HAPPY KIDS

Designing Games to Effect Awareness On Children's Poverty

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ABSTRACT

Games for change are games which allow players to learn and interact with real world issues through play in order to motivate participants to better the world. The research of this thesis presents the use of serious games and casual games to measure and observe how awareness of children's poverty is achieved with game elements.

The thesis approaches the design process by using game design research method and used qualitative and quantitative techniques to evaluate the effect on people's attitudes towards a specific societal issue. The design process lead to the design of the game *Happy Kids* that is composed by five micro games that teach about refugee children's rights according to the Children Rights Convention. The results of the evaluation showed a raised interest in children's rights but ambiguity in feelings and behaviors towards the cause. There are many areas where the game can be further developed in order to explore the correct balance between playful experiences and educational information, the duration of the interest in the cause, levels of engagement with the avatar and motivation to contribute to the issue.

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FIGURES AND TABLES

To you I am a child

A child of course I am

Little though to you I am,

I have my dreams and desires.

Just like that grain of seed

Is watered and groomed,

Growing up to be a big tree

So also I,

That little child

Need to be nurtured,

Loved and Cherished

I beg of you, my elders and nation

Never to deny me of my rights

Never to lead me astray

So I can grow to be

Useful to myself and to you

Useful to my great nation...

And the world.

**BY ADESEWA OYINKANSOLA,
11 YEARS OLD.**

2. INTRODUCTION

People's lives are constantly connected, filled with notifications, social media, games and in the midst of all of this people forget about the problems happening elsewhere in the world. It is hard for non-profit organizations to breakthrough and obtain people's attention in order to participate and solve global issues.

Serious games are increasingly becoming a great part of our culture, influencing how people accomplish everyday activities. Although they have been present for a while, the industry is now making games that actually engage their users by simulations, complexity and new technology. Not-for-profit organizations need to take advantage of this opportunity and create engaging interactions that teach and raise awareness around the world.

Children's poverty is an ongoing problem, unfortunately not many people are aware of the situations around the world. Refugees, undocumented and immigrant children have the same rights as any other children but they are currently not receiving the same treatment. Children who have travelled to a new country like Sweden, remain in hiding, live in poverty and do not have access to welfare or education. Organizations for children's poverty are now looking into best ways to advertise and help people understand that social change is needed. Gamification and serious games are currently being explored in order to target wider audiences and create more awareness for global issues. Serious games is a recent advertising strategy for organizations. They introduce the audience to the problem through games, allow the player to bring up solutions and either take a pledge to help the cause, donate or share the information. It is the intention of this thesis to explore gamification and serious games as tools to both raise awareness for children's poverty and teach adults how to take action. It is key to mention that the game designed is for adults to play and understand children's rights.

There are many game designers that argue that this is what the future holds; the use of gaming to change the world. One of the inspirations for the use of game design for social awareness is the use of play in politics. Antanas Mockus, mathematician, philosopher and former mayor of Bogota, Colombia, used games to inspire people to change their behavior, bettering how they acted and thought about their city. He had an innovative view on how people should be communicated that change was necessary in order to improve the city's administration. Mockus believed that use of play would engage people in new ways (Fuchs, 2014). One of his interventions was dressing up as a superhero and going around town letting people see what an ideal citizen should act like. Another intervention was using the police department as mimes, making a community-oriented police force. People became ashamed of engaging with the police mimes, therefore avoided getting tickets and acted better in order to not

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be disturbed. The use of ludic interaction allowed for Mockus to breakthrough to the citizens actions, changed the corrupted government and the cynicism of contemporary politics. This is just one example of how gamification and serious games can be used to help fight crime, understand policies and raise awareness.

This thesis is divided into five chapters in order to best show how a serious game is developed and evaluated. The first chapter consists of the research used to frame the game design. In this chapter we explore children's rights and usage in Sweden, gamification and serious game, and designing for social impact. The second chapter introduces three different types of serious games observed as an inspiration and guideline for the design of the game. The following chapter explains in detail the method used to design the game, from ideation to evaluation, in order to understand how the design process was chosen and why. The forth chapter, core of the thesis, goes through each step of the method and explain what the process and design decisions were and how it was relevant to the final prototype and evaluation. The last chapter speaks about the results from the game evaluation and whether the design process was in successful relation to the game. In this chapter future work and design openings are also explored.

2. INTRODUCTION

2.1 RESEARCH QUESTION

How can serious games help raise awareness
for children's poverty?

Can awareness through gaming help augment creative thinking and motivation in order

to protect and empower children's rights in times of crisis?

3. RESEARCH FRAMEWORK

3.1 CHILDREN'S POVERTY

3.1.1 Children's Rights

Children's poverty is a pressing issue and it has been for quite some time. It is considerably damaging children across the world, affecting their IQ, health, adult productivity and educational achievement. Above all it is being overlooked which will only become harder to deal with in the future (Litcher, 1997). It is not only about children that are suffering malnutrition or homelessness but it encompasses many more issues revolving around children's rights. UNICEF redefined what child poverty covers due to the effect it has on the development of the child.

> Children experience poverty as an environment that is damaging to their mental, physical, emotional and spiritual development. Therefore, expanding the definition of child poverty beyond traditional conceptualizations, such as low household income or low levels of consumption, is particularly important. (Milnujin, 2009)

The Convention for Children's Rights (1989), an UN legal agreement, defines what children's rights should be across the world. The CRC is composed of fifty-four articles that speak in defense of children, thirteen of those that speak to adults and the government (UNHCR, 2008). Most of the articles state that the child, defined as anyone below the age of 18, should have all their rights satisfied equally, have an education, family and a good standard of living. Although the CRC is only a legal agreement and not law, it is an agreed upon responsibility.

The CRC releases updated information every year on how rights are improving. However, not all of children's rights are being respected and sadly most of the populations, including children, are unaware of the existence of these rights and how to implement them into their lives. In countries within the Europe Union there is still a lack of understanding of what children need in time of crisis. Most people are unaware that even in developed countries children are suffering. Refugee integration, child disappearance and extra-vulnerable situations are just some of the examples happening in Sweden (O'Donell, 2014). As a person that lives in Sweden, it is hard to look at these situations and let the kids continue a life of discomfort. A new way of approaching the audience is needed in order to involve a greater amount of people and to help children better their situations and give them the rights they deserve.

3.1.2 Children in Times of Crisis

Children in times of crisis are the most vulnerable, they are exposed to violence, exploitation and malnutrition among others (UNICEF, 2015). These children are escaping tragedies, war, extreme poverty and other circumstances in order to look for a better life in a completely new country.

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In first world countries like Sweden there are many gaps between the rights of the child and what the refugee or undocumented child is actually given. The lack of fulfillment of the rights is due to ignorance of the rights, lack of societal integration and political complications. Basic rights like education, identity, health and protection are not being satisfied uniformly.

There are many actors involved in the care of children but more people are needed in order to create and identify durable solutions (O'Donell, 2014). Voluntary repatriation, resettlement or local integration are just a few examples of what a long-term solution would be for a refugee. Yet, these solutions depend a great deal on the child, the family, the country and many other subjects. It is necessary to clarify that in this thesis children are not seen as vulnerable due to their status (child, immigrant or undocumented) but due to the social and political views surrounding them (Rivera, 2013). Refugee and undocumented children are constantly in fear of being deported, live in extreme poverty and lack a feeling of identity. There are many government agencies that help with these emotions but due to the restrictions of undocumented persons not all rights can be achieved.

3.1.3 Organizations

There are many organizations dedicated to helping children in times of crisis but it is lack of awareness and motivation in all people involved that stops them from succeeding. Save the Children is a great advocate for children's rights, especially refugee and immigrant children. They fight for the observation of children's rights in most countries and help children in need. They have conducted many interviews in Sweden on how the CRC is being fulfilled and came back with alarming results. For example 60% of families that have lived in Sweden for less than two years live in poverty, or the fact that undocumented children are not allowed to go to pre-school even though it is a basic right (Pehrsson, 2014).

Organizations should have a strong voice that pushes for change in the government and people's view on the issues, shifting priorities in order to satisfy the CRC. Save the Children and UNICEF are currently working in developing innovation techniques to address global issues and involve new people with fresh ideas. Save the Children has been in a partnership with game developer companies in order to interact with children all over the world and introduce both adults and children to the CRC. One of the campaigns currently released by Save the Children is "Life Lottery" (*Figure 1*). In this game-like platform the player spins a wheel to see where he would be born based on global birth statistics. For example, the percentage of being born in Sweden and with good welfare is 0.08%. This

3. RESEARCH FRAMEWORK

Figure 1 - Life Lottery

Figure 2 - #SouthSudanNow

campaign allows the player to put him/herself in the child's position. Understanding that poverty is not his/her fault but of the conditions the world is in. UNICEF has created new platforms where people can play, innovate and speak their mind on concerns revolving women and children's health. For example, last year they interrupted a game convention to present a fake serious game that played with situations in South Sudan (*Figure 2*). The game, #*SouthSudanNow* (UNICEF, 2014), was explicit and disturbing, and it provoked a lot of negative reactions. At the end of the presentation they explained this was a true story, from a girl in the audience. This campaign presented a video of how serious games based on a true story are developed and promoted to the audience the need to share the information.

The UN and the UNHCR (Human Rights Convention) are examples of organizations that have also recently developed games to motivate people to understand different global issues and act towards bettering the situation. The UN has developed many games for social change in the past six years. One of the most well-known games they have developed is *Free Rice* (Breen, 2007). In *Free Rice* (*Figure 3*) the player learns different school subjects while donating grains of rice to the World Food Programme. The player is encouraged to get the answers right in order to donate more food. The advantage the game has is that it has many levels of complexity that keep the player engaged. However, the game becomes repetitive and nondescript after the player learns the subject. *Against All Odds* (UNHCR, 2005), an online game (*Figure 4*), represents the story of refugees and undocumented people. It starts by war and conflict in their own countries, then border countries and finally the life of uncertainty in a new country. All the situations put the player in a vulnerable position where he has to guess the best possible way out. The one downside of the game is that too many negative things happen to the character and the player becomes bored of negative feedback on his/her actions.

