives an insight that states: “Gamification is a tool to design behaviors, develop skills and enable innovation. Combined with other technologies and trends, gamification can cause major discontinuities in innovation, employee performance management, education, personal development and customer engagement.” (Burke 2012)

In a survey by Pew Research Center, 53% of people surveyed said that, by 2020, the use of gamification will be widespread, while 42% predicted that, by 2020, gamification will not evolve to be a larger trend except in specific realms (PRC, 2012).

This leads to one central question for this research:

Whether and when gamification can be used as a tool for motivation?

1.1. Context (Necessity and problem)

In this real-time world and with the increasing of people that play games we'll link this to business and try to understand why games matter.

Games have been described as having four defining traits: a goal, rules, a feedback system and a voluntary participation (McGonigal, 2011). A game is an engagement engine – it attracts and engages players and maybe the best definition of a business these days is to say that it too is an engagement engine – it attracts and engages customers and employees (Hugos, 2012).

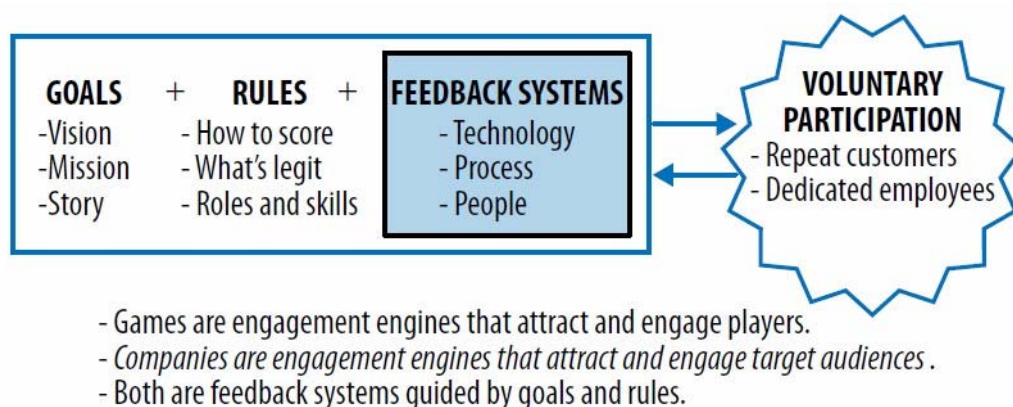


Figure 3 – Games generate continuous feedback

Source: (Hugos, 2012 p.12)

1.2. Problems

According to Gallup's survey only 13% of employees worldwide are engaged at work and 32% of employees in the US are engaged, meaning they are involved in enthusiastic about and committed to their work and workplace. Another public survey realized by Deloitte says that more than half the executives questioned (58%) believed that their current performance management approach drive neither employee engagement nor high performance.

Worryingly, this lack of engagement is impacting the bottom line: companies with engagement scores in the top quartile have twice the net profit of those in the bottom quartile, and also demonstrate revenue growth which is 2.5 times greater.

This is only the start of the unavoidable merging of games and business.

1.3. Objectives / Result Goals

The main objective of this work is to summarize the term gamification, understanding and explain its meaning and for this purpose it was developed a software prototype of a mobile application applying some of the concepts for a gamified solution.

In the end the goal is to establish a relation between the main concepts and to give an answer for the main question of this research.

1.4. Document structure

This document presents a logical and structured line described as follows:

1. Introduction: This chapter as introductory leads to the problem statement, the purpose and objectives of the work as well as the result goals.

2. State of the art: This chapter sums up the theory of the main topics, with literature review.

3. Prototype: This chapter provides the creation of a prototype design, gathering the theory of this work with a practical mobile application called *Feedbacky*.

4. Conclusion: The last chapter provides the final conclusion and future research will be define, in conjunction with an empirical research applying a quantitative methodology.

2. State of the art

In the following chapter of this work, we'll explain what gamification is, the most important concepts and explain in detail one of the frameworks used for gamification.

2.1. Gamification: A definition

There are several definitions to define the word Gamification, which was initially used in the computer games industry. Originating from the concept of a change to the behavioural mindset of the user it had made all the processes involved in work, fun and effective. (Chou 2015)

In other terms, it's a skill of taking all the fun and the addictive elements found in games and applying them to the processes in the real-world. The main concept of this process influences the behavioural aspect of the users and their specific desires in terms of being competitive, successful

in terms of getting an achievement or successful outcome being recognized and also influences self-expression. (Kumar, 2013)

There are other main definitions in which Gamification as “the use of game-elements in non-gaming context” (Deterding, 2011a), where an increasing number of companies are using techniques from video games such as leaderboards, progress bars, and badges as feedback mechanisms to engage people and induce higher levels of participation (Hugos, 2013). In a business perspective, it's the process of integrating game dynamics into the services and processes to initiate the participation and also enhance or promote the engagement.

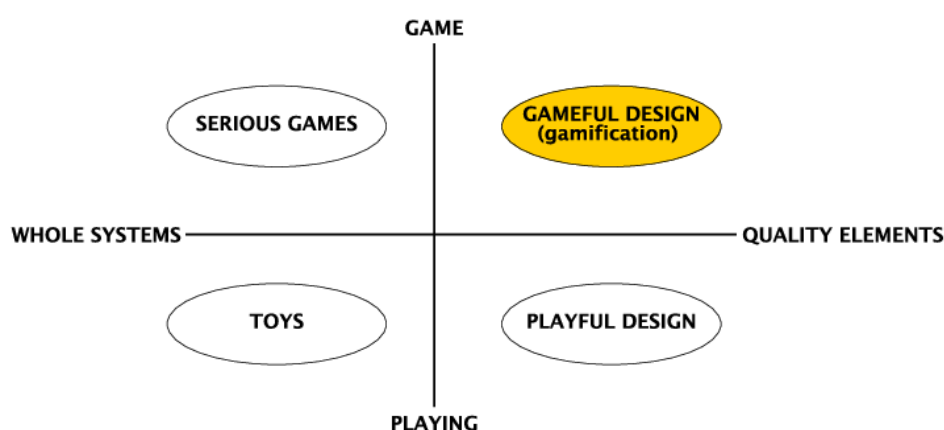


Figure 4 - Conceptual map of gamification applications.

