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DIGITAL LOGOGRAMS

A Service System of narrative spaces and Game design for Chinese hybrid cities

This thesis is dedicated to my mother, who worked hard for me since the day that I was born, waiting and praying everyday for my future.

It is also dedicated to my father, who raised me smart and wise in this life, to bring out the best of me.

Index of contents

Index of Figures

Abstract

Shanghai is a modern environment in which smart technologies, innovative services and fast way of living coexist with tradition, local habits and slow living.

This thesis is developed starting from the design methodology behind the system of product-service design (PSSD) and the discipline of Game Studies, a multidisciplinary discpline, which is rooted in other fields of knowledge such as, among others, Literature, Psychology, Computer Science, Design.

In particular, the present dissertation is about the planning aspect defined by the discipline of Game Design, and the act of playing as spontaneous activity, always diffused. Albeit with forms and procedures that differ widely among them, the recreational activity turns out to be a social convention, rooted in the traditions and the human instincts (Huizinga 1938, Fink 1957 Caillois 1958). The research on the theoretical aspects of Game Design investigates the Urban Games and Pervasive Games, two kinds of games are particularly interesting for their inclination toward supporting of social change, a theme shared and meaningful considering the PSSD system. Statistics in recent years show that China today is experiencing an exciting period of technological expansion, involving local residents in the largest community of smartphone users in the world. From another point of view, you can see how the city is evolving according extremely tight rhythms, which often do not allow the population to adapt and evolve in a synergistic way with the city. The architectures now interact with people, creating a new way of living, halfway between the hardware and the software, an environment defined as City Hybrid (De Lange 2009).

Based on this analysis and my experience in Shanghai, I envisioned a system that can educate people like me, who feel lost in the city, with problems of understanding and communication, proposing a project based on the importance of communicating, supporting and promoting the Chinese culture, that could be hard to understand from a foreigner.

Estratto in lingua italiana

Shanghai è un ambiente moderno dove la tecnologia, servizi innovativi ed uno stile di vita frenetico coesistono con i ritmi più lenti di tradizione, abitudini e valori locali. Questa tesi si sviluppa a partire dalle metodologie progettuali alla base del sistema di prodotto-servizio di design (PSSD) e della disciplina dei Game Studies, una disciplina dal carattere multidisciplinare, che affonda le proprie radici in altri ambiti del sapere come, tra gli altri, Letteratura, Psicologia, Scienze Informatiche, Design. Seppur con forme e modalità che differiscono ampiamente fra loro, l'attività ludica risulta essere una convenzione sociale, radicata nelle tradizioni e negli istinti umani (Huizinga 1938, Fink 1957, Caillois 1958). La ricerca sugli aspetti teorici di Game Design indaga gli Urban Games e i Pervasive Games, due generi di giochi interessanti per la loro inclinazione verso il supporto del cambiamento sociale, tematica condivisa e significativa considerando il PSSD.

Le statistiche degli ultimi anni mostrano come la Cina oggi stia vivendo un periodo di espansione tecnologica, coinvolgendo gli abitanti locali all'interno della più grande comunità di utenti smartphone nel mondo. Da un altro punto di vista, si può notare come la città si stia evolvendo seguendo ritmi estremamente serrati, che spesso non permettono alla popolazione di adattarsi ed evolvere in modo sinergico con la città. Le architetture adesso interagiscono con le persone, creando un nuovo stile di vita, a metà tra l'Hardware e il Software, un ambiente definito come Città Ibrida (De Lange 2009). A seguito delle riflessioni e analisi svolte durante la fase di ricerca e sulla base dell'esperienza svolta a Shanghai si propone un sistema volto a educare giocando. Il target è costituito da individui che si sentono perduti in una citta caratterizzata da una comunicazione criptica per chi proviene da un sistema culturale differente da quello cinese, che genera problemi di comprensione e comunicazione. Il progetto proposto si basa sull'importanza del comunicare, facilitare e promuovere la cultura Cinese, che può risultare di difficile comprensione a persone provenienti da una realtà totalmente diversa.

This first chapter introduces the Game Studies and the process of designing a game.
I start directly with Game Studies, because I think that the Game is a delicate topic, and it can be easily misunderstood or also underestimated.

Since the discipline of Game Studies works in a very large area, involving different fields, I warn that I am going to touch just the topics that are interesting for my thesis, aware that they are only a small piece of a big world.

I will illustrate through examples of games, and analysis of texts related to the field, that became pillars for this discipline.

Chapter 1
Game Studies and Game Design
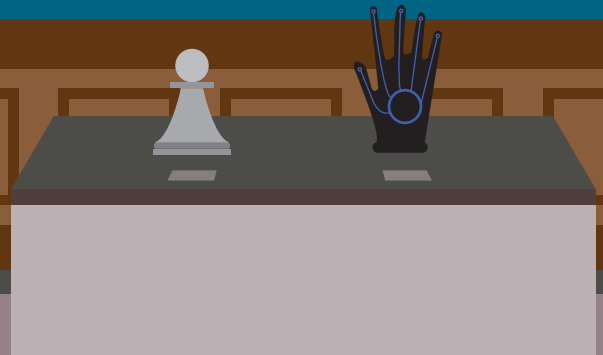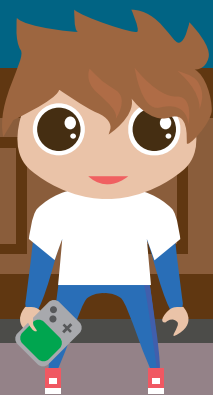
1.1   *The Game and the Play*

«A game is a form of art in which participants, termed players, make decisions in order to manage resources through game tokens in the pursuit of a goal.»
(Greg Costikyan, *I Have No Words & I Must Design*, 1994)

The interest in dealing with the "*game*" as a research topic is driven by the awareness that it is an integrant part of daily life, for both humans and other animals, as discussed by Dutch historian and cultural theorist, Johan Huizinga in his essay *Homo Ludens* ([1938] 2002).

The aim is to explore games as systems of experiences and pleasures, where experience is defined as knowledge, or skill of something, or some event gained through involvement in or exposure to that thing or event[1]. While pleasure is described as mental states that humans and other animals experience as positive, enjoyable, or worth seeking, as systems of meaning and narrative play, and as systems of simulation and social play.

In *Homo Ludens* the original act of playing is seen as a ritual, performed with naturalness, without a previous training on how it works. As briefly introduced before, a clear example is the act of playing of the animals' world: it is a natural behaviour, like when dogs try to catch their own tail keeping moving around. Those actions are comparable to kids' attitude in creating new games out of nowhere, a whole mechanism with rules that can be created just using their imagination (*Figure 1*).

Both humans and other animals have a creative mechanism that is rooted as a natural behaviour, bringing the idea that the act of playing is indirectly a need.

The concept of *need* is of particular interest: binding deeply with the multiple human needs, turns out to be complex and articulated, and requires a more detailed discussion.

To do this I refer to an American psychologist, "Abraham Harold Maslow", who studied and investigated the human needs, developing a graphical representation of the Hierarchy of Needs (*Figure 2*), a theory of motivations[2]: the hierarchy is often displayed

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1   *This statement is a comparison of various contemporary definitions given in the Oxford English Dictionary (2nd edition, 1989).*

2   *Maslow proposed the theory in his 1943 paper "A Theory of*

as a pyramid. The four lowest level needs are what Maslow referred to as deficiency needs, due to a lack of something and they need to be satisfied in order to avoid unpleasant feelings, to survive, and to move on to higher level of needs. The uppermost needs in the hierarchy are referred to *growth needs* and involve the desire to grow as an individual and fulfil one's own potential, to have challenges and achieves something special in your life or in the area of your specialization. Though everyone is capable of self-actualization, many do not reach this stage. This need is fully satisfied rarely.

It is possible to adapt the hierarchy's levels of motivation for gaming, as you can see, games, in many ways can help us to fulfil a good amount of these needs. Surviving skills can be compared to the *physiological* needs, the need of skills to survive against the odds.

The progress is compared to *safety*, the ability of going on with the story and making better choices during the game.

Figure 1. A husky playing with a white fox.

Figure 2. Maslow's Hierarchy of Needs compared to the Player needs.

SELF ACTUALISATION
ESTEEM
BELONGING
SAFETY
PHYSIOLOGICAL

create
achieve
socialize
progress
survive
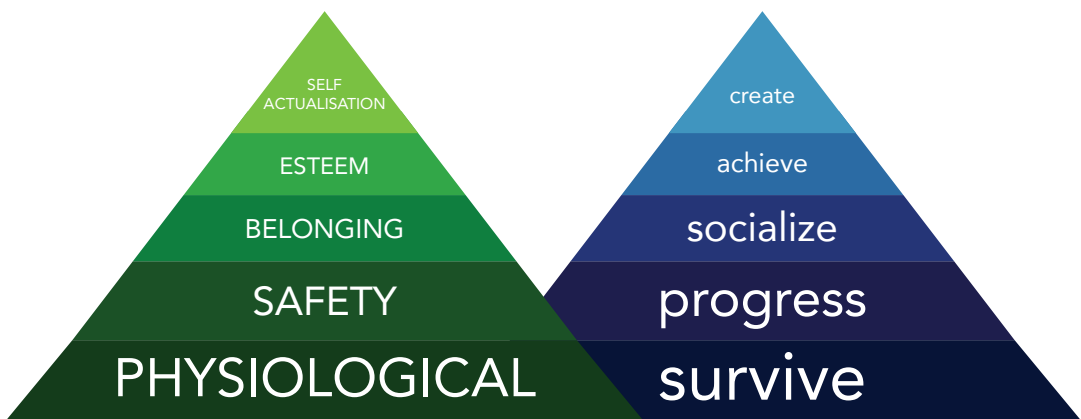
Belonging is represented by the need of socialization, especially since we entered in a networked era, where players can be easily connected to each other through the game.

Esteem is compared to achievement, a way to compare and compete indirectly, that can also define a player's relative social and progressive position within the game world.

At the top we have the *self-actualisation* needs, when players also become the storytellers and world builders for a game, then they can become truly invested in that game, giving them the possibility to influence the world of the game around themselves. One of the focuses of this dissertation is the learning process, which is based on the human ability to store knowledge; an ability also possessed by many other animals and some machines[3], that involves acquiring or modifying and reinforcing, new or already existing knowledge, behaviours, skills, values, or preferences, synthesizing different types of information.

An interesting example, is how the kids can actually self-learn how to play a game, through a more instinctive and basic kind of learning process; the way they interact with the game is generally natural, as though they're actually following a defined process for breaking down a game from the rules, in order to recreate it while learning how to play.

To understand better the play, we can refer to the definition that Huizinga presents In his essay *Homo Ludens* ([1938] 2002):

«Summing up the formal characteristic of play, we might call it a free activity standing quite consciously outside 'ordinary' life as being 'not serious' but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings that tend to surround themselves with secrecy and to stress the difference from the common world by disguise or other means» (Johan Huizinga ([1938] 2002) page 4).

As we will see later in this dissertation, *Play* is an open-ended territory[4] in which make-believe and world-building are crucial

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3   *An example of a machine capable of self-learn is the self-aware robot built by the engineer and biologist Hod Lipson.*

4   *An* **open-ended territory** *is a term used in the article, Playing and Gaming, Reflections and classifications, by Bo Kampmann Walther, 2003 .*

factors. Otherwise, games are confined areas that challenge the interpretation and optimization of rules and tactics, time and space.

At this point is important to understand what does *play* means. To do this I refer to what Huizinga said, on his essay, reporting briefly the five aspects that defined *play*:
- play is freedom;
- play is not "ordinary" or "real" life;
- play is distinct from "ordinary" life both as to locality and duration;
- play is order;
- play is connected with no material interest, and no profit can be gained from it.

French sociologist Roger Caillois on the basis of the theories proposed by Johan Huizinga, articulate an ulterior critical reflection, adding a comprehensive review of play forms.
In his essay *Les jeux et les hommes ([1958] 1961)*, he defined a game as an activity that must have the following characteristics:
- fun for the light-hearted character of the activity;
- separate because it is circumscribed in time and place;
- the outcome of the activity is uncertain:
- non-productive because the participation does not accomplish anything useful;
- governed by rules different from everyday life;
- fictitious because it is accompanied by the awareness of a different reality.

Game and play are two concepts really close to each other, nevertheless the first one refers to the artefact and the other refers to the act of playing a game.
This difference may appear obvious, but it plays a crucial role inside the discipline who studies games.
If we want to distinguish the difference between game and play we can refer to a definition reported on the essay *Rules of Play*:

«A game is a system in which players engage
in an artificial conflict, defined by rules, that
results in a quantifiable outcome. »
(Salen, Zimmerman, *Rules of Play*, 2003, page 80)

The discipline of Game Studies

Games are studied by an academic discipline called Game Studies that sinks his roots in various areas, social and not, dealing with the critical study of games and their practice. It can be applied also to cases that are not based on games activity; for example, a game can be used as media to transfer knowledge and sharing contents, but also stimulating reflection.

This topic will be mastered in the disciple of Game Studies, which tends to employ diverse tools and methodologies, from a variety of areas such as Computer Science, Psychology, Sociology, Anthropology, Philosophy, Arts and Literature, Media Studies, Communication, just to mention a few. The scientific discipline that which deals with the study of games is of recent birth. The discipline of Game Studies was born at the end of XX Century, from the '30s of 20th century the studies started to have a considerable shape, thanks to the works of first of Huizinga and then of Caillois, whom explored the importance of games and play as a basic human activity that helps define culture.

That is the reason why this discipline analyses also from a psychological point of view; the aim is to understand the deportment of the player; expertise from all the fields are needed to have a clear vision of the play experience.

Focusing on the experience it becomes necessary to linger on how it ties to the game, and especially to its design practice.

The game is not the experience, because we cannot plan something that is not real, we can design the game as an artefact that will enable the experience but not directly that.

Game designers work on what is real, as an artefact and its users, and that is why listening is one of the most important skill for them, the ability of learning through feedbacks from the testers and other designers.

If we look at how the game is performed, we can refer to Caillois, who argues that we can understand the complexity of games by referring to four play forms:

- **Agon**, or competition;
- **Alea**, or chance;
- **Mimicry**, or mimesis, or role playing;
- **Ilinx** (Greek for "whirlpool"), in the sense of altering perception.

The Pattern of Events

A specific way in which players interact with a game is the gameplay, which I refer with the term pattern[5], defined through the game rules.

If we need to consider those patterns we can refer to Christopher Wolfgang Alexander, an architect noted for his theories about design. In the 1979 he wrote the book *The timeless way of building*, where he proposes a new theory of architecture and design in general, that relies on the understanding and configuration of design patterns, where the perception of the same space is defined different from each user's point of view, creating an upper layer that goes beyond architectural elements, giving new shapes driven by the experience lived in the space.

A pattern is also the connection between the player and the game, challenges and the ability to overcome them.

In particular, the videogame[6] gameplay is distinct from graphics, and audio elements. The experiences help to understand easily the space, extrapolating a simple idea from a complex structure. Focusing on the perception of the space and the experience that you live in it, we can take as example, an architectural project, *L'arbre de Flonville*, desiged by Oloom and Samuel Wilkinson, situated in Lausanne's new Flon quarter in Switzerland. The project is the modern representation of a tree, based on the idea of central meeting point, which reminds familiarity, introducing dynamicity, and engagement with the users. The interesting parts of the project are the irregular roots which come out from the ground, creating a structures that can be freely used in different ways, creating a space where the function can be invented by the users and not predefined by the designer (*Figure 3*).

To understand what patterns are, we must know that are all interconnected to each other. Just as a language is a set of symbols and a set of rules for using those symbols, a pattern language is a set of patterns and a set of sequential rules, for using those patterns.

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5   A **pattern** *is a discernible regularity in the world or in a manmade design. As such, the elements of a pattern repeat in a predictable manner.*

6   A **videogame** *is an electronic game that involves human interaction with a user interface to generate visual feedback on a video device.*

Figure. 3 L'arbre de Flonville.

Just as an infinite number of one-dimensional sentences create themselves out of a language, an infinite number of three-dimensional pattern sentences, or buildings, create themselves out of pattern languages. When a set of patterns differentiate space in a way that treats a building as a whole, it is a successful pattern language[7].

I introduced the concept of patterns related to spaces because my thesis will concern the understanding of the city and how it is possible to use a language to communicate and educate people with a different culture and perception of the space.

In the light of this, it becomes important to understand how the PSSD relates on the urban and gaming field.

In this dissertation, I mean to deepen this aspect in the chapter 2, and to dedicate now in the analysis of games. The real deal about games, that makes them unique, is the feeling that players have while they play through decisions, for example, anger and happiness.

Other experiences, such as watching a movie or reading a book, provide the same amusement but users will be able to pause, stop the activity, or in some other cases to interact through secondary media, which however result limited, if confronted to the wide possibilities of interaction offered by the game.

The stories can be the side part of a game and also create empathy with the player, but they're not games.

That is because games should give to the player the possibility to choose freely different outcomes, but usually the stories with their plot will get to predefined conclusions.

An interesting example of decision making game is *Beyond*

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7   *A dissertation of the definition of pattern, proposed by Christopher Alexander in A pattern language, 1977.*

Two Souls[8], an interactive adventure game that tells the story of a girl named Jodie Holmes, a young woman who possesses supernatural powers through a psychic link to an invisible entity. Experience the most striking moments of Jodie's life as your actions and decisions determine her fate. As she traverses the globe, Jodie will face incredible challenges against a backdrop of emotionally-charged events. Its main feature is that the player can make mostly every decision in Jodie's life, creating different endings depending on the choices made. (*Figure 4*)

The key element of this game is the combination of storytelling and gameplay mechanics which makes the experience of playing similar to the experience of watching a movie.

Figure 4. The player must choose what Jodie should cook for dinner.

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8   *A videogame for the PlayStation 3 console, developed by Quantic Dream.*
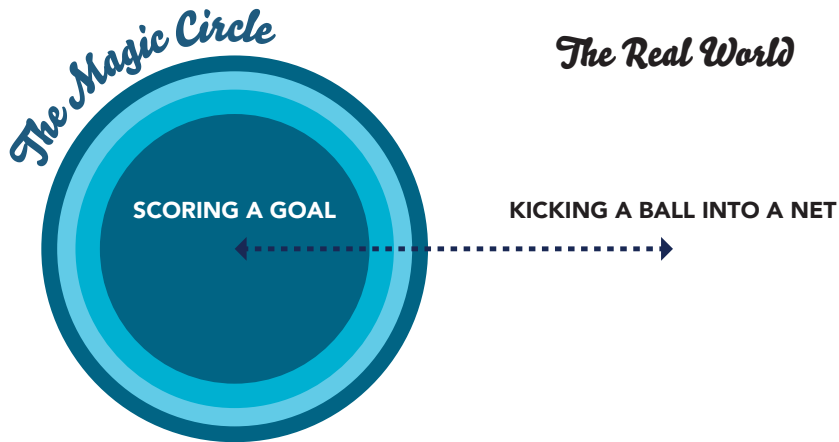
The Magic Circle

The Real World

SCORING A GOAL

KICKING A BALL INTO A NET

The Magic Circle

In *Homo Ludens* the author discusses about the possibility that playing is the primary formative element in human culture, introducing the idea that a boundary exists between a game and the world outside the game. This boundary is an immaterial space called *magic circle,* a term that appeared the first time in Homo Ludens, however it became used in the text *Rules of Play* (Salen, Zimmerman, 2003), where the authors reprised it, giving it more importance.

The magic circle can be identified as the place of dreams and fantasy. It is an escape for everyday problems and chores. And the most important: everything inside the magic circle is, in some way transformative; each time a person leaves the magic circle he brings meaning and experience[9].

All the play movements exist within a playground marked off beforehand, either materially or ideally, deliberately or as a matter of course. Just as there is no formal difference between play and ritual, the magic circle cannot be formally distinguished from the playgrounds, but is an anthropologic vision, based on the game at the dawn of the humankind (*Figure 5*).

The magic circle can be seen as temporary worlds within the ordinary world, dedicated to the performance of an act apart.

Through the reasons at the base of why do people play games, Game Studies mention the fun. The concept to all appearances, looks simple, indeed we need to go deeper into the analysis, in order to understand what it means to *have fun* while playing.

Many games require time, energies, effort, as much as doing a

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9   *From the essay Brazilian Ludic Interfaces, using game mechanics and entertainments for serious purposes, Vincente Martin Strocola, 2012.*

Figure 6. Phillip Toledano's Portraits of People Playing Video Games.

job, and above all, they can make us concentrated in what we are doing. If someone would ask us, what are we doing, a common answer would be, "we are having fun", and even if from the outward we provide a different image (*Figure 6*).

Therefore, the idea of fun is not really connected to the concept of "carefreeness", "fun" and "laughs", as we would expect at a first analysis.

The topic was dealt by Raphael Koster**,** an American entrepreneur and game designer author of the essay, *Theory of Fun (2004)* which explains how the fun[10] can be used as media to deliver results: websites like thefuntheory.com[11] gave birth to ideas and systems based on games, providing a sensitivity towards fragile topics as the pollution, safety drive and urban mobility.

The main purpose of the site is to give the opportunity to the people to propose ideas of how to apply the fun into the people's daily routine, improving the quality of life.

Some of the ideas published on the site, had a chance to be made real by the Volkswagen team.

An example of idea from *thefuntheory.com* is "The Speed Camera Lottery" (*Figure 7*), submitted by Kevin Richardson (USA).

The idea is to capture on camera the people who keep to the speed limit. They would have their photos taken and registration numbers recorded and entered into a lottery.

Winners would receive cash prizes and be notified by post and the winning pot would come from the people who were caught

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10   **Fun** *is the enjoyment of pleasure, particularly in leisure activities.*

11   *An initiative of Volkswagen, a site where users proposes ideas or projects dedicated to the thought that something as simple as fun is the easiest way to change people's behaviour for the better.*

Figure 7. The Speed Camera Lottery testing.

speeding. The reason of the success of *thefuntheory.com* was the easy way of engagement that game provides, transforming the everyday routine into a funny challenge or a way to enjoy simple gestures, like taking the stairs instead of the elevator, or sorting the waste.

The game is a medium that can lead human beings to more effective solutions for daily problems or large scale issues, like some examples that I am going to describe.

Puzzle games as "FoldIt" or "Folding@Home" for PlayStation[12] (*Figure 8*) brought to the biomedicine research results in a new level, reducing the developing time drastically; basically it was just a non-interactive program that allowed to share the power of the engine with other players in order to calculate formulas in shorter time than regular computers in the laboratories.

This was possible thanks to the challenge attitude of the players that contributed in sharing the minds, gathering data in quantities that research institutes would never reach even after decades.

This is not the only one way to apply Game Studies to a real world problem. We have other branches of this discipline that are now implemented in the business model[13] of companies, for example

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12   The **PlayStation** *is a series of videogame consoles created and developed by Sony Computer Entertainment.*

13   *A* **business model** *describes the rationale of how an organization creates, delivers, and captures value (economic, social, cultural, or other*

This protein is covered with clashes!
From now on, we'll hide the
sidechains that aren't too red. Pull
apart the backbone, but not too
much.

Repeat Introduction
Clear Labels

Figure 8. FoldIt screenshot.
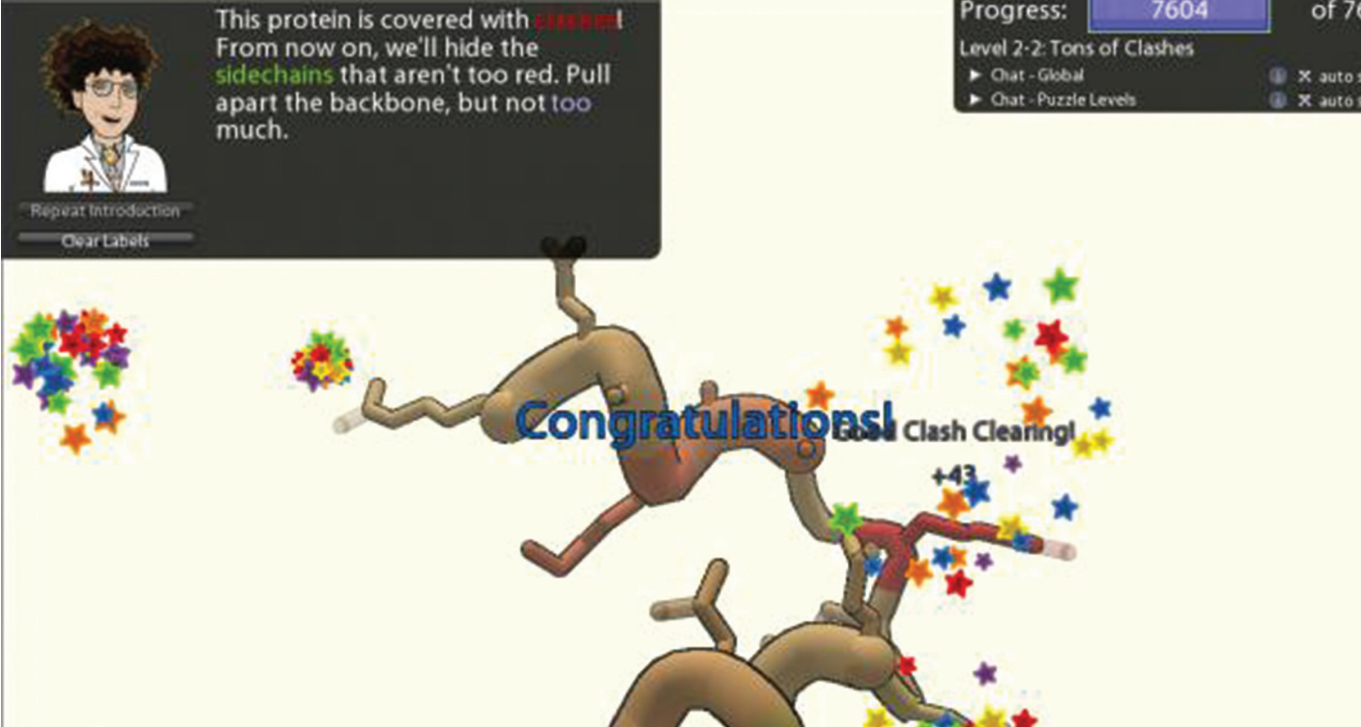
user interfaces use platforms similar to the game interfaces; elements as score, level up, badges are used in a branch called gamification.

Gamification is not the topic of this thesis, however I cannot exhume to explain it, even if shortly. Gamification is a technique that provides game thinking and game mechanics in non-game contexts to engage users in solving problems and leverage people's natural desires of competition, achievement, status, self-expression, altruism, and closure[14]. Those game elements stimulate the participation of the users, thanks to the instantaneous feedbacks and the players' profiles always updated with a score that shows the best performances of the players and sometimes it creates the feeling of challenge, thanks to scoring elements such as the leaderboards, which is used in some games to compare the scores between more players, instilling the need of challenge. A game is a system in which players, engage in an artificial conflict, defined as a simulation of contest of powers, where conflict can take many forms, such as cooperative contest, or a solo contest[15].

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forms of value). The process of business model construction is part of business strategy.

14   Zichermann, Cunningham Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps, 2011.

15   Salen, Zimmerman Rules of Play: Game Design Fundamentals (page 80).

27

Therefore we can define "game mechanics", as a series of rule constructs, which define an artificial conflict intended to produce a game or gameplay that combined with the design thinking, they embedded into a non-game activity a more fun and engaging interaction.

Games can give also a good reason and motivation to perform physical activities, or engage mental exercises with the health benefits given by playing games.