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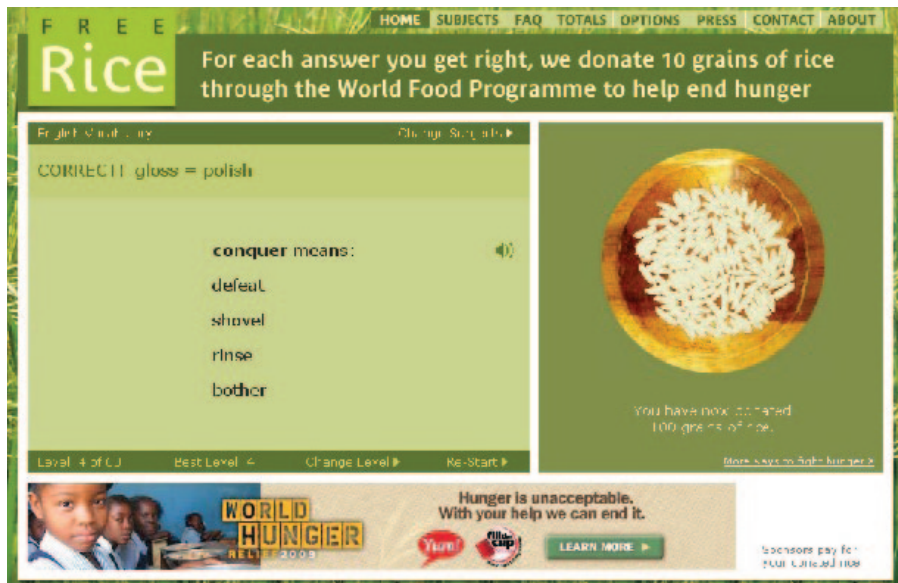
Figure 3 - Free Rice Game
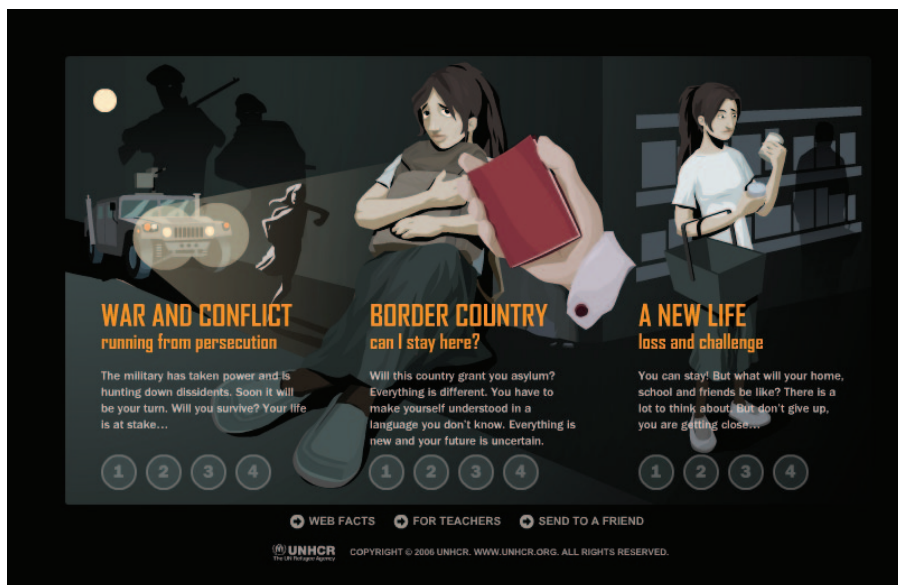
Figure 4 - Against All Odds Game

The games organizations are developing, although entertaining, are not achieving their full potential. Most games are hard to locate, are said to lack "fun," and are made for children. The game produced in this thesis is meant to help refugee and undocumented kids shine, making adults and other children understand what they go through, what rights are broken, how to help them and encourage a pledge to protect all kids from future situations.

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3.2 GAMIFICATION

3.2.1 Gamification and Games

Game design is the practice of creating enjoyable and playful interactions (Deterding and Walz, 2014). Gamification brings game-like scenarios to non-game activities, allowing people to become more engaged in complex and mundane activities. It is the extension of the magic of circle of play that has motivated players to accomplish activities like foursquare check ins, quantified self movement and even change behavior patterns to be more sustainable or do more social good.

Gamification has existed for many years without a term, predating the digital era, and has brought many new interactions in society. Currently, there is a great level of discussion on how it affects our lives (Fuchs, 2014), if it will lead to a revolution (Zimmerman, 2013) or if gamification is just "*bullshit*" (Bogost, 2007). "Ludification of culture" (Raessens, 2006) stands for how game elements are continuously being introduced in our lives. It is creating new opportunities to influence people's behavior, allowing them to change the world to better by adding game elements to their daily lives. *Figure 5* shows a diagram of how Deterding, in *The Gameful World*, mapped the current use of games and play. He divided them in to two dimensions: whole versus elements, and paida versus ludus. Deterding defines paida as open and pretend play and ludus being a more goal-oriented and rule based game. In this thesis serious games and gamification are viewed as a merge of games that do not serve for entertainment but for educational purposes while adding game-like qualities to information that raises awareness.
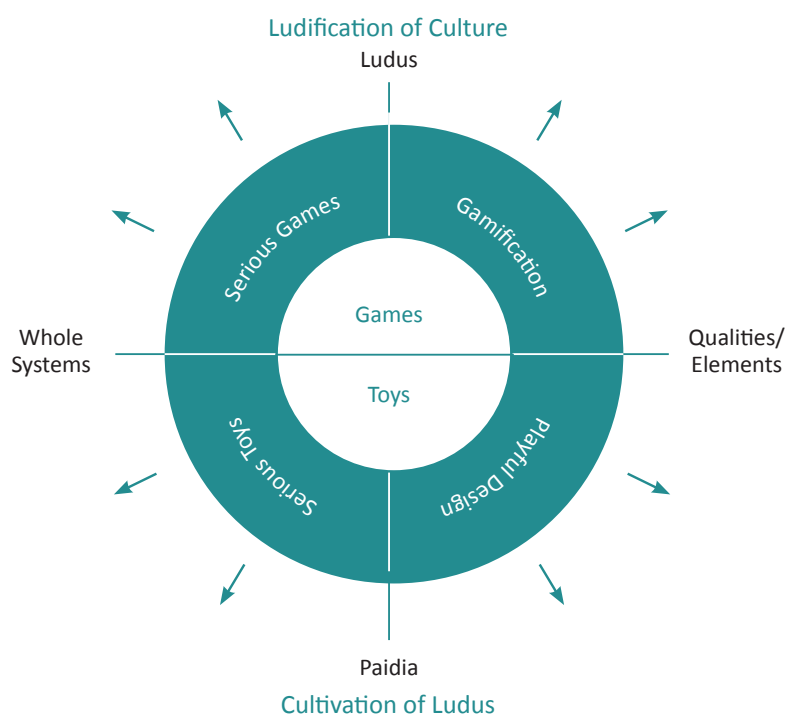

Figure 5 - A Gameful World

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There are many games that nowadays enhance our behavior in regards to health, nutrition, social belonging, education and even managing our finances. These games invent rules, innovate layers of technology, and introduce fun activities and novel play experiences that engage the player at all times. Serious games and casual games form part of how gamification has become essential to our culture. Using marketing strategies to capture customers' attention or even using game-like scenarios in education for children to learn faster and better. Foursquare, for example, was one of the first to implement game elements to motivate people to check in and comment about places in order to build a strong community with loyalty and sustentation. The games observed is gaming specifically used to encourage people to act better and more socially responsible, changing from gameful experiences to motivation-based play.

Chromaroma (Mudlark, 2010), for example, is a public transportation platform that allows London citizens to track their public transportation usage by the Oyster card while adding game elements to their sustainability goals (*Figure 6*). The goal of the game was for players to choose biking/ walking over the use of public transportation and public transportation over private cars (Deterding and Walz, 2014). This platform gave points and rewards to teams and people that considered the environment while using public transportation, meaning that people changed their behavior to be better at the game. *The Fun Theory* (2009), a Volkswagen sponsored project, also introduces game elements that help change the world in a positive way. *The Play Belt* (*The Fun Theory*, 2011), a safety instruction game that lets you access in-car entertainment only if you have secured the seat belt. This simple interaction has made it safer for the people in the car, allocating rewards for good traffic behavior. Another example, which also takes an important role in people's behavior, is *Bottle Bank Arcade* (*The Fun Theory*, 2009). This game was designed to encourage people to recycle glass bottles (*Figure 7*). People usually recycle plastic bottles because they get cash back, but glass bottles do not give people money, therefore they are recycled less. *Bottle Bank Arcade* invites people to recycle and play an old-fashioned arcade game where players have to insert bottles where the light is lit. According to the promotional video this "arcade recycle box" was used almost 100 times more than the regular recycling box (Gamification, 2015).
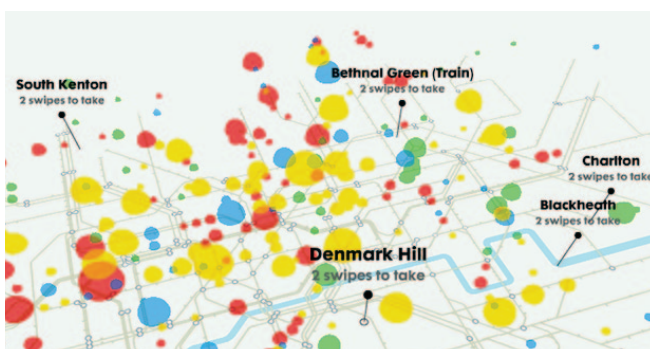

Figure 6 - Chromaroma Game

Figure 7 - Bottle Bank Arcade Game

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3.2.2 Changing People's Lives

The purpose of gamification and serious games should be clear in order to have a successful game. Using gamification to trigger motivation and change in behavior is essential to our culture today (Fuchs, 2014). Gamification should bring playful experiences; produce gratification and motivate/ persuade the player (Walz, 2014). Without all of these interactions the purpose of gamification, and therefore serious games, is lost.

