



PROCESS OF GAMIFICATION

Gamifying a Tourism Concept

Amir Abdi

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TAMPEREEN AMMATTIKORKEAKOULU

Tampere University of Applied Sciences

ABSTRACT

Tampereen ammattikorkeakoulu
Tampere University of Applied Sciences
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Amir Abdi
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Gamification is bringing game design features and rules into a non-game context usually in an effort to enhance user engagement.

Eco-tourism and gamification are gaining popularity rapidly and pioneer tourism players are implementing gaming into their marketing strategy.

Several Destination Marketing Organizations have established mobile marketing strategies to attract customers and implementing the trends. Gamification has gained space to bring customers through advertising and entertainment.

The purpose of this thesis is to examine the core and drive of gamification in depth and explore gamification thinking, tools, psychology and elements.

With groundwork achieved by studying gamification, the thesis presents a prototype of mobile app concept that provides guided city tour in a form of augmented reality game based on Tampere city.

Key words: gamification-tourism-designing gamification-design thinking- game elements- design framework

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GLOSSARY or ABBREVIATIONS AND TERMS (choose one or other)

PBL Points, badges and leaderboards.

MUDs Adventure games, Multi-User Dungeon

MMORGP Massively multiplayer online role-playing games (MMORPGs)

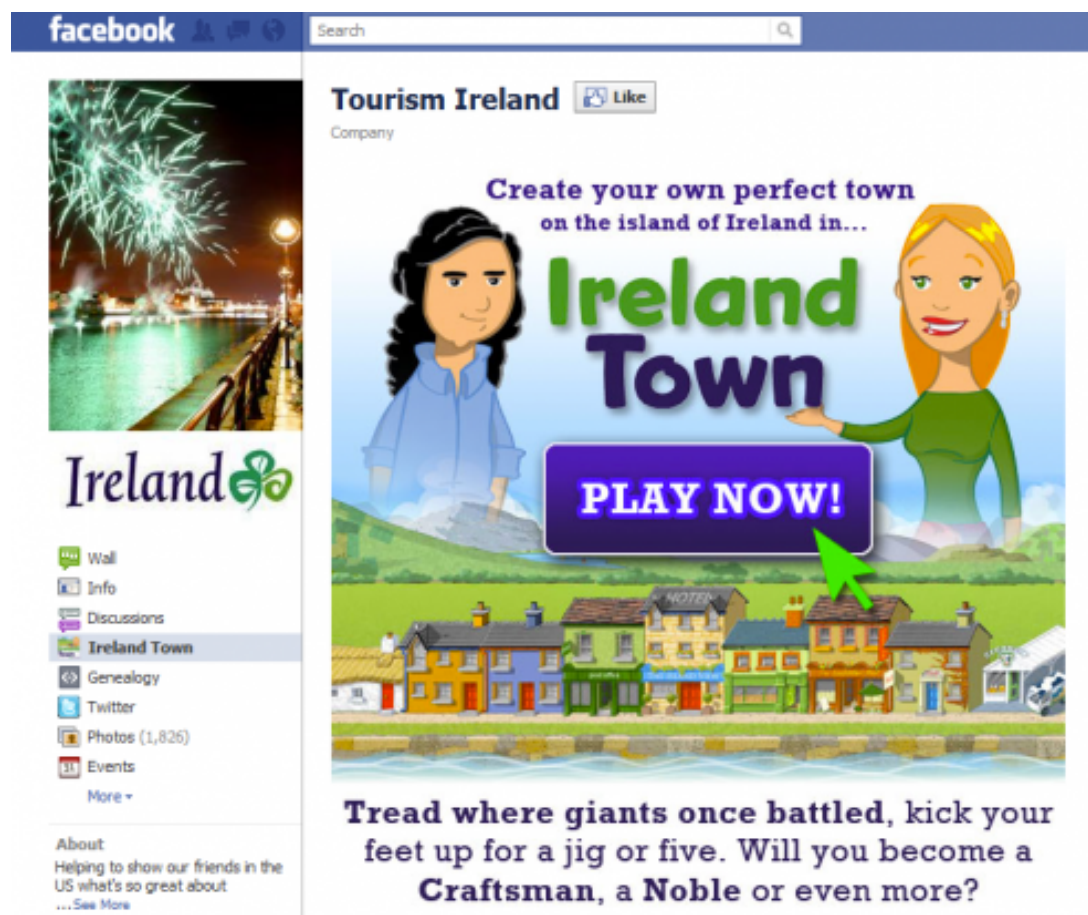
DAU Daily average users

MAU Monthly average users

1.Introduction and Background

“Gamification is the use of game mechanics to drive engagement in non-game business scenarios and to change behaviors in a target audience to achieve business outcomes.”
(Gartner)

Gamification in the tourism sector, considering by the intangibility nature of tourism, gamification can bring interactivity factor with potential for marketing. There are already many examples around the world that have designed tourism related games as found in Thailand, Capetown, Ireland and China.



Picture 1, Screen shot of Tourism Ireland Facebook page,

<http://www.viralblog.com/facebook-marketing/tourism-ireland-1st-social-game-on-facebook/>

Gamification is not complicated. it is a system that would be successful when it aligns with user's own goals therefore when someone's goals are matching with organizational or game goals, it amplifies and creates a win-win result.

2. Gamification thinking