1.2   Game Flow

Is in the interest of my thesis, to touch the topic of *Flow*, since I am going to approach in another chapter, the delicate topic of learning, which includes aspects that can be related to this concept.
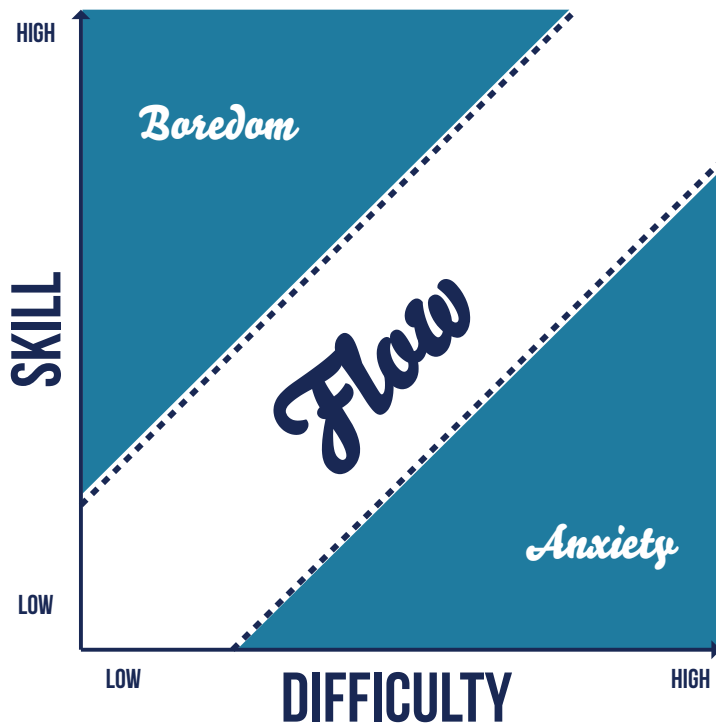
I cannot talk about Flow without mentioning Mihaly Csikszentmihalyi[16], who proposed the concept of Flow, defined as a feeling of complete and energized focus in an activity, with a high level of enjoyment and fulfilment, which grasps the sensation of oscillating between ecstasy, which actually means to lose oneself, and goal-orientation in playing (*Figure 9*).

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16   *Mihaly Csikszentmihalyi born 29 September 1933, is a Hungarian psychology professor.*

Game designers' main concern is to maintain the players into this state while they play games, creating a constant balance between boredom and anxiety; the reason of this concern is due the fact that gameplay is all about making choices, and in a poorly-balanced game, many of the choices available to the player are essentially rendered useless, because if one or more "dominant strategies" quickly emerge, limiting other strategies.

Usually in most of the videogames the difficulty of the game will increase depending on your actual score, creating a continuous challenge.

Players generally respond very negatively to games they find too easy or too hard, or repetitive, causing boredom[17].

All games run the risk of boredom for the player that reaches a point where the game experience is not presenting anything new. As an instance, kids that started to learn Tic-Tac-Toe,[18] (*Figure 10*) from the learning process, found the pattern of the moves and started to learn how to draw or eventually how to win. After that part the kids usually stop having interest on that game.

This kind of pattern is the key to define the self-learning process of the kids, they try it once without being taught, they make mistakes and then they learn.

Human brain uses most of its energy to decode those patterns, recognizing faces and associating them to emotions and feelings. The word *emotion* can mean several things. Most of the time, it refers to positive or negative feelings that are produced

*Figure 10.
Tic-Tac-Toe*

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17 **Boredom** *is an emotional state experienced when an individual is left without anything in particular to do, and not interested in their surroundings.*

18 **Tic-Tac-toe** *is a game for two players, X and O, who take turns marking the spaces in a 3×3 grid. The player who succeeds in placing three respective marks in a horizontal, vertical, or diagonal row wins the game.*

by particular situations. Emotions consist of patterns of physiological responses and species-typical behaviours. Most of us use the word *emotion* to refer to the feelings, not to the behaviours. It is behaviour, which has consequences for survival and reproduction[19].

There is also a learning part within games, because they teach how to solve a specific issue or improve a life skill through a pattern which leads to the Flow. Some games teach, even if not directly, how to relate with others; imagine some cooperative games, that will teach you how a team work is more effective than a singular good skill. Other games are about just showing a skill, but those create a challenge that activates the will to improve yourself.

Games can create a fictional environment around the players, giving them the awareness of physical selves immersed into it, often artificially. Immersion is not merely a buzzword, but also a state of mind, it means to be completely absorbed in a make-believe world. This fondness is born in childhood play, when very little is needed in order to enter a parallel universe. A stick makes one a knight, a hat makes one a cowboy. Kids can totally immerse themselves in a fantasy world with a minimum of props.

«By playing good games, we can easily get into an exhilarating *state of flow*».

(Mihaly Csikszentmihalyi, *Flow: The Psychology of Optimal Experience*, 1990)

Players' will is to become completely occupied with a task that perfectly matches their skills.

Massively multiplayer online role-playing games (MMORPG) are an example of how an illusion can be persistent and solid.

They are role playing games, where players assume the role of a character inside a fictional world, interacting with a community of other characters played by other people online. This genre of game creates the illusion of being part of a real world, emotionally and not physically, moving gradually the player's attention into it. The blur into the illusion is often obtained by the help of some

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19   *W.H. Calvin, Ojemann, G.A. Conversations with Neil's Brain: The Neural Nature of Thought and Language, Addison Wesley Press, 1994.*

visual forms like the avatars, a free self-representation of the player's body that extends the ego to the game experience; they can be three-dimensional in the virtual worlds or two-dimensional as icons related to the owners.

Players will be free to have an Avatar similar to the real selves or change totally their appearance creating new identities.

This topic is discussed regarding virtual communities; if you think about a simple user profile on a social network, you will not be totally sure of the authenticity of the information, and at the same time it could enable some people to gain more self-confidence about themselves, or teach them how to relate with others with a filter.

1.3 Games Uniqueness

Along with the fun (discussed in the paragraph 1.1.2) we should take in consideration also the *delight* of playing, meaning the feeling good because you mastered something with fun, you found a solution in the best way.

A good game designer should think that he is providing that delivers an input to the players, in order to trigger a thinking mechanism.

People will usually choose to play games which they are already good at, to reflect their strengths and give them the possibility to build a strategy in behalf of themselves.

What is designed to be entertaining for a specific person, can be really frustrating and boring for someone else, and vice versa.

A player's strategy will determine the action he will take at any stage of the game.

For strategy I refer to a complete algorithm for playing the game, one that tells a player what to do for every possible situation throughout the game.

Players build an ideal game based on their strength and weakness, and based on the needs, they will think about different play strategies depending on their mood and how they act in certain situations.

Marc LeBlanc, a designer of videogames, proposes eight values that represent people pleasure preferences for game[20]:

- **Sensation** is pleasure based on the use of the senses, it involves different tastes based primarily on the aesthetic of the game;
- **Fantasy** is the pleasure of imagination, regarding a world that doesn't exist or imagining yourself doing something or being someone else;
- **Narrative** is the unfolding of events that doesn't concern only a linear story but different ways of storytelling;
- **Challenge** is the core pleasure that starts from the need of the players to solve a problem;
- **Fellowship** is the pleasure of enjoying values like friendship, communities and cooperation;
- **Discovery** is finding something new, revealing new parts of

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20   *Schell, The Art of Game Desing: A Book of Lenses, 2008.*

the game or exploring the world;
- **Expression** is the possibility to express yourself, maybe creating something or customizing a part of the game;
- **Submission** is the pleasure of leaving the real world and entering into a more enjoyable one.

Richard Bartle is a British professor and game researcher, who proposed a Game's Chart *(Figure 11)*, a classification of players, ranking them into different categories[21]:

Figure 11. Richard Bartle's Game Chart.
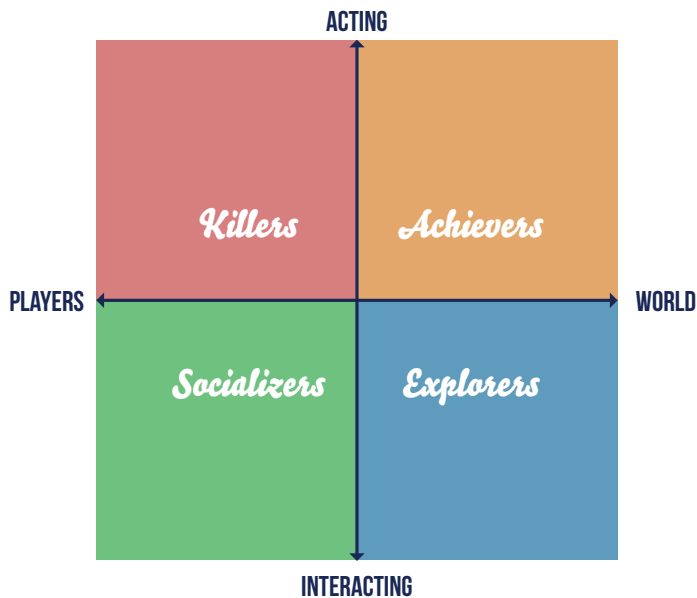
- **Achievers**, who aim at the challenges of the goals given by the game;
- **Killers** who love defeating other;
- **Socializers** who prefer to create a relation with other players;
- **Explorers** who enjoy discovering and go deeper into the game.

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21   Schell, *The Art of Game Desing: A Book of Lenses, 2008.*

I introduced the players' categories in this chapter because they are classification of users, which I will draw up in the chapter about the project.

We can consider also the players that cannot keep it up with the rules, because most of the people are willing to cheat, as a reflection of the lateral thinking[22] that is still a way of learning; indeed cheating itself is a way to achieve the goal, and it can be considered outside the rules as a winning strategy.

If a person remains in tune with a game, he will play it even more than he needs, because it makes him feel comfortable, he needs to be rewarded during this experience, giving to the brain the input to search a winning strategy for pleasure.

I introduced before the relationship between the learning process and games. Going further, the main feature that we should deal with is the creation of a variable that makes the game not predictable, without letting only the good players to advance, but also allow the other players to overcome the problems.

In the end, we can try to take in consideration the failure with a cost, warning the players to be prepared for the next time because it will be different.

If we reflect about the morality, playing a game can be a moment of self-reflection and exploration, because it illuminate aspects of ourselves that we did not understand fully.

People play games to maintain the control of their emotional state and mood.

I will list some positive effects that are attributed to the game[23]:
- games vent anger and frustration, taking out the feelings of the player in the world of games, using physical activities or fast actions;
- games cheer up, playing a game that keeps you out of trouble and reminds you that you can still have fun.
- players gain perspective, giving them some distance from the real-world problems, and letting the see the issues for what they really are;

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22   **Lateral thinking** *is solving problems through an indirect and creative approach, using reasoning that is not immediately obvious and involving ideas that may not be obtainable by using only traditional step-by-step logic. The term was coined in 1967 by Edward de Bono, a Maltese physician.*

23   *Jesse Schell, The Art of Game Design: A Book of Lenses, 2008.*

- players build confidence, giving to the player the feeling of accomplishment and mastery of some qualities, that will reminds them that they can still be successful, with a plenty control on their destinies;
- playing games relax, because games help to maintain our emotional health, giving us some non-connected activities to the real world.

The reason why I reported those good effects of playing, is because games, especially the videogames genres, have been accused for long to be a bad influence to the people, but I think that a good dissertation and a fair exposure of the topic, can demonstrate the opposite.

1.4 From screens to Real World

Talking about new technologies and innovation, it is really common to jump into the term *interface*; in this paragraph I will give to the term interface the formal definition, which includes any device or program which enables a user to communicate with a computer.

The interface is what we put between the player and the real world. It will have a physical input, like a device or a physical movement of the user, creating a physical output that can be shown, if we take as example the chess, the interaction is shown on the board game, or on the screen of a device if we consider a digital version of chess.

The interface's main goal is to give to the player a total control of his game experience; it is not only about a fluid and beautiful graphic, those are added value that can be implemented later in the game development process.

The experience of playing a videogame is usually rated using different parameters, such as gameplay, graphic, story.

Behind this evaluation the game developers worked on delivering the experience taking in consideration the user, designing also new ways of playing.

We started by holding big game controllers[24] while looking at big monitors, and now we ended with moving our own body freely, with a device that will detect every movement, removing the limitations that we had with the controllers, and giving a more instantaneous response.

Talking about new interactive ways to play, and the evolution of the game technologies during the decades, I report an interesting statement from *Space Time Play*, after exposing an experiment where a 14 years old who suffers from epilepsy, played a videogame using only the signals from his brain, a unique experiment conducted by a team of neurosurgeons, neurologists, and engineers at Washington University in St. Louis has found:

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24   A **game controller** *is a device used with games or entertainment systems to provide input to a videogame, typically to control an object or character in the game. A controller is usually connected to a game console or computer by means of a wire or cord, although, since the mid-2000s, wireless controllers have become widespread.*

Figure 12.
Screenshot of a guild
in World of Warcraft.

«The mind interacting directly with things outside the body
– this is a dream of humanity, of course. On the other hand,
there might be a reason why God gave us fingers. »

(Friedrich von Borries, Steffen P. Walz,
Matthias Bottger, *Space Time Play*, 2007, page 93)

The fact that I reported this statement is not a critic, but a stimulus to reflect, on what we are able to do now, but also to not forget what we were already able to do before.

The digital communities

The main title of the paragraph, mentions the term "real world", that we can relate to the space where we are living physically, and not any kind of simulation of it, however this definition doesn't imply that a fictional world is not inhabited by real people.
I take as example a virtual world, *World of Warcraft* created by Blizzard Entertainment[25], which is a Multi Massive Online Role Playing Game, played online, that can be played alone or with a group of other players connected to the World Wide Web (*Figure 12*). This game in particular is a good example of community online, where the main goal is to complete the quests, to obtain

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25   **Blizzard Entertainment, Inc.** *is an American videogame developer and publisher founded on February 8, 1991, under the name* **Silicon & Synapse** *by Michael Morhaime, Allen Adham and Frank Pearce.*

new quests[26].

Is in my interest to at least introduce the term of community online, to avoid further doubts, especially about the definition of communities, that I will pick up later, in the next chapter.

A virtual community is formally defined as a network of people, who communicate with one another and with an organization through interactive tools such as e-mail, discussion boards and chat systems.

Considering this definition, the game itself, in this case *World of Warcraft*, became the interactive tool for the players to communicate with each other.

Virtual worlds are usually in the middle of discussion, because of their delicate bound between reality and videogames, and how they could influence the player in the real world (*Figure 13*).

The unassailable fact is that players in the virtual worlds are productive, because the system is made to provide jobs and missions to any player, and the main goal of the game is to accomplish those tasks in order to receive new task.

Speaking metaphorically, we can say that virtual worlds such as *World of Warcraft*, solved the problem of unemployment, providing a job to everyone who join the community.

Figure 13. A screenshot from the movie Ben X directed by Nic Balthazar, a film about the exploration of ethical and social values of virtual realities.

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26   *In mythology and literature, a* **quest***, a journey towards a goal.*

User experience in games

The text *Designing Interactions* (Bill Moggridge, 2007) treats the story of videogames and their digital supports evolution during the last decades. They saw a radical change driven by new methodologies in the process of designing, the Product Service System Design calls them *design thinking*.

For example, the introduction of design thinking transformed elements like the space at work, in order to create a more creative and constructive environment, offices were turned into living rooms to host also kids, giving them the task to create their own games, encouraged and guided by design professionals..

This development process is called Co-design, it encourages the blurring of the role between user and designer, focusing on the process by which the design objective is created.

Co-design believes that by encouraging the trained designer and the user to create solutions together, the final result will be more appropriate and acceptable to the user.

Another interesting approach came from some factories that encouraged every single worker to play and contribute, rewarding them.

This confirmed that a more human-oriented approach was introduced in the creation of games, directly in the design thinking process. This approach allows the future users to give feedbacks about what they think and what they need, moving game designers forward into a new way of envisioning a game, designing games around the users. This new kind of design approach has brought an amazing change in the way of playing. You can see how Nintendo[27] made it with the Nintendo Wii[28], introducing the human body as a controller itself. Not only gameplay changed, but a definition of target and game situations were exploited, so we have now games for parties, fitness and training your mind constantly (*Figure 14*).

The game influenced the way to train and practice uncommon skills, just think at the flight simulators for pilots, or the online tests for driving license.

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27   **Nintendo Co., Ltd.** *is a Japanese multinational consumer Electronics Company headquartered in Kyoto, Japan.*

28   *The* **Wii** *is a home videogame console released by Nintendo on November 19, 2006.*

Figure 14. Nintendo Wii used for playing simulated sports.

Designers took advantage from one of the natural approaches that human being has towards the game, making "playing" as the best media to achieve a result.

Simple screen managed in a playful way to deliver the same amount of serious information, but in a more understandable way, because in front of a game, some mental barriers are not raised and the mind can work more relaxed.

Games are slowly getting merged with non-game activities, thanks to the user centred design process, where the needs, the wants, and the limitations of end users of a product, a service or a process, are given extensive attention.

We have a flow of information that moves in loop, inside the game, from the player to the game and from the game to the player. This flow generates experiences while it passes his information, but the information should be filtered and they cannot be just random data.

The kind of information is important because it will dramatically affects the player's experience, leading him to the next move.

Those information delivered to the player are generally called feedback, and they can influence the understanding and enjoyment inside the game.

Playing a game or working without feedbacks can be frustrating. Also slow reactions from a system can give anxiety and stress to the user. A "juicy" interface is capable to give continuous feedbacks and various type of rewards at the same time; this is possible thanks to second-order motions that are coming from the player's actions.

Good feedbacks can show the user quite clearly that their actions can make a difference, triggering all kind of pleasure, like the satisfaction of having done something useful, the pleasure of purification, and even having a secret knowledge that other cannot see.

1.5   Pervasive Games

My research aims to deal with the pervasive games, because I believe that a game genre like this is more suitable if I design a game for the city[29]. Pervasive games are a type of game where an extension of gaming experience is acted into the real word, from the living room to the streets, a game genre where the traditional boundaries of game are explored outside their limits. The limits are defined as *spatial*, *temporal* and *social*, but breaking them is just the systematic approach to make a pervasive game.

Pervasive games unlike other game genres, have attributes such as time and space not defined, expanding the ambiguity they can transform any action or observation of the player into a part of the pervasive game. An attribute that Pervasive Games have is the spatial expansion, a possibility to enlarge the perceived space dedicated to a person or an activity. Pervasive Games create a connection between different spaces, like the physical space with the digital place, increasing the possibility to use both as a playground. Playgrounds can be merged into activities that include public spaces and reactions from people that are not players. Temporal expansions ties with social expansions, players are often not aware if they're still playing, transforming any action into a game action until the game is over. Social expansion gives the possibility to players to interact with non-players, transforming them into spectators or participants. Pervasive games influence the ordinary life of a player in a direct way, making decisions in real life and creating a social impact with other players. This definition is a framework that decides what makes a game pervasive or not, without attempting to distinguish in an exact way regular games from pervasive ones. Specific requirements such as technological devices are often used into the expansion of playground. A type of pervasive games are the cross-media games, which are played through devices or other media channels, but they are still engaged in the reality, creating a hybrid pervasive game.

Mobile computing devices are used by the players to move through the real world; current environment and context will be tracked by the device, changing and delivering the game

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29   For this paragraph I take as a main reference the text *Pervasive Games: Theory and Design* (Markus Montola, Jaakko Stenros, Annika Waern, 2009).

experience according to the location. An additional level of interactivity is to let the players show their activities and also share with the other players the feelings about doing it, unchaining the players from the console in their living rooms. The potential of pervasive games is the possibility to play every day and everywhere in the world. Technically pervasive games are related to connectivity, which in my opinion can be defined as a specific category of game represented by the term wirelss games. Stakeholder of those games might be the mobile market that can deliver this format. Pervasive games are equally exciting from a research viewpoint, because they open the door for new technical and human challenges. There are already various ways to design pervasive games in real world, for example the reinterpretation of the computer games, a process that transfers a digital world into reality, mapping them onto real-world settings, so that players have to physically run, in order to control their avatars, for example *Zombie Run*, which is an applet game that allows the player to practice jogging and at the same time the game will track his path, creating a story, related to his speed and position in the city. The players called runner will be able to transform the act of jogging into a competitive and intriguing zombie story, that will adapt and change the more they will run.

Some pervasive games focus strongly on building social interaction between players, or with the audience close to them. Touring artistic games, for their part, combine players on the streets of a city with those who are online in a parallel virtual city, requiring them to exchange perspectives. For example *Can you see me now?* is a location based game developed by *Blast Theory*, where online players compete against members of Blast Theory on the streets. Tracked by satellites, Blast Theory's runners appear online next to your player on a map of the city. On the streets, handheld computers showing the positions of online players guide the runners in tracking you down, with up to 100 people playing online at a time, players can exchange tactics and send messages to Blast Theory.

Pervasive Games based on technology are usually built around three main requirements:

1. *Displays* that can make digital content available to players as they move through the physical world, including mobile phones, handheld computers, earphones, wearable devices, interactive projections and tangible interfaces that are

DISTRIBUITION

PERSISTENCE

P.G. possibility space

MOBILITY

TRANSMEDIALITY
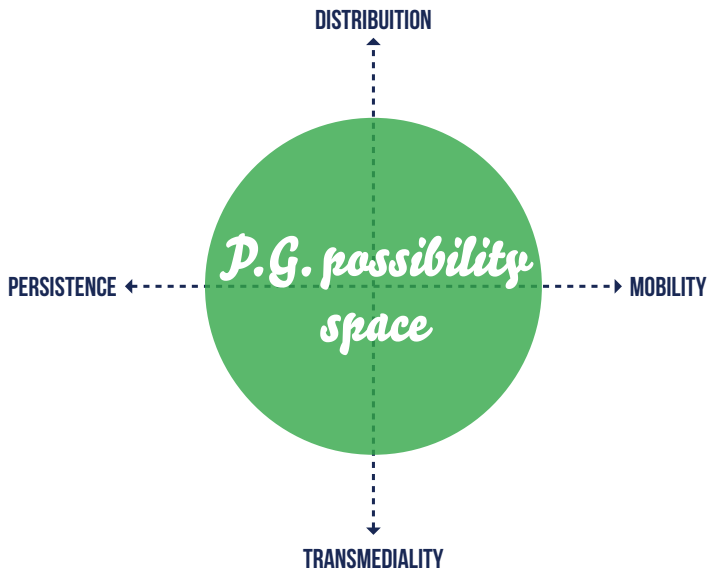
embedded into the surrounding environment.
2. *Wireless communications* that enable players to communicate with remote servers and other players.
3. *Sensing technologies* that capture players' contexts, including positioning technologies, such as GPS, cameras, microphones and potentially even physiological sensors.

Pervasive games can be graphically represented by four axes (*Figure 15*), which mark the possibility space of pervasive gaming. Those axes are:
- **Distribution** of information in the networks, the junction between the technologies and the digital environment;
- **Mobility**, as the network mobility and the user mobility;
- **Persistence**, is the possibility to offer the game anytime and as long as possible;
- **Transmediality**, that enables the average citizen to participate, giving an active role to the user.

At the beginning of the 21st century, a new concept came out, the idea of physical space filled with electronic and visual information. The previous icon of the computer era, a Virtual Reality[30] user

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30   **Virtual reality (VR)**, *sometimes referred to as* **immersive**

Figure 16. Rider Spoke.

travelling in virtual space, has been replaced by a new image, that of a person checking her email using her smartphone at the airport, on the street or in any other actually existing space.

But this is just one example of what is seen as a larger trend[31], technological applications that dynamically deliver data to, or extract data from, physical space. This blend of technologies combined with the location-based one and often public nature of gameplay, gives pervasive games their distinctive identity.

The challenge for game designers is to be explicit with the locative relationships they create, and to clearly communicate those choices to the players. It might be said that good locative decisions become *transparent* during the gameplay, as players can easily understand the relationship between where they are and what they are doing. An example of Pervasive Game is Rider Spoke (*Figure 16*) developed by Blast Theory (see Case Studies chapter).Poorly designed and uncleared locative decisions will frustrate and potentially alienate players.

I analysed the perception of the space in the city, in order to have some examples of how it is possible to learn from the city:

- The visitor's awareness can teach them about the city.
- The landmarks such as historical sites or inspirational places can teach through the city.
- The citizens' knowledge to solve the problems can teach the new arrived how to live in the city.

In the hybrid city concepts, the people interact with the city and vice versa, but since I would like to provide also a tool or method to gain information and understand, I can consider the possibility to learn directly from the city.

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multimedia, *is a computer-simulated environment that can simulate physical presence in places in the real world or imagined worlds.*

31 **Trend** *defined as a general direction in which something is developing or changing.*

1.6 *Narrative Spaces*

I would like to take in consideration the local stories and tales, because they have been shared in every culture as a mean of entertainment, education, cultural preservation, instilling moral values. A particular phase of the design process is called storytelling and it is used to facilitate the understanding of an idea. Storytelling is the conveying of events in words, and images using stories elements such as plot, characters and narrative points of view.

Let's consider game magazines: they describe the gameplay experience easily with a map of the game world, instead of using the narrative part of it; in my opinion the reason is because each media of information in most of the cases needs a particular part of the game to let the user understand it.

«A good story hangs together the way a good jigsaw puzzle hangs together. When you pick it up, every piece locked tightly in place next to its *neighbors*»
(Adams, Space Time Play, 1999, page 58)

«The story element is infused into the physical space a guest walks or rides through. It is the physical space that does much of the work of conveying the story the designers are trying to tell [...]. Armed only with their own knowledge of the world, and those visions collected from movies and books, the audience is ripe to be dropped into your adventure. The trick is to play on those memories and expectations to heighten the thrill of venturing into your created universe»
Don Carson, former Senior Show Designer at Walt Disney (Salen and Zimmerman, *The Game Design Reader*, 2006, page 674)

«The player's participation poses a potential threat to the narrative construction, while the "hard rails" of the plotting can overly constrain the "freedom, power, *self-expression" associated with interactivity.* »
(Adams, *Space Time Play*, 1999, page 58)

The game world can be seen as a place to gather memories and information; at the same time in the real world, public spaces can be related to different interpretations, changing meaning for each person that lives the environment in a new layer; for example a
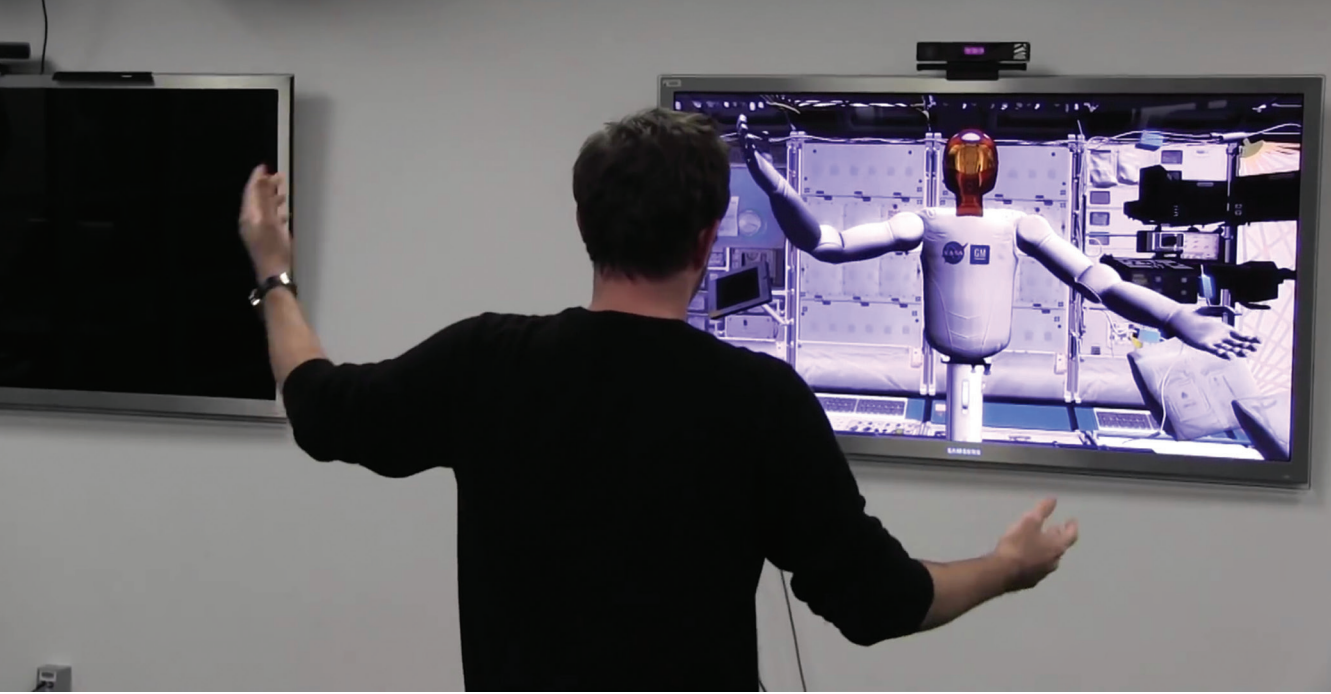
bench in the park can be a place to read, while for others it can be useful to have lunch or to sleep. I found interesting the relationship between space and game and how this notion evolved during the time. In particular the conception of the *game inside a box*, for example a computer or a console, evolved during the decades, considering the environment of the player.