Jane McGonigal states that games are a powerful tool that should be developed further and further, changing how people interact everyday and improving all aspects of their lives. Gaming, according to McGonigal's vision, could and should play a redeeming role. Game designers could become the new social entrepreneurs, and citizens become gamers. From this perspective, gamification thus becomes a technique for enabling greatly ambitious change. (Fuchs, 2014)

SuperBetter (McGonigal, 2012), is a game that helps players feel better about themselves. It has daily tasks like contacting friends, standing up and stretching to brainstorming on how to improve weekend activities (*Figure 8*). This game promotes a positive mind shift. She argues that *SuperBetter* can help the player fight obesity; depression and it can be a form of physical therapy. This new take on real-life situations and how game design can help players be a better version of themselves drives gamification one step forward other than just a playful experience. In her book, *Reality is Broken*, McGonigal introduces the idea that gamer's are "hungry for a better world." She states that it is time to stop feeding gamer's hunger for a better world through virtual reality, instead make reality into a better place by using the knowledge we already have about gaming. McGonigal has designed games that not only help global issues but also make the gamer a happier person. Reinventing games for marketing, education, health and entrepreneurship is necessary for non-profit organizations to approach a wider audience.
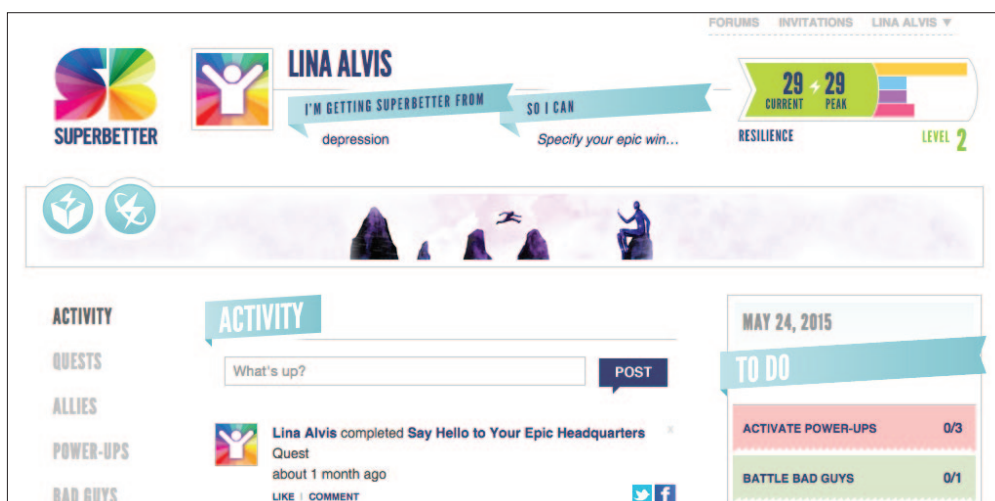
Figure 8 - SuperBetter Game

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Gamifying human experiences is not easy, it requires a strong game that can engage the player continuously. This is why, although gamification should concentrate on motivation, it is important that the focus also remains on the playful experience.

There are many critics to this movement that refuse the idea that everything can be gamified and that it cannot help improve people's lives all that much. The critics argue that gamified products can/ will never have the same engaging qualities as a well-designed game; they give people wrong motives for different activities, and sometimes miss the point of the main activity (Deterding and Walz, 2014). It is essential to maintain the goal of the game clear and allow for a well-thought and engaging playful experience. Without these two, the ability to persuade someone into noticing a pressing issue like children's poverty would not be successful.

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3.3 SERIOUS GAMES

3.3.1 Serious Games for Awareness

Serious games can help shape a social conversation, shift people's perspectives and bring people closer together. Game designers have many of the tools required to engage people in new experiences, learn to solve missions and have fun while doing it. Serious games consists of a wide landscape in which they include novel solutions to different market segments like health, education, military and organizations (Stapleton, 2004).

The term "serious games" is a semi-recent used term. It was first introduced by Clark Abt (1970) in which he stated that serious games were concerned with educational purposes and not intended primarily for amusement (Belloti, 2010). However, this definition was mainly about board and card games. The first definition of serious games, as we use it today, was introduced in 2002 by David Rejeski and Ben Sawyer. They stated that serious games explore challenges facing the public sector through the help of productive links between the electronic game industry and projects involving games in education, health, training, etc. (Belloti, 2010).

Persuasive games, critical games, advocacy games and serious games all form part of games that are designed for a specific purpose other than entertainment. For example the game, *Half the Sky* (Mudlark, 2012), was designed to teach people in Africa about how to deal with health issues like worms, pregnancy, intoxication, etc. (Figure 9). This game was designed with the purpose to teach and prevent diseases through the use of casual games. It encompasses the game types mentioned above because it deals with an uncommon issue, persuades the players to change their behavior and teaches them about diseases. For the purpose of this thesis the definition of persuasive games will be borrowed from Terrance Lavender and applied to serious games.

> A video game which has as its primary goal the changing of user attitudes. These changes may increase the probability of behavior change given contingencies of unconstrained choice and social situation. (Lavender, 2008)

Lavender's definition is specific to the use of persuasive games for social change. The class of games for change are games specially designed with a political or social agenda, making the players aware of a particular issue and persuade the player to form behaviors or attitudes towards the issue. Games for change encourage a dialogue with people that are interested in changing the world and are an inroad for learning and creative thinking.

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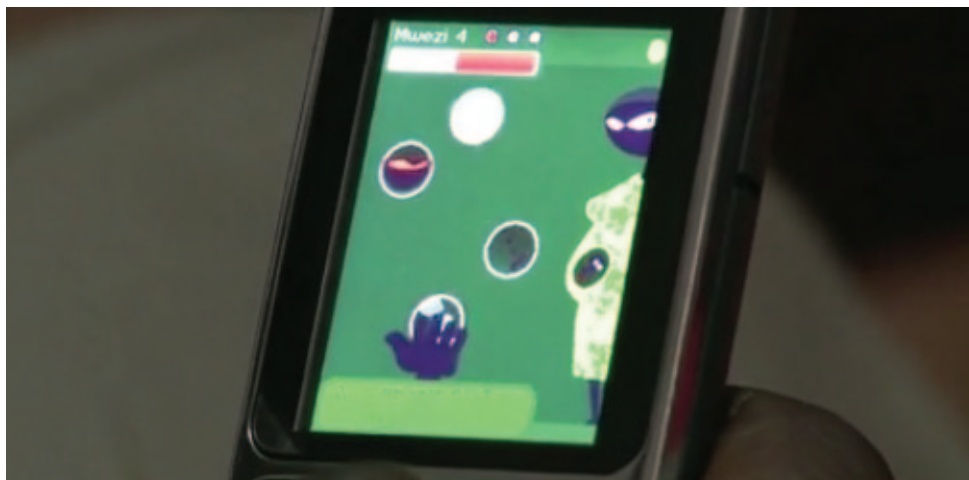
Figure 9 - Half the Sky Game

Over the past years serious games have expanded massively, however few test the level of awareness they create and are said not to have the correct balance between fun and information. When designing serious games it is critical to evaluate people's attitudes towards the issue and their willingness to help in the cause (Peng, 2010). Having the correct balance in the playful experience is also crucial to have an effective game.

Serious games usually target audiences other than power-gamers (gamers that prefer 3D immersive experiences) because they only represent 11% of the gaming community while other types of players have gained huge weight (Belloti, 2010). New typologies of games like nurturing, casual, training games have allowed for the gaming community to expand significantly. New modalities of interactions and flexible platforms have also helped capture a larger number of players. This is important in order to design games that, at a low cost, will reach a large audience.

3.3.2 Playing for Social Good

Entertainment can tackle complex issues in meaningful ways while exciting the audiences. Designing meaningful roles in gaming in order to create empathy is a new continuum that should be used in order to understand pressing issues in the world (Bogost, 2010).

As Mary Flanagan, an innovator in serious game design, suggests that creation of technology is based on the way people interact and view the world, which is why creating serious games is a good strategy to appeal to the masses and change their take on children's poverty. Serious games are usually judged on external proof and validation. The game is meant to do something in the world, something that can be measured, validated and directly cause an action. However, lately games not only look to satisfy these factors but they now address issues in order to come up with new solutions, approaching the players in a novel way to evoke circumstances instead of lecturing to them (Bogost, 2010).

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Serious games are the potential future of game culture, reworking what a game is, how it is used and what it will be capable of doing (Flanagan, 2006). Flanagan has introduced us to companies, like Tiltfactor, Values at Play and Meaningful Play. These companies only focus in developing games that can make a difference, where playing turns into doing social good. All of the games made by them, virtual or analog, have a purpose beyond just entertainment; they give their audiences something to learn from the game, improving everyday lives.

"Every action you take in the game, you can take in real life" (*Half the Sky the Movement*, Zynga, 2013). This message is displayed as soon as you open the game inside Facebook. This message helps the audience understand what gaming means and what it can do. The objective of the game is to solve everyday issues women and children encounter in developing countries. The game creates an environment that nourishes creative thinking, teaching the player about different oppression situations women encounter. Seven different organizations were used in the game to give solutions to the quests and transfer donations. These types of games allow the audience to participate and join communities in order to do social good.