There has been implications of gamification in different sectors in tourism. One of the best practices of gamification in destination tourism can be found in foursquare.com.

Only by checking-in at new places via foursquare app players can claim mayorships, receive special offers, unlock badges and accomplishments such as discounts to certain retailers and service providers while also competing against friends via a leaderboard only by checking-in at places.

http://www.academia.edu/6582152/Gamification_in_Tourism

The screenshot displays the Foursquare profile for Matt Owen, located in London, UK. The profile includes a profile picture of a blue cartoon character, social media links for Twitter and Facebook, and statistics: 198 Days Out, 431 Check-ins, and 3 Things Done. Below the statistics is a 'Tips' section with a 'To-Do List' and a 'POPULAR' filter. A tip for 'Matt's Manor' is visible, dated July 20, 2010. To the right, there is a 'Badges (14)' section with a 'See All' link, showing various achievement icons like 'Mayorship', 'Explorer', and 'Traveler'. At the bottom right, a 'Mayorships (3)' section is partially visible.

Picture 2, Screen shot of Foursquare website, <https://foursquare.com/>

2.1 Reasons for Gamifying

There are a few reasons that could explain why gamification could be beneficial; first of all, engagement with the environment could be significantly improved by using the app. Next giving varieties of choices to the player and progression as the player advances in the game will motivate the player to continue social interaction with others in the app.

-

2.2 Participants as Players

Players are the center of the game and everything in the game revolves around the players, this should be concerned all through the game design process so that Players feel a sense of autonomy and control. A game creates an environment that player feels autonomy and make users feel the freedom at play and have fun.

The goal is to get people into the game and keep them playing by creating an engaging game. (Kevin)

2.3 The player's path

The player's path is a conceptual journey that players go through it.

It should have a starting point, middle points and so on and these paths are in progression. Therefore players get from starting point to mastery level in a seamless pathway. (Kevin)

2.3.1 Onboarding

Onboarding is about how to get the player into the game as quickly and simply as possible.

Typical ways that get players easily onboard are guides in forms of explainer texts, highlighting certain elements to add visual clue, feedback to the player like well done

and etc., limited options so that there aren't many possible ways to get the job done or limiting obstacles in order to make it Impossible to fail on first stages of the game.