Considering now the space around us, as a part of the game. If we talk about portable consoles, we will mind about a comfortable place to sit and play, but nowadays we will think about a bigger space around you to move freely.

In the new generation of videogames, the game is not only located into a box, but your body is part of it, for example the new generations of game platforms (like Nintendo Wii,PlayStation Move, Kinect, Oculus Rift[32]) can detect the human body

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32   **PlayStation Move** *is a motion-sensing game controller platform by Sony Computer Entertainment (SCE), first released for the PlayStation 3 (PS3) videogame console. Based around a handheld motion controller wand, PlayStation Move uses inertial sensors in the wand to detect its motion, and the wand's position is tracked using a PlayStation webcam.* **Kinect** *is a line of motion sensing input devices by Microsoft for Xbox 360 and Xbox One videogame consoles and Windows PCs. Based around a webcam-style add-on peripheral, it enables users to control and interact with their console/computer without the need for a game controller, through a natural user interface using gestures and spoken commands. The* **Oculus Rift** *is an upcoming virtual reality head-mounted display. It is being developed by Oculus VR, who have raised US$91 million, of which $2.4 million was raised with crowdfunding via Kickstarter.*

reactions and movement in front of a camera, giving the player the opportunity to use more natural movements instead of just pressing a button.

Those new technologies were so innovative and efficient that also non-game related fields were affected, re-using the technology and giving it new functions like creating augmented reality, as a live copy, view of a physical, real-world environment whose elements are augmented by computer-generated sensory. (*Figure 17*) This conception was already clear when the first dancing arcades came out (Dance Dance Revolution[33]), putting the owners in the condition to change the environment of the place, according to show off solution.

I report an interesting case study from the text *Space Time Play* (Friedrich von Borries, Steffen P. Walz, Matthias Bottger, 2007) a text that talks about architecture, inside the game and the logic inside, different kind of experiences depending on logic of the game.

«REXPLORER is a mobile, pervasive spell-casting game designed for tourists visiting Regensburg, Germany.
The game uses location sensing to create player encounters with spirits (historical figures) that are linked to historical buildings in downtown Regensburg.
A novel mobile interaction mechanism of "casting a spell" (making a gesture by waving a mobile phone through the air) allows the player to awaken and communicate with a spirit. The game is designed to make learning history fun for young (and young at heart) tourists and influence their path through the city.
The gesture recognition process is supported through camera-based motion estimation. As motion samples are collected, they are rendered on the screen, allowing players to see their gesture progress.
At the end of the game, users are presented with a

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33   **Dance Dance Revolution** *is a music videogame series produced by Konami, is the pioneering series of the rhythm and dance genre in videogames. Players stand on a "dance platform" or stage and hit colored arrows laid out in a cross with their feet to musical and visual cues. Players are judged by how well they time their dance to the patterns presented to them and are allowed to choose more music to play to if they receive a passing score.*

Figure 18. Google Glasses interface.

souvenir blog[34] customized to show their personal experiences in the city. The blog includes an interactive map to indicate their path through the city and highlight points of interest that they visited.»

Augmented Reality has the problem of budget and precision of a project based on real world; mapping the real world and creating an overlapping layer made by added information is the main challenge, but technologies such as Oculus Rift or Google Glass[35] are trying to fill the technological gap that we had the last decades. (*Figure 18*)

The quality and experience are not always at the same level, but *Space Time Play* reported an interesting theory that came out from this relationship between videogames and architecture.

«The "mental landscape" concept. In a word, "mental landscape" refers to the fact that architects of the new

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34   A **blog** is a discussion or informational site published on the *World Wide Web and consisting of discrete entries ("posts") typically displayed in reverse chronological order (the most recent post appears first).*

35   **Google Glass** *is a wearable computer with an optical head-mounted display (OHMD) that is being developed by Google. It displays information in a smartphone-like hands-free format that can communicate with the World Wide Web via natural language voice commands.*

generation are working to make an architecture that draws upon certain aspects and characteristics of the virtual world. *More specifically, architects "born with computers" are trying to spawn a new era of architecture that incorporates some of the mutable and interactive characteristics of electronic environments in general and electronic games in particular. For them, the importance of virtuality and information technology lies not in how they can help create newer, better virtual worlds, but in how they can be returned to materiality and inspire a new type of architecture»* (page 398)

Space Time Play is a good source of case studies in the videogames field; it is inevitable to talk about technology and future applications in this, not only because there is a trend about new interfaces and way of playing, but also because there are big opportunities that we should consider. Communities are not bounded anymore in those games, they have multiple access possibilities and the way of sharing is both real and digital. Maybe we should redefine the term *real*, because digital is now part of his meaning. Millions of people repeat the same daily routine, going to work, having a break in the same park, eating lunch in the same bar, every day the same experience. Routine is sometimes stressful, because it is a sequence of actions regularly followed by a fixed program, and to direct the stress we usually try to relax with some entertainment, as books, games, chatting

with someone *(Figure 19)*. My research aims to explore how the space is perceived by the people inside of it. Considering the space in the game, nowadays we have short term games, which can be played for few minutes anywhere on your mobile just to pass the time, as crosswords on the newspaper, but sometimes the game can be so addicting that the player needs to cut out some time to play, without considering the circumstances around him. That is a reason why the versatility of a smart device in doing multitasks transformed it into a platform to play games on, switching in any situation from doing any activity to playing a game and vice versa.

1.7 Interaction and Play

«I think one of the reasons why games have led the way in interaction design in some respects is because the objective is to have fun. There's not a productive outcome, so all of the seriousness that we bring to work is not present in the design of these things. »
From an interview of Brenda Laurel
(Bill Moggridge, *Designing Interactions*, 2007)

When you think about how the players approach a game, it is important to consider the reason that leads the players to choose some kind of game in a certain age.

Classifying the players by age, we can define general reasons for playing, and even if I'm not confident about stereotypes, they can help to have a general idea of the situation.

Preadolescents choose to play because they feel free from any restriction they have in reality, no teacher, no parents.

For a teenager player there is the will of comparing their own lives with others', the possibility to choose what to be and how to make it better than the reality, including in this case a choice of plot and story.

For adults there is a functional reason or they try to justify themselves, playing football games to show that they are a better football fan, or flight simulators because a real course would be really expensive, and so on.

From another point of view we have some kids who tend to play with anything that is available to them. The act of playing includes learning, imagining, pretending, competing, discovering, socializing, and almost everything that kids do; they are just interested in what is enjoyable and fun, without noticing that they learn from playing. They may have more fun with pots, pans, and a wooden spoon, than the latest hot toy or game[36].

I made this comparison because in a market sense, the words "toy" and "game" mean a plaything that an adult is willing to purchase, rather than just an item that a kid wants to play with, which would include almost anything.

The market offers a representation of games genres, based on what they want to achieve, creating a "landscape of games"

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36   *Bill Moggridge, Designing Interactions, 2007.*

that identifies the type of players existing; in this landscape the people will find a lot of picks representing all games genres to choose from.

Considering achievements and goals, we have an open ending genre game that will give a free interpretation of what you want to do in the game.

An example is The *Sims*[37] *(Figure 20)*, a strategic life simulation videogames series where the player creates virtual people called "Sims", places them in houses, helps direct their moods and satisfy their desires; this type of game is called open-world game. An open-world or free-roaming game is also called sandbox game.

A sandbox is a style of game in which minimal character limitations are placed on the gamer, allowing the gamer to roam and change a virtual world at will. In contrast to a progression-style game, a sandbox game emphasizes roaming and allows a gamer to select tasks. Instead of featuring segmented areas or numbered levels, a sandbox game usually occurs in a "world" to which the gamer has full access from start to finish.

Gamers play sandbox games according to their preference. These games include structured elements, such as mini-games, tasks, submissions and storylines that may be ignored by gamers. In fact, the sandbox game's non-linear nature creates storyline challenges for game designers. For this reason, tasks and side missions usually follow a progression, where tasks are unlocked upon successful task completion.

Those games are often mentioned by professionals in the game industry, thanks to a design oriented to the user experiences

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37   **The Sims** *is a strategic life simulation videogame series developed by Maxis and later by The Sims Studio, and published by Electronic Arts.*

54

in the last decades, in particular during the creative process of Game Design.

New approaches in the way of designing games were implemented in the field, thanks to choices like the changing of the internal structure of companies to welcome a new way of thinking. For example some companies are willing to let the players be the designers, and let the professionals be part of the process of play testing.

In a User-centred design process, the solving process requires designers to analyse and foresee how users are likely to use a product, and test the validity of their assumptions with regard to users' behaviour, testing with real users. Such testing is necessary as it is often very difficult for the designers to understand intuitively what a first-time user of their design experiences, and what each user's learning curve (*Figure 21*) may look like.

Figure 21. Learning Curve, graphical representation of the increase of learning (vertical axis) with experience (horizontal axis).

single subject

LEARNING

EXPERIENCE
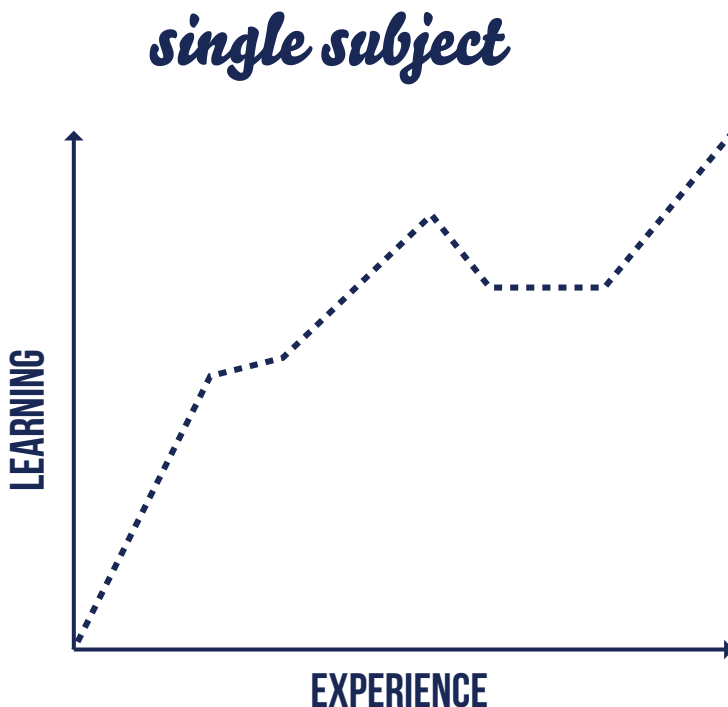
If you consider multiplayers games (games played by several participants), the term *community* will be often used to describe the group of players, but that definition doesn't include the group of fans or designers who contributed to the expansion of the world.

What defines a community is the sense shared that can be defined with primary elements:
- membership, something that defines you as part of the group;
- influence, that give you power over something just for being part of the group;
- integration and fulfilments of needs, are the benefits that you receive from the group;
- shared emotional connection, you have guaranteed the possibility to share your feelings inside the group.

Historically, games have been used as a way to socialize, if you think about games like poker[38] or Mah-jong[39] (*Figure22*), you can imagine a group of people sitting around a table and talking while playing.
Sometimes the feeling of being at the table comes before the game, however nowadays we had an increase of solitary games,

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38   **Poker** *is a family of card games involving betting and individual play, whereby the winner is determined by the ranks and combinations of their cards, some of which remain hidden until the end of the game.*

39   **Mah-jong,** *a game that originated in China, is commonly played by four players. The game and its regional variants are widely played throughout Eastern and South Eastern Asia and have a small following in Western countries. Mah-jong is a game of skill, strategy, and calculation and involves a degree of chance.*

people sitting alone with their solo player game.

So a typical challenge that game designer takes into consideration is to create a game to improve socialization or set up a community. If your goal is to create a community, you need to provide the right tools to the members to let them figure out how to grow and mature with the game.

A system should be created to encourage the players to explore and interact with each other, in particular events are a good way to anchor the player, giving them purposes like:

- give the players a goal to look forward to;
- have a shared experience, which makes players feel more connected to their community;
- punctuate time, giving players something to remember;
- a guarantee of an opportunity to connect with others;
- the knowledge that events are frequent makes players want to keep checking back, to find out about which events are coming up.

Games can act as a social bridge, connecting us socially with each other, introducing various ways to interact with each other, as a common topic to discuss about or creating shared memories.

Games can be seen as a great range of tools to help us build and maintain relationships with people, testing how those people will respond in different situations and scenarios and building an inner bond.

One challenge is to find a way to make interesting complex play environments using the intricacies of critical thinking, giving to the designer the possibility to create and deliver many alternative ways to a wider range of players with a wide range of interest and social roles.

Social challenges are often presented in overwhelming or depressing ways, without taking the attention of the people.

A kind of didactic communication is not appealing for most of the users, because players don't feel comfortable in a space not safe. Designers and artists can create a safe space where the negotiation of real-world concept, issues, and ideas and then a game can be successful. So that they could let the players create innovative solutions for apparently intractable problems, without sacrificing the process of thinking.

A Game Design method is the Critical Play, intended as a tool for future game makers, play designers, and scholars.

«Critical play means to create or occupy play environments
and activities that represent one or more questions
about aspects of human life . . . . Criticality in play can
be fostered in order to question an aspect of a game's
'content,' or an aspect of a play scenario's function that
might otherwise be considered a given or necessary»
Mary Flanagan (Critical Play: Radical Game Design, 2009, page6)

Critical play is not about making experts, but about designing spaces where diverse minds feel comfortable enough to take part in the discovery of solutions. Derived from artists' creative processes, investigations, and practical work, Critical Play to popular computer games is what performance art once was to the traditional one, well-made stage play.
As in that earlier shift, Critical Play demands a new awareness of design values and power relations, a recognition of audience and player diversities, a refocusing on the relational and performative as opposed to the object, and a continued and sustained appreciation of the subversive.
Critical play is also a new discipline of theory and practice that embodies a set of methods and actions.
Games, functioning as a technology for creating social relations, work to distil or abstract the everyday actions of the players into easy to understand instruments, where context is defamiliarized just enough to allow the go inside the magic circle.

«What play shows over and over again is the possibility
of changing goals and therefore restructuring reality»
(Mihaly Csikszentmihalyi)

Critical Play aims to design innovative new way of playing using a critical approach, games that instil the ability to think critically during and after play.
It uses performance techniques to activate individuals, and into an engaged network of participants, building actionable strategies for social change, addressing issues of their communities. The experience encourages dynamic interaction of contradictory ideas and uses them creatively and productively towards transformational change. It creates a safe space for dialogue, to explore choices and consequences while preparing participants to take action in the context of this new knowledge.
My research aims to find a possibility to create a bound between

people and the environment around them.

I took into consideration the space because I am interested in designing a game for the environment in the right way, so that interaction is needed to bridge the gap between curiosity and learning. I want to give to the player the aim to reach the game goal but at the same time create review aspects of human life and make the people willing to question furthermore.

In this whole chapter my research is aiming to show the Game Studies achievements, and how they influenced the design methodologies.

I talk about methodologies because as a designer I know that the process is often more important that the result, in this case creating a game comes after the understanding of what a game is and how it works for certain situations and certain players.

Let's take for example a person that feels comfortable and interested on his work. He will be more perceptive and will found easier to learn new notions; this continuous participation and will to challenge can be found also in services and products. Analysing the design process, it is possible to see that after a selection of users and an analysis of their behaviours, the service will be automatically designed around them and it will lead to a more efficient results, for both of the parts, represented by producers and consumers.

This chapter is about Product Service System Design, the discipline that I have studied at the university Politecnico di Milano.

My research will talk about PSSD and Game Design separately because the aim is to show what is the potential in each of them and how they can support each other, in order to develop projects taking into consideration both disciplines.

I decided to dedicate a whole chapter to explain, what is PSS and how it can be designed, exploring the realities already existing about this field.

The interesting design methodologies will be explained and taken in consideration, to inspire and prepare before starting to approach the project phase of the thesis.

Chapter 2
Product Service System Design
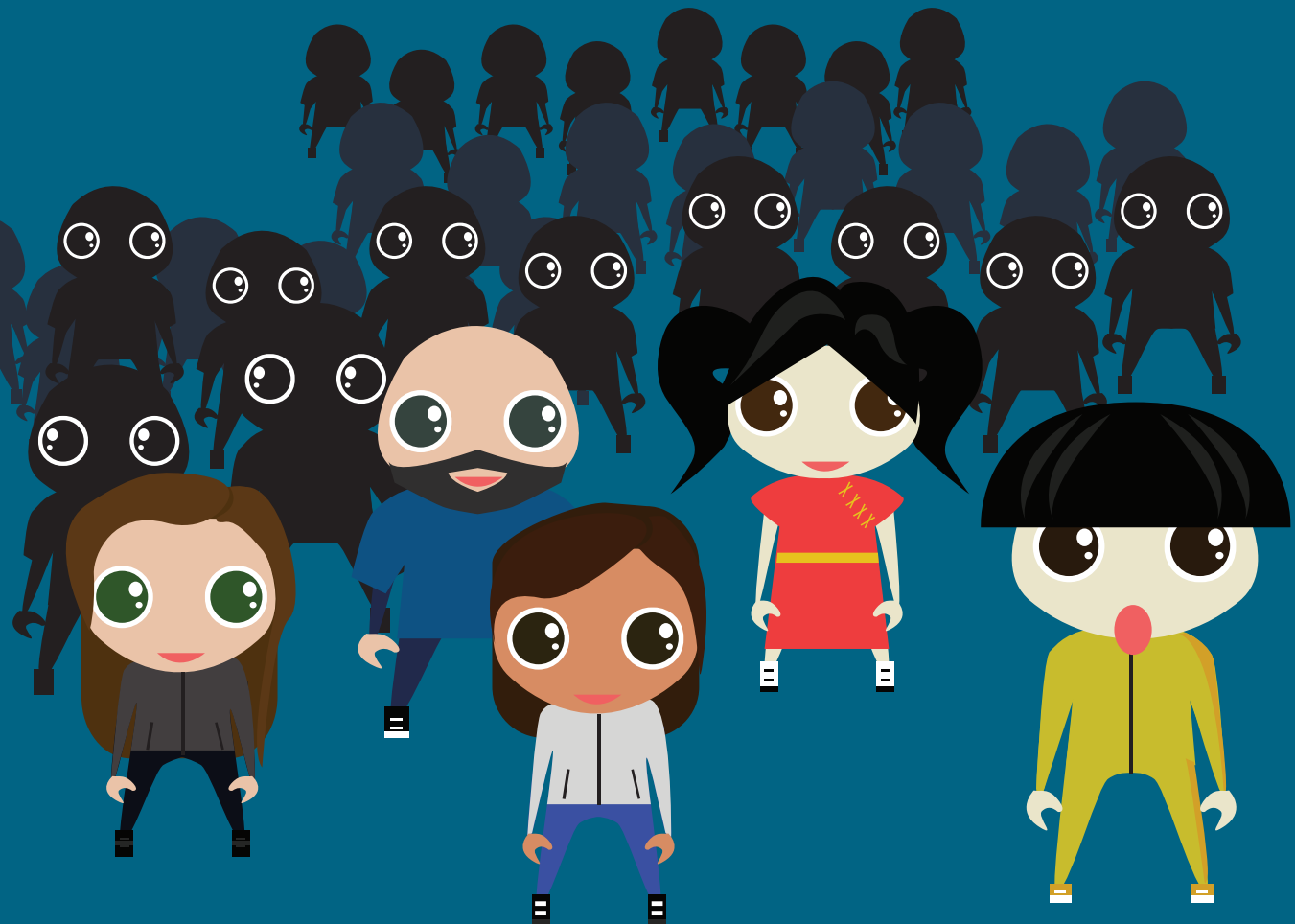
2.1 What is PSSD

The term Product Service Design define a discipline that blends products, communication strategies, services and spaces.
Product Service System Design is a master degree course taught at Politecnico di Milano, the course's programme has the aim of preparing a highly qualified designer able to take on a design role concerning the product service design in international contexts in which the individual innovation is no longer sufficient to combat increasing competiveness. The fundamental educational objective is to offer a wide range of design tools able to provide appropriate skills in creatively managing products, services, events, and communication strategies in an integrated way.
Designers in this field might be capable to use a wide range of design tools able to provide appropriate skills in creatively management of products, services, events and communication strategies in an integrated way.
Product Service Systems are created when a firm offers a mix of both products and services, in comparison to the traditional focus on products.
A marketable set of products and services capable of jointly fulfilling a user's needs. PSS can be realized by smart products[40].
Smart products are specializations of hybrid products with physical realizations of product categories and with additional services like digital product descriptions.
An interesting example of smart product is the Nest Learning Thermostat (*Figure 24*) created by Nest Labs[41], an electronic thermostat designed to manage the house's temperature by itself.
It must be placed inside the user's home, and it will program on its own, learning your daily schedule and choosing the most efficient temperature even when you are away to let you also save money from the bill; it can be also controlled remotely from the smartphone.

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40 **Smart Products** can be classified as a recent innovations in mobile and sensor technologies allow for creating a digital representation of almost any physical entity and its parameters over time at any place.

41 **Nest Labs** *is a home automation company headquartered in Palo Alto, California, that designs and manufactures sensor-driven, Wi-Fi-enabled, self-learning, programmable thermostats and smoke detectors.*

This kind product is defined *smart* thanks to the following characteristics:

- situated, because it recognises and processes the situations or the community contexts;
- personalized, because it tailors to buyer's and consumer's needs and affects;
- adaptive, because it changes according to buyer's and consumer's responses and tasks;
- pro-active, because it attempts to anticipate buyer's and consumer's plans and intentions;
- business aware, considering business and legal constraints;
- location aware, considering functional performing and restricted location choice;
- network capable, the ability to communicate and bundle with another product or product sets.

Figure 23. Nest Learning Thermostat, the connected thermostat that schedules itself and can be controlled by an app.

2.2 Emotional Design

In this paragraph I introduce an aspect of the design that is related to feelings that people have towards designed products or service[42].

For feelings I mean sensations, like the impression at the first impact with a new technology, the memories that can be shared using a service with someone else, or the value that you assign on the upcoming trends.

In the Game Design chapter (see the paragraph 1.1) I discussed the state of emotions in the magic circle or the concentration in the Flow state, but in *Product Service System Design* I take into consideration the emotions from both *Product Design* and *Service Design*, because the three disciplines apparently share common elements, but in a more deeper analysis they perceive them in a different way.

For example in the Product Design, a product is defined basically as the artefact that you obtain as the final outcome of the design process, but for a Product Service System Design, it is seen as a tangible artefact where the user has his first interaction with the system, as a single step of a whole journey.

Going back to the Product Design, it is defined as a classic discipline that cares about the technical part, the detailed specification of a manufactured item and his relationship to the whole set of part that is composed by. It takes into account how the item will perform is intended functionality in an efficient, safe and reliable manner. The product designed needs to be capable of being made economically and to be attractive to the targeted consumer[43].

An important concept related to the Product Design is the emotional design, a concept discussed in *Emotional Design* (Donald Norman, 2005).

Emotional Design explains how emotions have a crucial role in the human ability to understand the world, and how they learn new things, for example the perception that we have towards shapes and the way we use a product, give a whole experience. An Emotional Design concerns about designing a whole experience

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42   For this paragraph I take as a main reference the text *Emotional Design: Why We Love (or Hate) Everyday Things (Don Norman, 2005).*

43   *Morris, R. The fundamentals of product design, 2009.*

around the user, considering also how a product can appear at first sight more effective just by looking at the aesthetic.

So the emotional Design is not just an answer for the needs, but also an instrument to create a feeling around the experience.

Different kind of products were designed based on studies about human reactions and needs, like the reaction of the human mind mechanism in front of design artefacts.

The ATM[44] (Automated Teller Machine) design is an example of how different interfaces of the same service can outline how the user should interact.

Imagine to use the ATM of a foreign country, the buttons on the platform or the display should be different, automatically the feeling and the reactions towards the object change compared to an ATM from your country, even without assigning a new function to the machine (*Figure 24*).

Some art pieces of design are just made to reach the human inner part, and to create a feeling of needs and curiosity. So this is where emotional design works, it creates a first impression, afterward an experience and in the last part stuck something on the user's mind to keep to let the design piece remembered.

Another good example of human reaction is in the roller coaster's experience. Some people will fear it because their instincts and fears insinuate that is a dangerous experience, but they still decide to ride it, because they want to try (*Figure 25*).

Figure 24. ATM from Japan, compared to the ATM from Italy.

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44   An **automated teller machine** (**ATM**), *is an electronic telecommunications device that enables the clients of a financial institution to perform financial transactions without the need for a cashier, human clerk or bank teller.*

Figure 25. An example of roller coaster.

After the ride, the outcomes will be different depending on the person and how they experienced the ride; for example, there will be someone that will never try the ride again or someone else that will face his fears and enjoy the next experiences, but both of them have the same goal, showing the others that they're are not afraid and then sharing the experience.

In movies or books, we assign a personality and a set of emotions to fictional characters, we design feelings on objects on purpose, because we want to share an experience with the product.

On the World Wide Web case we have the example of Google Search[45] engine, where the layout is designed to relax the user and let him enjoy the search with some expedients as the numbered search bar that give the fluidity during the research ordering by priority.

People want to give feelings to something, because we tend to remember meanings and put emotions on objects; for example we do this when we received those from special people or we live an experience with this particular object.

Emotions will be related to objects, because the experience of using and seeing something is like an animal imprinting and we will receive the same input every time we will see something similar.

Feelings such joy, disgust, fear and curiosity are the first output that our minds will came based on our preview experiences, also if we didn't have any experience with something similar before we will be driven by instinct.

If people assign memories or feelings to an experience like a movie or a product, it will raise its longevity, providing something that people can keep and revisit once in a while, like a grown up

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45   **Google Search** (*or* **Google Web Search**) *is a web search engine owned by Google Inc.It is the most-used search engine on the World Wide Web, handling more than three billion searches each day*

adult that displays his old toys to remember.

The new direction of design is to make the customers designers as well. This is called customisation.

Users have now the feeling of editing and creating, they purchase products in spite of modify them as they wish, and they feel pleasure while creating something of their property with other people's tool.

A personal blog is an example of how using the same platforms creates millions of variants with different purposes.

For example Tumblr[46] and WordPress[47], allow the user to customize their own blogs to create from a personal diary to a professional website (*Figure 26*). The interface is easy to understand for the beginners, allowing them to edit the aesthetic without knowing how to code.

Moving forward from the products, we have the experiences to design, what is the designer purpose and the reasons of why our users should use our product or service.

Designing is not only a matter of aesthetic, but also regards how the people will react in front of it, how they will interact and get along with it.

A good designer should foresee and plan what the user will do, creating something that addresses the users to his goal.

Figure 26. Tumblr App interface on smartphone.

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46   **Tumblr**, *stylized in its logo as* **Tumblr**, *is a microblogging platform and social networking website founded by David Karp and owned by Yahoo! Inc. The service allows users to post multimedia and other content to a short-form blog.*

47   **WordPress** *is a free and open source blogging tool and a content management system, which runs on a web hosting service. WordPress is the most popular blogging system in use on the Web, at more than 60 million websites.*

«If you have two coffee shops right next to each other, and each sell the exact same coffee at the exact same price, service design is what makes you walk into one and not the other. » (Marc Stickdorn, *This is Service Design Thinking*, 2012)

Service Design is an interdisciplinary approach that combines different methods and tools from various disciplines. It is focused on the creation of well thought through experiences, using tangible and intangible mediums.

It is an activity of planning and organizing people, infrastructure, communication and material components of a service, in order to improve its quality and the interaction between service provider and customers.

Service Design addresses the functionality and form of services from the perspective of the user. It aims to ensure that service interfaces are useful, usable and desirable from the client´s point of view, and effective, efficient and distinctive from the supplier´s point of view.