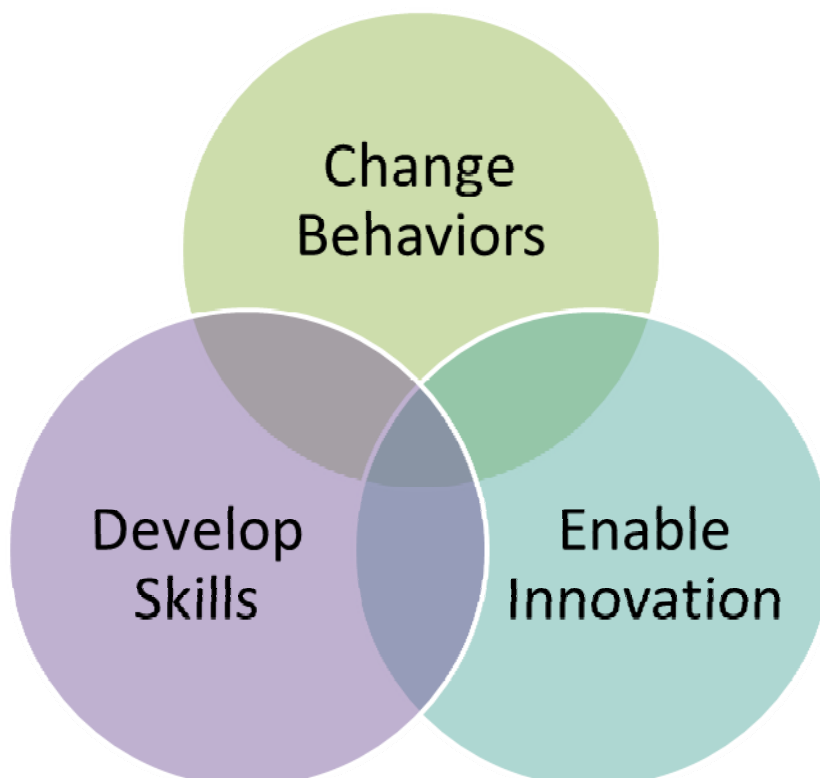
Source: <https://www.researchgate.net/figure/Conceptual-map-of-gamification-applications-adapted-from-Deterding-et-al-5-fig1-323232551>

Figure 4 gives us an understanding on how gamification is defined based on these dimensions. (Deterding et al. 2011)

According to Gartner, the main goals of gamification are to get users engaged at their higher level, change their behaviours and also stimulate innovation in work and processes. (Gartner 2011). At its core, gamification is about engaging people on an emotional level and motivating them to achieve their goals. (Burke 2014)

One of the simple definitions of gamification that sums it all up is “The application of gaming metaphors to real life tasks to influence behaviour, improve motivation and enhance engagement.” (Marczewski 2013)

Gamification describes the use of the same design techniques and game mechanics found in all games, but it applies them in non-game contexts including: customer engagement, employee performance, training and education, innovation management, personal development, sustainability and health. Virtually all areas of business could benefit from gamification as it can help to achieve three broad business objectives 1) to change behavior; 2) to develop skills; or 3) to enable innovation. (Gartner, 2012)

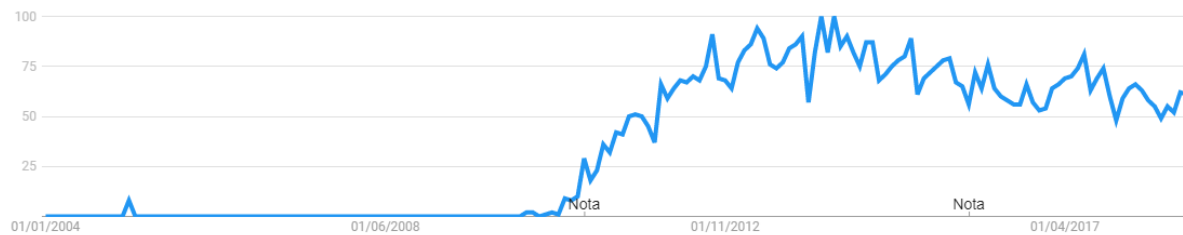


Source: Adapted from Gartner (November 2012)

Figure 5 – The Objectives of Gamification

Nevertheless the term gamification is relatively new and the rise of the interest started only from 2010 on as seen in the figure 5 below from the google trends, and in any discussion of gamification, a good example to start is provided by the social media company foursquare.¹ (Hugos, 2012).

¹ foursquare (<https://foursquare.com/>)



Source: Google Trends (October 2018)

Figure 6 – The Growing Interest in Gamification

The following sections will provide information about the fundamentals behind the concept of Gamification, the intersection between psychology and technology will be explained, because most of the successful Gamification programs extend on behavioral psychology. Therefore, it is necessary to understand the motivational triggers that lead individuals to engagement. Theoretically, a thorough review of the fundamental parts of Gamification is also included in the next sections.

2.2. The 3 keys to Gamification

The goal of this section is to provide a brief overview of the most relevant key elements, based on the research done on motivational theory and Gamification literature.

Flow

“Flow is a mental state of operation in which a person is fully immersed and focused in what he or she is doing; it involves full mental involvement and continual engagement in the process of the activity.” (Csikszentmihalyi, 1991)

The dynamic challenge-skill balance is the core element of the flow concept as described in Figure 7.

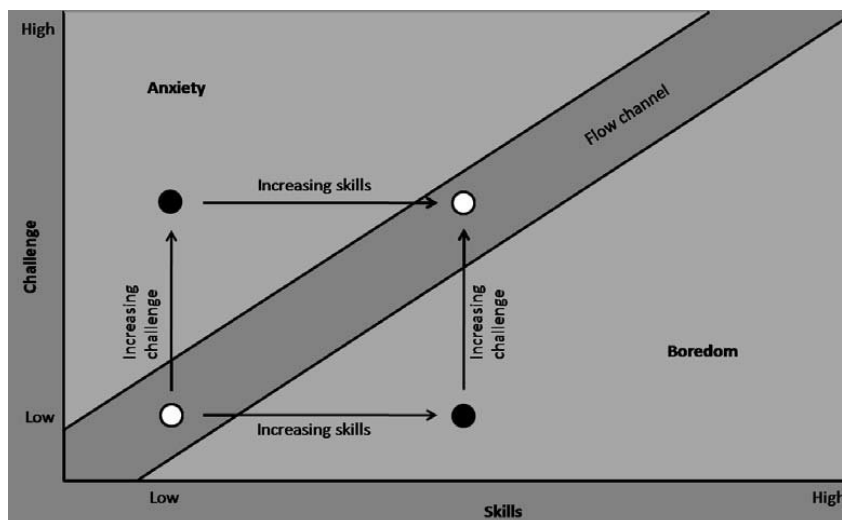


Figure 7- Illustration of the Flow Theory

Source: https://www.researchgate.net/figure/Illustration-of-the-Flow-Theory-Source-Csikszentmihalyi-1992_fig15_19316742