2.3.2 Scaffolding

Scaffolding is a phase in the process of gamification that starts after the player is familiar with the game and gets to know the necessary knowledge about mechanics and rules of the game or as the game designer in Tiltfactor, Max Seidman puts it "Scaffolding is a technique to ease players into gameplay through paced and staggered revelation of gameplay mechanics." Scaffolding is a very typical feature in games that make the player familiar with new features on at a time. Tutorials are the most common scaffolding techniques that show and explain the mechanics of the game one-by-one until the real gameplay starts. (Max Seidman)

2.3.3 pathway to mastery

Enabling player to achieve real achievement and skills. For example improving performance in a specific task or field of work.

2.4 Balance

A game needs balance throughout the whole game by testing the games and make sure the game is balanced otherwise the game will become boring or too difficult and players quickly loose their interests.

All different kind of balance should be considered into designing gameplay. For example not being too easy for one player or very difficult for another player.

Therefore, the game should be designed in a way either player could win. Balancing is fairly difficult to maintain as player's interactions are difficult to predict but by testing the game and observation it's possible to achieve a good balance approach. (Kevin Werbach)

3 Element of fun

Tapping on emotions in the games creates fun and fun makes games engaging.

Typically people find fun in, winning, problem-solving that gives the player sense having fun and being effective, exploring, chilling, teamwork via recognition by other or another thing, collecting, surprise, imagination, sharing, role playing, customization (Kevin Werbach)

But in order to apply the concept of ‘fun’ element to game design, there are more systematic approaches.

In section 3.1 and 3.2, two different approaches are going to be introduced.

3.1 Nicole Lazzaro’s element of fun

Nicole Lazzaro’s scientifically studied the element of fun in games with help of eye-tracking and other technologies and she came up with four keys to describe it:

1. Easy fun, casual, light, nice like chilling by the beach or gathering with friends
2. Hard fun: problem-solving, mastery, challenges, overcoming obstacles
3. People fun, working as team, socializing, being with others
4. Serious fun, collecting badges, meaningful causes, saving planet (The 4 Keys 2 Fun, Nicole Lazzaro) Xeodesign.com

3.2 Marc LeBlanc’s element of fun

Marc LeBlanc’s a game designer categorize fun in games in different categories:

- “1. Sensation, Game as sense-pleasure
2. Fantasy, Game as make-believe
3. Narrative, Game as drama
4. Challenge, Game as obstacle course
5. Fellowship, Game as social framework
6. Discovery, Game as uncharted territory

7. Expression, Game as self-discovery

8. Submission, Game as pastime” and a pleasant means of amusement

(Marc LeBlanc)

Players often associate games with fun but such a vague definition makes it difficult to come up with a single formula for creating fun in a systematic design. Nicole Lazzaro’s fun taxonomy shows that fun could be found in different activities with different approaches. Fun could be challenging or easy although a great game benefits from multiple types of fun.

Marc LeBlanc offers a more detailed and story-oriented approach for pleasing player’s emotional needs. His taxonomy offers more vocabulary to talk about fun in a much more instructive way as opposed to Nicole Lazzaro’s that explores fun in a wider category.

4 Game Elements

Game elements are the toolbox for making the gamified design, regular patterns like points, quests and etc. that are considered as bits and pieces that make the game.

The pyramid of gamification elements illustrated in picture 3 consists of dynamics, mechanics and component elements in the bottom of the pyramid.



Picture 3, the pyramid of gamification elements (Kevin Werbach)

<http://hubpages.com/games-hobbies/Elements-of-Gamification>

4.1 Dynamics

Dynamics are on the top of the pyramid that are called the grammar of game design, the hidden structure that makes the experience smooth and gives it a pattern. Dynamics consist of 5 elements: constraints, emotions, narrative, progression and social.

Constraints are the trade-offs and limitations that are needed to create well balanced components in the design process.

The drive of engagement is emotion. But players get different emotions from a same design. For example in video games one may be attracted to a third-person shooter game while another person is repelled by it. So it's important to understand that each individual interacts differently with a system.

The storyline that connects and narrates the game is called narrative. Narrative takes the player further into the understanding of the game as it develops and this progression can increase engagement.