Flanagan, McGoginal and Bogost have introduced us to different types of serious games that persuade the player into behaving better and wanting to play a part in bettering the world. However, there is a refusal to believe that serious games, just as gamification, can achieve this by introducing gameful design into people's lives. There is a strong argument that the circle of play interrupts the visualization of what reality is. Players therefore will take more risks inside a game and not in real life, leading to an unsuccessful understanding of what a global issue is and its consequences.

Games like *Need for Speed* (Electronic Arts, 2004) and *Unreal Tournament* (Epic Games, 2004) show that the use of gaming can change people's attitudes and behaviors (Stapleton, 2004). Both these games are used in the *Virtual Reality Medical Center* (2004) to help patients overcome phobias like fear of driving or spiders. Although the player knows he/ she is inside a game, and therefore is willing to interact with the fear, after a long period of time the player learns to combine both the game world and reality. For the players to trust and "buy into" the game it is critical to pay attention to details like ethnicity chosen, colors of the uniforms and the communication they can have with other players.

3. RESEARCH FRAMEWORK

Figure 10 - *Half the Sky the Movement* Game

Figure 11 - *Need for Speed* Game

3. RESEARCH FRAMEWORK

3.4 DESIGNING FOR SOCIAL IMPACT

3.4.1 Achieving Social Change

Designing for social impact, also known as design for social change, takes many subjects into consideration. It introduces the idea that design should cover the impact of products or services on an individual, the need of the individual and the needs overall of the community (IDEO, 2008).

> As a designer works within a social impact space—continually refining, iterating, and testing her ideas—she gains a deeper understanding of the complexity of the problems. As she builds stronger partnerships within her community, she will have a greater ability to create the impact she desires (Pilloton, 2010)

Pilloton states that it is important to know the community the designer is helping as well as the user. The designer should persuade the user to satisfy the communities' needs.

In the guide, *Design For Social Impact*, IDEO suggests that in order to have successful social impact on 'wicked problems,' explained below, the designer has to choose the correct challenge, opportunities for social change and design comprehensive prototypes with clear objectives. The user is an important source for designing for social change, he/ she can give good insight on how to approach a social issue in an innovative way.

When designing specifically for games that create social impact, it is important to cover all the possible outcomes and subjects the player will focus on. Swain (2007) introduces us to a list of best practices when designing games that can lead to social change:

1. Define intended outcomes
2. Integrate subject matter experts
3. Partner with like-minded organizations
4. Build sustainable community

5. Embrace "wicked problems"
6. Maintain journalistic integrity
7. Measure transference of knowledge
8. Make it fun

Integrating domain experts is essential for the game to have a higher potential for credibility and persuasion. Creating a partnership with organizations that have experience in the issue will help the games potential for influence and will create a sustainable community for the game. 'Wicked problems' are problems that, due to their complexity, often create additional and even more entrenched problems. It is important to let the players gain a clear understanding of the problem and have a straight path to the solutions they can help with. Serious games offer simple interactions that help understand complex issues in the world. Maintaining journalists integrity means keeping objectivity in the game in order to raise credibility. It is important to keep the aesthetics, text and ways of addressing the issue without a strong point of view. Evaluating the game and measuring how much did the player learn is essential to know how successful the game was, these methods are discussed further in the next section. Lastly, it is important to conquer "the sweet spot" of a fun game that stills teaches the player about a social cause.

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3.4.2 Evaluating Social Impact

The aim of creating a serious game to raise awareness is to create an understanding of the global issue, change the players behavior towards it and motivate action. Although serious games may produce all of these, there is still an underlying question; whether it causes a difference in the players' attitudes, behaviors and understanding of the cause.

The social impact serious games produce is hard to evaluate. It is important to raise the right questions and set one goal in order to evaluate the game better: What is the best way to communicate the pressing need for people to care about children's poverty? Do people change their attitudes towards children's rights after playing the game? How much did the player learn about children's rights and what was their level of engagement?

Educational and training games evaluate their results by testing and using in-game analytics. However, when designing smaller, campaign-like games, evaluating the results becomes a challenge. *FloodSim* (IDEAS Lab, 2009), a game designed to raise awareness about flooding policies in the UK, is a great example of how to test if the game was successful or not (Figure 12). The game was evaluated by conducting interviews after the players had finished the game. The designers then understood that the game, although engaging, only gave superficial knowledge about flooding. The results lead to the distinction of two different groups of players, ones that already knew the information and did not get much out of it and players that did not know anything before hand but still could not understand most flooding policies. For further development the companies that sponsored the game, PlayGen and Norwich Union are starting dialogues with the people playing the game in order to have more democratic policies (Rebolledo-Mendez, 2009). The game helped start a conversation about the issue although it did not successfully teach the players about policies.
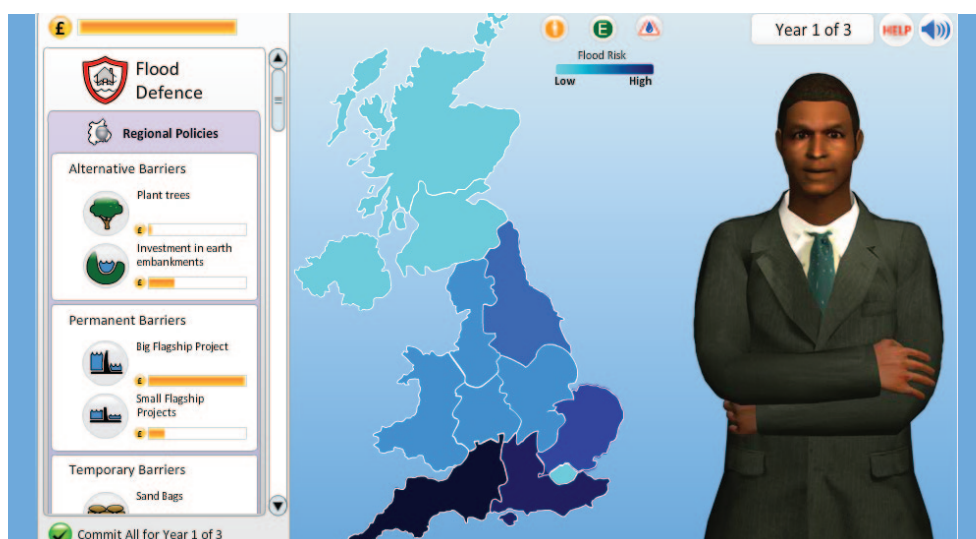

Figure 12 - FloodSim Game

4. RELATED WORK

The serious games observed in this thesis are advocacy games, which are meant to educate, persuade and motivate the player in regards to social awareness. In order to take a new approach to children's rights games, four different type of games will be explored: educational, critical, nurturing and casual games.

4.1 EDUCATIONAL GAMES

Field of View is an example of a non-profit organization that takes gaming as their main strategy. Field of View produces games that help participatory planning, understand real-life situations and public safety. Although the games they create are meant to raise awareness, they allow for their citizens to understand future energy plans, emergency action during crisis and how their city works, making them also educational. One of their most recent games, *Rubbish* (2015), deals with teaching normal citizens about trash policies (Figure 13). In the game there is a facilitator which is usually knowledgeable in the domain and citizens that are introduced to different activities and situations. The game in this setting is an activity added to a workshop or conference. This makes the interactions of the game unique to that particular scenario, where they come and play, learn and move on with more knowledge on the subject. The game was designed to create data of how people understand different types of policies. Educational games are said to be best used when accompanied with other experiences like workshops or lectures. One of the weaknesses about educational games in this scenario is that sometimes the concept of fun is lost, it cannot be a stand alone game and there is usually a resilient player (Bharath Palavalli 2015, pers.comm., May 3).

Figure 13 - Rubbish Game

4. RELATED WORK

4.2 CRITICAL GAMES

Serious games can often be considered controversial and critical, they explore topics that are hard for the player to address or understand otherwise. These games usually deal with subjects that are considered controversial and sometimes teach by shocking the player. *Papers Please* (3909 LLC, 2013), an award-winning game developed by Lucas Pope, has been equally acknowledged and criticized because of the issues it raises (Figure 14). As an immigration inspector you have to choose who to let in or turn away to enter the community state, Astotzka. *Papers Please* has been highly condemned because it gamifies immigration, discrimination, and political issues. It is this spark of conversation that allows for a greater audience to take interest in issues of this matter, empowering the matter by speaking about it.

Peace Maker (Impact Games, 2011) is another game that challenges the audience to act like an official, taking political-based decisions (Figure 15). In *Peace Maker* the audience has to solve the conflict between Israel and Palestine by using social media, watching real-life videos, military and political strategies. It is innovation techniques like this that lead the public to be better informed of issues in the news and come up with solutions for them.

Both, *Peace Maker* and P*apers Please*, do not raise money for organizations, instead they are produced to inform the user of the situations around the world so they can be better engaged in their news and communities. The simulations used in the game put the player in a unique position with a new point of view. These games cause a great deal of controversy due to the delicate situations they deal with. It is sometimes argued that these games do not necessarily produce awareness in their game play experiences but in the publicity they create.

Figure 14 - Papers Please Game

Figure 15 - PeaceMaker Game

4. RELATED WORK

4.3 NURTURING GAMES

Nurturing games have a unique play experience because it makes the player constantly care for a character while advancing in the game. The *Tamagotchi* (Bandai, 1996) is a handheld device that simulates virtual care and maintenance of a pet. *Tamagotchi* was one of the first nurturing games that created a revolution in game design. The level of interaction and engagement with this device was massive, even nowadays the game has developed into novel looking devices, apps and even cartoons. *Homeless: It's No Game* (Terrance, 2006) is a game meant to raise awareness about homeless difficulties. The game gives you an avatar to take care of, the goal is to keep the homeless avatar alive and with a good self-esteem for 24 hours. The avatar would die if the self-esteem dropped to 0, the points can be kept up by giving the avatar money, food and access to a bathroom. The game is meant to break the stereotype of homeless, giving them back their humanity. Allowing the player to understand the difficult situations the homeless are in. The game requires the players attention, it begs the player to continuously interact, interrupting the persons routine and emotional state.