The purpose of service design methodologies is to design according to the needs of customers or participants, so that the service is user-friendly, competitive and relevant to the customers. Service Designers watch and interpret needs and behaviours to transform them into potential services.

In the process, exploring, generating and evaluating approaches are used similarly and a redesign of existing services is just a challenge as much as the development of new innovative services.

2.3   Collaborative Services

The differences between Service and System is that a Service is a set of one time consumable and perishable benefits, while Service design is the activity of planning and organizing people, infrastructure, communication and material components of a service in order to improve its quality and the interaction between service provider and customers. The purpose of service design methodologies is to design according to the needs of customers or participants, so that the service is user-friendly, competitive and relevant to the customers. The backbone of this process is to understand the behaviour of the customers, their needs and motivations. In Product Service System Design, the System is the identification of the actors involved in the service creation, development and delivery. The System will describe the main figures involved with their roles and resources, and the existing relations between them, specifying their activities and aims in taking part into the service process.

The service design is a new model that is growing in a social way. People are trying to find answers by themselves to most of the typical needs of this century.

From initiatives to real service, this is the first step to understand how to design a service; relational qualities are still the icon of a social service, together with the idea of sharing, so those elements represent the base of services.

In the collaborative production and services, communities are in a growing phase and they represent also the creative part, which is the part that can have good ideas. From the needs, solutions are defined together with new kind of platforms, but to design a service we need phases and tools, as prototyping and analysis, new kind of tools and methods that are created just for services.

During the design process, designers build a future snapshot of a situation where the product or service will be used, and this snapshot is called scenario.

In the scenario we defined different kinds of users, and each one has a different need and way to use a service, that's why most of the services are designed around a user that represent the aim of the service.

We have different case studies, service for taking kids to and from school, sharing domestic appliances like a washing machine, a

Figure 27. An example of Walking Bus.

home childcare centre. Those are all cases made around a scenario where the potential of each user linked to the communities will create an environment as creative community, in order to fight poverty and foster sustainable development.

Creative Community

A particular type of community is the Creative Community, which could be defined as a group of people who share particoular knowledge, experience, through discourses and performances, creating something new and valuable, such as an event, culture, product, work, education, recreation or well-being.

There are two design modalities, the first one is designing for creative communities, participating peer-to-peer; it means a bilateral exchange of information and opinions, promoting collaborations among diverse social actors, characters that move inside the system.

The second mode is designing for creative communities, looking at specific typologies of collaborative organisation and intervening on their context. The responsibility is an important part of investing in new services, it takes a great effort and risk percentage, because you have to consider the diversity that exists within communities.

The accessibility is the key to open a service to the public, this is controlled by a local visibility and a fluent management, reducing the cognitive cost.

The Walking Bus[48] is an example of Collaborative Service, usually

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48   *A **walking bus** is a form of student transport for schoolchildren who, chaperoned by two adults (a "Driver" leads and a "conductor" follows), walk to school, in much the same way a school bus would drive them to school. Like a traditional bus, walking buses have a fixed route with designated "bus stops" and "pick up times" in which they pick up*

it is organized by parents and schools (*Figure 27*).

Proponents of walking buses say that its aims are to:[49]
- encourage physical activity by teaching children the skills to walk safely, how to identify safe routes to school, and the benefits of walking;
- raise awareness of how walkable a community is and where improvements can be made;
- raise concern for the environment;
- reduce crime and take back neighbourhoods for people on foot;
- reduce traffic congestion, pollution, and speed near schools;
- share valuable time with local community leaders, parents, and children.

This example of service shows how a common effort and added value can approach people into a community.
In Service Design we find different levels of involvement which enlarge the range of user, supporting the collective use of a service.
The preservation of relational qualities is promoted by the availability, relational scale which will favour direct relationships with mutual trust in a grow phase. The delicate part of the interpretation of public and private property is a status that the service needs to control, because the care among users is a key for the growing in a community, involving also personal skills of each person, leaving them expressing their talents.
Services will work on a sustainable regeneration which will make creative communities to work in environments and social needs.
Creative communities are a good example of service regarding experience and needs, because people are still creating tools to overcome their questions and this is a good base to start designing service, in communities or for communities.
A good text about how services and communities would change people's behaviour is *The Politics of Happiness - A manifesto (2010)*.

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children.

49   From the website http://www.walkingschoolbus.org/

This is a manifesto edited by WWF[50] , a short text that explains how the world reacts in front of different choices. The main goal of this manifesto is to sensitize the people and show them how to act in front of different choices.

The consumption is one of the main topics of the WWF, but in this case the manifesto is also showing different solutions represented by services. So the "sharing" is a new answer of the less consume needs, in spaces terms or activities; those are well explained with different examples of communities created to support different families. Those families will share the neighbourhood facilities in a way to let everyone take advantage of it. There were a lot of solutions and activities like sharing a camp, a space for kids or sharing skills is a new way to keep the families at the same level of benefits.

We have some good outcomes like the adaptive behaviours that allows an individual to change an unconstructive or disruptive conduct to something more constructive. This comportment towards new services and realities is a human characteristic.

This is good for sharing services in a way to create a path among users in their daily routine, but it is a double edge weapon because people can also adapt to bad behaviour and that's why we have to slow down sometimes and check if something is still working or not, if people changed attitude towards the service or if the service was well interpreted.

Loneliness is one of the main issues that communities aim to solve, because not sharing is a loss of opportunities to gain something or in that case to do something with others.

The hard part of loneliness is to being separated from the others, and that's what collaborative services want to promote along with the collective services and the communities,

Time is a key point of *The Politics of Happiness* manifesto, they talk about it as a resource that can be exchanged in spite of save more time for other things later, a limited resource that cannot be stored is treated as a token for exchange and sharing services.

The space is a public and private property at the same time. In the reality, people treat their own place better than public ones, so the respect is a factor that needs to be careful about, defining

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50   *The* **World Wide Fund for Nature** (**WWF**) *is an international non-governmental organization working on issues regarding the conservation, research and restoration of the environment, formerly named the* **World Wildlife Fund**, *which remains its official name in Canada and the United States.*

the space and choosing if we need a new one to share or just sharing our own.

This is a risk that some users will think about before applying to a community, but when the risk is overcome we have a lot of services that are actually working, as Couchsurfing[51] is one of the most famous examples.

The Politics of Happiness is oriented in service but with a different intent, it is more organisation oriented than service a proposal of thinking supported with a little knowledge of tools, that in my opinion, designers should use to design not only the services, but also not related projects.

Going back to both Product Design and Service Design, we can see that they share the idea of experience and journey around people. Both disciplines think that design something is to create a feeling as an experience that will allow to create an identity of the service or the product.

This orientation is a need of this century, our generation have now different tools that will allowed to self-customize products or create communities and services in a way to solve typical problems.

People can feel themselves as designers as well and this is because they knows what their own needs are.

There are different artefacts and products as smart phones and tablets that allowed us to create communities and communicate, because communication and sharing is a new face of our needs.

Is possible to see in the time line order that our society moved from products to services in a short time, following human needs problem solving, but from emotional design we don't have to stop just in products.

The emotional part and the feeling of the users must be considered in service, because we must design, not only thinking about solutions, but how to let something working in a good way, without stress and a mechanic action.

Emotional design is also about every step that leads the user the service before and after the experience with the touch point.

Both emotional design and collaborative services share the same idea of culture of well-being.

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51   **Couchsurfing International Inc.** *is a hospitality exchange and social networking website. The website provides a platform for members to "surf" on couches by staying as a guest at a host's home, host travelers, or join an event.*

The manifesto says that health is the main factor that we need to care about, a healthy and relaxed mind can be more creative, as they experimented in product design, but also a health oriented service is easier to understand and use instead a mechanic one.

Both Product and Service Design think about taking care and focusing on routines. The willing of taking the action is a natural emotion created by a healthy environment, as the creative communities provides but this is not actually casual, this is well-planned but a strategy that involve designer needs as a human needs to overcome.

We should think about the evolution of the design way of thinking, exploring the tools from product of the last decades since the new tools for designing service.

Is not useful to talk directly about services without knowing products, and I'm talking about design point of view, because most of the tools for the analysis are an adaptation of already available tools for product and interior designer.

We talk about human needs and human care in creative communities, but we can also think about emotion and experience based on the use of some objects, because service design is a system that works peer-to-peer with other realities.

Politics of Happiness teaches how we ould design to inspire and make people think, making an effort to create something that will let the other share in a better way emotions or to lead them in a good living way. Health is both physical and mental, and aiming for a equilibrate condition of the user and designer will create a thread between them to explore something inner in the human behaviours and create different solutions and not only market oriented products and service.

Looking forward to the future I think that tools and platforms must be created to let the people improve communication and social skills.

We are not losing humanity with the increment of technologies, but we are increasing the way to join people and minds to the same goals.

From products to services we had a great evolution in those few years, and we have always to move forward thinking about not only our users and needs but for the future users that are not already well known. We have to use in a clever way the tools that we have to create, but also learn to hear and try to understand the other's opinion because we are not in a position to fear competitor.

We are in a reality where everyone is a possible designer and competitor but to move on we need to share knowledge and improve skills together, to move the ideas to a real step.

We need to take the responsibility and the risk of our ideas to see if we can change something.

Nowadays there are methodologies and study cases to foresee the feasibility of an idea, but is also true that we have to try even if it is going to be a failure because, risks increment possibilities to overcome something in the future.

2.4 Design Process

Service Design addresses services from the perspective of clients. It aims to ensure that service interfaces are useful, usable and desirable from the client's point of view and effective, efficient and distinctive from the supplier's point of view.
Service designers visualise, formulate, and choreograph solutions to problems that do not necessarily exist today; they observe and interpret requirements and behavioural patterns and transform them into possible future services.
The Service Design process applies explorative, generative, and evaluative design approaches.

Designers can identify important factors, to consider when developing and applying service design processes, for example:
*   understanding the service design challenge: the users, business environment and applicable technologies;
*   observing, profiling, creating empathy for the users, participating with the users and being visual during the whole process;
*   creating ideas, prototyping, evaluating and improving including the clients and the users in the process;
*   implementing, maintaining and developing the services;
*   operating with business realities.

The restructuring of existing services is as much a challenge in service design as the development of new innovative services. Service design stands in the tradition of product and interface design, enabling the transfer of proven analytical and creative design methods to the world of service provision. In particular, there are close ties to the dimensions of interaction, and experience that originated in interface design.
Consuming a service means consuming an experience, a process that extends over time.
The *customer journey* illustrates how the customer perceives and experiences the service interface along the time, taking into consideration also the phases before and after actual interaction with the service[52].

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52   *All the examples and tools reported in this paragraph come from http://www.servicedesigntools.org/, a website that illustrate most of*

The first step in creating a customer journey, is to decide its starting and stopping points, and it serves as the umbrella under which the service is explored and, with various methods, systematised and visualized.

Tangible elements as spaces, people, object or interactions are called service touchpoints, which make up the total experience of using a service. Touchpoints can take many forms, from advertising to personal cards, web, mobile phone and PC interfaces, bills, retail shops, call centres or customer representatives.

In service design, all touchpoints need to be considered in totality and crafted despite of creating a clear, consistent and unified customer experience.

When we talk about product design we may have at the end of the process a step called prototyping, that is the realisation of a physical artefact that represent the final outcome as closest as possible to the final idea.

To design a service, designers don't need only to prototype tangible elements but also experiences or interactions, this kind of prototyping is called Experience prototype.

Experience prototyping is the representation of a design, made before the final solution exists.

We need prototyping for electronics, to think about a total experience like designing a service or designing what happens with the chips and the people.

Then we need something which has more to do with storytelling, like using video of how to tell a story or theatre for enactment or computer simulations, or just acting to show how the user should behave (*Figure 28*).

All of those become a necessary part of our prototyping toolkit.

The rapidness of a prototype cycle between trying something out

Figure 28. An experience prototyping session at Tongji University in Shanghai.

the tools used in the discipline of Service Design.

77

and testing it with people makes the relationship between design and business successful.

Is possible to prototype the experience, testing the feasibility of the service, the logistics, customer experience and financial impact of the service product in a cheap and quick way.

An experience prototype is any kind of medium, in any kind of representation that is designed to understand, explore or communicate what it might be like to engage with the product, space or system we are designing.

Another interesting tool is called *Storytelling*.

Since stories are effective for design, useful both in facilitating collaboration around the service, and in exploring and conveying the value the service will bring to the people who use it.

Stories really help when you have to explain an idea, a product, service or an opportunity through a journey.

By telling the journey of the user, the designer enhances the design process in many ways, like capturing in detail the real-world context, in which you can introduce your concept.

Telling stories helps to define which functions will be useful, how they should be presented, and what integration with other tools, people and information will be important. They can be an effective way of communicating to others problems with current work processes, and the value of new interaction being proposed. They become useful with multi-disciplinary or cross-organizational teams, because they tend to serve as a "common language" that spans differences in background and organizational status and focuses attention on the people who will use the system (a constituency often absent from many design discussions).

Stories are particularly valuable for conveying the benefits of collaborative systems, whose full value is not in any individual user task, set of screens or specific functionality, but in the real world consequences of the collaboration enable among multiple people.

People inside those stories and journeys can be represented through Personas.

Personas are fictional user profiles based on research data like interviews, participatory observations or data analysis that have gained popularity in the design field over latest years. These profiles include names, personalities, behaviours, and goals that are representative of a unique group of individuals. Personas are a tool for understanding others identifying, discovering and understanding the service context and the users, they are a fictional

characters   created to represent the different user types within a targeted demographic, attitude or behaviour set that might use a site, brand or product in a similar way. A user persona is a representation of the goals and behaviours of a hypothesized group of users. In most cases, personas are synthesized from data collected from interviews with users. They are captured in 1–2 page descriptions that include behaviour patterns, goals, skills, attitudes, and environment, with a few fictional personal details to make the persona a realistic character. For each product, more than one persona is usually created, but one persona should always be the primary focus for the design. A tool called scenario will be used as a screenplay, manuscript, copy or a script that the personas will follow.

The elements of a scenario are virtually the same both in the original notion and in the scenario definition applied as a method in the user-centred product development process.

These basic elements include: the actors are the users, the scene is the context and the scheme is the story including the background, tasks, goals and action.

The goal of the scenario work is to visualize the main service concept for the client, they will help to express the requirements of the different stakeholders in a format that can be easily understood by the other stakeholders.

Scenarios are also stories about people and their activities, in particular situations and environments. They can be textual, illustrated like picture books or comic strips, acted or even filmed like shooting short movies, or they can be simple descriptions of usage situations.

They describe current or envisioned work practises or tasks of the users and thus help different stakeholders understand the tasks in their contexts, evaluating the practises and suggesting changes to these practises in parallel to designing new tools.

Scenario generates aims to predict how people could act in particular situations.

That is why it is well-suited for designing new product concepts, when the context of use and the intended users are not strictly defined.

Scenario building is a flexible and cost-effective way to generate design ideas for new products, and to identify the potential user groups and contexts of use for the service, it is desirable to develop and compare several concepts.

The third chapter is about China and the concept of Hybrid City, which is the main focus of my thesis.

In this chapter I will talk about the main protagonist of my research, the user that lives in a Hybrid City, explaining also the reason why I think that Shanghai fits in that definition.

In this chapter I will start to focus on the possible challenges that I approach as a designer but also as a possible player.

To have a clear idea of the situation, I collected and reported interesting data, and I also tried to put my personal experience in China as a point of reference, reporting my impressions, doubts and curiosity about the country.
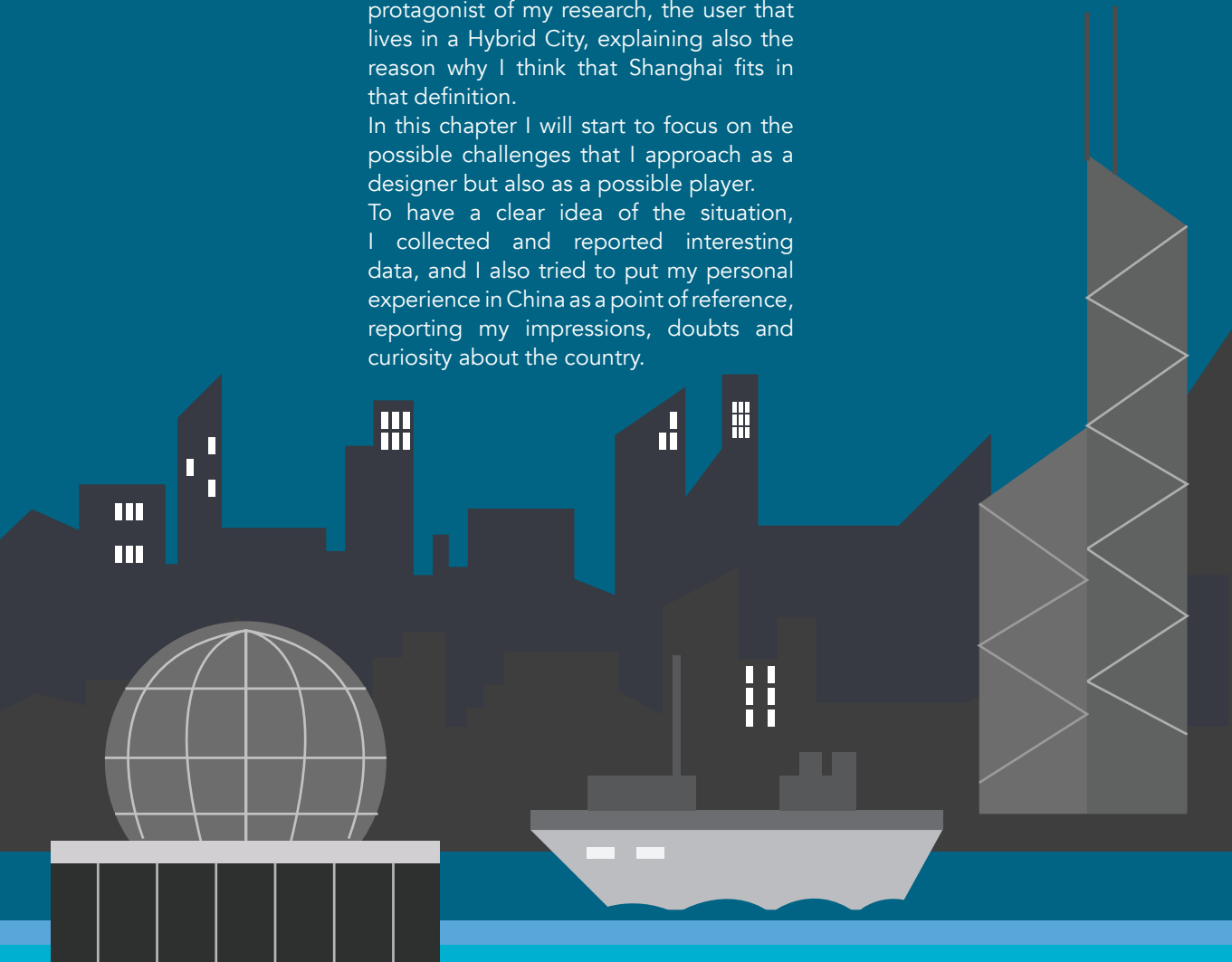
Chapter 3
China and hybrid cities

3.1 Hybrid Cities

Cities nowadays are no longer limited to the experience of physical spaces. New technologies, both hardware and software provide new ways for architects to design their buildings, at the same time they influence the way city dwellers organize their everyday life[53].

Consequently, cities are now understood as 'Cybercities', 'Sentient Cities', or 'Hybrid Cities'.

I personally lived an interesting experience in China, studying and living here for one year, I start my field research in China because I think that providing a service that can connect both eastern and western culture, will give me the possibility to create an impact.

What is commonly known about China is that it is a good source of inspiration thanks to the rich cultural history.

China hosts a large population and some of the grandest mountain ranges in the world and contains the world's largest population. It is also home to one of the very first recorded civilizations, thanks to its large mountains it is rich in natural resources that had come up from the earth and produces a large variety of things from steel, to synthetic materials.

Going back to my personal experience, I have to say that the time I spent in China is not enough to understand entirely this country, but I can give my point of view about Shanghai, because that's the city where I have been living, studying and working for one year. In the following table (*Figure. 29*) I show the main information about Shanghai, compared to other two big cities, New York City that represents a typical western metropolis and Milan where I actually came from, but also a good European representative. This table give a first idea of the dimension of Shanghai and how it can be complicated to move inside, especially for the newcomers.

I'm talking about moving inside Shanghai because I am interested on working with the interaction between city and people inside

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53   *In this paragraph most of the definitions and reflection came from two texts: Stephen Graham, The cybercities reader, 2004, Paul Dourish and Genevieve Bell, Divining a digital future, 2011.*

	Shanghai	New York City	Milan
	Shanghai is the largest city by population in China and the largest city proper by population in the world. It is one of the four direct-controlled municipalities of China.	New York is the most populous city in the United States and the centre of the New York metropolitan area, one of the most populous urban agglomerations in the world.	Milan is the second-most populous city in Italy and the capital of Lombardy. Its urban area is the 5th largest in the EU.
Area	6,340 km²	1,213 km²	181.8 km²
Founded	1291	1624	around 600 a.C.
Population	24 million (2013)	8.337 million (2012)	1.316million(2010)
Subway	14 lines	9 lines	4 lines

them, both local and foreigners; I take the opportunity to consider Shanghai as the first city to start with and to build on it my thesis project.

In my experience moving to Shanghai was a complete challenge, with communication's difficulties springing up at every turn, and the fact that during my first days I couldn't rely on my smartphone without a local SIM[54] card.

For communication difficulties I don't mean only my lack in

Figure 29. Table of comparison between urban cities (Milan, New York and Shanghai)

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54   *A **subscriber identity module** or **subscriber identification module** (**SIM**) is an integrated circuit that securely stores the international mobile subscriber identity (IMSI) and the related key used to identify and authenticate subscribers on mobile telephony devices (such as mobile phones and computers).*

understanding Chinese language, but also about orientation, because I was not used to local signposts and the city structure was not easy to follow, in fact I was used to the one in Milan, the city where I came from.

As I introduced in the previous chapters, my goal is to create a project regarding the urban orientation and understanding, in particular for the people with difficulties with the Chinese language.

From what I explained in the second chapter regarding the design process, designing urban life can involve multiple goals, like making urban life more efficient or providing a way to express a shared identity.

If I see the bigger picture of this future service, I should know that investors are interested in economic growth, in the promotion of innovation, or in fostering an urban community because of a social need, or simply personalizing the experience of the city maybe relating to strangers.

So it must be important to start with the local interaction between people, how they communicate with each other, and the difficulties about moving into a new city; a general idea would be to design a growth path that can be implemented in their daily routine.

3.2   Communication in China

As a foreigner in China, I lived a daily problem with communication, first of all the language: Chinese and English have not many points in common, neither the writing or the speaking, I had to use solutions as applets for translations, using hands gesture, and mimic gestures to communicate with Chinese people.

First of all we need to know that there is not one single Chinese language, but many different versions or dialects, including Wu, Cantonese and Taiwanese. Northern Chinese, also known as Mandarin, is the mother tongue of about 70% of Chinese speakers and it is the accepted written language for all Chinese. Belonging to two different language families, English and Chinese have many significant differences.

This makes learning a foreign language as English a serious challenge for Chinese native speakers. In the following table I explain in the following table (*Figure. 30*) the differences between the Chinese Language and the English, in order to give you an idea of how big is the gap between the two languages.

Figure 30. Table of differences between English and Chinese language.

DIFFERENCES	
ALPHABET	Chinese does not have an alphabet but uses a logographic system for its written language. In logographic systems symbols represent the words themselves - words are not made up of various letters as in alphabetic systems. Because of this fundamental difference, Chinese learners may have great difficulty reading English texts and spelling words correctly.
PHONOLOGY	Most aspects of the English phonological system cause difficulties for Chinese learners. Some English phonemes do not exist in Chinese; stress and intonation patterns are different. Unlike English, Chinese is a tone language. This means that it uses the pitch (highness or lowness) of a phoneme sound to distinguish word meaning. In English, changes in pitch are used to emphasize or express emotion, not to give a different word meaning to the sound.

Chinese people have some problems in reading their own characters or talking with other Chinese people, the reason is the education of the people: not all the people in China can afford an education and also the presence of two main languages as I introduced before, the Mandarin and the Cantonese influenced their accent depending on the city of origin.

Considering the language difficulties and my experience in China, I detected some types of people who approach the Chinese language differently based on their needs.

We can call *beginners* the foreigners who never studied Chinese language before, but are willing to learn for curiosity or for interest. Usually, the foreigners who are willing to stay in China more than one month will encounter the difficulties of understanding the city structure without a base knowledge, which satisfies the daily needs.

Right after the beginners I can see the *regular* people; usually they are local people who can understand the Chinese.

At the end we have the experts, they are usually people with the passion of Chinese writing and they practice almost every day to refine their techniques.

This classification can outline a type of user in Shanghai, which I will design my project for, still keeping the Hybrid City as the possible playground.

The reason why I personally selected the topic of Hybrid Cities is because Shanghai in the last decades lived a huge evolution in a short amount of time, and of course, all the citizen were involved in this changed, acting also upon their behaviours.

Personal goods as cars or phones became a standard for all the people, a status symbol that they must own to be part of the network in Shanghai.

The smartphone introduction in the latest decades changed drastically the way of communication, like the people's behaviour in certain places or situations. Subways are full of people who walk slowly because they are watching movies on streaming, that causes the creation of long queues on the escalators, also because just few people take the stairs to stay more comfortable with their devices.

Communication in public spaces is changed, the smartphone became the filter of human contact, people don't talk sitting near each other, and they talk with others on the phones.

Usually this scenario will be pretty common also in other countries, but the interesting part in China is that the range of people who

act like this, have covered the ages from 15 years to 50 years old, so it is not concentrated in the earliest age but well distributed.

Going deeper with the use of smartphone, I researched about their interaction and needs, in particular what they do more with this technology.

From the statistics[55] I found out that gaming is by far the biggest applets[56] activity in China today.

On the Android[57] system, some 56% of users' time is spent in gaming apps, compared to 47% on iOS[58]. Both are fairly far ahead of the next-most popular categories on each platform.

For now, it looks like gaming is proportionately more interesting to Chinese consumers compared to those in the U.S.

A good example of how a mobile videogame can be successful is *Candy Crush Saga*, a puzzle videogame released by the developer King on 2012 for Facebook and for smart devices (*Figure 31*). The game had over ten million downloads in December 2012 alone and earns revenue of $633,000 per day in the US section of the iOS App Store alone.

Figure 31. People playing Candy Crush Saga on a tablet.

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55   *From the website http://www.go-globe.com/blog/smartphone-usage-in-china*

56   *In computing, an **applet** is any small application that performs one specific task that runs within the scope of a dedicated widget engine or a larger program, often as a plug-in.*

57   ***Android** is an operating system based on the Linux kernel, and designed primarily for touchscreen mobile devices such as smartphones and tablet computers. Initially developed by Android, Inc., which Google backed financially and later bought in 2005,*

58   ***iOS** (previously **iPhone OS**) is a mobile operating system developed and distributed by Apple Inc.*

Going a little deeper into the topic of smartphones, trends statistics[59] reported that out of the 5 billion mobile phone users in the world, 1.08 billion are smartphone users.

- 89% of smartphone users use their smartphones throughout the day;
- 92% of smartphone users use their smartphone to send text messages to other phones. Whereas, 84% of users use their smartphones for browsing the World Wide Web;
- The age group of 25-34 has the highest smartphone penetration rate of 62%;
- 50% of Android Smartphones and 43% of Apple iPhone users are younger than 34 Years;
- 53% of smartphone users are male and 47% are female;
- Downloading applications is the most popular data usage activity for smartphone users.

Cities transformed into a multidimensional entity, not only the buildings or the people who resides in them, but also the digital products that react to the surroundings and responding to people's actions. Cities became alive by the arrival of the digital era, providing much more than a location or a physical space.

People communicate through the city with digital media, not only with other people but also with services. Just imagine applets that show the closest place to enjoy the night, to share a taxi with other people.