There are eight components that make flow possible by Csikszentmihalyi:

1. **Achievable Task** – player needs to believe he can achieve the task with effort.
2. **Concentration** – mental and physical energies must be applied in strong focus.
3. **Clear Goals** – player knows exactly what is to be done. He is only concerned in the execution of the task, not figuring out what it is.
4. **Feedback** – immediate, continual feedback guides player through the performance – he knows how well he performs.
5. **Effortless Involvement** – no external thoughts enter or distract the mind. Player is putting all the effort he can, but since other mentioned conditions are met, he subjectively perceives the involvement as effort-less.
6. **Control Over Actions** – player is in control.
7. **Concern for Self Disappears** – nothing but the activity concerns the player.
8. **Loss of Sense of Time** – subjective perception of time is distorted. Time *flows* by.

Motivation

There are three core intrinsic motivations: autonomy, competence, and relatedness, According to the Self-Determination Theory (Ryan et al., 2006):

- **Autonomy:** provides you with the opportunity to experience a sense of personal volition and choices that can be freely pursued. Providing opportunities to choose, using positive feedback and not controlling the instructions given to people, have been shown to improve the autonomy and, consequently, the intrinsic motivation of individuals (Ryan et al., 2006)
- **Competence:** deals with a sense of control, mastery and feeling like you are making meaningful decisions. It is communicated by immediate positive feedback in response to your actions. The factors that improve the experience of competition, such as the opportunities for acquiring new knowledge or skills, be optimally challenged (Csikszentmihalyi, 1991) or receive positive feedback, improve the perceived level of competition, and therefore it also improves intrinsic motivation.
- **Relatedness:** refers to experiencing meaningful connection to others and social interactions with them. Intrinsic motivation will be strengthened in relations that convey security, ensuring that this type of motivation appears more frequently and in a more robust way (Ryan et al., 2000a). The current integration between games and social networks is very interesting to use it as a reinforcing motivation.

In his book *Drive: The Surprising Truth About What Motivates Us*, Daniel Pink examined the science of motivation and how extrinsic and intrinsic rewards affect behavior. (Burke, 2012)

Extrinsic rewards “can deliver a short-term boost – just as a jolt of caffeine can keep you cranking a few more hours. But the effect wears off – and worse, can reduce a person’s long-term motivation. “ (Pink, 2009)

And concludes that intrinsic motivators have three essential elements:

- **Autonomy:** The desire to direct our own lives
- **Mastery:** The urge to make progress and get better at something that matters
- **Purpose:** The yearning to do what we do in service of something larger than ourselves

Gamification uses primarily intrinsic rather than extrinsic rewards. (Burke, 2012)

Players

Richard Bartle identified four player personality types by studying games, in order to understand why people play those games, identifying four types: *Achievers*, *Explorers*, *Socializers* and *Killers*, which are shown in Figure 8. The player types can be defined as follows:

- **Achievers** are driven by in-game goals, usually some form of points gathering – whether points, levels or badges. They focus on getting the best result for themselves, not to show off to others. Ten percent of players are of this type.
- **Explorers** want to know everything about the game. They do not mind spending time doing repetitive tasks mind spending time doing repetitive tasks to unlock new levels of the game. Ten percent of players are of this type.
- **Socializers** play for the joy of interacting with others rather than for the game itself. The majority of players (as much as 80%) fall into this category.
- **Killers** are similar to Achievers in that they like to win points and status. However, they go one-step further and find joy in seeing others lose. Interestingly, less than 1% of players are of this type.



Figure 8- Richard Bartle's player types

Source: <https://www.interaction-design.org/literature/article/bartle-s-player-types-for-gamification>

2.3. Octalysis – a gamification framework

The goal of this section is to provide a brief overview of Octalysis framework based on literature review.

Yu-Kai Chou was responsible for designing a complete framework for gamification with all the components and the core drivers involved in gamification, called Octalysis, which derives its name from an octagonal shape with 8 Core Drives representing each side (cf. Figure 9). He says that "Since games have spent decades learning how to master motivation and engagement, we are

now learning from games, and that is why we call it Gamification.” (Chou 2015) This framework puts the motivation of the user at the heart of the design. (Coppens, 2014).

For his point of view, the gamification is design that places the most emphasis on human motivation in the process. In essence, it puts on a Human-Focused Design (as opposed to function-focused design to get the job done quickly). The approach is based on an octagon shape with eight core drives represented by each side: epic meaning and calling, development and accomplishment, creativity and feedback, ownership and possession, social influence and relatedness, scarcity and impatience, unpredictability and curiosity and loss and avoidance. (Mora Carreño, Alberto & Riera, Daniel & González González, Carina & Arnedo-Moreno, Joan, 2015)