3=3 (SFU, 2013), is an indie game currently being developed in Simon Fraser University. *3=3*, explores how players can relate to their character when it has a less idealistic approach, giving them disabilities like blindness, autism and mobility impairment (Choo, 2013). In the game, three characters are in an elevator when it breaks down due to a storm. The player has to keep them alive while they try to leave the tower. The characters continuously portray their needs: hunger, health, sleep, morale. This game was based on the four key concepts that are vital for the player to be captivated, have a rich experience and re-engage with the game (Lazzaro, 2004). The four concepts are: easy fun, hard fun, people fun, and serious fun. Lazzaro comments that it is important to have all four keys to have a strong game. The mix of content for motivation and a strong playful experience are key concepts for successful gamification.
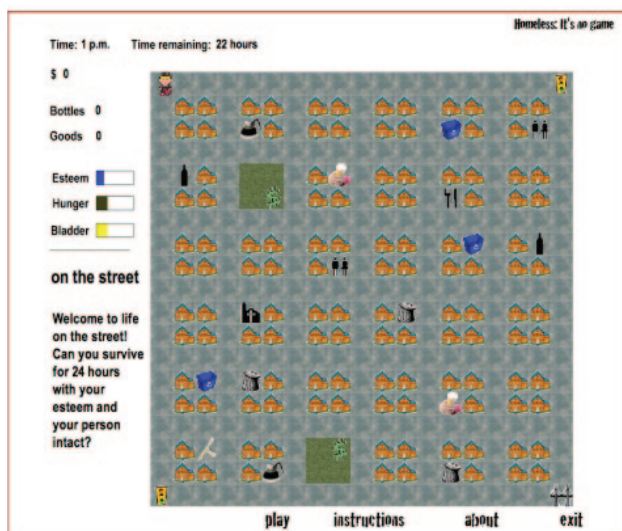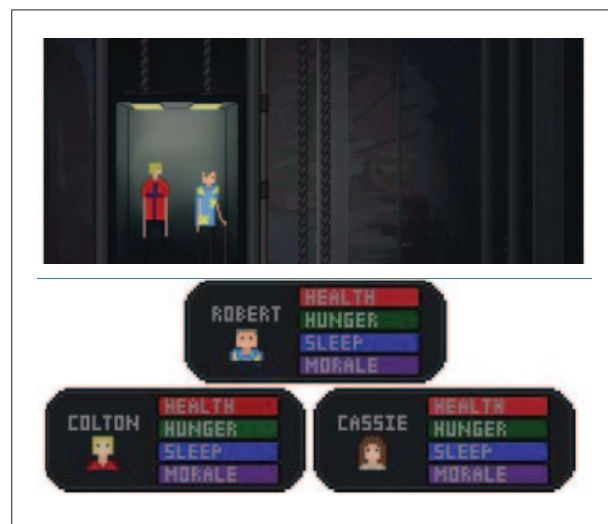

Figure 16 - Homeless, It's No Game! Game

Figure 17 - 3=3 Game

4. RELATED WORK

4.4 CASUAL GAMES

Casual games are simple, easy to learn, quick-reward giving and forgiving games (Kuittinen, 2007). The term "casual games" is partly used because it refers at the way the user plays the game, picking it up quickly and dropping it easily. These games are usually played without great effort and have a slow learning curve that does not require much involvement.

One of the most known casual games is *Candy Crush* (King, 2012). This game is based on turning and flipping candy in order to match a row of 3 or more same-colored candy. It is one of the most used games in Facebook and on the phone. The game allows for the player to play small amounts whenever he/ she wants. A*nytime, anywhere* is common description for casual games. The mobile game, *Dumb Ways To Die 1* (Metro, 2014), consists of micro games that explain how to be safe around trains (Figure 18). The user learns very quickly how to interact with different levels in the game from tapping, to dragging their finger and even tilting the phone. *Dumb Ways To Die* teaches the player by small interactions and almost no text how to correctly behave in train tracks and many other situations that put a person in danger. The game is designed with a comical view on dying, the player has limited time to complete the task or the character dies and a funny animation is shown. According to the campaign website (dumbwaystodie.com) the combination of the release of the game and viral videos has decreased accidents on platforms by 21%. This type of games although they are meant for fast interactions, lasting no longer than 15 minutes, are being used for long periods of time in almost any circumstance (Kuittinen, 2007). Casual games are also a good approach to capture the player in small amounts of time and giving him/ her different pieces of information that keep them involved.
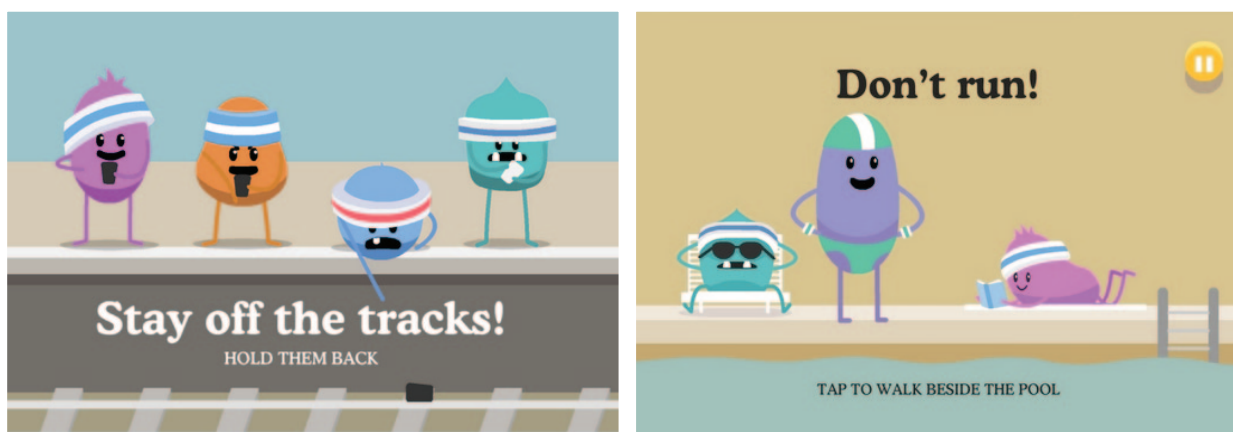

Figure 18 - Dumb Ways to Die Game

5. METHOD

To achieve a successful game with strong playful experiences that help the player learn about a particular subject, the game designer has to go through an intricate project development. The use of game-research method states that it is important to define the principle of design and primitives from the game, and specify resources and data needed to accomplish the game (Lankoski, 2015). The planned methods are: cultural probes, gamestorming, card sorting, player testing, various forms of prototyping, user scenarios and the evaluation of game play experiences and social impact.

The design process will focus on player-centred design, meaning that the future players of the game are considered a major source of information (Ermi and Mäyrä, 2005). Different players throughout the design process will have various roles as users, informants, testers and design partners. It is important to design each step in the method so that different participants can be involved and can undertake many different roles.

Cultural probes, as said by Gaver et al. (1999), are used as an exploration technique. They are used to discover new interaction techniques and context of a particular subject in the community. There are many serious games that help raise awareness and encourage donation to specific causes, however, new and attractive designs are required to engage the player and produce a fruitful interaction. According to Mattelmäki there are four main reasons probes should be used: Information, Participation, Inspiration and Dialogue. Mattelmäki states that probes are used to provoke/ invite users to verbalize their feelings, experiences, and visualize their actions in their own settings (Mattelmäki, 2005) . The aim of the cultural probe was to eliminate stereotypes, observe different perspectives on children's rights and further understand how the users react to sensitive subjects. The cultural probes were mixed with gamestorming techniques in order to explore concepts and contexts through participatory design (Ermi and Mäyrä, 2005). Gamestorming is a technique to gather thoughts and ideas by adding game elements and game-based tasks to brainstorming sessions. It is important to say that in this scenario gamestorming is defined as using participants in design games that allow design activities to produce a common language, discuss existing realities, investigate future visions and record new relationships with technology, education and other organizations.

The target group and user types are important subjects to consider before player testing and evaluating the game experience. Boyhun Kim introduces five different types of users that should be tested: player (motivated by extrinsic rewards), socializer (motivated by relatedness), free spirit (motivated by autonomy), achiever (motivated by mastery) and philanthropist (motivated by purpose) (Kim, 2015). These user types are different for gamification than for games because in gamification playing is not always voluntary. Throughout this research method experimental game play will also be observed. New ways of interacting with games and the way they can interact with people's daily life.

5. METHOD

Player testing is a key method in the development of the game. It was important to continuously test how users were engaging with the game and if they were becoming more involved in children's rights (Ku & Tran, 2011). Player testing is important to achieve the correct balance between fun and information in the game (Bharath Palavalli 2015, pers.comm., May 3). The internal and external validity of the game are two important challenges in the design of serious games. Through player testing the players themselves can set up important factors of the game like winning/loosing criteria, level of complexity, trust in the game and how they relate the game to the real world. The potential players should be used to evaluate the game and also should contribute to the design of the game.

Prototyping can happen in two phases: lo-fi and hi-fi. Lo-fi prototyping consists of rapid paper prototypes that quick feedback from the users (Snyder, 2003). A hi-fi prototype consists of more defined prototypes in which you can evaluate the aesthetics, mobile interactions and playful experiences. Continuous lo-fi prototyping is essential for a well-designed game. Rapid prototypes should be used to look at how the player reacts to challenges, content delivery and other small interactions. In these prototypes it is important to figure out critical elements that can change the learning outcome and the type of knowledge gained (Kapp, 2014). Qualitative data, as observation and sketches, are used as the main source to distinguish how the game is interacting with the player and the emotions taking part in the playful experience. To achieve a hi-fi prototype several prototyping tools like mobile prototyping and animations should be used. The testing for playful experiences in the hi-fi prototype can be developed using Wizard of Oz techniques using tools like proto.Io. The aesthetics of the game need to be approached carefully as they could change the meaning of the game (Kim, 2015). It is important to design according to what the game is trying to teach and the emotions expressed.