Relationships-social aspect of the game either machine driven or human driven can create sense of trust, status or sense belonging and community which could be a powerful tool for user engagement.

(Kevin Werbach)

4.2 Mechanics

Various moves to get the game going forward from one state to another such as challenges, chance, competition, cooperation, feedback, resource acquisition, rewards are examples of mechanics in games. These basic components are the forces that keep the player interacting with the game and continue their journey forward. (Kevin Werbach)

4.3 Components

Components are specific instantiations of dynamics and mechanics that represent an abstract concept and by a concrete or tangible examples such as achievements, collections, social graph, combat, content unlocking, gifting, levels, avatars, points, virtual goods and badges. (Kevin Werbach)

The PBL Triad

The three elements of points, badges, leaderboards create PBL triad.

Points are a way of keeping the score and they can define winning, also, points can connect to rewards. Points can provide feedback how well you are doing in the game and make sure you are progressing within the game. Points can provide data for game designers. (Max Seidman)

Badges

Generally, badges in the games are representations of achievements.

The flexibility of giving badges for any reason signifies importance and is giving the player a positive answer that yes; this is what this game values.

Leaderboards

Leaderboards usually give players feedback on completion and highlight where they are ranking in the game compared to the other player using the platform.

Personalized leaderboards are designed to encourage players to improve their performance by tapping on their competition instincts.

5 Psychology in gamification

The core topic of gamification is motivation as the goal of gamification for encouraging players into doing specified tasks and desirable activities.

Motivation in gamification is driven by two main factors. Firstly, an external motivation that applies gamified elements into a non-game environment in order to induce extrinsic motives.

Next, motivational design and game thinking has a confirming effect on intrinsic motivation.

5.1 Behaviorism

Behaviorism is a school of psychology that studies the observable aspects of behavior that can be quantified but leaves out subjective phenomena, for instance, psychological features, emotions and motives. Also known as behavioral psychology. (Wikipedia)

Stimulus behavior consequences- learning

Observations of what people actually do and learn from it. When a person sees feedback on their action and sees a consequence it turns out to be a very powerful tool for gamification.

If a person sees a failure in something she or he tends to learn and make the association.

Watching what people do for instance it could be a great asset for improving the usability of the game. Also the importance of feedback, for example, a positive feedback in forms of sound, text or visuals could encourage the player to take certain action in the game.

Conditioning, In FarmVille player soon learns if they don't check-in often they lose their crop and the garden dies so through consequences players constantly check in Reinforcement through giving rewards and badges to tell the player they are on the right track.

5.2 Reward Structure in gamification

Game designer thinks deeply about what could be rewarded and the goal is to give player a set of meaningful choices and reward them.

In general, there are different categories of rewards that can motivate behavior.

Different categories of rewards Cognitive Evaluation

First category in cognitive evaluation could be tangible reward such as money vs. intangible reward such as digital badge or saying good job.

Rewards can come as expected or unexpected, unexpected rewards are very stimulating to the brain and produce dopamine.

Contingency, The list of things that player has to do in order get the reward and they could be categorized in non-contingent, engagement, completion and performance contingent. In task non-contingent reward system player gets the reward no matter what circumstances. But in the engagement reward system the reward is given upon starting of the engagement regardless of other factors. For example free virtual goods when starting a game for the first time.

Completion non-contingent is a reward that depends on finishing the task.

Performance contingent will reward the player when a great performance is achieved (Richard Ryan)

5.3 Reward schedule

Reward schedule refers to when a reward is offered.

Continuous reward is based on passing time and player get a reward only by spending a certain amount of time using the app/game.

Fixed ratio reward occurs when an activity repeats a certain amount of times, for example, collecting 50 virtual coins.

Variable rewards don't follow a certain pattern and bring an element of surprise for the user.

5.4 Limits of Behaviorism

If designers only use behaviorism as an approach they tend to think of players in an objective manner. Only mathematically constructing feedback, reward and punishment create a notion that hurts people's feelings and that is away from the notion that the player is a human being and center of the action.