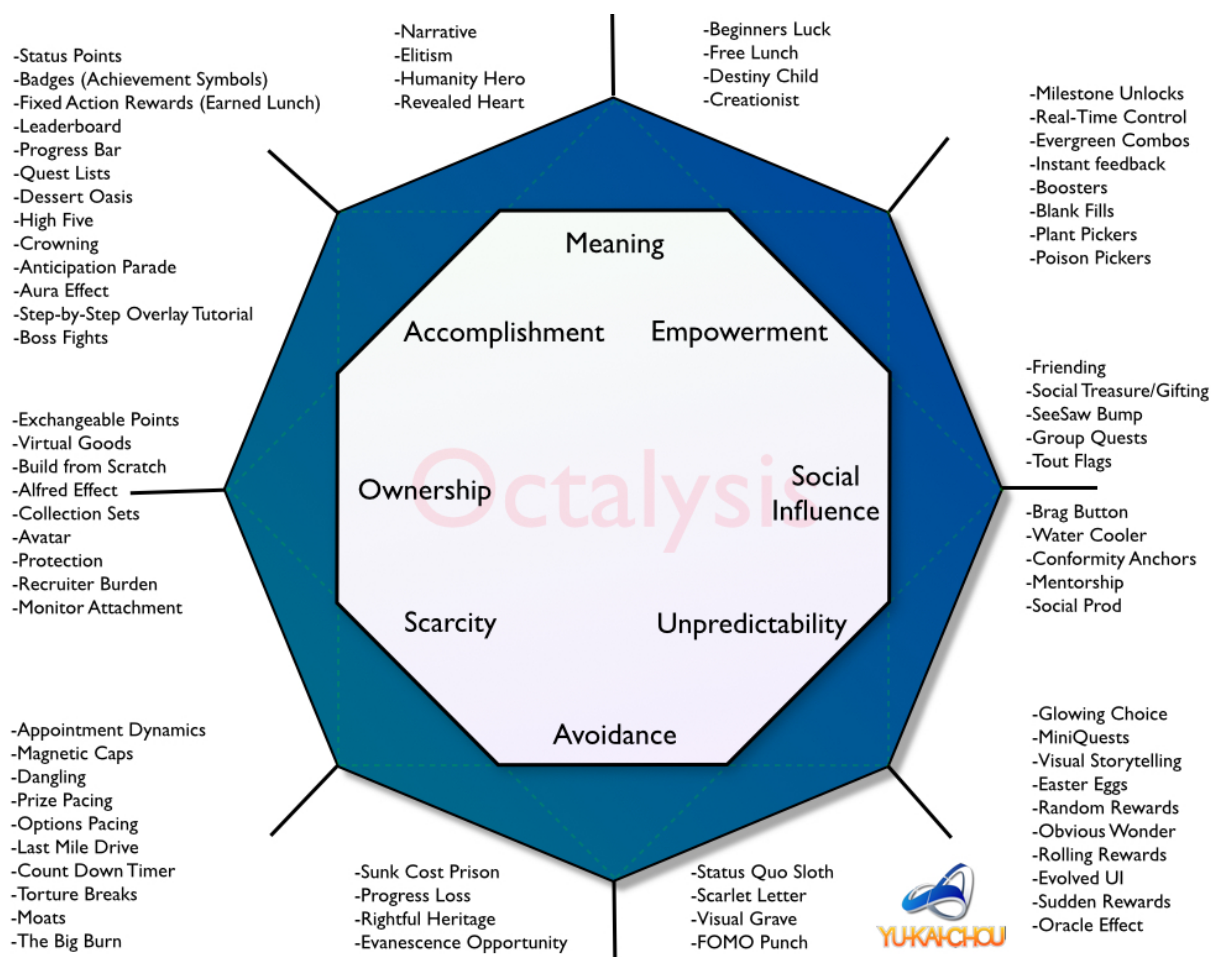


Figure 9 – Octalysis Framework

Source: <https://yukaichou.com/gamification-examples/octalysis-complete-gamification-framework/>

Human-Focused Design

If A happens, then do B. It's function-focused. You either complete your task, or you do not: there is no grey area.

This is why design matters.

In the book *Drive*, Daniel H. Pink describes what motivates humans in the work place. It turns out that salary has very little to do with human motivation; rather, the three core elements of motivation in the workplace are Autonomy, Purpose, and Mastery. With these three elements, any workplace can become a highly motivated, happy, productive organization.

This is why human-focused design matters: people have feelings, insecurities, and reasons they want or do not want to take action.

What does this have to do with Gamification? Everything.

Gamification is the craft of deriving all the fun and addicting elements found in games and applying them to real-world or productive activities. Simply put, Gamification is a form of human-focused design, a design process that optimizes for the human in the system as opposed to pure efficiency of the system.

We call it "gamification" because we believe that the gaming industry was the first to master human-focused design. Games have no other purpose than to please the user. There are "objectives" in the games, such as killing the dragon or saving the princess, but those are all excuses to simply keep the player happily entertained. Since games have spent decades learning how to master motivation and engagement, we are now learning from games, and that is why we call it Gamification.

Look around you. What do you see that is function-focused? How can it be improved by focusing on solving the need of the human as oppose to the need to complete a task?

Game motivation – the eight core drives

i. Core drive 1: Epic Meaning & Calling

Epic Meaning & Calling is the Core Drive where a user believes that they are doing something greater than themselves or that they were "chosen" to do something important. Great examples of CD1 in action are when a user devotes time to maintaining a forum (Wikipedia) or when a user contributes to an entire community (Open Source projects) without expecting any form of payment.

ii. Core drive 2: Developments & Accomplishment

Development & Accomplishment is the internal drive of making progress, developing skills, and eventually overcoming challenges. The word “challenge” here is very important, as a badge or trophy without a challenge is not meaningful at all. This is also the core drive that is the easiest to design for and is where most of the PBLs: points, badges, leaderboards focus on.

iii. Core drive 3: Empowerment of Creativity & Feedback

Empowerment of Creativity & Feedback is when users are engaged in a creative process where they have to repeatedly figure things out and try different combinations. People not only need ways to express their creativity, but they need to be able to see the results of their creativity, receive feedback, and respond in turn. This is why playing with Legos and painting are fun in-and-of themselves and often become Evergreen Mechanics, where a game-designer no longer needs to continuously add more content to keep the activity fresh and engaging.

iv. Core drive 4: Ownership & Possession

This is the drive where users are motivated because they feel like they own something. When a player feels ownership, they innately want to make what they own better. Besides being the major core drive for wanting to accumulate wealth, this deals with many virtual goods or virtual currencies within systems. Also, if a person spends a lot of time to customize their profile or avatar, they automatically feel more ownership towards it too. Finally, this is also the core drive that makes collecting stamps or puzzle pieces fun.

v. Core drive 5: Social Influence & Relatedness

This drive incorporates all the social elements that drive people, including: mentorship, acceptance, social responses, companionship, as well as competition and envy. When you see a friend that is amazing at some skill or owns something extraordinary, you become driven to reach the same level. Also, it includes the drive we have to draw closer to people, places, or events that we can relate to. If you see a product that reminds you of your childhood, the sense of nostalgia would likely increase the odds of you buying the product. This Core Drive is relatively well-studied too, as many companies these days are putting a lot of priority on optimizing their online social strategies.