Once the hi-fi prototype has been developed the game should be evaluated and analyzed in order to study the social impact the game generates on it's players. There are two main ways that should be used to evaluate the social impact a game has. First, there can be embedded parameters in the game in order to evaluate the player's activities without them knowing. The second, is interviewing them before and after they have played the game. In this thesis only interviews will be used due to limitations in the technology.

User scenarios are used to highlight weaknesses or strengths in aspects of usability and playability and to bridge the gap between designers and users (Ermi and Mäyrä, 2005). This method is usually used when the designer is situated between concept idea creation and concept evaluation. The scenarios are designed according to the target group and are then presented to the users for feedback. Although this is not a commonly used method in game design, it was important to use so the players

5. METHOD

could identify with different scenarios depending on the game play experience they were looking for. Although the player cannot predict his/ her playful experience, they can identify with scenarios close to them that can help define the type of player they are and start a dialogue about the game intentions.

A good way of evaluating social impact and the effectiveness of a serious game is using pre- and post-test results that highlight knowledge gained (Froschauer, 2010). The interviews and questionnaires should demonstrate the impact the game has had on the player, building different layers of complexity according to the players knowledge and explaining different scenarios where the game is applicable. Both are done to test the effect of the information in the game on the participants emotions, knowledge and actions, and to detect weaknesses and strengths in the game.

6. DESIGN PROCESS

6.1 CULTURAL PROBES

The cultural probes were designed with a particular aesthetic. They were made with playful typographies, diverse colors and used illustrations that kept the motif simple and lighthearted, inspiring the users to be more creative and less worried about children's suffering (Figure 19). Cultural probe tasks also remained open-ended and allow for the participant to communicate any concern he/she has about the subject (Mullane, 2014). In this stage of research it is important to answer the following questions about the audience: What does the audience need to learn about children's poverty? What kind of games are they playing right now? Do they contribute to non-profit organizations?

In this scenario six different participants were used. Students from the ages 22-28 were given the cultural probes to work on for two days. The participants consisted of three design students and three political science students. The reason these two groups were chosen was to give two different understandings of what users know about the cause and how they act upon it.

Figure 19 – Cultural Probe Design

As Mattelmäki says, probes were used to empower both the users' and designers' interpretations and creativity on the subject. They are produced to gain insight on the user's subjective view and experiences. The tasks were completed in random order and in the users' setting. They were designed on purpose to be ambiguous; leaving a lot of space for the user to take the direction they felt was necessary. The cultural probes attempted to drive creativity through the use of challenges and game-like tasks (Mullane, 2014).

6. DESIGN PROCESS

The five different tasks were created in order to fill in inspiration, information, participation and create a dialogue with the participants. The tasks and artifacts consisted of: a small survey, gamestorming, a map, a diary and card sorting. Below is a detailed description of what each task was and the result.

6.1.1 Survey

This task contained questions like: Are you an activist? What do you need to become an activist? Do you help any social cause? How would you help a child whose rights are being compromised? The design participants answered they do not consider themselves activists, but the political science students consider themselves activists although none of them participate in the aid of a social cause. The small survey also asked them how to help a child in need; most participants spoke about alerting the police or addressing the child in order to educate him about rights. The answers in this section allowed an understanding of what the meaning of activism is, how people view social causes and if they have thought about helping a child in need before. It also gave an introduction to the participant about the content of the probe.

6.1.2 Gamestorming

Gamestorming was used by drawing, naming and gluing pieces on a piece of paper, adding game elements to a mind-map style task. In the probe there were two different types of game elements added: an exercise to glue together a shape and a connect-the-lines game.
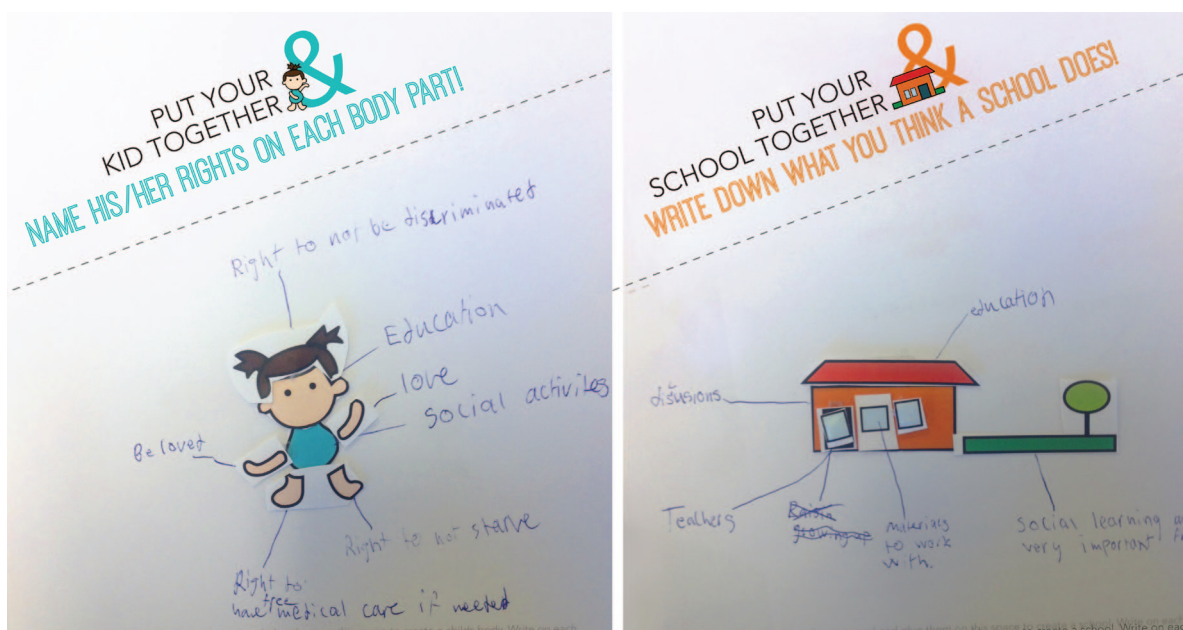

Figure 20 – Gamestorming

6. DESIGN PROCESS

Gluing shapes together consisted of two different shapes and naming properties (Figure 20). The first section asked to put together or draw a school and name different school functionaries on each part. For example roof is education and the door could be named shelter. The second task consisted on either cutting out pieces or drawing a child and naming his/her rights on each body part. The results were very varied, each participant showed a different understanding on what a school's functionality is, what child rights are and the way to prioritize them. It was interesting to observe how the participants prioritized body parts in relation to a child's needs and the way they interpreted the instructions given. Most of the results showed six different set of rights: play, education, health, family, shelter and nutrition.

In-probe gaming (Figure 20) was an interesting approach to understand what the participants were feeling. The main purpose of "connect-the-lines" was to observe the playful behavior in drawing the lines while considering the user's preferences. The users were asked to connect lines that best matched without touching the lines they had already drawn. For example, there were phrases like "I have kept a plant alive…" or "My notifications come in…" and the possible matches were "Always," "4 times a day," etc. Some of the participants wrote down new matches and others crossed over phrases that did not apply to them. Most of the participants pointed out that they use their phone and computer over 5 hours, they never read about their rights and do not participate in online gaming.

6.1.3 Fill in the map

This task asked the participants to point out where they thought children's rights were not protected and what rights they thought were the least present on a world map. The instructions on this task were very vague therefore the answers had a wide range of diversity. One participant circled the whole map and wrote down "Sadly, all over the world." Another participant made a key from most to least rights presents and pattern-coded each section. Most of the participants did not have a clear view on where rights are being compromised, instead they filled in areas that match what has recently come up in the news; specifically places like Syria and Somalia.

6.1.4 Diary

This task consisted of giving users a small booklet that asked for them to write down what first came to mind when hearing children's rights, to make up a story of a kid named Guhn that has recently arrived in Sweden, and to draw/write a child's future. It was interesting to analyze the results of the diaries because the results were highly subjective. People made up stories about Guhn coming from Syria,

6. DESIGN PROCESS

Nepal and Pakistan and having problems adapting to the Swedish culture and integrating in school, which can be biased because all of the participants are foreigners. When it came to draw a child's future participants drew very different situations, from having school and a family to having an *Arduino* to play with. It is interesting that none of the participants drew the child as an adult when asked for a child's future.

6.1.5 Card Sorting

The last task came in a blue envelope and was composed out of five different pictures. Card sorting consisted of asking the participants to look at five different images, name the rights they represent and sort them out. Most participants communicated that the fact that these cards came in an extra envelope made them believe this task should be completed last. The different answers the participants gave allowed for a common language to be created. Most participants did not write accurate children's rights, but wrote down similar right concepts. Figure 21 shows the results for the order of the importance of the rights and the rights they chose for the picture given. The images chosen were carefully selected in order to have all ethnicity, ages and child-like situations.

USERS	CARD DESCRIPTION AND ORDER & RIGHT CHOSEN (1-5)				
	Child on a desk with book	Children drawing with woman	Child receiving first aid from military woman	Child carrying fruit basket	Family on couch hugging
A	4. Safe Environment	5. Education	3. Healthcare	2. Food	1. Family
B	2. Education	4. Play	1. Health	5. Being part of a family	3. Feeling loved
C	4. Education	5. Play	2. Healthcare	3. Healthy food	1. Love
D	5. Education	4. Safety	3. Health	1. Well fed	2. Family
E	4. Education	3. Play	5. Health	2. Decent standard of living	1. Parents and love
F	2. Education	5. Good guidance and play	4. Health facility	1. Nutritious food	3. Parental right

Table 1 – Card Sorting Results

Table 1 shows that most users think that the sense of belonging in a family is the most important right and that education and sense of play is the least. The CRC are not categorized by importance as they argue that all children must have all the rights described and that none is more important than the other. The results from the table inform what people are thinking and perceiving, card sorting in this sense helped breakthrough stereotypes.