5.4.1 Dangers of behaviorism

Behaviorism could be potential for abuse and manipulation especially for people who get easily addicted to it.

Designer must put many rewards in the game and quite often to keep player interested and as there is a danger the rewards get boring and repetitive, the designer must come up with whole bunch of new rewards with irregular patterns. (Kevin Werbach)

5.4.2 Overemphasis on Status

Status is a very powerful motivator for players. People would pursue status but are not constantly looking for the social status, if there is no a balance between gain and loss, the motivation will be reduced for most players.

5.4.3 De-motivating rewards

Over-justification effect:

The reward substitutes for the intrinsic motivation. If people try too hard to get the reward, there is the danger they aren't interested in continuing the activity just for the fun of it anymore. (Kevin Werbach)

6 Design Process

6.1 Design thinking

“Design thinking refers to design-specific cognitive activities that designers apply during the process of designing.” (Wikipedia)

Design thinking or gamification has a goal and is trying to achieve some objectives, therefore, is purposive.

Also, it's designed around people and everything should be designed for the players in a human-centered design.

Design thinking is about balancing between algorithms, formula and artistic, creative side and focusing in the middle where rules and fun meet.

The notion that the designer doesn't spend time on making the whole design of the game ready, for example characters, concept art, functions etc. Before testing the functionality of the game with a simple prototype given to test groups. After getting feedback from test groups it's easier for a designer to develop the functions in an early stage of designing the game. Testing with simple prototypes saves time when designer can fix the possible problems and add new ideas before making the final version.

7 Gamification design framework

Design framework is a method to apply the entire basic concept about gamification in the gamified design. Design is a process of attacking problems.

7.1 Define business objectives

Ultimate goal is to determine if a service or a game succeeds or fails, for example, business objectives. Such as bringing user and traffic to a website in order purchasing a product or enhancing employees work performance.

In order to catalog business goals and design a gamified system, one can make a list of goals and rank them with hierarchy then remove the ones that don't align with business objectives and aren't in the ultimate goal, in the third step is to justify them.

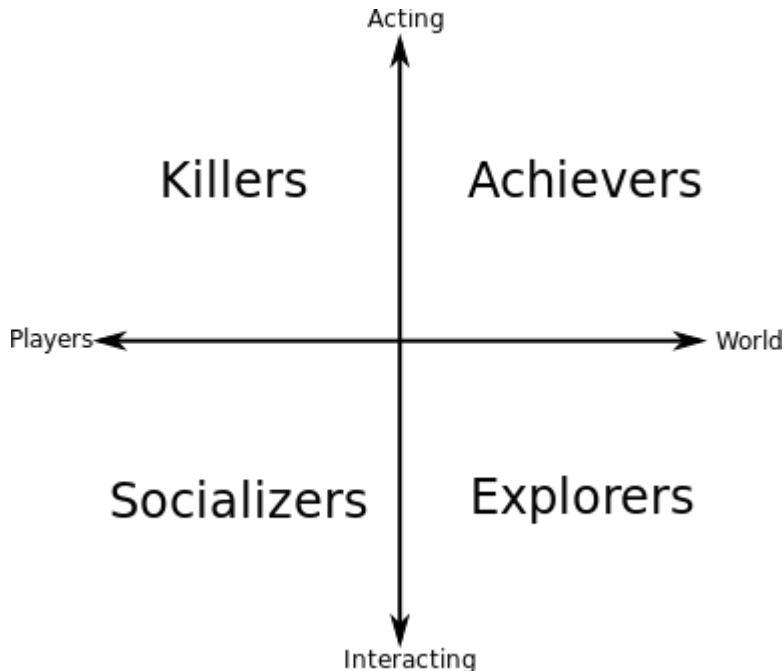
7.2 Delineate target behaviors

The first step is to be very specific about your objectives and make them clear, simple and directly specific as possible.