A city's evolution and development do not happen under one person's command, but it is a reciprocal process between residents, designers, and now, some digital elements that can react to the environment around them.

As the city becomes increasingly dependent on not only the functioning of the individual parts, but more importantly on a good combination of buildings and emerging media, we certainly need a better understanding of these new media.

As designers we must take in consideration how they are affecting the design practice, the buildings that are being constructed, and other aspects of our quotidian life.

In addition to direct changes that new media have brought to the design industry, they are also of great help to China's architectural

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59   From the website http://www.go-globe.com/blog/online-gaming-china/

development socially.

In this booming society that only picked up its pace in the 80s, social changes are happening by the minute, and the scale is stunningly pervasive.

Architecture, on the contrary, is a comparatively slow-evolving field. The abundance of thought-sharing tools and community networks have expedited the development of architecture in response to the changes in social life.

New media are destined to bring about changes to city life.

3.3   Urban Renewal in Shanghai

To have a clear view of the urban situation in Shanghai we must take in consideration the point of view of the people living there, and my point of view, not only like a designer but also a person who moved to Shanghai for one year.

What we can say about the mobility in Shanghai is that it has an urban structure that changed drastically and frequently in the last ten years. This process of urban change reflects the dynamic economic, social and political condition that the city is living. Shanghai is always evolving and nothing here ever stands still. Buildings rise and fall as abruptly as the stock market, for example if yesterday's quaint traditional neighbourhood was near your home, today it becomes a skyscraper district.

People who returns to Shanghai after one year will find a lot of changes in the urban structure of the city, and it is really hard for them to reconnect their memories of the place with the actual situation. Don't even try to find that odd little tea shop you discovered in a secluded alleyway last year, because now it is probably gone, replaced by a stylish Internet café.

Tomorrow the café might be replaced by a tattoo parlor or a little boutique selling next-generation iPhone, so you either adapt or get left behind.

This situation can cause a lot of problems for the tourists in the planning of the trip, just think about the main instrument that tourist always buy: the travel guides. For Shanghai they can be reliable only regard the historical sites, but if you wish to find specific local place or small streets, then the guides will not be very reliable, because they cannot be updated quickly as the urban change of Shanghai. Another issue is the local signs or information that you might find around the city, they are not always be translated in other languages.

If I think of a solution, I have to think about the problem first, or the challenge; as I mentioned before the technology affects how we relate with others, especially in China with the smartphones trend, and also influenced how we build connections and create communities.

I would like to create a service based on game that could use the smartphone trend as a source for reinventing how a person can learn to survive from a city that he doesn't know, keeping that the use of the smartphone is also the challenge at the same time.

I want to provide an enjoyable experience that will teach and provide useful information about the city, moving the attention from the screen to the city.

To facilitate the game flow, the aim is to exercise the mind of the players with short challenges or tasks.

As an example smartphone user usually plays to relax and challenge his mind at the same time, so I thought that the act of understanding could have the same goal.

To formulate ideas we usually explain them with words or images, so the act of drawing and writing are the base of human communication, to express themselves but also to share and communicate with each other. If you take in consideration a person that cannot understand or read the main language in the place where he is leaving, he will lose most of the possible experiences and information that the city could provide to him and at the same time it will be hard for him to express himself with other people. If I talk about project methodologies for architects or designers, we can see a rapid evolution during the last years.

For example, previously designers or architects had hard times to explain their ideas to the clients, and that was because of the lack of languages and media to let them communicate and express.

Nowadays with the aid of digital cameras, iPhones, and similar media, designers can easily show their inspiration or instantly share their thoughts with colleagues or clients.

Moreover, designers have the capacity to be working on several projects at once, which allows for more cross-referencing between projects.

With the easy and wide access of the World Wide Web, every interested individual can effortlessly retrieve information in any field, resulting in a decreasing specificity of professional fields, transforming clients into designers and changing the fixed products into customizable ones.

Let's consider how we manage to solve issues of communication with different languages. We can say that we usually rely on translators, but this methodology will not stimulate the mind in the process of learning, because it just give an automatic answer of an issue, without letting our mind process and learn from it.

In my personal experience I think that I looked the same words on the translator many times, but if you ask me to write them or to recognize them on a signpost, it won't be so easy for me.

This calls for educative and communicative initiatives to diffuse the new way of providing information and establish strong and

positive images around the idea of hybrid city. Preferably it is accompanied by positive lifestyle examples, which hold a broader appeal to more than just technical enthusiasts or the ecological avant-garde.

We are dealing just as much with human and cultural inventions as with technical inventions. We need to encourage open-mindedness and imagination, implying a dramatic impact on organizational culture. In support of that issue there is the idea of Creative Cities.

Creative Cities is a concept developed in the late 1980s, by urbanist Charles Landry, encouraging a culture of creativity in urban planning and solutions to urban problems. It has become a global movement that inspires a new planning paradigm for cities and it is related to the concept of learning cities.

Here are some interesting points about creative cities:

- **Cocreation**. Use the power of people-centred processes to drive the creative transformation of community;
- **Communications**. Innovation is just as much about creating new mind-sets as about developing solutions. To drive ideas into action we should look for inspiring communication and positive visions:
- **Social innovation**. Creating win-win concepts that bring together stakeholders for a better future. Social innovation is a multifaceted issue, used proactively can be a driver for local business development, environmental improvements and cultural flourishing. The innovation can be local, environmental and entrepreneurial;
- **Sustainable & creative cities**. This calls for educative and communicative initiatives to diffuse the new ideas and establish strong and positive images around the sustainable city. Integrated concepts for sustainable and creative city development. Activate the powers of sustainable architecture, new technology and dynamic human habitat design;
- **Communities**. Enable people to work together towards common goals. Networks and communities are powerful change makers for creative and sustainable futures.
- **Impact**. Find new and original ways on how to reach ambitious environmental targets. There is a world of possibilities for making positive IMPACT through creative endeavours;

In conclusion of this paragraph, I think that the urban situation in Shanghai is an issue, especially for people who cannot find a way to understand the information to move around the city.

The language issue cannot be magically solved but we can think of some tools that enable the will of learning and exploring the Chinese culture.

The media that we can use to support this system are the technologies that are affecting the local people, but at the same time that are playing an important role as a tool to socialize.

Maybe we can also think about the city that is changing and we can make it interactive in its change, to still provide information that can have a different content, depending on the reader that is searching for it.

3.4 Chinese Tradition

In order to understand if there is a possible connection between the Chinese culture and the foreigners, I will take in consideration what are the real Chinese values they are willing to pass to the following generations and what they want to show to the world. If you live in China, you soon learn that Chinese traditions play an integral role in everyday life for every person. It is at the very core of Chinese culture and revolves around values and how people interact with each other. It gives a sense of personal identity and sense of self-worth. These traditional values help people solve common human problems for survival, and become the roots of tradition that Chinese people find important in their day-to-day lives. We have a lot of information about Chinese tradition and most of them are well preserved and still in use. One big example Chinese painting is one of the oldest continuous artistic traditions in the world.

For the architecture we have the siheyuan[60], a traditional folk residence in China, dated back to the Han Dynasty[61]. Chopsticks, invented thousand years ago, are seen as an extensions of the fingers, which were not afraid of heat or cold. Chinese knots used in ancient China to record events or with ornamental functions.

Nowadays some ancient traditions came back as a hobby practicable in public spaces, some examples are the traditional dance practiced on the streets just carrying a stereo around, and also water calligraphy on the streets, as a traditional way to relax and express yourself with a bucket of water and a big brush, to leave temporary marks on the floor (*Figure 32*). Those activities are famous between elders, as they carry the spirit of Chinese tradition, a value that contains elements as knowledge and deep understanding of relationships between people as a community. Chinese painting and calligraphy distinguishes themselves from other cultures' arts by their emphasis on motion, and change with dynamic life and I would like to take them as a pillar for my thesis.

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60   A **siheyuan** *is a historical type of residence that was commonly found throughout China, most famously in Beijing. The name literally means a courtyard surrounded by buildings on all four sides.*

61   *The* **Han Dynasty** *(206 BC – 220 AD) was an imperial dynasty of China, preceded by the Qin Dynasty (221–207 BC) and succeeded by the Three Kingdoms (220–280 AD).*

Figure 32. Water calligraphy in China.

A common point between different cultures is the interest in exchanging, think about the tourists as a part of the city.
Tourists have their own reasons to travel and expectations about a different culture, for example:
• learn more about places and history;
• connect to other cultures and people;
• give us a break from our usual lifestyle;
• expand awareness and introduces to greater diversity;
• help breaking habits: mentally, physically, and emotionally;
• give time to heal, reduces stress and help to regain enthusiasm for life;
• stoke curiosity and awakens our inner child by offering something new, like first-time experiences;
• promote patience by releasing heavy expectations of the "one right way" mentality, thereby allowing life to flow more organically;
• invite the opportunity to get lost and face one's fears of the unknown;
• help getting to know yourself better.

It is also true that there is a category of short time tourists that will be living in a foreign city for a period longer than a vacation. For example my experience was a vacation at the very beginning, because I focused on discovering and enjoying the city, but then I had the need of trying to go deeper with this culture, because I was going to live there for one year.
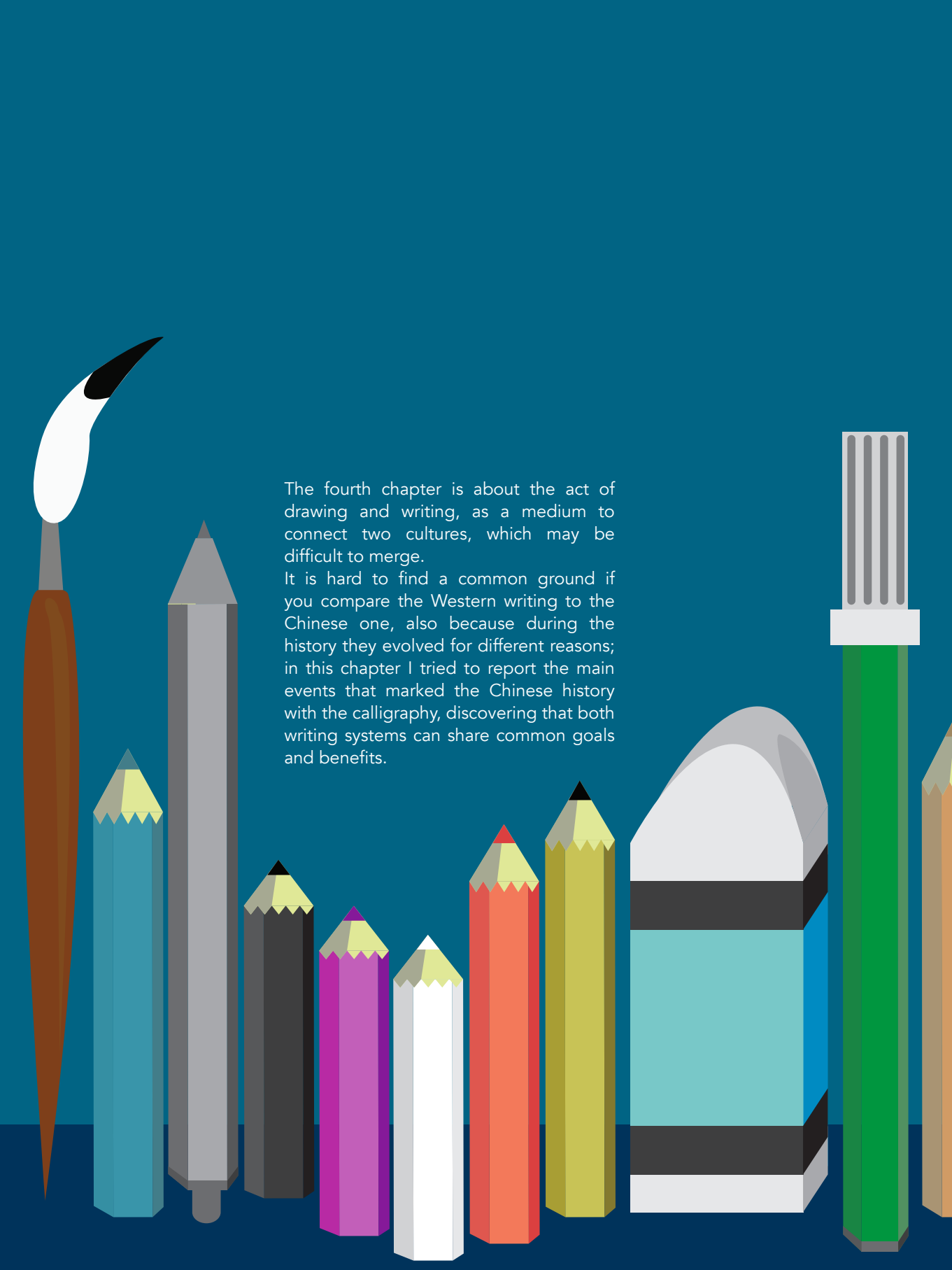
From the second month in Shanghai, I needed to adapt myself in the environment with the other people, learning where to go and how to move, creating a mind map of the city where I localized the places that I needed to know, for example where to buy the food, or the shortest way from my home to the university.

I can say that a good starting point to begin with is to define the level of needs that a person has to learn, and know about the culture that hosts him. The tourist, that just need a superficial knowledge of the place and culture, in order to get information and interesting notions, or the foreigner, that just arrived and is going to stay for at least 5 months, so he needs to learn how to move in a more efficient way and understand not only the culture but also how to interact with the people around him. We have also two kind of local people, the person that lives in the city so he doesn't need any information about it but maybe to enjoy it more, and the person that just arrived but who can understand the language, so for him it will be less difficult to adapt.

This chapter aimed to confront what I know, as a foreigner, about China and what kind of connection I can use to enable a more efficient way the will of learning and adapting.

The fourth chapter is about the act of drawing and writing, as a medium to connect two cultures, which may be difficult to merge.

It is hard to find a common ground if you compare the Western writing to the Chinese one, also because during the history they evolved for different reasons; in this chapter I tried to report the main events that marked the Chinese history with the calligraphy, discovering that both writing systems can share common goals and benefits.

Chapter 4
Expression of Drawing and Writing

4.1   The act of drawing

"Writing is a form of therapy; sometimes I wonder
how all those who do not write, compose, or paint can
manage to escape the madness, melancholia, the panic
and fear which is inherent in a human situation."
(Graham Greene, *Ways Of Escape*, 1980)

The previous chapter introduced the topic of the Chinese writing, a system that uses logograms[62] called Chinese characters, which are tens of thousands. This system of writing cannot be compared directly to the act of writing that is diffused in the western culture, because it touches also common points with the culture of drawing. Drawing is defined as a form of visual art that makes use of any number of drawing instruments to mark a two-dimensional medium. It is one of the major forms of expression within the visual arts, and it is generally concerned with the marking of lines and areas of tone onto paper. Usually they use traditional instruments (graphite pencils, pen and ink, inked brushes, wax colour pencils, crayons, charcoal, chalk, pastels, various kinds of erasers, markers, styluses, and various metals). The most common support for drawing is paper, although other materials, such as cardboard, plastic, leather, canvas, and board, could be used.

Temporary drawings may be made on a blackboard or whiteboard or indeed almost anything. Chinese traditional painting uses the brush painting technique, on a rice paper support (*Figure 33*).

An artist who practices or works in drawing may be called a draftsman or draughtsman, but the act of drawing can be executed and practiced freely by anyone, from kids to people who actually did not studied the art of drawing anymore.

Almost all draftsmen use their hands and fingers to apply the media, with the exception of some handicapped individuals who draw with their mouth or feet.

In the ancient China, painting was seen as an artist work for the royal court, becoming later an exclusive activity of the gentlemen.

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62   A **logogram**, or **logograph**, *is a grapheme which represents a word or a morpheme (the smallest meaningful unit of language). Logograms are commonly known also as "ideograms". Strictly speaking, however, ideograms represent ideas directly rather than words and morphemes, and none of the logographic systems described here is truly ideographic.*

Drawing has been a popular and fundamental mean of public expression throughout human history. It is one of the simplest and most efficient means of communicating visual ideas.

In the design field, the sketching is an easy way to explain a concept or a thinking to other people, it is also used together with words to give a shape to some thoughts that cannot be represented only by words.

The wide availability of drawing instruments makes drawing more common than other media, and since the definition is not constrained by the tools, any element or material that can trace a sign on a support can create a drawing.

It is often disheartening to see your work compared with those of the professionals, but it is often said that the difference between an amateur and a professional artist is the amount of time spent drawing.

Here is a list of tips to improve the drawing skills through the time[63]:

• Just draw because you have to spend at least 2 hours a day drawing every day. You can either draw from things you see or things you think of;

Figure 33. Traditional Chinese painting with brush.

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63   All the information in this chapter about drawing and writing tips and drawing benefits are from the text of *Barte, 2010.*

- Go to life drawing session at least once a week, better yet twice if you can make it. Just browse the World Wide Web for life drawing session near you. The session usually last about 3-4 hours;
- Study from any old school master sketches and try to mimic the piece. You will intuitively learn and try to figure out how they did what they did, the more you do the better you will get.

It is interesting how from those tips we can detect that a constant practice and the act of mimic can be applied to other disciplines. Also for games, tutorials and practice are often the first step that a player encounters during his experience.

Drawing and painting
In Western terminology, drawing is distinct from painting, even though similar media are often employed in both tasks.
Dry media, normally associated with drawing, such as chalk, may be used in pastel paintings. Drawing may be done with a liquid medium, applied with brushes or pens. Similar supports likewise can serve both: painting generally involves the application of liquid paint onto prepared canvas or panels, but sometimes an underdrawings is drawn first on that same support.
Drawing is often exploratory, with considerable emphasis on observation, problem-solving and composition. It is regularly used in preparation for a painting, further obfuscating their distinction. Drawings created for these purposes are called studies.
Drawing can be divided into several categories, including figure drawing, cartooning, doodling and shading.
A quick, unrefined drawing may be called a sketch.
In fields outside art, technical drawings or plans of buildings, machinery, circuitry and other things are often called "drawings" even when they have been transferred to another medium by printing. New way of communications were created by the drawings. Animations are basically a long series of drawing that create a motion, storyboards of movies are made by drawing to have a complete visualization of the scenes and the characters.

4.2 The Act of writing

Technical drawings are important to create physical things, therefore the 3D modelling can be defined as the digital version of drawing and sculpting.

We can assert that drawing is an instinct we were all born with. We have to be taught to read and write, but we are born with the ability to learn to draw, it is so important that we learn it without a teacher.

Drawing can be a good support for our survival and success, that is a reason why toddlers learn to draw before they begin first grade.

Here are some benefits of drawing:
- we need drawings to figure out things that we are thinking about, making us smarter;
- most inventions have not yet been invented. Drawing will help us discover them;
- it teaches us that many mistakes can be fixed and many mistakes are good, because they help us discover new ideas;
- it teaches us how to think better because when we draw our mind is always thinking about new ways to draw things. This makes us grow more thinking neurons and we get smarter;
- it helps us notice and see more. After you draw something, it is harder to forget how it looks;
- it helps us explain things and give instructions;
- it is wonderful way to help us tell stories;
- it is good way to make an argument;
- drawings are used in advertising to try to convince us to buy something;
- drawings are often used to keep us safe. Warning signs use drawings to remind us what might happen and that we need to be careful;
- it is used to make things more beautiful;
- it can remind us of bad and good things that happen and bad and good things that people do;
- drawings, symbols, and designs are used in churches, mosques, synagogues and special places to help give meaning to ideas and feelings that are often too hard to put into words.

Chinese characters represent words of the language using several strategies. A small number of characters, including some of the most commonly used, were originally pictograms, which depicted the objects denoted, or simple ideograms, in which meaning was expressed iconically. Some other words were expressed by compound ideograms, but the vast majority were written using the rebus principle, wherein a character for a similarly sounding word was either simply borrowed or (more commonly) extended with a disambiguating semantic marker to form a phono-semantic compound character. Going back to the general definition of writing, the act of writing is defined as a medium of communication that represents language through the inscription of signs and symbols.

In most languages, writing is a complement to speech or spoken language. Within a language system, writing relies on many of the same structures as speech, such as vocabulary, grammar and semantics, with the added dependency of a system of signs or symbols, usually in the form of a formal alphabet.

The result of writing is generally called text, where the recipient of text is called a reader. Writing, more particularly, has two meanings: writing as a text or something that is written and writing as a gerund, which designates the activity of writing.

It refers to the inscription of characters on a medium, thereby forming words, and larger units of language, known as texts. It also refers to the creation of meaning and the information thereby generated. In that regard, linguistics (and related sciences) distinguishes between the written language and the spoken language. The significance of the medium, wherefrom meaning and information is conveyed, is indicated by the distinction made in the arts and sciences. For example, while public speaking and poetry reading are both types of speech, the former is governed by the rules of rhetoric and the latter by poetics.

By definition, the modern practice of history begins with written records; evidence of human culture without writing is the realm of prehistory.

The motivations for writing include publication, storytelling, correspondence and diary keeping, an instrument to keep track on history, dissemination of knowledge through the media.

Writing is a powerful tool for learning, it plays a critical role in our education. It is the reason why so many professors continue to insist that students write papers or keep journals even in courses that are not traditionally thought of as writing courses. Students

in a class get direct benefits from writing papers, keeping a notebook, or keeping a journal or log.

The act of writing give also some benefits, for example:
- helps us discover what we know;
- writing about a topic stimulates our thinking on that topic and helps us to probe knowledge and experiences we have stored in our subconscious minds;
- generates new ideas;
- stimulates our minds to make connections, see relationships and draw analogies that would not have occurred to us if we had not started to write;
- organizes our ideas and put them in explicit form. Often we can clarify vague or elusive concepts for ourselves by writing about them;
- makes our thoughts available for us to look at and evaluate; we can distance ourselves from our ideas and see them more objectively when we write them down;
- helps us to absorb and master new information; we understand material better and retain it longer when we write about it;
- solves problems by clarifying their elements and putting them into a visual context where they can be examined;
- writing about a topic makes us active learners rather than passive receivers of information.

A person who composes a story or message in the form of text is generally known as a writer or an author.
Specific designations exist dictated by the particular nature of the text, such as that of poet, essayist, novelist, playwright, journalist, translator, and more. In a certain way, also graphic designer is a type of writer that knows the art of communication through the use of type and images. Writing is a distinctly human activity. At the moment, the only confirmed writing in existence is of human origin. Any person is capable of making or creating a writing piece. Some people may even decide to publish a story or message. The era of technology enabled a fast way to transfer and share information, writers can be reporters but also bloggers, small platforms created new kind of messages, as private message, public post, a personal blog as a journal, we have also the possibility to easily search for texts and gather by keywords and topics.

Tools and materials

The many tools and writing materials used throughout history include stone tablets, clay tablets, bamboo slats, wax tablets, vellum, parchment, paper, copperplate, styluses, quills, ink brushes, pencils, pens, and many styles of lithography.

The typewriter and various forms of word processors have subsequently become widespread writing tools, and various studies have compared the ways wherein writers have framed the experience of writing with such tools as compared with the pen or pencil.

The brush is the traditional writing instrument in Chinese calligraphy (Figure 34).

The body of the brush can be made from either bamboo, or rarer materials such as red sandalwood, glass, ivory, silver, and gold. The head of the brush can be made from the hair (or feathers) of a wide variety of animals.

Such traditional practice gave the possibility to build around the discipline some rituals that derived from ancient stories and myths, for example, there is also a tradition in both China and Japan of making a brush using the hair of a new-born, as an once-in-a-lifetime souvenir for the child.

This practice is associated with the legend of an ancient Chinese scholar who scored first in the Imperial examinations by using such a personalized brush. Calligraphy brushes are widely considered an extension of the calligrapher's arm.

Calligraphy may also be done using a pen, but pen calligraphy does not enjoy the same prestige as traditional brush calligraphy. Now we have new digital instruments to write, that use both keyboards derived from the typewriter machine, and touch screens technologies[64] for mostly small devices with a screen.

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64   *A* **touchscreen** *is an electronic visual display that the user can control through simple or multi-touch gestures by touching the screen with a special stylus/pen and-or one or more fingers. The user can use the touchscreen to react to what is displayed and to control how it is displayed (for example by zooming the text size). The touchscreen enables the user to interact directly with what is displayed, rather than using a mouse, touchpad, or any other intermediate device (other than a stylus, which is optional for most modern touchscreens).*

Form of expression

Art causes people to look a little closer at the social issues, at other people and their emotions, at the environment that surrounds them, and at the everyday objects and life forms around them. It helps them see what is there but not easily perceived. The artist brings out what cannot be seen or felt easily.

If we take the history of Chinese calligraphy as reference, we can see that it has remained a potent force in Chinese life up to the present. During the Song, Yuan, Ming, and Qing[65] dynasties, calligraphy continued to be a central discipline of the literati, closely associated both with painting and with the social and

Figure 34. An example of traditional Chinese Calligraphy.

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65   The **Song Dynasty** *was a ruling dynasty in China between 960 and 1279. The* **Yuan Dynasty** *also Mongol Dynasty, was the empire established by Kublai Khan, leader of the Mongolian Borjigin clan, after he conquered the Southern Song dynasty in China. The* **Ming Dynasty**, *also* **Empire of the Great Ming**, *was the ruling dynasty of China for 276 years (1368–1644) following the collapse of the Mongol-led Yuan Dynasty. The* **Qing Dynasty**, *also* **Empire of the Great Qing**, **Great Qing** *or* **Manchu Dynasty**, *was the last imperial dynasty of China, ruling from 1644 to 1912 with a brief, abortive restoration in 1917. It was preceded by the Ming Dynasty and succeeded by the Republic of China.*

cultural life of the educated elite.

The appreciation of calligraphy is reflected by the Chinese landscape, as stones inscribed with the calligraphy of admired artists were erected at famous sites.

Calligraphy could also be seen on temple name plaques, on shop signs, and on couplets pasted on the doors of even very modest homes. Calligraphy, thus, formed an ever-present part of China's visual culture.

When society sees and feels clearly on these things, it provides opportunities for change in thought or appreciation of the message behind the art. It can cause people to re-examine their thinking on the subject that's put before them.

In China, during the twentieth century, the social and political uses of calligraphy have been radically changed. Calligraphy was no longer an art associated primarily with the traditional scholarly elite. Not only calligraphy has been employed as a tool of revolution, but it has become a popular amateur art, practiced by people of all walks of life, and artists have found ways to use it to challenge traditions rather than perpetuate them.

Chinese calligraphy, as the art in general, is usually about self-expression, because the artist feels strongly enough about what they are doing to try and put it into a form that they, and others, can come to terms with.

The art created as a result of their self-expression can help others, because there will always be people who feel the same way but they cannot express it themselves. These people will identify with the artist and draw encouragement, purpose, and excitement about the thing expressed.

One of the functions of the artist is to make a statement of some kind. It may be a simple statement, the beauty of the landscape for example, but it is a statement. Somehow the artist is trying to communicate an idea, an emotion, or a purpose in their work.

There is still work today for calligraphers and a substantial market for calligraphy scrolls produced in the traditional manner. Many art schools now have professors of calligraphy training calligrapher-artists.

Considerably less well-paid are calligraphers who produce calligraphy for signs and door frames. Nevertheless, this sort of calligraphy continues to form a significant part of everyday visual culture.

Today, calligraphy is practiced by millions of Chinese.

The great majority of practitioners are amateurs who find pleasure

or artistic fulfilment in perfecting their script.
Fulfilments can be reached also by some sort of art therapies that use the creative process of making art to improve a person's physical, mental, and emotional well-being.

4.3 Creativity

Since I am not talking about art but about the thinking process, I would like to understand better the drivers that enable it when we design something. Creativity is defined as the tendency to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems, communicating with others, and entertaining ourselves and others.

Commonly creativity is attributed to artists such as painters or writers, but if we go deeper profiling them, we can see that a common aspect that they share is an unusual way of thinking, resulting to the other brighter people.

Therefore, creativity is actually a reply to an inner needs of the people, without concerning about any lack of artistic skills or any more specific ability needed.

Three main reasons why people are motivated to be creative:
- need for novel, varied, and complex stimulation;
- need to communicate ideas and values;
- need to solve problems.

Creativity is any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one.