6. DESIGN PROCESS

Figure 21 – Card Sorting Images

Card sorting also allowed for participation from the users in making new terminologies, categories and relationships. Drawing and naming pieces, although they had essentially the same question in a different task form, produced very different results. They both showed different understanding of priorities in rights and what a child right is considered. The rights categories and the proximity they created will later be used in the concept development.

6.1.6 Results

Cultural probes were highly inspirational. As expected, they did not produce accurate results of a good understanding of what the CRC says, but a common understanding of what participants think children should have. Using games within the probes allowed the participants to feel unlimited in the creativity, breaking rules and taking a new approach to simple questions. Game design in cultural probes helped to create a good collaboration system. The participants brought up diverse user scenarios and introduced playful thinking. Presenting game-like scenarios to the participants relieved some of the pressure for concept generation (Hornecker, 2010). Most participants were eager to help the children and put them in new situations but commented that they didn't because of lack of time, knowledge or motivation. One of the participants wrote in the comment section "Save them, save them, save them!" he later explained that he sees these focus activities as the only possible solution for improving dire situations.

6. DESIGN PROCESS

6.2 SKETCHING AND PROTOTYPING

In order to do lo-fi prototyping for a game and create a strong concept confirmation it is important to test all possible approaches to game narratives and experiences. In this stage of the game development fast and sketch-like prototypes were made with different play experiences and avatars. The prototypes were handmade, with colorful paper and pen. The focus of the prototypes was playability and usability of the different interfaces and game experiences (Snyder, 2003). It was essential for the players to have an engaging playful experience in order to test the internal validity, so no real content was added at this point. When the players finished a game they did not receive information about children's rights unless they asked for the facilitator to explain the results further. The prototypes consisted of three different versions to relate to the avatars life span and five different micro-games that represented different "items" in the avatar's life.

The micro-games, used for the three different interactions with the avatar, consisted of five items: health, education, safety, play and love. The categories were based on the results from the cultural probes, following the stereotype people have about what the five main rights of children are. The intention was that in order to learn more about a subject they have to be identified with it in some form. Each game had a unique interaction, involving the player in new playful experiences. The "Health Item" (Figure 22. A) was formed by different words that attacked the avatar's face. Simulating "tapping" the players had to circle or mark words that they did not wish to see the player being hit with, for example: prostitution or sexual abuse. The "Education Item" (Figure 22. B) introduced a luck-based game were the player had to choose a path, the different paths contained different obstacles that explained why a refugee child cannot attend school regularly. The "Safety Item" (Figure 22. C) was made of accuracy-based interactions. The player had to avoid touching the sidewalls and drag a pen down the middle of two areas. As the problems called out in the sidewalls got more serious, the space to draw the line became smaller. The "Play Item (Figure 22. D) also simulated a digital game in which the person had to tap the words that did not form part of the meaning for free play. For example sport is not part of what the CRC argues should be free play. The "Love Item" (Figure 22. E) was a memory game in which the player has to match kids and their families according to their color.
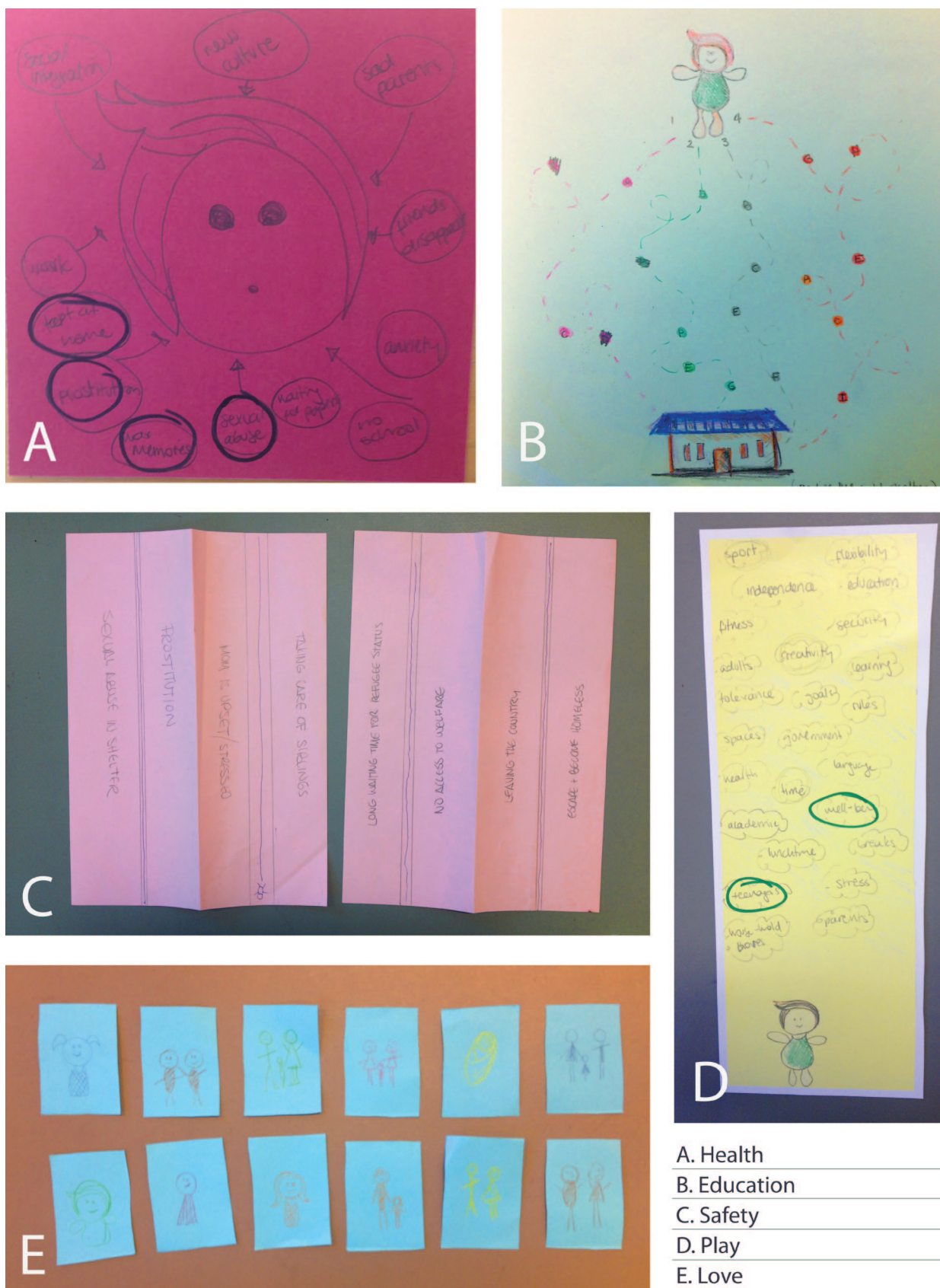
6. DESIGN PROCESS

Figure 22 - Micro Games

A. Health
B. Education
C. Safety
D. Play
E. Love
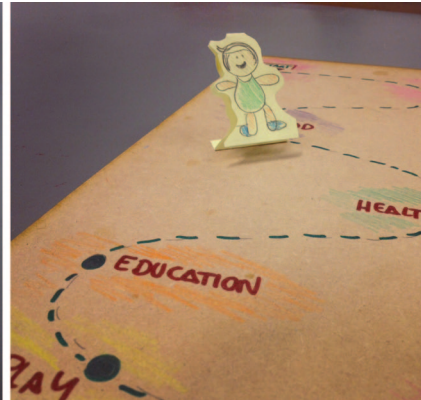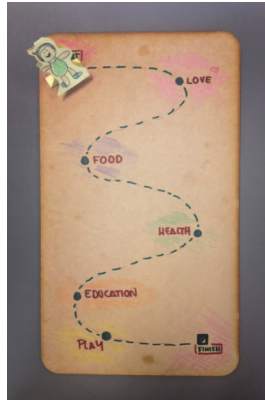
6. DESIGN PROCESS

Figure 24 - Prototype 2

Figure 23 - Prototype 1

Figure 25 - Prototype 3

Three different game play experiences were prototyped in order to observe what engaged the players the most, how the players connected with the avatar and if they felt they had achieved a goal at the end of playing. The first prototype (Figure 23) was designed for the player to have a connection with the emotion of the avatar. As the user won or lost points the facial expression of the avatar changed from happy to sad, confused and even dead. The different "items" that kept the avatar alive could be chosen in a random order. The second prototype (Figure 24) was a board-game style interaction. The player had to go through all items in the order they where placed to finish the game. The board game had a small version of the avatar but it did not control the emotions of life-state of the avatar, just lost or won points according to each game. The third prototype consisted of a doll-like game (Figure 25). The avatar was designed to engage in the state of the avatar by placing hearts with different emotions in them. As the players went through the micro-games and either lost or won points the heart would be sadder or happier.

6. DESIGN PROCESS

6.3 PLAYER TESTING

Player testing is crucial for serious games in order to find the right balance between a boring educational game to a fun game. There are two different types of challenges in serious games: internal and external validity. The prototypes designed for *Happy Kids* were testing the internal validity of the game. Observing how the player engaged with the game, played the obstacles, broke the rules or developed trust in the game. To test the external validity, how the player relates the game to the real world, an existing game was used. The game, *Know Your Rights* Game (Imaginet, 2009), is a children's game to learn what the articles in the CRC mean. The game is easy and simple but it constantly gives information to the player about the CRC.