Next defining that what measure success in the gamification some of the measuring analytics such as daily average users (DAU) and monthly average users (MAU), Virality of the application that defines growth and volume of activity specifically engagement of the users with the game.

7.3 Describe Players

It's important to figure out what type of people are your target group and Bartle test is a series of questions based on a paper written by Richard Bartle in 1996 (Wikipedia, Bartle test) that categorize players of multiplayer online games into different classes based on their gaming behaviors.



Picture 4, The Bartle Test of Gamer Psychology,
https://en.wikipedia.org/wiki/Bartle_Test

“A person may score "100% Killer, 50% Socializer, 40% Achiever, 10% Explorer, which indicates a player who prefers fighting other players relative to any other area of interests.”

7.4 Devise Activity loops

7.4.1 Engagement loops

Engagement loops are usually designed for micro activity engagements in a design system. For example motivation leads to action, which causes feedback and then creates motivation and the loop continues.

7.4.2 Progression Loops

Progression loops are long-term designs, which can include a group of smaller challenges that are part of a larger and bigger challenge. They give the overall objective and then break it in small intermediate steps.

7.5 Don't Forget the fun

While your focus is on PBL system and systematic design for gamification it is important to remember this is something game like. Something people want to do because it is fun, engaging and has an element of surprise in it.

7.6 Deploy the appropriate tools

Once designer has gone through all other steps above you need to use relevant tools and gamification techniques to implement the most appropriate tools and keep improving it via testing to get the awesome result.

8. Criticism

One can argue that the initial common strategies for gamification are not fun and create a fake sense of achievement or encourage unintended behaviors.

While the initial common strategies of gamification are based on simplistic approaches such as award system and etc. still they can have a significant impact even in short term applications.

Gamification can find a good balance between fun and seriousness by adding expertise and skills of game designers in a constructive way.

A successful example of gamification is Foldit. Foldit is a collaborative game between University of Washington's Center for Game Science and Biochemistry department.

With more than 270,000 players competing with each other and trying to achieve a higher score "a Mason-Pfizer monkey virus, was modeled by gamers in just three weeks. The discovery will reportedly help researchers in their quest to treat retroviral conditions like HIV " (Times)

Gamification is just a tool that can enhance learning through fun and play and when the gamified system goals are aligned with player's personal motives then it can create useful results.

9. Guided Tour App prototype

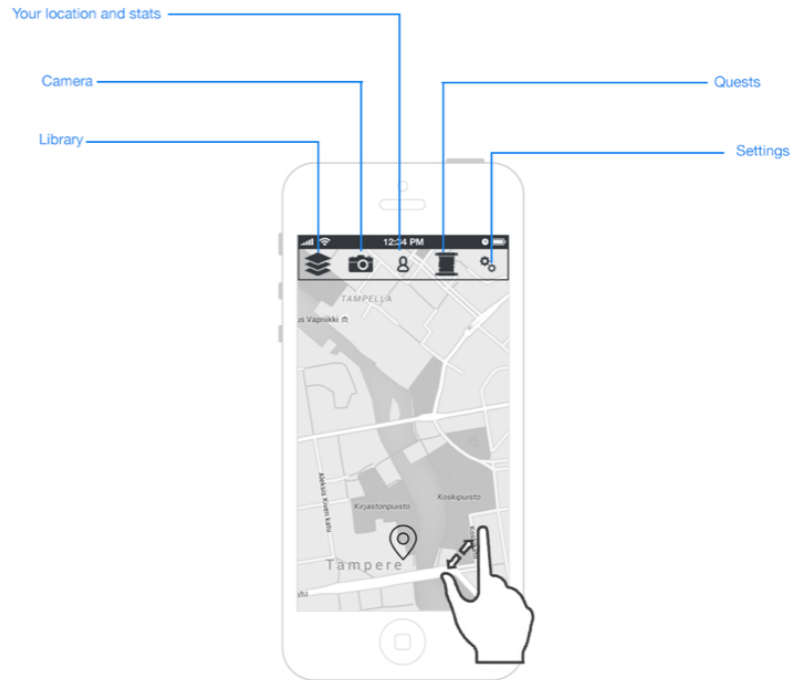
“Nook and cranny” is a guided tour mobile app that is designed to promote awareness in ecotourism and environment as well as introducing Tampere tourism potentials with help of e-tourism, sustainable tourism and responsible tourism principles and basic concepts.