vi. Core drive 6: Scarcity & Impatience

This is the drive of wanting something because you can't have it. Many games have Appointment Dynamics within them (come back 2 hours later to get your reward) – the fact that

people can't get something right now motivates them to think about it all day long. This is the Core Drive utilized by Facebook when it first started: at first it was just for Harvard. Then it opened up to a few other prestigious schools, and eventually all colleges. When it finally opened up to everyone, many people wanted to join because they previously couldn't get in.

vii. Core drive 7: Unpredictability & Curiosity

Generally, this is a harmless drive of wanting to find out what will happen next. If you don't know what's going to happen, your brain is engaged and you think about it often. Many people watch movies or read novels because of this drive. However, this drive is also the primary factor behind gambling addiction. Also, this core drive is utilized whenever a company runs a sweepstake or lottery program to engage users. The very controversial Skinner Box experiments, where an animal irrationally presses a lever frequently because of unpredictable results, are exclusively referring to the core drive of Unpredictability & Curiosity.

viii. Core drive 8: Loss & Avoidance

This core drive is based upon the avoidance of something negative happening. On a small scale, it could be to avoid losing previous work. On a larger scale, it could be to avoid admitting that everything you did up to this point was useless because you are now quitting. Also, opportunities that are fading away have a strong utilization of this Core Drive, because people feel like if they didn't act immediately, they would lose the opportunity to act forever.

Left Brain vs Right Brain

Left Brain Core Drives are by nature goal-oriented, while Right Brain Core Drives are experience-oriented. Extrinsic Motivation focuses on results, while Intrinsic Motivation focuses on the process. The Left Brain Core Drives involve tendencies related to logic, ownership, and analytical thought. They are expressed in the following Core Drives:

- CD2: Development & Accomplishment
- CD4: Ownership & Possession
- CD6: Scarcity & Impatience

The Right Brain Core Drives are characterized by creativity, sociality, and curiosity. They are expressed in the following Core Drives:

- CD3: Empowerment of Creativity & Feedback
- CD5: Social Influence & Relatedness
- CD7: Unpredictability & Curiosity

White Hat vs Black Hat

White Hat Core Drives are motivation elements that make us feel powerful, fulfilled, and satisfied. They make us feel in control of our own lives and actions. The White Hat Core Drives are represented at the top of Octalysis:

- CD1: Epic Meaning & Calling
- CD2: Development & Accomplishment
- CD3: Empowerment of Creativity & Feedback

In contrast, Black Hat Core Drives, make us feel obsessed, anxious, and addicted. While they are very strong in motivating our behaviors, in the long run they often leave a bad taste in our mouths because we feel we've lost control of our own behaviors. The Black Hat Core Drives are represented at the bottom of Octalysis:

- CD6: Scarcity & Impatience
- CD7: Unpredictability & Curiosity
- CD8: Loss & Avoidance

Octalysis Strategy Dashboard

In his book *Actionable Gamification Beyond Points, Badges, and Leaderboards*, Chou states “that in the beginning of every gamification campaign, the first thing to do is to define five items”:

- Business Metrics, which lead to Game Objective
- Users which lead to Players
- Desired Actions which lead to Win-States
- Feedback Mechanics which lead to Triggers
- Incentives, which lead to Rewards

All these come together to form the Octalysis Strategy Dashboard (cf. Figure 10).

Octalysis Strategy Dashboard

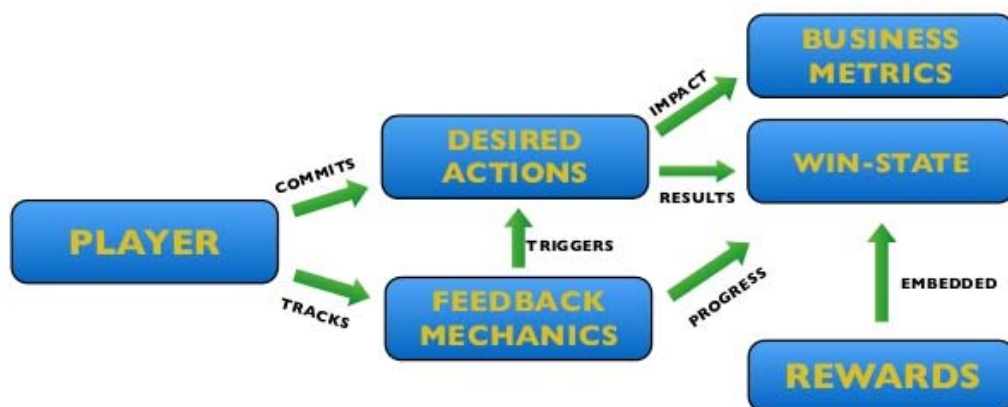


Figure 10 - Octalysis Strategy Dashboard

Source: <https://yukaichou.com/gamification-study/the-strategy-dashboard-for-gamification-design/>

Having this in mind the next chapter will provide a prototype for a mobile application called *Feedbacky*.

3. Software design and development

In this chapter will be define the mobile application called *Feedbacky* that will focus on creating and managing To Dos. The To Dos will be persisted in a database so they can be accessed from and shared across multiple devices. To Dos will have attributes such as category, priority (low, medium or high), due date and they can be marked as important (starred) by the user. Another important aspect of this application is to make possible for users to give proper feedback in notes, achieve rewards, badges and check the evolution in dashboards.

3.1 Software requirements

For this project the requirements are exclusively for an objective that the author have in mind when he start to idealize the application regarding the term gamification and something that could be useful to build a better business.

3.1.1 Functional Requirements

- Create To Dos
- Give Feedback
- Manage To Dos

3.1.2 Non Functional Requirements

Except for rare exceptions and specific needs, performance, usability, availability, reliability and security, are the criteria to be considered when implementing an application. These criteria were considered in the implementation of the application.

3.2 Software architecture

Use Case Diagram

In the Figure 11 is represented the use case diagram for the application from the user perspective.