For domain we define a system of people and structures that communicates with a common language that makes sense especially inside those worlds. As an instance we can think about music domain, where we have singers; we have also different places or situations like concerts and CD store, and the whole system can communicate with the lyrics as a common language.

Creativity is viewed differently in different countries, for example, cross-cultural research centred on Hong Kong[66] found that Westerners view creativity more in terms of the individual attributes of a creative person, such as their aesthetic taste. Chinese people view creativity more in terms of the social influence of creative people, for example what they can contribute to society.

In this paragraph I explained what I think about the possibility to design a tool, that reflects the need of a possible user and makes

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66   *Rudowicz, Hui. (1998). Hong Kong Chinese people's view of creativity. Gifted Education International, 13, 159-174.*

it tangible; creativity can be the point in common between two cultures, and at the same time a ground where they can face up to each other.

Through the research related in the previous chapters, I gathered enough information to start my project.

New technologies have influenced the way we perceive the space around us, and how we live inside it.

For this reason I think that the concept of hybrid cities can fit into the identity of cities like Shanghai. A city where the speed of changes is so fast, that technologies are needed to keep on moving along with those changes.

As a foreigner who moved and lived in Shanghai for one year, I detected some main issues that require a solution, like the lack of knowledge of Chinese language mainly in the foreigner population, that creates problems of understanding and communicating with others, or the lack of will to learn the language, because of the enormous gap between a European language and the Chinese.

As a Product Service System Designer, I would like to design a proper solution that can be introduced as a learning method. Game Design will be present as a complementary discipline to approach the users, and stimulate the participation.

This chapter I am going to illustrate the whole process that I followed, to design my project of thesis.
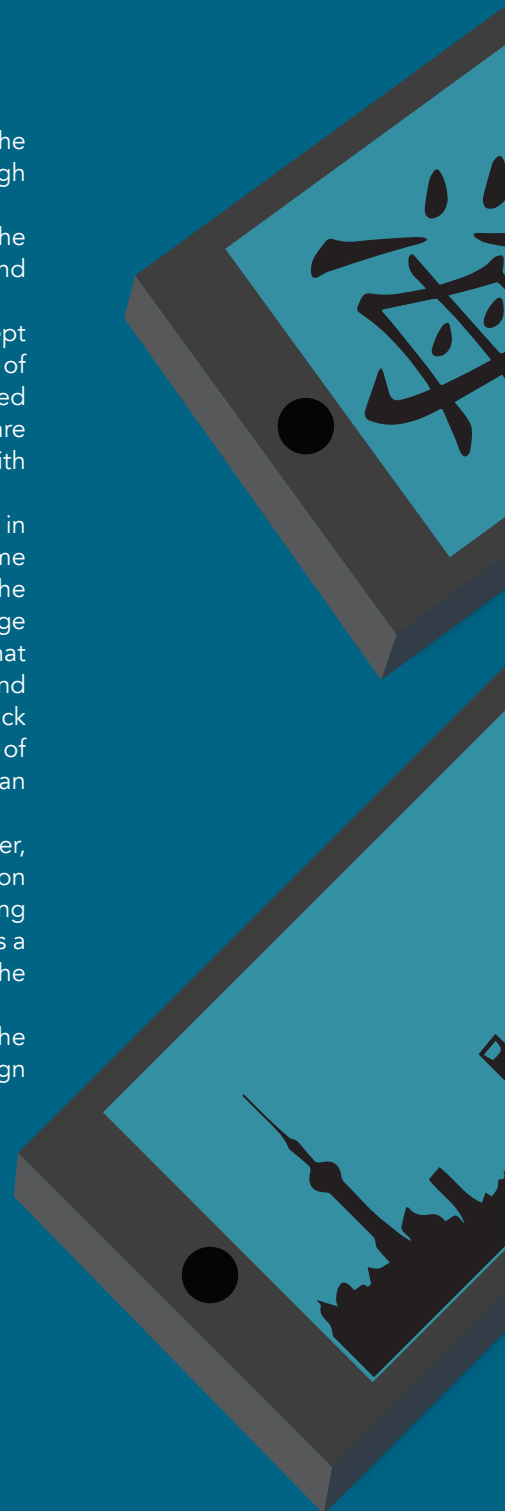
Project

5.1 Envision

«*There are two main strategies we can adopt to improve the quality of life. The first is to try making external conditions match our goal. Thes second is to change how we experience external conditions to make them fit our goals better*».
Mihaly Csikszentmihalyi, *Flow: The Psychology of Optimal Experience, 1990*

I would like to create a *service* with the *game* approach, merging the two fields to frame and eventually overcome challenges with real life actions. The service that I am interested to develop wants to focus on the reality of learning communities[67], because with the concept of hybrid cities, it would be interesting to make a project which explains how to relate inside of this system.

The idea of learning communities is also present in multi-massive online role play games, where sharing and collaboration is a reality simulation, considering the narrative environment and story, giving the possibility to cooperate and share information on a common platform (more details in the paragraph 1.4).

In real life the idea of having fun while doing something was empathized with projects as thefuntheory.com, where real issues challenged the people to design solutions involving playful elements; the main concept of the whole idea is to demonstrate that the fun is an element that can easily drive the people to have a certain behaviour, without forcing them.

I envisioned a system that can let the people learn by themselves, through the game metaphor, and receive information that can be used in real life situations. In this case I suggested the act of writing Chinese characters as main stimulation and goal at the same time. The scenario of my project will be the spaces inside the cities where people may need to find information, from the tourist that is travelling for a short period of time to the citizen with his daily routine. PSSD and Game Design must work together to deliver an emotional and rewarding experience to the users.

My personal challenge is to provide a game that can be also a tool to promote cooperation and thinking in the city.

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67   A **learning community** *is a group of people who share common emotions, values or beliefs, are actively engaged in learning together from each other, and by habituation.*

5.2 Users

In the third chapter I detected a categorization of people who lives in Shanghai, in this phase of planning I added a further step, setting some questions to examine the potential range of my service.

To define a range of users, the first questions would be "where do they come from?"
- Tourists. People that are travelling or visiting places for pleasure;
- Local people. People who live in Shanghai and understand the local language.

The second question can merge again the two types of users defined before, it would be addressing the reason and the interest about the topic of writing "Who would you be interested in this kind of service?"
- amateurs, people who are engaging the activity in order to learn;
- mother tongues, people who are just interested in the challenge of the game:
- fans, people who are interested in learning uncommon characters and improve their writing skills.

The next step would be to frame the reasons that drive the people into this service. "Who would you be in this service?"
- hobbyists, people who pursue a particular activity or hobby, like writing or playing games;
- explorers, adventurers who explore an unfamiliar area;
- achievers, people who aim at the success and achievement of goals;
- new Learners, people who wants to start to learn how to write.

Another type of users would be the one who will engage this service maybe just once, so the question would be "Why do you want to try this service?"

- *I have a lot of free time and I like to learn;*
- *I want to learn by myself how to write but I don't know where*

to start;

- *I love this city and I want to communicate with the local people;*
- *I want to show my writing skills to my friends;*
- *I want to make a change in my city, to improve it;*
- *I have some thoughts but I don't know how to visualize them;*
- *I need a reason to practice Chinese writing.*

5.3   Oriented User

The users that I listed in the previous paragraph, are a possible target that may come across this service.

To guarantee the success at the service launch, I should select a particular type of user to ensure the start.

For example Facebook[68] born as a platform designed for students of a particular university, it was later expanded to other schools and nowadays is a worldwide social network.

Considering in my thesis, the experience in Shanghai and the first interactions with the city, my oriented user will be a person that goes to Shanghai for the first time, not for just a vacation but to stay for at least 5 months.

I move away from the idea of tourist and go to the aid of the people who need to learn how to move around the city and integrate them with local community.

As I explained in the previous chapters, there are different level of needs and I give to the user the possibility to choose his priorities based on his knowledge of the Chinese language, creating the outline of the game that I would like to create.

Survey

In order to have a first range of data from the possible users, I created a survey.

It has the purpose to provide me the proper data in order to understand the possibility of my app.

This survey is open to everyone without any restriction, because it is not oriented by the located user but more about the definition of the wireframe of the outcome. However, since the Chinese writing system was too specific for this survey I preferred to stay vaguer and talk about drawing skills and calligraphy.

The questions that I proposed are really general, to create a basic database in support of my idea.

The questions were divided in three main categories, the first one was about the identity of the interviewed (age, nationality, profession), and the second was about how they interact with

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68   **Facebook** *is an online social networking service. Its name comes from a colloquialism for the directory given to students at some American universities.*

the mobile devices. The second phases was important because it defined the main activities which the users were interested in, asking also some specific questions about how their relationship with the mobile gaming. The third phase was a range of question about the calligraphy, in order to frame the main issues and the challenges that I wish to touch in this project.

The answers from the questionnaires gave me more clues about the possible structure of my idea.
My oriented user is still the same and it has now more values:
1. The GPS is usually used to apply digital maps or to locate digital files in specific places; in particular the act of tagging pictures or information into a location it is not seen as a trend to follow because is overused and boring, but it is a tool that can support the memory of the user, as a proof of the presence and a remembrance.
2. 68% of the people replied that they would like to follow their instinct in a short time travel instead of going into the touristic places.
3. 81% of the people play games on their devices in the short time break.
4. They play games because they want to be in a different world, and sometimes they find interesting to train their memory.
5. 91% of the people like the act of drawing but they are amateurs.
6. To leave a mark on place they prefer writing on the walls or carving on trees, but in the most legal way they sign guest books in the museums.
7. It is interesting how they explain that some of them draw or make schemes to explain and communicate instantly an idea, instead of trying to talk to explain it.
8. About drawings, most of them are self-learner and practiced in their free time from internet tutorials to doodles on short breaks. But regarding the calligraphy they mostly write using electronic devices.

I used those data to outline the wireframe of the applet, with the specific function that might be interesting and helpful for the learning process and at the same time it clarified me some doubts that I had towards the oriented user that I defined in the previous paragraph.

Co-design

I started a Co-Design (discussed in the chapter 1.4) session with some Chinese students in order to define and improve what my research and interviews brought to me.
I have to precise that the respondents were Tongji University students, coming from the Design & Innovation faculty; so I didn't need information about their writing or drawing skills, because they had supposedly already the basics on communication through drawings or visual schemes.
I started with interviews to the students, having conversations and some brainstorming to deeply understand the topics of creativity, travel, city and virtual reality.
The interviews are more located in the field, it is mostly about open questions, to understand the user motivations and the challenges that I embrace.

I prepare some basic questions to enable the conversation and touch some critical points that I found useful to address:
• Which app do you use the most?
• How do you organise a travel? Tools and decision making.
• What are your priorities in a travel?
• The best tool for a traveller? Pros and cons?
• Which kind of elements do you like in a game?
• Do you have any idea about improvement in a city?

I received the input that internet is a major issue for the travellers, especially for short time experiences, because they will not have the time to buy a local sim card. It is not convenient for the price and the time that you invest on purchasing it and recharging it.
From the other point of view, the local people, internet is really important and socializing with online communities or communicating with friends is the main function of a smartphone. The Tag[69] is not followed by all the people, but they mostly understand that it could be useful in order to remember something in particular with a key word.
Most of the people that I interviewed are not into the handwriting,

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69   A **tag** is a non-hierarchical keyword or term assigned to a piece of information (such as an Internet bookmark, digital image, or computer file). This kind of metadata helps describe an item and allows it to be found again by browsing or searching.

because it is not convenient for some works, unless they are into an environment, like a classroom, where writing on paper is seen as the most appropriate thing to do.

As travellers, the people find themselves pretty rare moments for drawing or writing, because of the space that a diary or a sketchbook will take, but apps and guidebook are still a necessary tool to keep. Switching to the topic of games, I discovered that most of them are not gamers but they casually play when they feel bored or they let the time pass in the dead moments of the day. They like the states of mind that games give to them, more than scores and rewards. A full online service cannot be delivered to all the users that I imagined, so I decided to create an offline part of the service, a product that can be used alone.

The offline part purpose is to touch the emotional part of an experience, giving space to both writers and doodlers, without a considerable skills restriction.

About the online part I will call it the second start, because it can be enjoyed before or after the offline part. The idea of community will be used in this app, creating a relationship between space and players, using a virtual media like an applet.

People suggested me to give to people the possibility to let the also use their device write something, because of the space issue of carrying many stuff around the city.

Since my idea was to move the attention from the smartphone to the outside of the screen, I thought that maybe enabling the movement around the space as a rule would be a better focus, creating fixed data in the space and moving the people, and not the information around the city.

5.4 Project Wireframe

The next part is to define what service is trying to achieve and the opportunities that we can trigger:
- Promote the Chinese writing to the people who cannot understand it.
- Create a community that can cooperate or challenge themselves.
- Elaborate the city structure based on the essential information for a new comer.
- Make the act of moving around the city more engaging.

We have some interesting study cases that I took as references.

Figure 35.
Kanji Battle.

Figure 36. Some examples of illustrations in Chineasy.

Kanji Battle (*Figure 35*) is card game that teaches how to read Japanese characters, giving a set of card with the characters, that the players will use as spells to fight with other players.

The interesting part of the game is that the act of reading will become more natural and fluid after few rounds.

Another example of learning tool is Chineasy.

Chineasy is a book that uses a methodology of learning how to read Chinese characters, based on recognition of simple illustration. (*Figure 36*)

From Chineasy I like the idea that using a visual solution you can deliver a message without losing is content, designed by ShaoLan.

The aim of Chineasy is to give the West a real understand and knowledge so that people can understand china and appreciate Chinese culture via their own eyes rather than layers of packaging, manipulation or loss in translations.

From this point I decided to develop the project on an applet running on devices connected to the World Wide Web.

The reason is that people who moved to Shanghai to stay at least 4 months would be probably more motivated to buy and use a local SIM card, and I took advantage of that creating the applet.

The problem that I framed in the third chapter of my thesis were foreigners who come to Shanghai, and find hard to communicate and understand the language.

But the hardest part is to instil them the incentive to start to learn Chinese.

From that problem I aimed to use the calligraphy as a moment of reflection that can sensitize the foreigners toward the culture of Shanghai and help them to make the first steps into the experience of living in the city.

Figure 37. Kanji learning sheets.

Testing

Before proposing the outcome that I envisioned I wanted to test if my game can be a good way to start to learn how to write in Chinese.

Since my project is a digital system, this testing is more a way to test the learning part and the possibility that we can trigger by using the act of writing as a media, so I prepared a physical version of the elements that I wish to insert in my project.

I prepared a set of Kanji[70] sheets (*Figure. 37*), a set of different kanji with various basic words, usually studied by beginners in language courses.

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70   **Kanji** *are the adopted logographic Chinese characters (hanzi) that are used in the modern Japanese writing system along with hiragana and katakana. The Japanese term kanji for the Chinese characters literally means "Han characters"and is written using the same characters as the Chinese word hanzi.*

Figure 38. Tester tries to rewrite the kanji in the right order of signs.

The sheets contain the kanji and what do they mean, explaining also the right order of signs that the student must follow to write properly.

The characters must be written inside a square box to train the students to write with the exact dimensions and proportions of the kanji and hanzi. In order to learn how to write them, students must practice to write them, focusing on following the right order, until it become more clear and natural.

For the testing I asked to try to rewrite on a a paper the kanji, following the right order. (*Figure. 38*)

The aim of the test was to see how writing can help to learn how to recognize characters easier after.

The kanji sheets helped to teach the right way to write the kanji, leading the tester step by step, showing the entire process of writing.

The tester reaction was that after writing a character it was more easy to remember it by imagining the process of how to write it instead of trying to recognize it at first sight.

We repeated the process with different kanji and after that it was

clear that most of the characters follows a specific pattern in the way you write them, for example some kanji contain inside of them a part that is also in other kanji, so it was really easy to write them because it was a process already done before.

The last part of the test was to challenge the tester to write the characters already done, but this time I put in front a chronometer and challenge them to write faster. (*Figure. 39*)

At some point the teaster didn't need to look at the kanji sheet anymore because the kanji was already learned.

I also tested if they could write a kanji, just knowing the meaning without the kanji sheet, and it was interesting on how the testers rememeberd most of the characters associating it with some shapes that they bestowed to the kanji.

The test was helpful because it was a physical version of what I want to create in a digital way, and it highlighted what I really need to focus on, like the challenging part, making it more appealing, and a reward system that can make it more interactive with the city.

Figure 39. Tester tries to rewrite the kanji already learned in the fastest way.

5.5 Applet

The **applet** will be a game that teach you how to write in Chinese and understand Chinese characters.

I called the project **TheSign**, because a simple sign is the start for both drawing and writing, a gesture or action used to convey information or an instruction.

A **sign** is an object, quality, event, or entity whose presence or occurrence indicates the probable presence or occurrence of something else.

Sign can be also a way to communicate or to place a name.

The idea is to distribute around the city different **areas** where the player will find **challenges**.

The idea is simple: in each area there is a Chinese character called also **Hanzi** in Chinese, it will appear and you need to rewrite it to unlock and reveal his meaning.

For "unlock" I mean to record on your account the fact that you already wrote the character in the right way, and by doing that, the applet will decide if you need to revise some Hanzi to test also your memory.

Figure 40. Login screens.
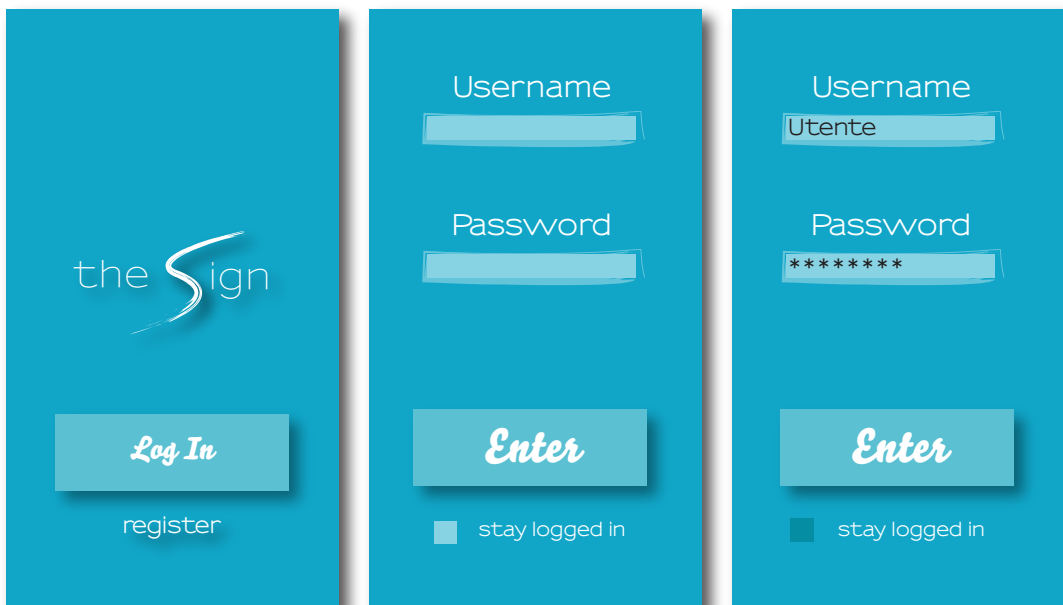
At the beginning it will show you how to write it, then after you unlock it, you will be challenged to do it faster than the other players. After unlocking the characters, new ones will appear, and to test your memory sometimes already unlocked Hanzi will appear in English and you need to remember the Chinese character related.

It is designed **for people in Shanghai** who wants to learn and understand at least the basic of Chinese calligraphy in order to survive in the city.

Since I am interest in the wireframe of the game, the graphic that I propose in this chapter is a temporary solution that I use in help to the reader to understand the whole project.

To begin:
- Download the applet into the smart device connected to the internet, and activate the GPS.
- Create a profile for the player. (*Figure. 40*)
- Login your account and choose the Level of difficulty that you want to start with. (*Figure. 41*)

Figure 41. Flowchart of the difficulty level.
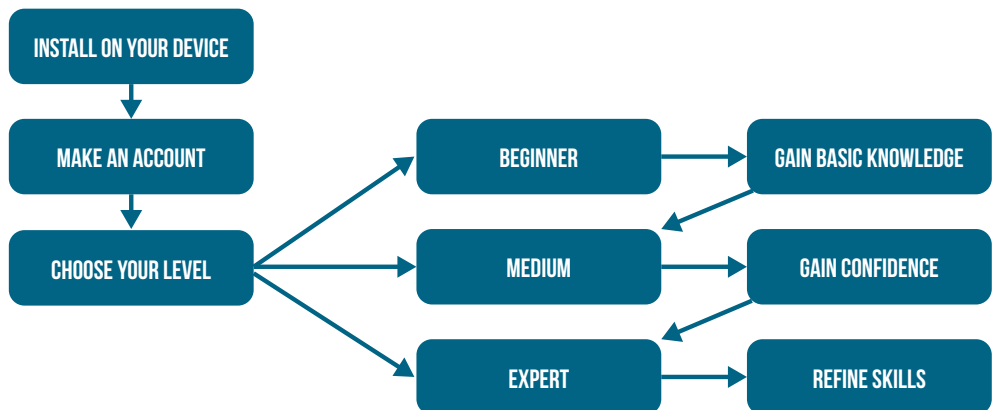
Figure 42. Screens of Level selection and Level check.
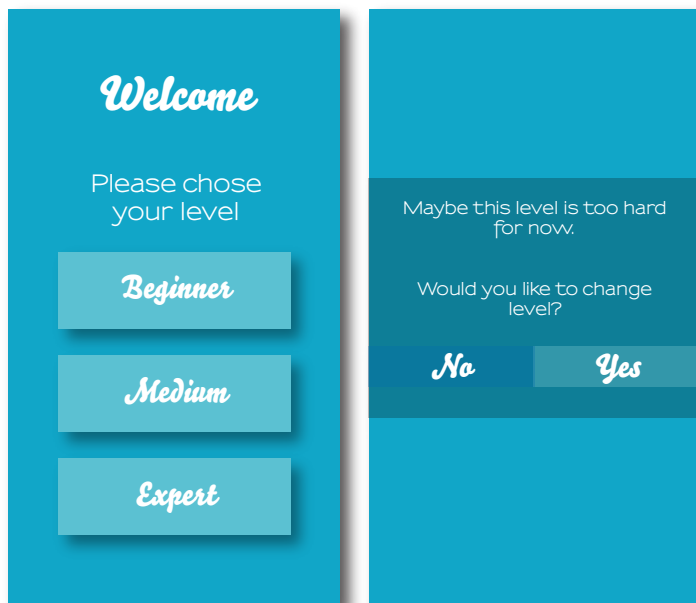
In the chapter 2, I introduced different kind of users in the city, the beginner, the average, and the expert.

I structured the game on different levels, based on those users.

Beginner Level (essential)

It is a set of basic Chinese characters that you can find around the city, on the signposting.

They can also be Chinese characters used for emergency cases.

This level is made for the people who don't know how to write or read in Chinese, in order to provide them the basic knowledge to survive in Shanghai.

Medium Level (looking around)

It is a set of Chinese characters that can be related to specific places in Shanghai, they can be used to practice Chinese writing and enlarge your vocabulary.

This level is made for the people who is willing to learn to write and read in Chinese, to interact with Chinese people.

Expert Level (refine)

The expert level is a set of random Chinese characters that will show up around the city. They can be related to any possible topic. This level is made for who already knows how to write in Chinese, but wants to improve their handwriting.

Level Check

There is the possibility that player will choose the wrong level, so the system will check his game results, and if the applet detects that the player is having a hard time to win the game, he will suggest him to change his level. (*Figure. 42*)

To play the game:
- Enable the GPS and walk around the city.
- The closest portal to you will interact with the smart device.
- A Chinese character will appear and you need to rewrite it, repeating the strokes in the right order.
- Do it until you get it right, and the translation in English of the characters will be available.
- Unlocked characters will be recorded in the app so you can practice to write offline.

In the first chapter I talked about the *flow chart* and *the learning curve*, referring in particular to the cases where workers that while were doing fun activities, had a inclination of doing a work with better results, thanks to the good mood. Since the problem that I framed was the lack of motivation in learning the Chinese, the game structure comes in our help, creating a mechanics that addresses the learning curve along with the flow chart. In our particular inside the game we can see three main phases, the first one is the training, including inside the tutorial and the first tries,

Figure 43 The three main phases during the experience inside the game.

Train — see how to write it — try to write it

Learn — learn how to write it correctly

Improve — write it naturally
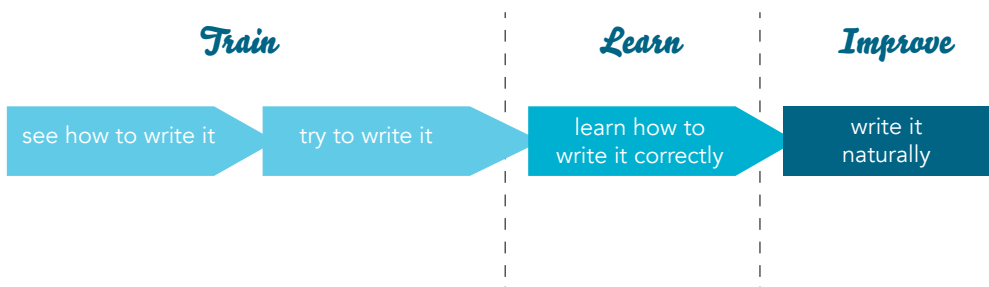
the second phase will be the learning that we achieve when the player starts to complete the challenges, and the third phase will be the improvement, where the player will start to understand and recognize naturally the Hanzi because he get used to them in the previous phases, as like the case studies that I introduced before, where learning is not the main concern but a natural mechanism that the mind exercise in order to beat the game. (*Figure. 43*)

Story of the game
In Shanghai, the gates of the Spirit World are opened, a lot of portals were appearing around the city and spirits are coming out from them. You volunteer to be a Portal Guardian and stop the invasion of the spirits. The spirits can be stopped and sealed back to the other world with a special spell, the Chinese writing. Each spirit is represented by a Chinese character that you need to write in time to seal him. Portal Guardians are gathering in Shanghai to stop the invasion and to see who the best among them is. Learn the basis, uncover new words, improve and refine your skills.
The story is an important important element in the game that enables empathy between the players and the city, a sensation that can be felt also when you watch a movie or read a story with a hero as a protagonist[71].

Game mechanics
- When you are inside an area of the Spirit World, you may encounter some Spirits.
- You can defeat a Spirit by writing the Seal (Chinese Character) of the area. If you write it correctly the Spirit will be sent back to the Spirit World, you have a limit of time to write the Hanzi, before the spirit attacks you.
- Every attack that you receive, decreases your life bar.
- The damage is proportionate to the level of the Spirit.
- When your life bar reaches the zero, you will not be able to play for 20 minutes.
- When you defeat a Spirit the area will be safe for you, until a new Spirit will break into our world in the same area. (*Figure. 44*)

---

71   *Campbell J. L'eroe dai mille volti, 2012.*

START

HANZI APPEARS

TUTORIAL TO WRITE IT

WAIT 1 MINUTES FOR 1 HEALTH POINT

1° END

DO YOU HAVE STILL HEALTH POINTS?

NO

YES

TRY TO WRITE THE HANZI

RESULT

NO

LOSE 1 LIFE

NEED HELP?