Increasing wellbeing through physical activity of players is one the hidden side effects of the app.

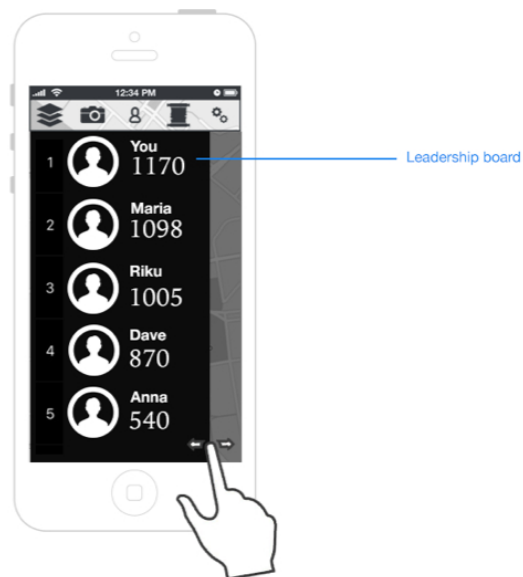
Reducing pollution by encouraging players to choose an environment friendly way of transportation.

Raising awareness of environmental issues and causes through the gameplay and scaffolding as well as promoting local, small businesses.

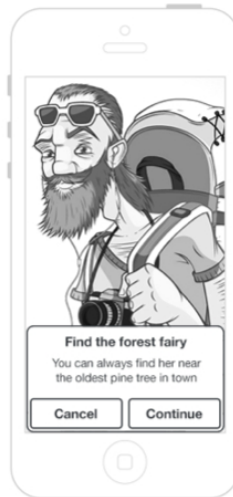




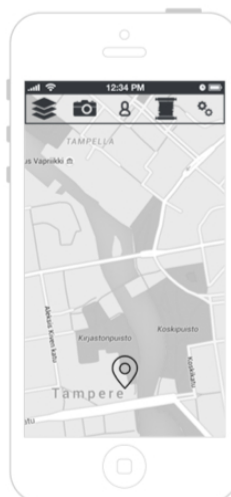
Picture 6, wireframe of the app showing basic features such as map, library, camera button, quest button and settings.



Picture 7, by swiping the screen to the right, user will access the leadership board, which shows how well the user is doing compared to the rest of the players.



Picture 8, Tom is your buddy tour guide, who pop up on the screen when user press the quest button and provides an itinerary, information and help for the next challenge.



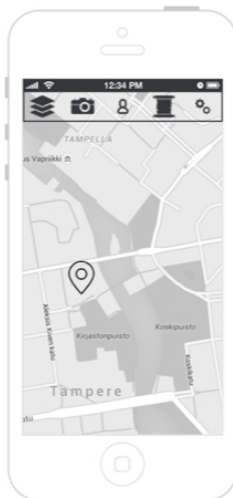
New quest available,
Go to the forest fairy base
pinned on the map

Picture 9, after unlocking a new quest the player should physically move to the location pinpointed on the map.



I've been waiting for you long time
my dear.
A young girl in the neighborhood has
got a rare skin condition and she is getting worse.
I need you to find these leaves and take it to her.
tell her to put them in a hot bath tub and lay there for a while.

Picture 10, when reaching the location the forest fairy appear on the screen.



New Quest available.
Find a leaf that matches
the description,
Put it on a white sheet or
plain background and
take a snapshot

Picture 11, Player need to find birch leaf. They are locations on the map with birch tree indicated as suggestions.