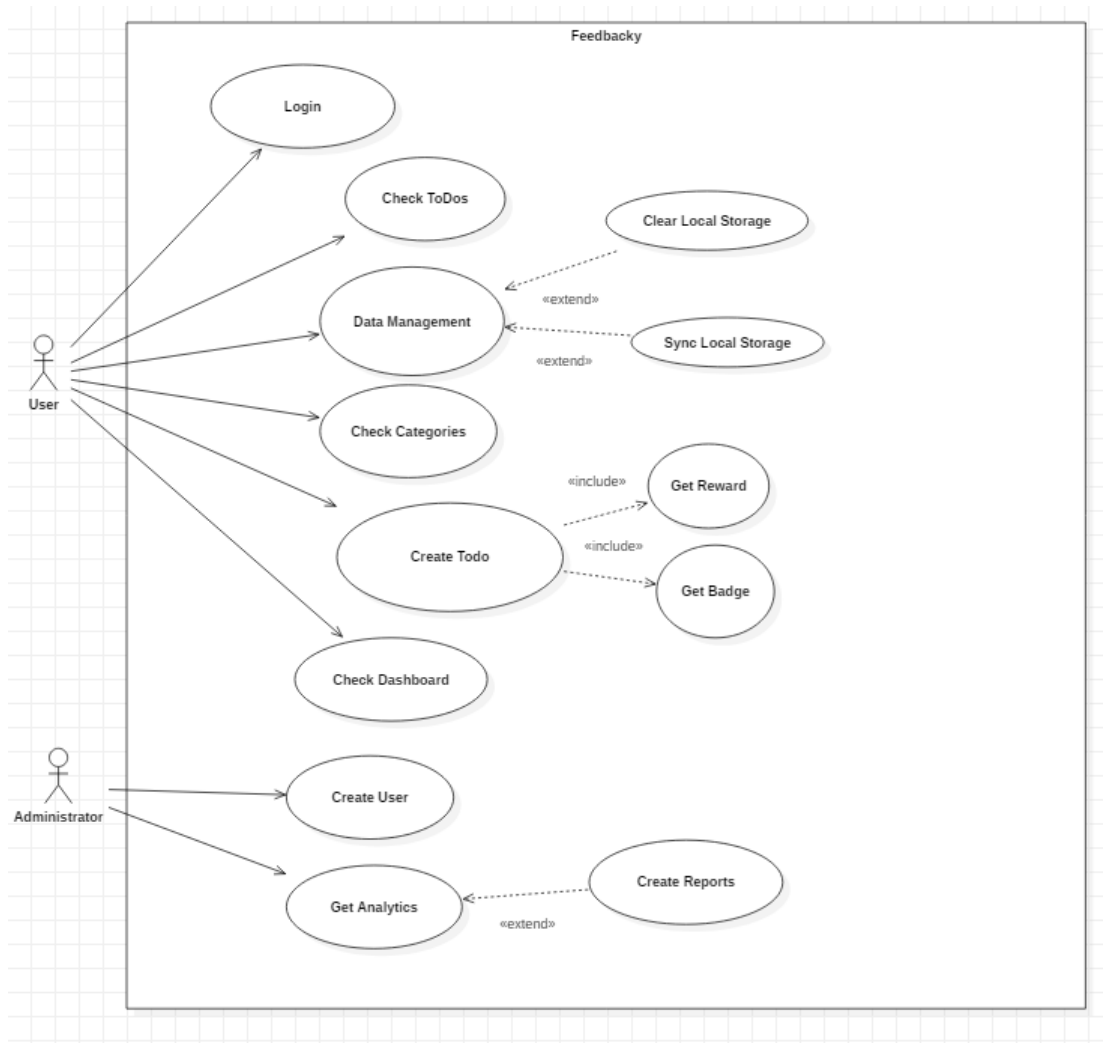


Figure 11 – Use Case Diagram

This diagram represents an overview of the model that will be detailed next.

When the user enters the application, must have a valid email and a password. In this prototype the user can go to 5 different screens: Dashboard, ToDos, New To Do, Categories and Data.

The user can in screen Dashboard can get a visualization data about the to dos by category and by priority, as well the rewards and earned badges in the future release.

In screen To Dos, the user has all the information about the tasks to be done and also can prioritize them in terms of priority and due date.

In screen New To Do, the user can create a new To Do, defining the title, give a proper feedback in notes, Due Date, indicates the category and level of priority. The user can also indicate if the To Do is starred or not.

In the screen Categories the user can filter the To Dos by all the categories available in future release.

In Data screen the user can clear or sync local storage.

The administrator can create users and also get analytics of the application generating different types of reports. This feature in not licensed in this prototype, but can be implemented in a future release of the model.

Entity Relationship Diagram

The information of the database for the mobile application can be visualized as follows (Figure 12) and described in detail:

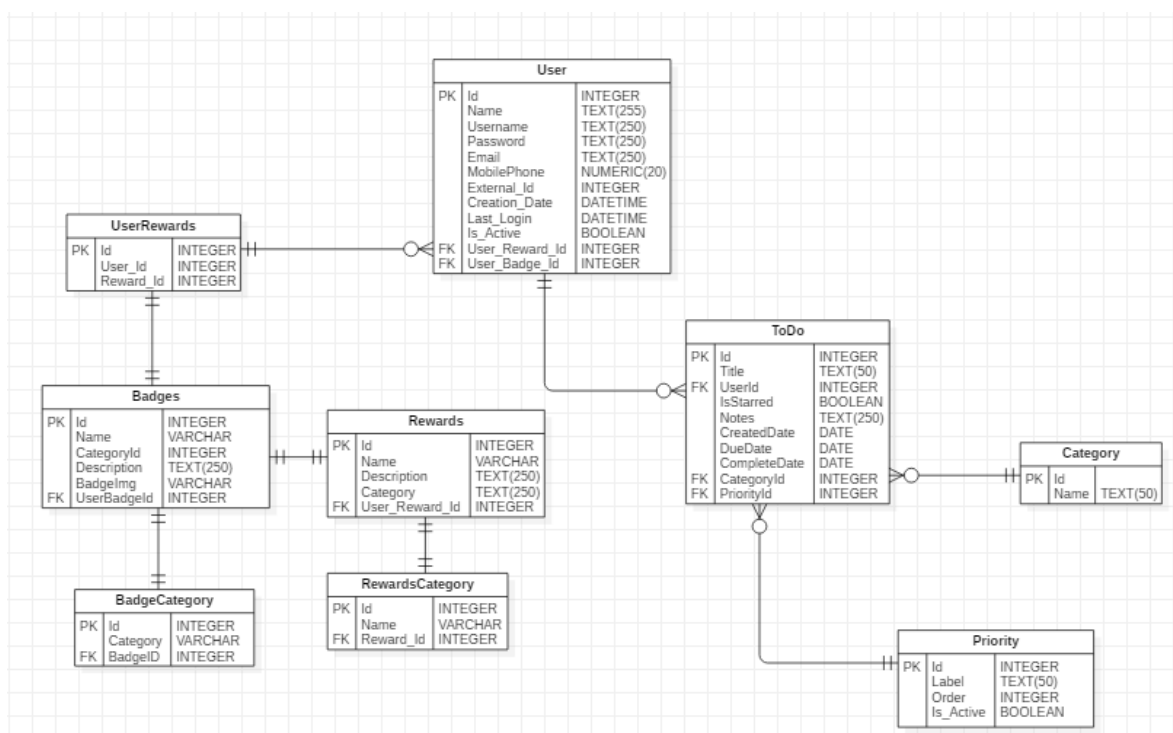


Figure 12 – Entity Relationship Diagram

Entity User: contains data about the user. Id, Name, Username, Password, Email, Mobile Phone, External id, Creation Date, Last login and Is Active. Connect with the entity ToDo in

relationship one to many. User Reward Id and User Badge Id are foreign keys to connect other entities. Id is a primary key.