NO

YES

ASK FOR HELP

YES

GET POINTS

REVEAL THE MEANING OF CHARACTER

UNLOCK INFORMATIONS

DO YOU WANT TO CHALLENGE SOMEONE ON THIS HANZI

YES

SEND CHALLENGE

NO

WAIT FOR THE NEXT HANZI

2° END

Figure 44. Flowchart of the game system.
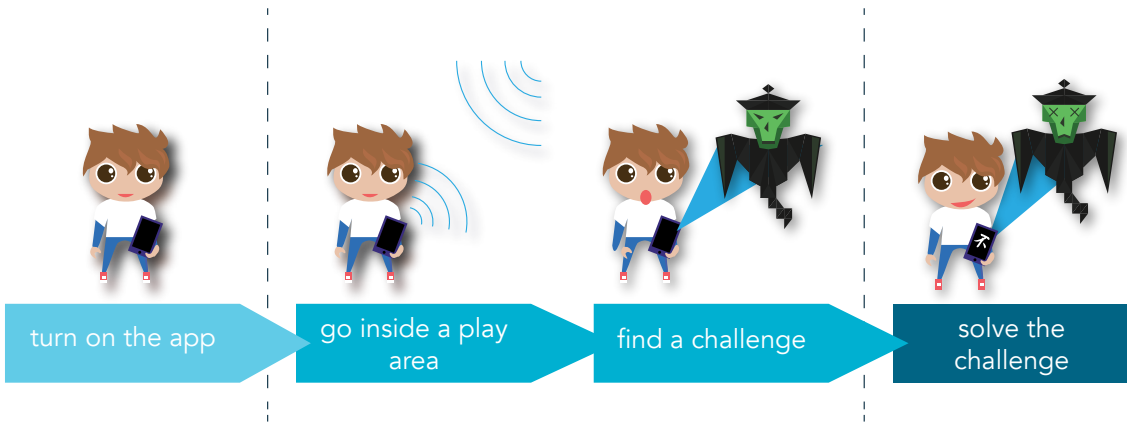
| turn on the app | → | go inside a play area | → | find a challenge | → | solve the challenge |

How a battle works

You need to go inside a Spirit area of Shanghai in order to play against Spirits. (*Figure. 45*)

The Spirit area is a fictional name based on the story that I invented, technically it is the area of the game defined by the GPS system, located physically in an area inside the city of Shanghai, where the player can access to the game's challenges once he is logged inside the game with his account.

A virtual map is provided to detect those areas, and the applet will detect the Spirits that want to challenge you. (*Figure. 46*)

After the player solves the challenge, the area will disappear
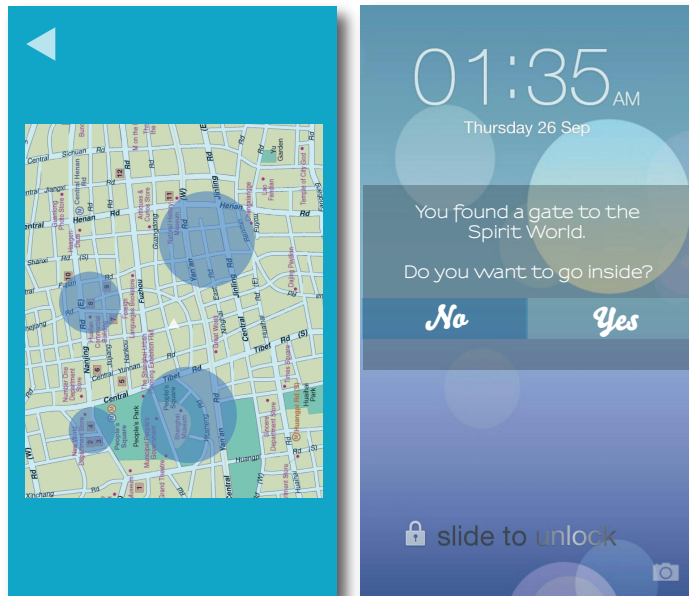
from his map, but there is the possibility it will appear again in the future.

For disappearing it means that virtually the area will temporarily not provide any challenges to the player who solved a challenge in that area.

Not all the areas are visible to all the players, having different levels will make appear different areas for everyone; this will give the possibility to create some temporary events in certain areas, in order to instil curiosity to the players and attract them.

Once the battle is accepted, a tutorial of how to write the Hanzi for this battle will appear. (*Figure. 47*)

The tutorial will be an animation appearing on the screen of the player, showing the proper way to write the hanzi appearing in the following challenge.

Once the tutorial finishes, a spirit will appear, the one that you have to seal.

He will have a Time bar on the top, a digital representation of a timer which will decrease, while at the bottom you have your Health Points bar, a digital representation of a value representing how many possibilities are left to the player to play the game.

Figure 47. Tutorial, of how to write a Hanzi.

Figure 48. How the Spirit appears, and the related Hanzi.

The game is presented as a time limit game, a genre of game where the player will have to finish the tasks in a specific amount of time, in this case the Time bar will decreases showing to the player in real time how much time he got left to write the hanzi.. Technically is a game of skill and speed, involving also a good amount of memory to make a better time. (*Figure. 48*)

In the story a Spirit will be attacking the players and in order to survive to his attacks the player will need to seal him back to his world. Seals are represented by hanzi, which will be different depending on the level of the player and the type of Spirit.

To seal the Spirit you need to write the Hanzi in the right way before the Time bar finishes, otherwise you will be attacked by the spirit and your HP bar will decrease. (*Figure. 49*)

The HP bar has I said before are a digital representation of the possibilities of playing the game, so every time the player fails to write the hanzi in time he will have less possibilities to try again the challenge. When the Time bar finishes before you complete the Hanzi, an animation with the Spirit will appear, showing that the Spirit attacked you, decreasing your Life bar on the bottom. (*Figure. 50*)

Figure 49. Write in time the Hanzi or get hit by the Spirit

Figure 50. Example of mistake during a battle.

Figure 51. Screens of game over and win.

Life bar allows the player to be able to play, otherwise to fill the Life bar the player will have to wait a certain amount of time.

Other smartphone games such as *Candy Crush Saga*. use this feature to make the player not addicted to the game but more ponderous. Every time you write the Hanzi in the wrong way, you will have to start again from the beginning, but the Time bar will not stop.

You will be able to play until you have some HP in your bar, otherwise you have to forfeit from the battle.

You will defeat the Spirit once you write Hanzi in the right way, and it will bright, showing also his pronunciation. (*Figure. 51*)

This game mechanic takes in consideration the learning process learned in the testing, adding a more appealing and easy to understand interaction with the player.

Figure 52. Rewards screen, regular level up and level change.

Scoring and rewards

When you succeed on writing a character correctly you will be rewarded by taking some experience points. (*Figure. 52*)

Experience points are used to rank all the players and give the possibility to level up or change the difficulties' level.

The character that you wrote correctly will reveal his meaning, for this wireframe I imagined the english as a common language to translate the charters into, but since the project will be developed for an internation platform, is possible to give to proper companies the task to translate the game into the main languages of players who will play the game.

It will be interesting also to hire a team who will filter the content provided by the game as rewards, giving to the player also an extra information related to the character, directly or not. For this wireframe I decided to put a non-calligraphic font because the user needs to recognize the characters around the city, and not only in a traditional way.

Where

| an area rich of signpost written in Chinese | an area defined by a particoular place or space inside of it | random area appearing anywhere close to the player |

Possible Words

Man	Restaurant	Concert
Woman	Food	Pollution
Exit	Drink	Rain
Entrance	Hotel	Sun
Left	Clothes	Event
Right	Bank	Design
Fire	Taxi	Architecture
Water	Shop	Art
Elevator	Museum	Music
Stairs	Park	Match
Emergency	Parking	Traditional
Alarm	School	Fair
Smoke	University	Fashion
Stop	Temple	Holiday

Why There

| words related to the signposts in the area | words related to the place identity | words related not to the place but to a temporary event |

Figure 53. Description of the three type of area in the game with the relative examples of words.

Location-based game

TheSign is a mobile game that can be inserted in the category of location-based games.

A location-based game (or location-enabled game) is a type of pervasive game in which the gameplay evolves and progresses via a player's location. Thus, location-based games must provide some mechanism to allow the player to report their location, frequently this is through some kind of localization technology, for example by using satellite positioning through GPS.

The need of internet for this games is related to the extra information that I will be revealed to the players.

To assign a content of the game to a specific location in Shanghai, I divided the type of Hanzi in categories related to the kind of information that they want to show to the players (*Figure 53*).

The Hanzi will be placed in different areas around the city, depending on the kind of information contained in the challenge, because is important that information related to the surrounding

雨

Yǔ

Rain

Today is going
to rain.

I suggest to
bring an umbrella
with you.
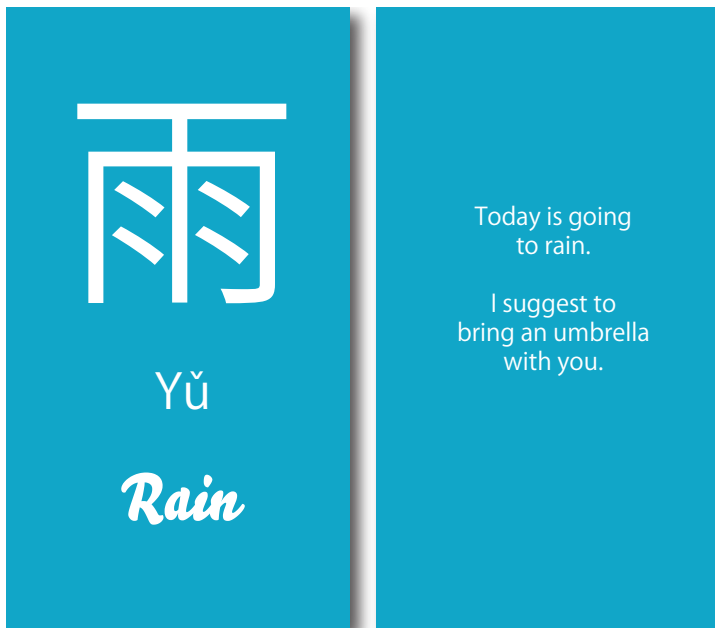
*Figure 54.
Example of tips
as information.*

should be placed in a coherent space, except for challenges not related to the area of play.

With this expedient the game will let Shanghai itself to tell a story about the places that the user is playing inside, keeping coherence with both teaching and game sides of the applet.

There are three kind of information rewards appearing on the device screen after clearing a mission.

The first kind information are useful tips, maybe related to climate conditions in the city or simple reminders, like Holidays or city events. Those kind of informations must be provided by a maintanance team that works on the backstage of the service, selecting the contents of the game and filtering the right informations that can be suitable for the players. (*Figure. 54*)

The second and third kind of information are related to the function of GPS in the smart device of the player, required not only to locate the areas to play but also to receive updates and information about the surrounding, giving the possibility to integrate the city into the game. (*Figure. 55*) (*Figure. 56*)

Figure 55. Example
of signposting
information.

出

Chū

Out

The hanzi 出口
mean "Exit".

Is really useful if you
got lost inside a
subway station.
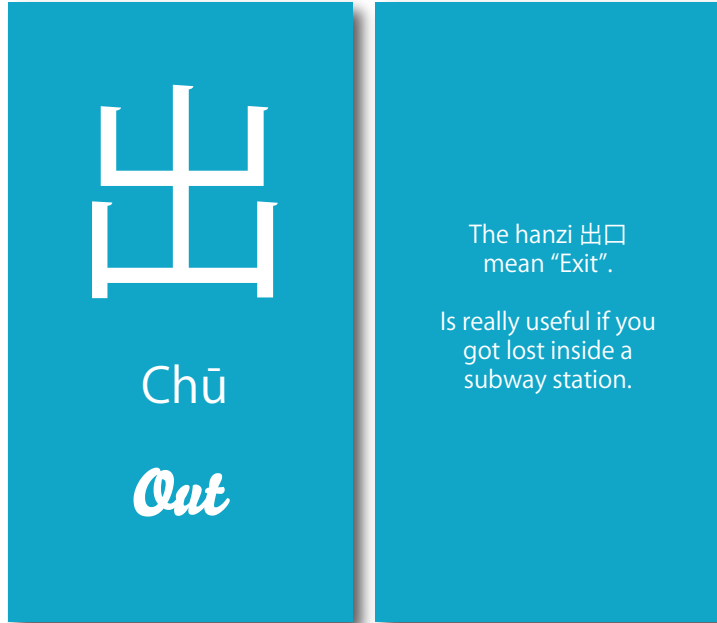
Figure 56.
Example of curious
information.

河

Hé

River

In February and March
2013, thousands of pig
carcasses were found
floating in the
Huangpu River in
Shanghai.

Some of the pigs
carried ear tags saying
they were from Jiaxing,
so that city in Zhejiang
may be the source;
however local farmers
deny that.

Figure 57. Scheme that shows how the applet leads the user to apply the teaching outside the game.

The area of play will show a Hanzi related to the informations that you can find in the area, for example particoular Hanzi in the signposts or general words that can help to describe the places inside the area.

For example if you are playing close to a subway station you might find useful tips for the directions.

The game will provide also, curious informations about the area, like interesting facts that might be interested to notice when you walk around the city.

Places

Weather

Signposts

Events

Figure 58. Some locations or situations related to the Hanzi in the area.

If we consider the applet structure and his function related to the city, I can say that the main purpose of this playful tool is to deliver to the player an interactive experience through the city.

Where the connection between the meaning of the Hanzi and the relative location of the challenge can be reached by the curiosity of the player. (*Figure. 57*)

As I introduced in the third chapter, it would be interesting to work on a project that deals with the trend of the smartphone in China, not as a critic but as a vehicle to sensitize the players toward their surroundings.

With this expedient, the act of playing will also be a good way to receive information regarding the city life, like a tool to approach the city at the best.

The player will become aware of the presence of the Hanzi in the game, also in the area where he is playing because of location-based system that distributed the right words in the right places or situations (*Figure 58*).

| find a hard challenge | search for other players in the area | ask for help | see how it is done |

Cooperation and Challenge

There are situations that require a help from someone, for example if you find characters really hard to write or remember, in that case you can try to ask for help and submit the challenge to your friends to see who will be the first to complete it (*Figure. 59*); once it is completed you will see how your friend wrote it. This means that the other player will get the experience points and the rewards, but you will get just the informations without the gaining experience points. The players that will be contacted are players actually inside the area that you are into, so if they accept you request you will actually invite them to play in your

Figure 59. In case the Hanzi is too hard for you, is possible to ask to the people in the area for help.
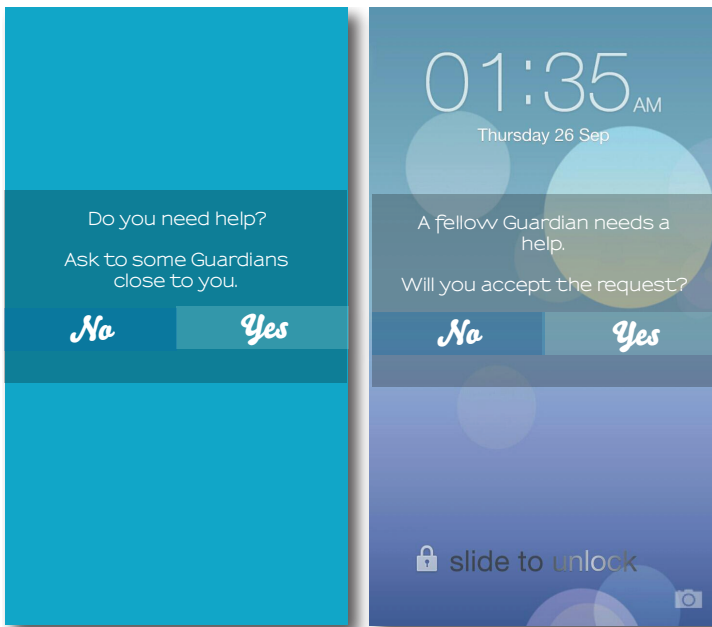
Figure 60. Help request, from sender to receiver.

Do you need help?

Ask to some Guardians close to you.

No   *Yes*

01:35 AM

Thursday 26 Sep

A fellow Guardian needs a help.

Will you accept the request?

No   *Yes*

🔒 slide to unlock

143

| solve a challenge | search for other players in the area | forward the challenge | compare results |

area, sharing the same challenge. (*Figure. 60*)Sometimes you will find a Hanzi that took you so long to learn and you want to see if your friends can write it faster. (*Figure. 61*)

In that case you can challenge them by submitting them the Hanzi that you just unlocked. (*Figure. 62*) In case the other player beats your time, he will get the rewards and the possibility to challenge you back, otherwise if the other player is not able to defeat you nothing will happen. Even in this case the area of play would be shared with other players inside of it, giving the opportunity to play inside areas provided by the game but also by the other players.

Figure 62. Challenge invitation, from the sender to the receiver.

That Spirit was hard to defeat.

Do you want to challenge some Guardians close to you?

No   Yes

01:35 AM
Thursday 26 Sep

A fellow Guardian challenged you, to beat his speed.

Will you accept?

No   Yes

🔒 slide to unlock
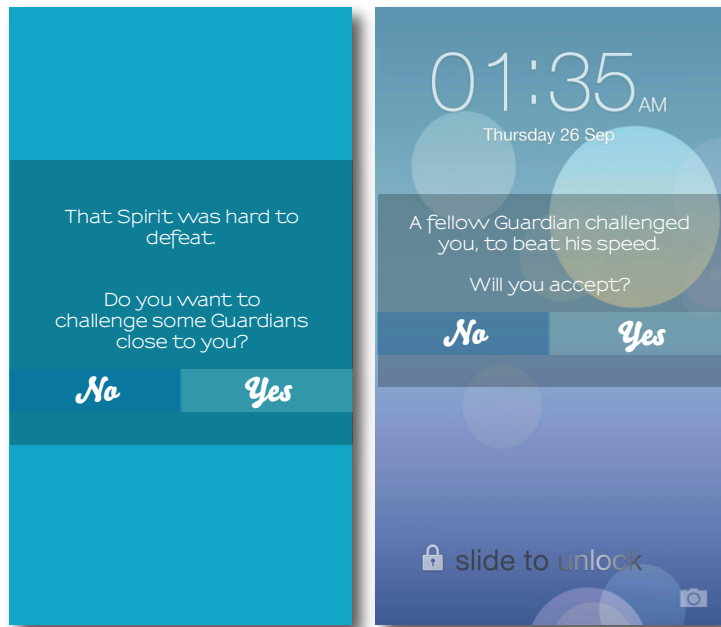
Spirits

To enable an immersion in the story the players will interpret the heroes, a group of Portal Guardians who have to protect the Portals (play area) disperse around the city from entities called Spirits. Spirits will be the antagonists of the players who will be the heroes of the game, playing around the city to fight them and protect Shanghai.

I used the word "spirit" because in the Chinese tradition, the spirit is a recurrent entity, which can be compared to the demons in the western cultures. In the game the Spirits are entities that want to invade our world, they are attracted by the knowledge of human mind, so the more you level up and the more you will

Figure 63. Character design of spirits.

Small

Big

Mysterious

Fast

Ancient

meet.

I designed the spirits dividing them into categories that represent the type of challenge that the player will be taking. (*Figure. 63*)

The spirits are divided into categories:
*   *Small Spirit*, the one that can be sealed by basic words, they are weak so they will not hurt you so much;
*   *Fast Spirit*, this one is really fast, so you need to write the seal before he attacks you;
*   *Big Spirit*, the biggest spirit, he is really slow but if he attacks you, it will hurts a lot, you need to seal him with more than one seal quench his hunger;
*   Ancient Spirit, he looks old but he is an experienced spirit, to seal him you need to write really complicated characters;
*   Mysterious Spirit, the unpredictable spirit who can reveal you interesting informations if you manage to seal him.

The Spirtis that i proposed are just a visual solution that I designed to show how the battle interface would look like and how the players will be able to recognize the type of challenges by the design of specific character. Players will be able to fight the Spirtis also in the Training Mode offline.

Training Mode

The fact that the game is expandable only visiting new areas online is balanced by the fact that there is a Training Mode for the player that can be accessed even without connecting the game to internet. The Training Mode contains all the Hanzi that you completed in the Spirit Areas. (*Figure. 64*)

You can chose to practice them, without getting any rewards. The training registers how fast you write a character, giving you the possibility to check if you are improving or not. (*Figure. 65*)

It is also a self-evaluation of the player who is willing to see his improvements and refresh his memory in case he stopped to play and train for a long time.

The training can be located in the improvement phase, where the player will use the knowledge gained from his experiences around the city in order to refine his skills in certain characters, really similiar to the exercise done in the testing where the players tested their knowledge reviewing what they already did.

Differently from the regular game played in the play area, a training will not provide any information and reward, because the training is a test that the players willingfully decide to do in order to measure his own capacities without getting any rewards.

Figure 64. Training menu, selection of Hanzi already learned.

Figure 65. An example of a training session.
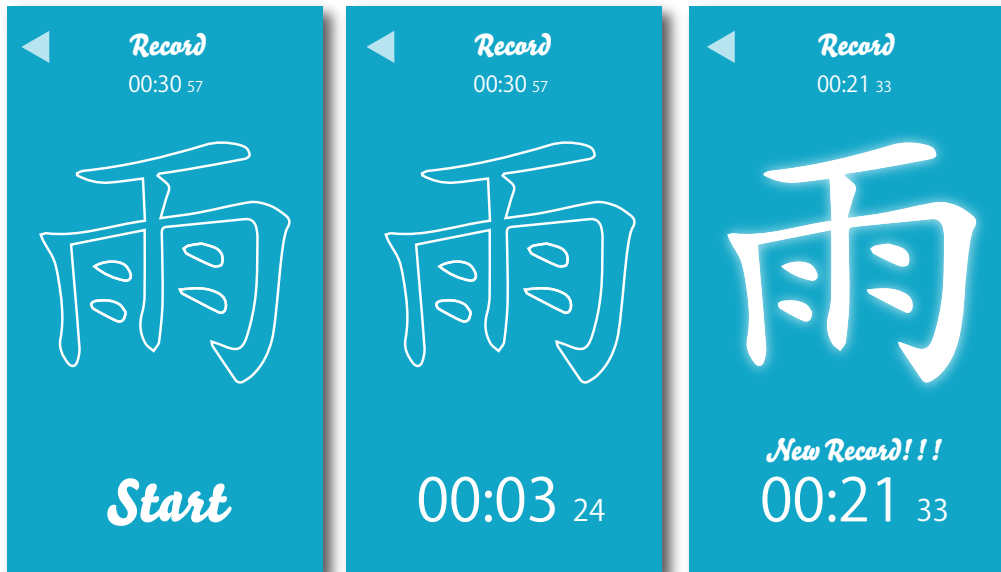
Profile

From the main screen you can access also to the Profile.

The profile menu contains the actual level of the player, the number of Hanzi discovered by him around Shanghai, and how many Spirits you sealed. (*Figure. 66*)

In a furthermore developement I would like to use those data to gain statistic informations about the learning results and also the possibility to create challenges between the players.

The possibility to evolve this game into a more challenging and interactive platform can trigger different game elements, as public leaderboard to create a ranking between the players, and related to that the possibility to provide to the players customizable avatars.

In this temporary wireframe I present just the main screens of the applet because it will be developed furthermore by a team of level designers.

Figure 66.
Main menu and
profile page.
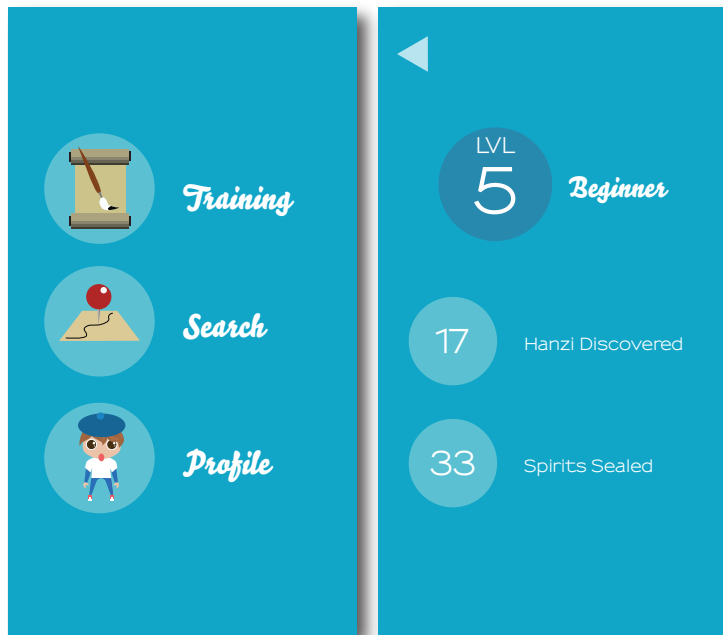
5.6   Service System Analysis

From the service point of view, we can divide the growth of the project in 3 phases. (*Figure. 67*)
The first phase would be called the pre-service period, where the team involved in this project would start to set the informations on the website to give a preview of the outcome.
Social media could start the word-of-mouth process, considering that foreigners usually prepare in advance with the right set of applets, before leaving for China.
The service can be implemented in this phase, through the suggestion of social media such as Smartshanghai.com, creating the possibility to consider the applet as one of the set of applets that you might need in Shanghai.
I took in consideration the process behind a game running on the internet, trying to frame the possible expenses and mechanism

Figure 67. Pre-Service period, create awareness.

PREPARATION

WEBSITES

TRIPADVISOR.COM

SMARTSHANGHAI.COM

SERVICE WEBSITE

SERVICE APPLET

INTEGRATION OF SERVICE

APPLETS

WECHAT APPLET

GOOGLE TRANSLATOR

GOOGLE MAPS
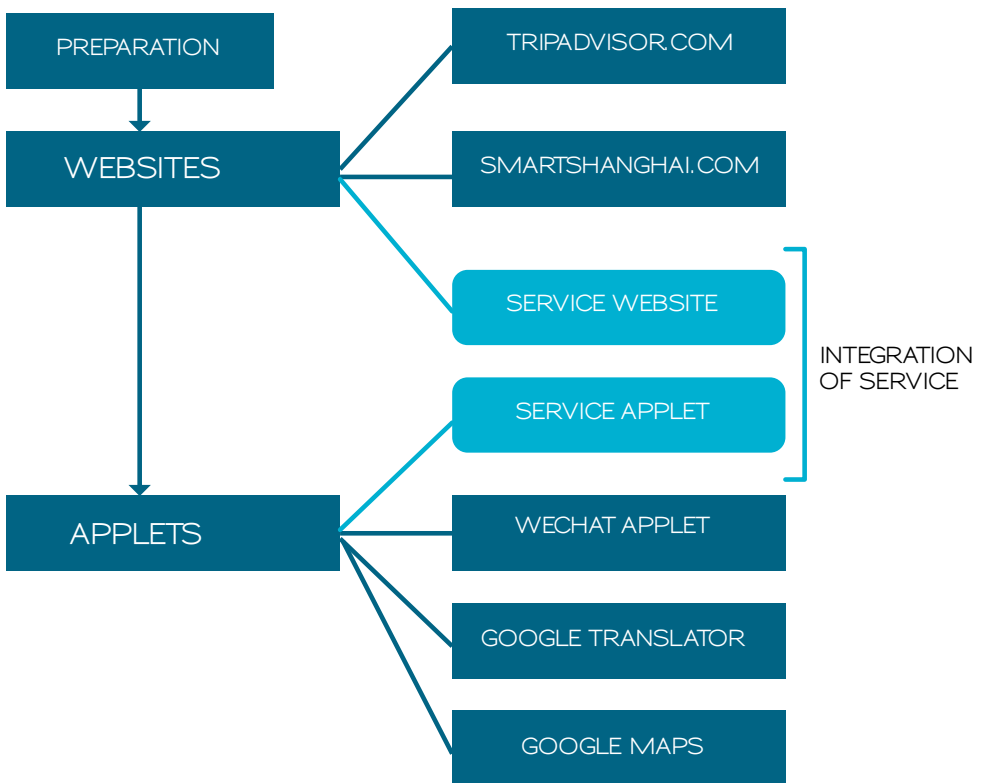
that allow the project to run.

The user can be an active or a passive player, where for active player, I mean that he has the will to play, and to do that he voluntary decide to go inside the play areas around the city.

Otherwise for passive player, I mean a player that found himself in a play area for other reasons outside the priority of playing the game, so he can decide to take the challenge occasionally or just to ignore it. (*Figure. 68*)

Figure 68. The User journey, considering the outtakes of the player.