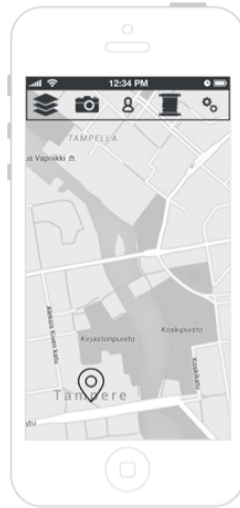
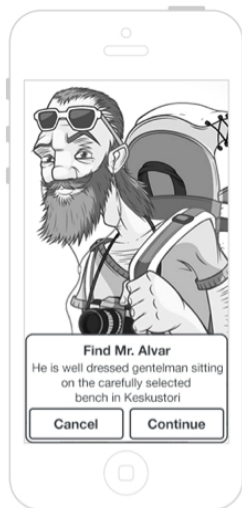
Find the birch leaf
 oval leaf with a rounded base and a pointy tip
 have edges, or margins, which are serrated.
 Fine hairs on the stems.

Picture 12, player takes a photo of a birch leaf and the app identify it.



Congradulations!
 You have found the leaf.
 The info will be added to the library for future references
 Now take the leaf to the patient to compelet the task.

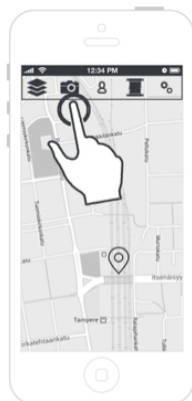
Picture 13, Mission accomplished. The player receives a badge and earns virtual points.



New quest available
Go to Mr. Alvar base
pinned on the map

How do you do?
For starters you may take photos
of these old locations.
Make sure the angles are matched,
precision and discipline
I value!

Picture 14, Player receive another quest, walk to the location and get guidance.



Get to the location
and press the camera icon
to activate the camera

You are one step away to complete the task,
use the opacity slider on left side of the screen and
match your photo angle exactly like the reference photo.

Congratulations!
You have unlocked photography quest.
Go to any of the 30 more photo points at any time
to earn more points.

Picture 15, player moves to the location indicated on the map and by moving the opacity slider matches his/her camera angle with the old photo angle and he earns points when completed.

References

Gartner, IT Glossary, Gamification, <http://www.gartner.com/it-glossary/gamification-2/>

Kevin Werbach, Gamification University of Pennsylvania,

<https://www.coursera.org/learn/gamification>

Picture 1, Screen shot of Tourism Ireland Facebook page,

<http://www.viralblog.com/facebook-marketing/tourism-ireland-1st-social-game-on-facebook/>

Picture 2, Screen shot of Foursquare website, <https://foursquare.com/>

Picture 3, the pyramid of gamification elements (Kevin Werbach)

<http://hubpages.com/games-hobbies/Elements-of-Gamification>

Nicole Lazzaro, Why We Play Games: Four Keys to More Emotion Without Story

http://xeodesign.com/xeodesign_whyweplaygames.pdf

Marc LeBlanc, http://8kindsoffun.com/Bartle_Test,

https://en.wikipedia.org/wiki/Bartle_Test

Picture 4, The Bartle Test of Gamer Psychology,

https://en.wikipedia.org/wiki/Bartle_Test

Max Seidman, SCAFFOLDING CHOICE: HOW TO EASE PLAYERS INTO A GAME'S CHOICES

Behaviorism, <https://en.wikipedia.org/wiki/Behaviorism>

<http://www.mostdangerousgamedesign.com/2013/09/scaffolding-choice-how-to-ease-players.html>

Wikipedia, Design thinking, https://en.wikipedia.org/wiki/Design_thinking

Xu, F., Tian, F., Buhalis, D., & Weber, J. 2013. Marketing Tourism via Electronic Games: Understanding the Motivation of Tourist Players 11-13.

FoldIt games, Matt Peckham, <http://techland.time.com/2011/09/19/foldit-gamers-solve-aids-puzzle-that-baffled-scientists-for-decade/>