Entity ToDo: contains data about To Dos. Id, Title, UserId, IsStarred, Notes, Creation Date, Due Date, and Completion Date. Category Id and Priority Id are foreign keys to connect other entities. Id is a primary key.

Entity Priority: Contains information about Priority. Label, Order and Is active. Connect with the entity ToDo in relationship one to many. Id is a primary key.

Entity Category. Contain information about Category. Connect with the entity ToDo in relationship one to many. Id is a primary key.

Entity User Rewards: Contains information about user rewards. User Id and Reward Id. Id is a primary key. Connect with the entity Users in relationship one to many.

Entity Badges: Contains information about Badges. Name, Category Id, Description and Badge Image. Id is a primary key. User Badge Id is a foreign key. Connect with the entity User Rewards in relationship one to one.

Entity Badge Category: Contains information about Badge Category. Category and Badge Id. Id is a primary key. Badge Id is a foreign key. Connect with the entity Badges in relationship one to one.

Entity Rewards: Contains information about Entity Rewards. Name, Description and Category. Id is a primary key. User Reward Id is a foreign key. Connect with the entity Badges in relationship one to one.

Entity Rewards Category: Contains information about Rewards Category. Name and Reward Id. Id is a primary key. Reward Id is a foreign key. Connect with the entity Rewards in relationship one to one.

Classes Diagram

As shown in Figure 13 and with a high abstraction point of view it is possible to see the system classes and their attributes operations and associations.

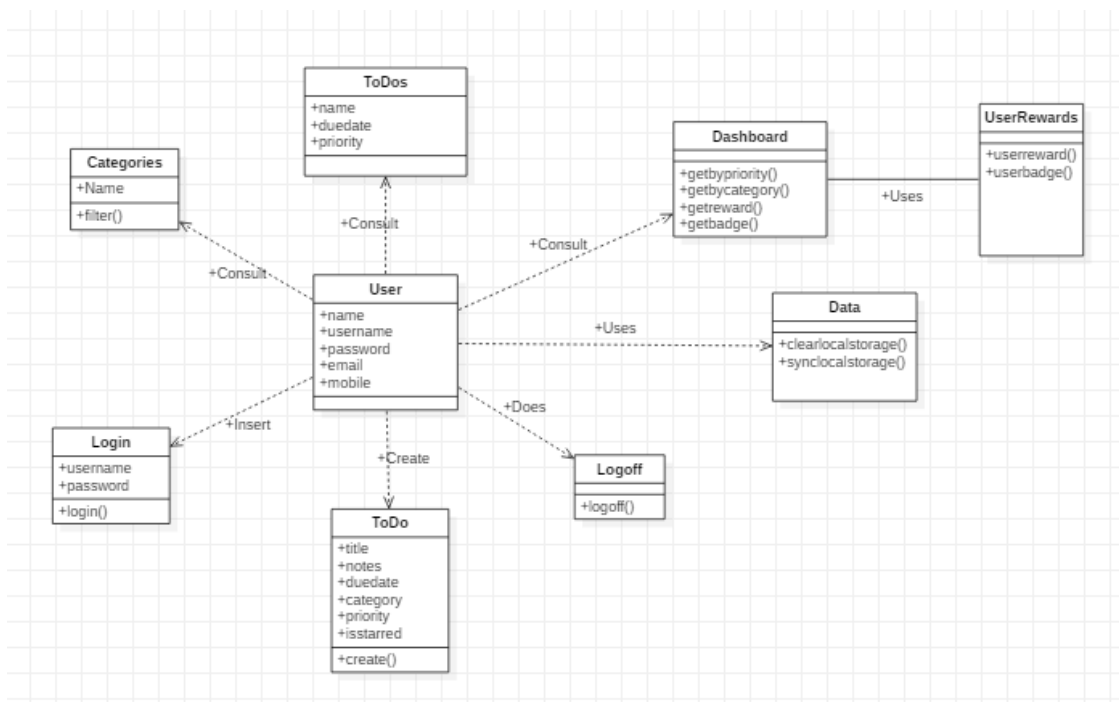


Figure 13 – Classes Diagram

Class ToDo: Have the same attributes as the Entity ToDo in data model. All attributes are private.

Class User: Have the same attributes as the Entity User in data model.

Class Login: Have the public operation login() that validates the credentials inserted by user.

Class Logoff: Have the public operation logoff() to exit the application.

Class Data: Have two public operations clearlocalstorage() and synclocalstorage().

Class Dashboard: Have four private operations getbypriority(), getbycategory(), getreward() and getbadge().

Class Rewards: Have two private operations: userreward() and userbadge().

3.3 Prototype development

In this chapter, the prototype model for gamification is given. The purpose of this prototype is to build the foundations for future work and to apply some of the theories presented in this work.

3.3.1 Tools

3.3.1.1 StarUML

StarUML is a sophisticated software modeler aimed to support agile and concise modeling. (StarUML, 2018). It was used to do the Entity Relationship diagram, classes diagram and use cases diagram.

3.3.1.2 OutSystems

OutSystems is a low-code platform that lets you visually develop your entire application, easily integrate with existing systems, and add your own custom code when you need it. The version used was 11.0.113.0. For personal development it was used <https://pedrofrzmatos.outsystemscloud.com> (OutSystems, 2018).

3.3.2 Prototype

The prototype can be installed in Android native platforms.



Figure 14 – Scan with your device to install the Android Mobile App.