APP INSTALLED

GOING INSIDE THE PLAY AREA

VOLUNTARY DECISION

INVOLUNTARY DECISION

PLAY THE GAME

GAME OVER

CLEAR THE GAME

LEARN

RELATE THE HANZI TO THE PLACE

STIMULATE AGONISM

TRAIN YOUR SKILLS
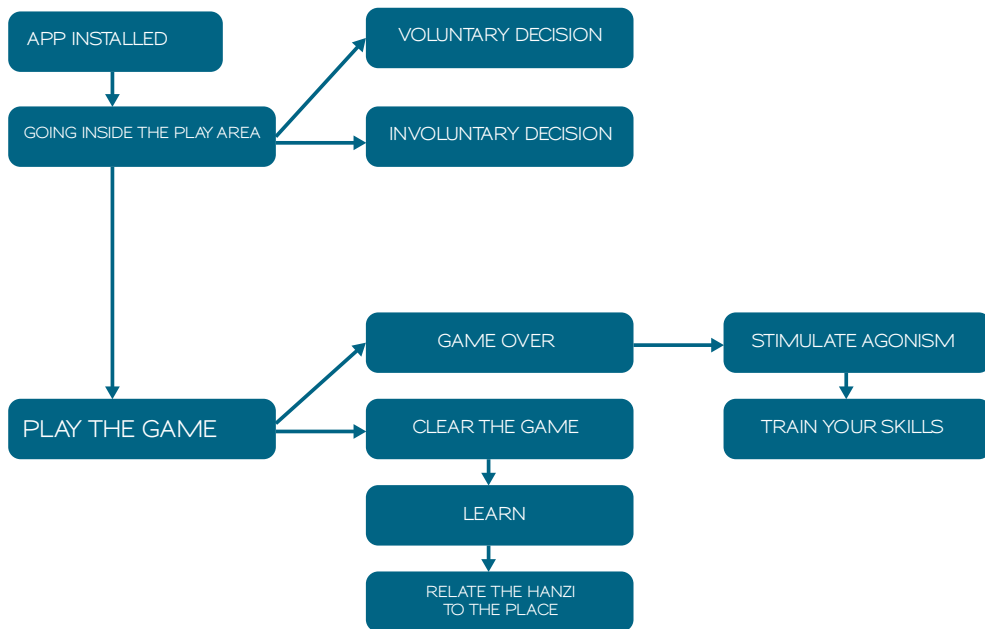
Both type of player can be related to the same user, because the playful attitude cannot be kept for the whole time.

From the user journey we can see that the core of the service is inside the play area where the user can actually play the game.

As I explained in the first chapter of my thesis, the Game Design applied to this service create a joyful sensation of agonism, which stimulates the will of training, rewarding the winner who learned how to write it.

The third inner level of the game is the awareness of the place,

because the system gives challenges related to the place, so it will be the choice of the player to look around and understand how the Hanzi is related to the place or situation around him.
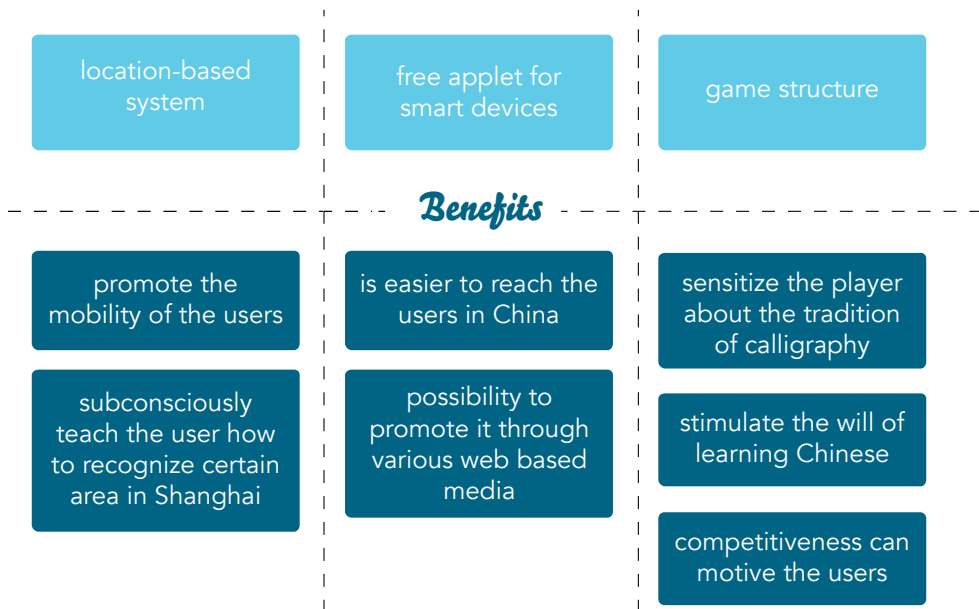The practice of calligraphy and writing has important benefits also in a psychological point of view (topic discussed in the paragraph 4.2). (*Figure. 69*)

location-based system	free applet for smart devices	game structure

Benefits

promote the mobility of the users	is easier to reach the users in China	sensitize the player about the tradition of calligraphy
subconsciously teach the user how to recognize certain area in Shanghai	possibility to promote it through various web based media	stimulate the will of learning Chinese
		competitiveness can motive the users

The web platform
The first and most important touchpoint of the service will be the web platform, where the user can learn more about the idea and decide if is an interesting tool for their experience in Shanghai.
The applet can be downloaded from the website even before going to Shanghai, and this could help to avoid later the profile registration. (*Figure. 70*)
Some applets are introduced directly to the online stores, but I think that a supporting website can be a good opportunity to enlarge the potential partners, providing a space on the web

page and not only in the applet.

Along with the registration, there will be the direct links to the online stores for the smart devices and also a short tour that explain the idea behind theSign project. (*Figure. 71*)

The tour will explain the reason behind this project and the scientific explanation of the learning process along with the game design.

Feedbacks from the players will be available on the website along with the ambasciators and sponsors review about the whole project.

In a more advanced phase the website will be also a platform to interact with other players and browse to see some online tutorials about calligraphy.

Business Plan

I created a business plan, which is a formal statement of a set of business goals, the reasons they are believed attainable, and the plan for reaching those goals. It may also contain background information about the organization or team working on theSign.

I envisioned that after one year testing, the team will have enough feedbacks to create a solid commercial campaign online.

Working on an applet for mobile devices, involves a team that filter the content and moderate the community that is creating.

Is evident from the Business Model Canvas (*Figure. 72*) that the whole system is online and it doesn't need a physical touchpoint to approach the users, so it is possible that the project should start a campaign based online.

The main revenue will be from the companies and sponsors, involved with the creation of the app. I decided to leave the app for free to differentiate it from the learning tools already existing and promote it as a game.

The main revenue of the service will be coming from the investors, who allocate capital with the expectation of a financial return.

Since I decided to provide also an online platform, a possible income will be from sponsor, using some online advertising on the web platform.

We have also partner which will provide the contents and at the same time we will user their work as a way to sponsor them.

The digital map of the city should be provided by partners like Google, or other companies who work in the mapping field, but in order to create a content related to the area of the game, we should also consider the possibility to work with local places or institutions, like the city museum or the touristic destinations.

Strategic Partners	Key Activities	Key Value Proposition	Customer Relationships	Customer Segment
DIGITAL MAPS PROVIDERS	PLATFORM DEVELOPMENT & MAINTENANCE	SOCIAL NETWORKING PLATFORMS	COMMUNITIES	SMARTPHONE USERS
SOCIAL NETWORKS	ACQUIRING PARTNERS	USER GENERATED & GEO TAGGED CONTENT		
AMBASSADORS		REWARDS & FEEDBACK SYSTEM		

Key Resources

USER & VENUE DATABASES

COMMUNITY

BRAND

Channels

WEBSITES
MOBILE APPS
APP STORE
BLOGS
SOCIAL MEDIA

Cost Structure	Revenue Streams
EMPLOYEES SALARIES	PARTNERSHIP WITH COMPANIES
IT MAINTENANCE	SPONSORS & IN-APP FEATURES
	VENTURE CAPITAL

Sponsors

Investors

Ambassadors

Partners — Digital Maps

Website

Employees

Community

App

Customers

Ambassador that I took in consideration, could be related to the discipline of the calligraphy, so for example some calligraphy schools or institute for teaching Chinese to foreigners. Giving to the ambassadors and a good advertisement outside China, and providing to the service an approval from experts. (*Figure. 73*)

Other possibilities of partnership will be further explored in the paragraph related to the future scenarios, as a second phase of the business model.

The game itself is can be a good tool to promote the city and the spaces inside of it, giving a cultural value to a city that is too young to have a really deep tradition.
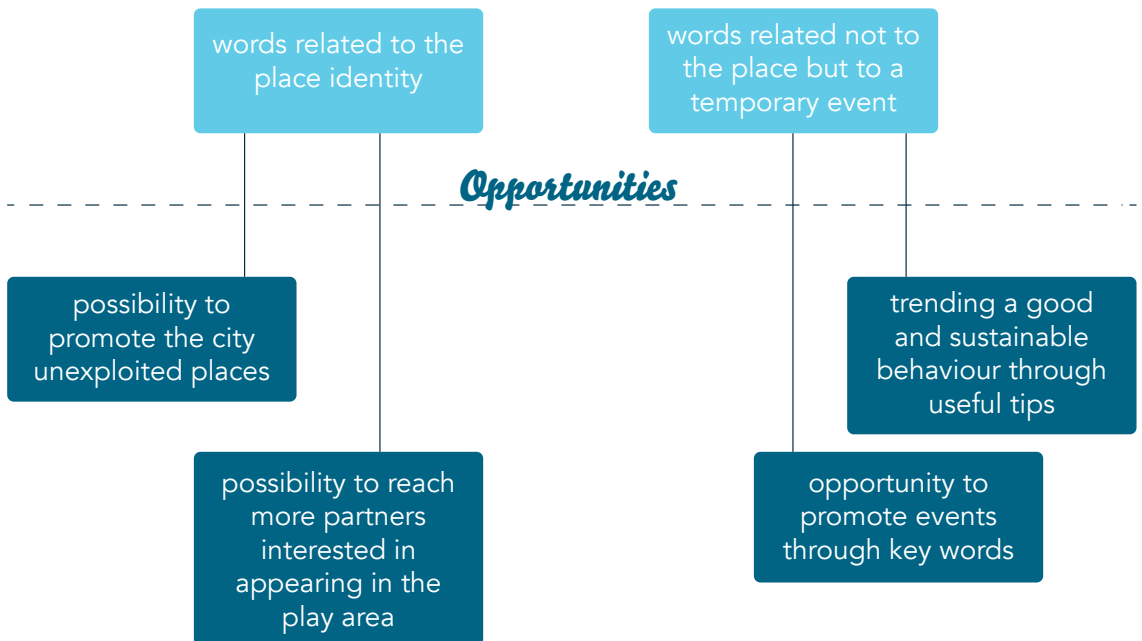
The Hanzi chosen inside the play areas can be related to specific places that need to be promoted, or to create events in order to attract people, instilling curiosity by specific words.

The service can decide also to promote specific topics such as the sustainability, providing good tips about it or promoting specific words during events. (*Figure. 74*)

Figure 72. Business Model Canvas.

Figure 73. Stakeholders analysis.

Fiigure 74. The opportunities of the service.

words related to the place identity

words related not to the place but to a temporary event

Opportunities

possibility to promote the city unexploited places

trending a good and sustainable behaviour through useful tips

possibility to reach more partners interested in appearing in the play area

opportunity to promote events through key words

5.7 Future Scenarios

The main idea of the game is expandable also to other urban cities that use the Chinese characters as writing system.
Is possible to imagine the same concept applied to other Chinese cities, changing the content of the informations, but in this case the game will be jusxst expanded, without the need of creating another version of theSign just for other cities.
I took in consideration other modern cities in China, like Beijing, Guangzhou, Xiamen, Chongqing, Nanjing, Tianjin and others.
Time will help the team to develop more Spirits, taking in consideration more Hanzi that will be digitalized. Creating more combinations of challenges for the players.
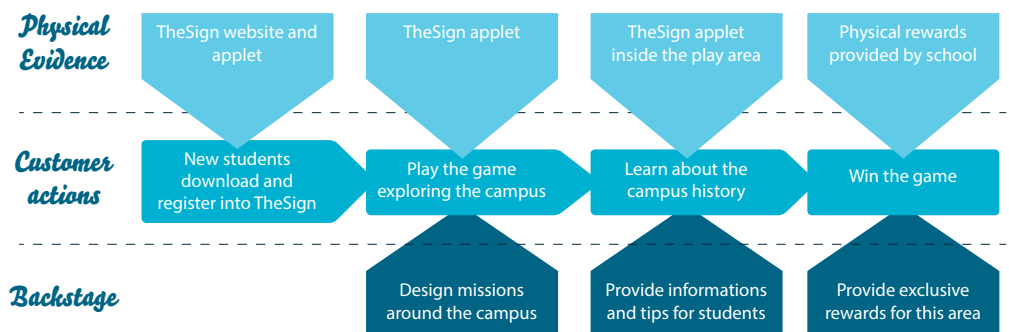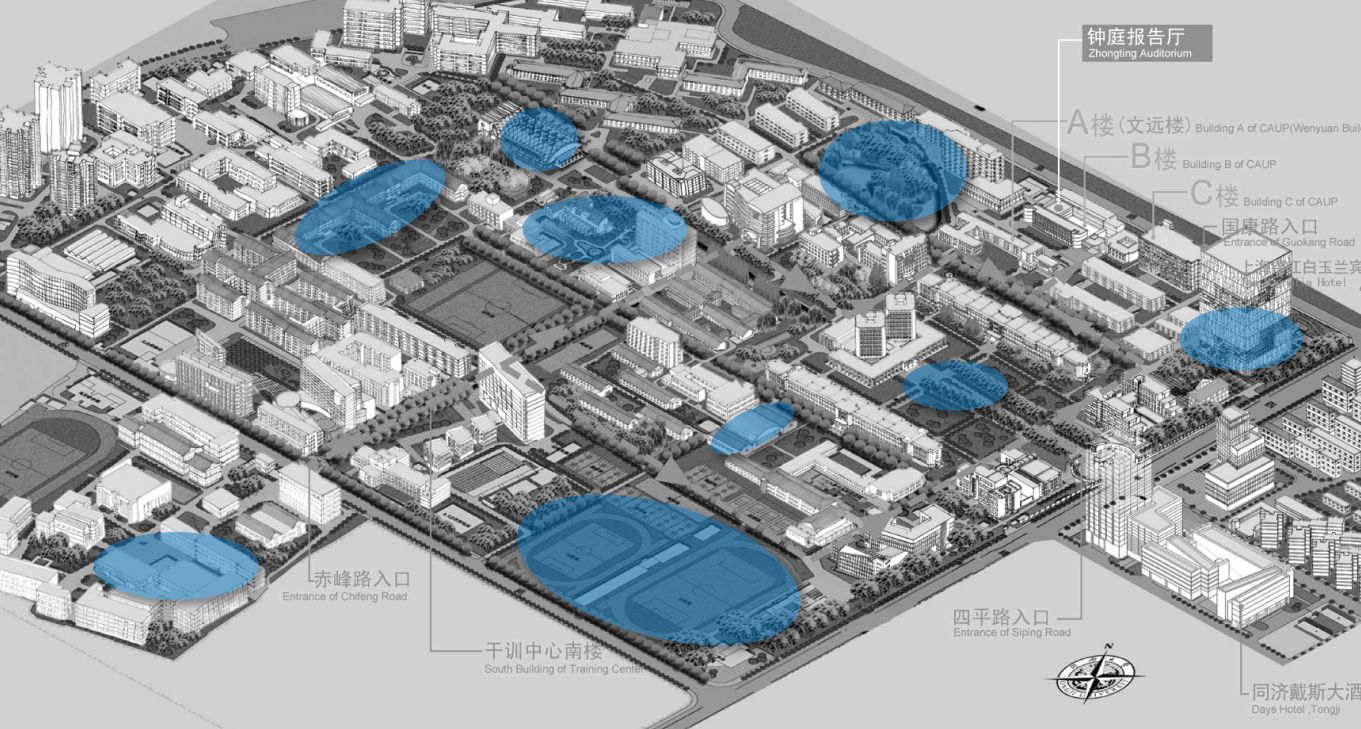
Tool for students

An interesting idea would be to insert the game in particular area and create a particular story based on a specific theme for the students. I can envision a school version of the game applied inside a campus in Shanghai, where the Hanzi would be related to the disciplines taught inside the campus. (*Figure. 75*)
It could be a playful way to teach to the new students how to orient themselves inside the new space, locating the useful sites like the administrative offices or the laboratories. (*Figure. 76*)
The possibility to have a cooperative game would also give a chance to give the possibility to make friends with other students, bonding also the foreigner students to the Chinese ones, in the same way, challenging other students can be a good way to

Figure 75. Blueprint of the service applied to the universities in Shanghai.

Physical Evidence	TheSign website and applet	TheSign applet	TheSign applet inside the play area	Physical rewards provided by school
Customer actions	New students download and register into TheSign	Play the game exploring the campus	Learn about the campus history	Win the game
Backstage		Design missions around the campus	Provide informations and tips for students	Provide exclusive rewards for this area

Figure 76. Example of how the play area can be located inside the Tongji University campus.

break the ice and enable conversations between students who don't know each other.

Having the possibility to collaborate with the universities will allow the game to get in touch directly with an ideal users, like the foreigner students and at the same time it can create the possibility to organize real life events to play the game inside the campus.

I envisioned the possibility to provide some real rewards in those events to let the future students know more about the school and propose an interesting activity during the open days of the school.

Interaction with other media

From the player experience, the game can mature and grow with the first year of testing, in order to know if some changes are needed or not.

For example, in my first idea of the game, there player's profile had a bigger influence in the game, allowing also to socialize with other players, creating a network of friends and talk with them through the game.

Later, I decided to not concentrate on this part, at least for the first phase of the project, because I focused on the learning process and how to make it playable, but I didn't mean that in the future the socialization can be an important part of the applet.

Figure 77. Some screens of possible implementations of external social networks and the possibility to communicate with other players.

Is clear that since the pre-service phase, we worked on a communication based started from the web platform, but in a future it would be interesting to integrate the game to other social networks to create the challenge and expand the word-of-mouth. (*Figure. 77*)

An ineresting opportunity would be to make this game. shareable on the Chinese social networks, because in China is not possible to connect to all the Western websites.

For example China has a social network service called *Renren*, which is a Chinese version of Facebook, used mostly by the students. Another interesting fact is that the most used messagging service is *Wechat* which is also used outside China; recently Wechat opened his Game Center, an online store where users can download and play games directly connected to the service which uses its location-based services, giving to the players the possibility to search for other players nearby to find game opponents.

5.8 Conclusions

The main purpose of my thesis was to point up the existence of the Hybrid City, an idea that may look extravagant and contemporary, but is a reality that close to our present, and the speed that we are going at, is not regular but expedited.
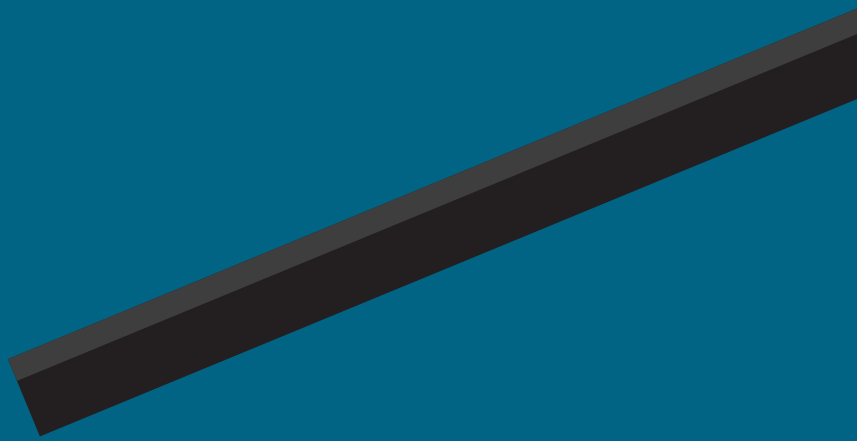I wanted to make a clear research, defining with the appropriate sources, the disciplines of Game Studies and Product Service Design, because they are contain ideas or definitions usually taken for granted, but a simple mistake can make the difference in the results.
The approach used to build my thesis was comparable to a journey, because I started in Milan, where I built my basic knowledge of Game Studies and Product Service System Design, but then I physically moved to another country, and built on the top of my knowledge a different point of view.
The first months in Shanghai, were about the study and research of the main topics that I found important to tackle, I had the time to read about the same topic, faced in different ways, both for Game Studies and Service Design. At the same time, I studied in Shanghai and I built more confidence about the city and I started to frame what would be an interesting challenge for my research. I reflected about the way foreigners integrate themselves in the Chinese community, a topic commonly discussed, but I needed to introduce another character to this system, so I brought up the city itself. What is the message that a city like Shanghai can deliver, and how the city can communicate with the users.
My aim is not only a critic to the smartphone users in China, but also to build a possibility to bring back the attention to the city from the screens. Designing a more engaging way to explore and live, because the act of learning must be enticed not forced, so that is the reason why I decided not only to use the Game Design methodologies, but to project a game as a final outcome.
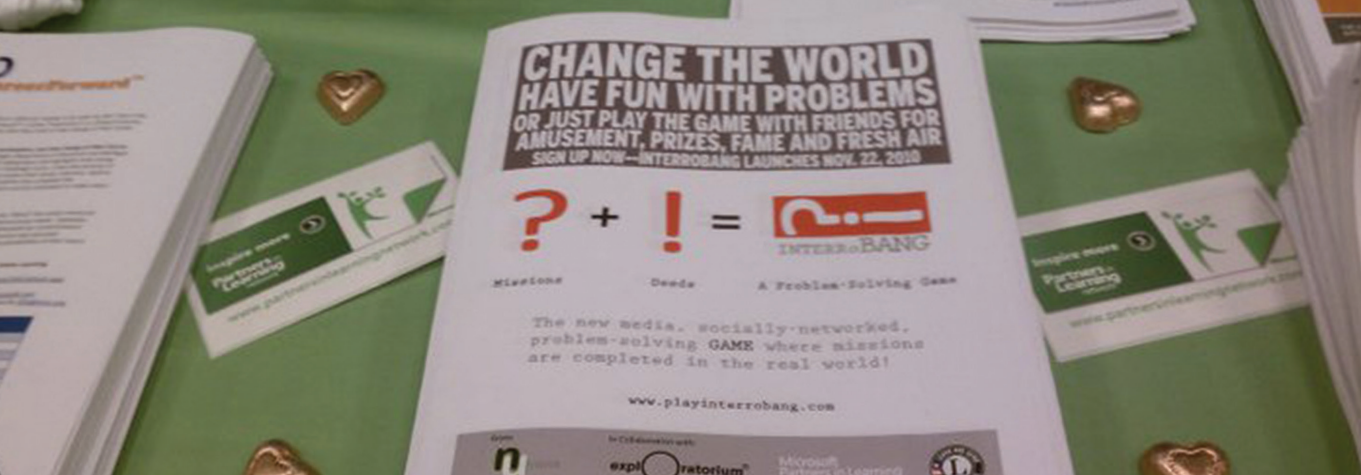In my opinion, I think that this thesis gives a solid base to the designers who want to concentrate on designing an experience, considering however the cultural background of the place and the social behaviour of the people. The completeness and structure of the research process, can be applied for further project or to a possible expansion of theSign, in different context with the same narrative possibilities.

Case Studies

NAME	**Interrobang**
YEAR	Not Specified
CREATOR	Created by Nuvana, in association with founding partner Microsoft Partners in Learning Network, with additional support from Exploratorium, ePals, Learn and Serve America.
DESCRIPTION	InterroBang is a socially-networked, problem-solving game that provides missions that are completed in the real world. In order to play the game, teachers must first register in the Partners In Learning Network where they will find rubrics, teacher forums, educational tools to help complete missions, and techniques to promote civic engagement with service-learning pedagogy.
DESIGNER PURPOSE	Teach the art of problem-solving by offering a socially networked collection of missions that people complete in the real world.
PLAYER PURPOSE	Students work alone or with friends to tackle challenges, perform service and inspire others to do the same.
TYPE	Social Network, problem solving game.

THE ARCHIVES

THE CONDITION

THE PROLOGUE

NAME	**The Silent History**
YEAR	2012
CREATOR	The project is a collaboration between Eli Horowitz, Kevin Moffett, Matthew Derby, Russell Quinn.
DESCRIPTION	The Silent History is a groundbreaking novel, written and designed specially for iPad and iPhone, that uses serialization, exploration, and collaboration to tell the story of a generation of unusual children born without the ability to create or comprehend language, but perhaps with other surprising skills of their own. The interesting element is the fact that the stories can be read only if you are at least 10 meters close to the specific location. You can also be a reporter and submit your own story.
DESIGNER PURPOSE	Enable a different way of storytelling using the new technologies as a reading support.
PLAYER PURPOSE	Explore the world of the novel engaging with the city where the story is set.
TYPE	Applet for portable devices.

NAME	**Rider Spoke**
YEAR	2007
CREATOR	Blast Theory, an artists' group that uses interactive media, creating groundbreaking new forms of performance and interactive art that mixes audiences across the World Wide Web, live performance and digital broadcasting.
DESCRIPTION	Rider Spoke invites the audience to cycle through the streets of the city, equipped with a handheld computer. You search for a hiding place and record a short message there. And then you search for the hiding places of others.
DESIGNER PURPOSE	Invite the public to be co-authors of the piece and a visible manifestation of it as they cycle through the city. It is precisely dependent on its local context and invites the audience to explore that context for its emotional and intellectual resonances.
PLAYER PURPOSE	Cyclists explore the city at night recording stories about their lives and listening to other people's.
TYPE	Created for cyclists, it combines elements of theatre, performance, game play and state of the art technology.

NAME	**Yellow Arrow**
YEAR	2004 - 2006
CREATOR	Michael Counts, Christopher Allen, Brian House, and Jesse Shapins, collectively known as Counts Media.
DESCRIPTION	Rider Spoke invites the audience to cycle through the streets of the city, equipped with a handheld computer. You search for a hiding place and record a short message there. And then you search for the hiding places of others.
DESIGNER PURPOSE	Yellow Arrow stickers are obtained from the project website and placed anywhere in the public realm. When encountering a sticker on the street, one can send the unique code printed on it as a text message to the project phone number. Moments later a message will be received that was left by the person who placed the sticker.
PLAYER PURPOSE	Share their experience with the other player, uncovering both places and secrets hidden on that spot.
TYPE	Public art project.

Seeds
New words

Greenhouse
Short Term Memory

Garden
Long Term Memory

NAME	**Memrise**
YEAR	2010
CREATOR	Founded by Ed Cooke, a Grand Master of Memory, and Greg Detre, a Princeton neuroscientist specializing in the science of memory and forgetting.
DESCRIPTION	Memrise is an online learning tool with courses created by its community. Its courses are mainly used to teach languages, but are also used for other academic and nonacademic subjects. Memrise uses flashcards augmented with mnemonics partly gathered through crowdsourcing and the spacing effect to boost the speed and ease of learning. Uses mems to help you form vivid, sensory memories. Test the player continuously, always making sure to give to his brain just the right workout, reminding him of what he as learned at scientifically optimized times so his memories are always growing stronger, and never forgotten.
DESIGNER PURPOSE	Make learning a favourite playtime activity. Turning learning facts and language into a game where players can grow a colourful garden of memory.
PLAYER PURPOSE	Players grow and water their memories in a garden of memory, you zoom up the leaderboards, and learning alongside their mempals. It's like a guiltless video-game.
TYPE	Online learning tool, also available in the applet version.

NAME	**Google Maps: Pokémon Challenge**
YEAR	1-2 April 2014
CREATOR	Google and Nintendo.
DESCRIPTION	On April 1, Google unveiled a video on its blog announcing it was seeking to fill the new job role of "Pokemon Master" and had launched a test to find the world's best.
	The video showed people in outdoor gear scaling cliffs and riding boats and camels with their phone in hand, navigating with Google Maps and capturing their surroundings with a camera. Those who download the latest version of Google Maps for iPhone or Android won't find an actual augmented reality Pokemon app. It seems that was just an April Fool's prank.
	However, they will (for real) be able to hunt for cartoon Pokemons in the maps themselves.
	The app will take users to the location of the Pokemon Lab, which will be surrounded by Pokemon that users can tap to catch. Users can view the profiles for each of their Pokemon by checking their Pokedex, the famous index from Pokemon that stores each creature's information.
DESIGNER PURPOSE	An April Fool's prank, that allowed to transform Google Map into a game.
PLAYER PURPOSE	Catch all the Pokémon around the world before the deadline (2nd April 2014).
TYPE	A temporary additional function to the Google Maps Applet.

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