You can also go to this link for installation:

<https://pedrofrzmatos.outsystemscloud.com/NativeAppBuilder/App?Name=Feedbackv&AppKey=d1fb0818-8efc-4539-aaba-c2125d7a2af8>

This is a small, but well-formed application, spanning multiple screens that can be easily accessed from any android mobile devices.

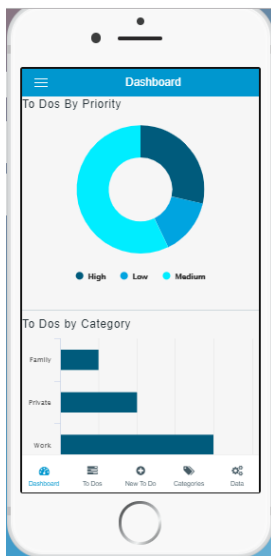


Figure 15 – Dashboard Screen

In the dashboard screen the user can see the entire To Dos group by priority and by category.

In a future release it will be added the rewards method and also the badges.

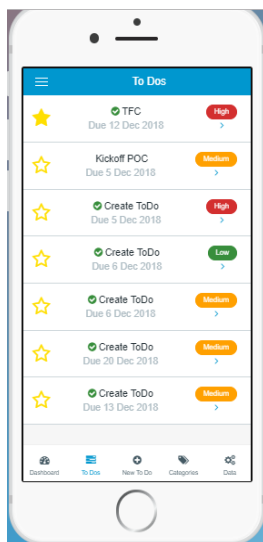


Figure 16 – To Dos Screen

Here the users can check all the list of To Dos.

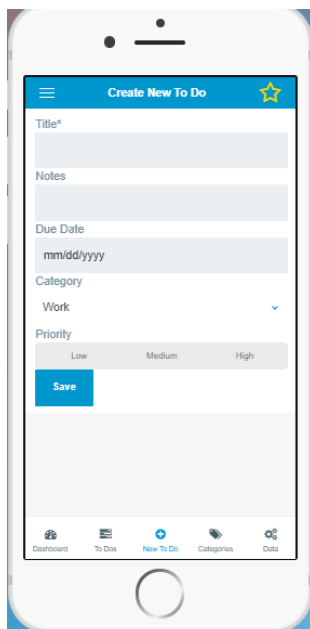


Figure 17 – New To Do Screen

Here the users can create a new To Do.

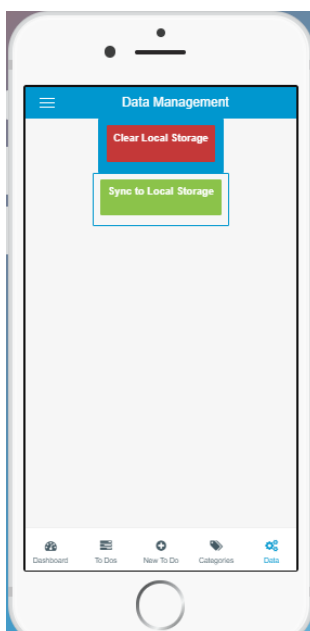


Figure 18 – Data Management Screen

Users can clear or sync data to local storage.

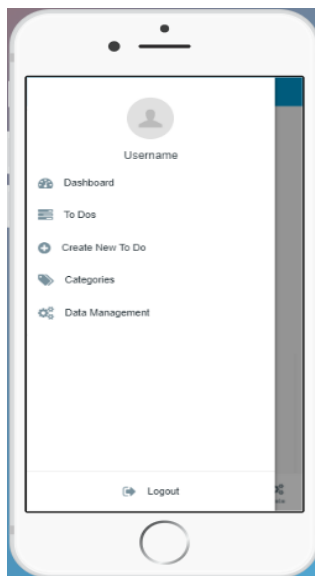


Figure 19 – Logout Screen

Users menu for logout or navigate to other screens.

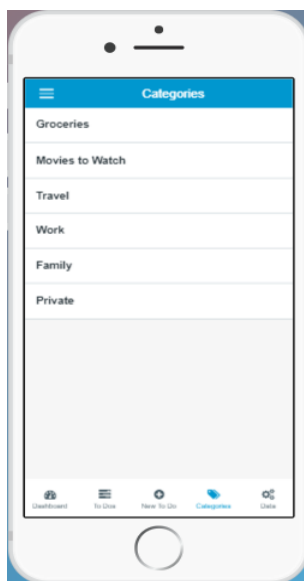


Figure 20 – Categories Screen

The user can filter To Dos by Categories. For the category and as shown in Figure 15, we have personal and private categories.

Category
Management
Technical Knowledge
Communication
Independence and Responsibility
Organization and Discipline
Organizational Alignment
Self-development and self-motivation
Teamwork
Groceries
Movies to Watch
Travel
Work
Family
Private

Figure 21 – Category List

This prototype aims to use two Core Drives regarding Octalysis framework:

Core Drive 2: Development & Accomplishment: Feedback will show their progress over time to a player. Providing charts and analytics that show a detailed view of how productive a player is. Players are motivated to complete tasks to earn rewards and improve their charts.

Core Drive 8: Loss & Avoidance: Players hate losing what they've earned. The threat of losing rewards for failing on tasks drives a player to complete objectives so that they can retain their status.

4. Conclusion

The relevance of the term gamification in business context has a large spectrum and has evolved over time and various elements and frameworks have been created, tested and are presently in use. By using the effective and the appropriate game mechanics into the non-game context processes this can motivate the workforce to be more engaged and also increase the performance. This could be a crucial aspect for making way for various opportunities for the organizations across industries.

The aim of this work besides the theoretical and literature review about the term gamification was always to implement and figure out what can motivate people to do extraordinary things. During this work the guidelines were given in a way to give answer about whether and when gamification can be used as a tool for motivation. Another main objective was also developing a mobile prototype giving meaning to all the theoretical exposure, and hopefully it will lead to build a better business.

For this happens a future work and research will be proposed in a way that could bring a qualitative research strategy, such as interviews that could be well suited as a proof of concept for this application in an empirical way, as well as construct a good model of rewards and badges to become the application more appealing.

When I became interested in the term Gamification, I immediately became aware of its relevance and made the necessary inquiries in order to understand the concept and try to idealize applicability by linking theory with practice for business organization. The work of research and improvement is far from over and will always be continually improved. In future work and since research on this field is vast there is much space for further research. The prototype presented could be tested and be continually developed further.

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