To have a successful player testing session three different types of player must be identified and tested: the ones that want to break the system or cheat, the ones that do not trust or care about the game and the ones that follow easily what the facilitator asks for (Bharath Palavalli 2015, pers.comm., May 3). In order for the designer to identify him or her faster, a survey was given to each participant before the start of the test. The questions varied from how much they cared about games, how do they have fun to their interest in helping children's rights.

6.3.1 *Know Your Rights* Game

The *Know Your Rights* Game teaches children about their rights by playing micro-games in a virtual world. The world consists of a cafeteria, playground, school and circus (Figure 26). In each place there are multiple- answer questions that teach you about the CRC while interacting with the environment. The game can be played in less than ten minutes and gives basic knowledge about what children should stand for. Like this game there are many that with small interactions and tasks introduce the players to educational facts.

The participants in this game claimed not to have a good playful experience and did not enjoy the testing. Most of the players said the game was boring, introduced too much text and had continuous articles that interrupted their game play experience. Because the game is meant for children, and I tested it on 26-30 year old people, a lot of the feedback said the game was not challenging enough and was very repetitive. It was interesting that some of the players did not trust the game and therefore said that they did not think the CRC seemed like a "smart" agreement. They did not understood what it stood for or how countries are integrating it into their laws.

6. DESIGN PROCESS

Figure 26 - Player Testing Know Your Rights

6.3.2 *Happy Kids* Prototype

 Happy Kids was prototyped in order to test the players' engagement with the avatar. The game consisted of micro-interactions were the player could play, learn fast and leave the game knowing a bit more of children's situation in Sweden. In total it took around thirty minutes to play all the games. Each participant got given the option of choosing which game experience they would have (Figure 27). The participants were asked to approach a table where all the games were shown and explained. All of the players had the option to quit or not choose all of the micro games in the game. Most of the participants chose the avatar that changed the facial emotions. Unfortunately this meant that one of the prototypes was not played at all.

 Most of the participants said they enjoyed the gamely experience but did not learn much about the CRC. The participants asked for more stories behind the character and more information in regards to the results they were having. However, they did not enjoy luck-based games like the love-memory game and the education minefield. The players also suggested that although the micro interactions were engaging some of them required their attention at such level they forgot to read about the articles being broken or how the avatars story played part.

6. DESIGN PROCESS

One of the main concerns from player testing was that participants said that although they were engaged in the game, they did not think they would remember the situations learnt during the game. This means that in order to make a successful game it either has to be engaging enough for them to want to remember the information or make them want to take the children's protection pledge or donation right after their first interactions.

Figure 27 - Player Testing *Happy Kids*

6. DESIGN PROCESS

6.4 USER SCENARIOS

The game scenarios were developed based on the feedback from the lo-fi prototypes and taking into consideration diversity of players. The scenarios were later used to identify the players being tested in the hi-fi prototype.

Three different scenarios were written, they were based on the three main types of serious games players (Bharath Palavalli 2015, pers.comm., May 3). The first scenario represented a player that followed the instructions, carefully played the game and took action according to what the game suggested him/ her to do. The second scenario showed a participant that wants to break, cheat and finish the game as fast as he/she can. The third scenario introduced a player that does not really care about or trust the game but is willing to play it due to its content.

Most serious games gain more value when they are part of another problem like workshops, lectures, organizations or campaigns. *Happy Kids* was not designed as part of another medium so it had to be clear in the scenarios how the players arrived to the game and the reason they would play. It was also important to say how the players would contribute to children's rights after playing the game to understand the different actions the players could complete.

Scenario 1

Ana is a human rights student who is looking for new ways of forming part of different organizations. She knows a lot about the different situations for refugee children and has become interested more in learning about rights and education. When looking for information about new projects for children's rights she found Happy Kids. Ana read the description of the game and became interested in learning about children's rights through casual gaming. When she downloaded the game into her phone she first read the story of the characters. After she played one round of all the game she realized wanted to look at different ways to help the children. She then decided to take the pledge to protect children and looked for volunteer opportunities near her house.

Scenario 2

Charles works for a restaurant downtown. In his free time he enjoys playing games and winning as fast as he can. While commuting to work he usually plays casual games like Word with Friends, Candy Crush or Minion Run. He came across Happy Kids in the app store and decided to play it while waiting for the bus. Charles did not have time to read the description of the game. Instead, he just went straight into playing the micro games. Once he had mastered the games and scored the highest, he became bored with the game. When he opened the game back up he realized there was a new character. This intrigued Charles so he read about the new character and read more stories about children in Sweden. However, Charles was not convinced this was the best approach for the situation so he deleted the game.

Scenario 3

Kayla has recently moved to Sweden for her job as a developer. She did not expect to see so many immigrants in Sweden. She was curious about statistics about people living here and came across Happy Kids. Kayla downloaded the game and played it while being home. She carefully read the instructions and played most of the items to keep the avatar happy. She played it for a couple of days until she realized she had learned most of the articles and situations in the game. Before removing the game she shared it on Facebook with the disclaimer that she could not completely trust the facts in the game.

In conclusion, developing the scenario-based player research helped the design of new aspects and interactions. It also provided general ideas and guidelines in order to prioritize learning goals, contribution possibilities and aspects of playability.

6. DESIGN PROCESS

6.5 CONCEPT SPECIFICATION

Concept specification is the detailed creation of the *Happy Kids*. Defining the game play experience by the rules, content and paths to take inside the game. Player testing and presenting user scenarios to the audience were two important steps in order to specify which direction the game should take.

Both testing scenarios proved that the strongest avatar was the one that changed it's facial expressions, children stories and background descriptions were important in order to create a great sense of empathy and that the micro interactions although engaging distracted the player from the main goal of the game. All of this feedback had to be taken into consideration while designing the experience for the game. For example, *Figure 12* shows how the micro games and menu selection were designed according to the interactions players said to be enjoyable during the player testing sessions.
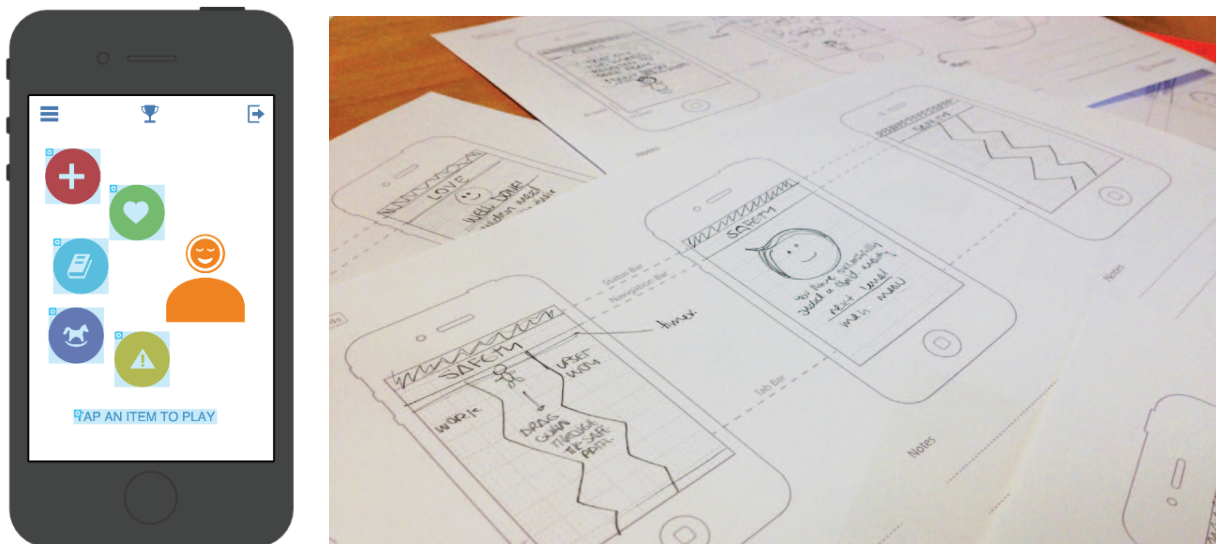
Figure 28 - Digitizing Player Experiences

Happy Kids has as its main goal to raise awareness for refugee children's poverty. In order to achieve this, the game was divided in to five different elements consisting of micro games. As the player goes through each element the avatar changes his/ her expression according to the points won or lost. The player has to complete all five micro games and achieve high scores in order for the child avatar to be happy and therefore win the game.

The game is designed so that the user plays around 5-10 minutes at a time, stops it and plays later in the day or another day. It is a "while you are waiting" game that teaches you about children's rights articles and issues in Sweden. Every time the player opens the game a new avatar will come up with a different story. For the purpose of the final prototype, four different child stories were chosen from Save the Children's CRC calendar online. As the player wins or looses he receives information about the articles inside the CRC and how that article is being accomplished or unfulfilled in Sweden.

6. DESIGN PROCESS

6.6 HI-FI PROTOTYPE

The hi-fi prototype consisted on two different areas: the aesthetics of the game and mobile interactions in proto.io. Both developments were important in order to understand how the gamer related to the game, the levels of complexity and challenge needed and the type of design that would capture the players attention to engage in small interactions throughout a 72 hour period.

The aesthetics of the game were designed to be very playful, based on the same character used in the cultural probes and the lo-fi prototypes. The design for the game had to be attractive and "fun" therefore it was decided to do a multi-color scheme with multiple icons and intrinsic illustrations. Throughout the whole design process a strong feel of play and less "seriousness" has been tried to be kept in order to fight the stereotype that serious games are usually not fun or well designed. *Figure 13* shows the design style chosen for the game. The avatar was designed to look like a toy, lacking ethnicity and gender features in order for the players not to form stereotypes around children's poverty in Sweden.
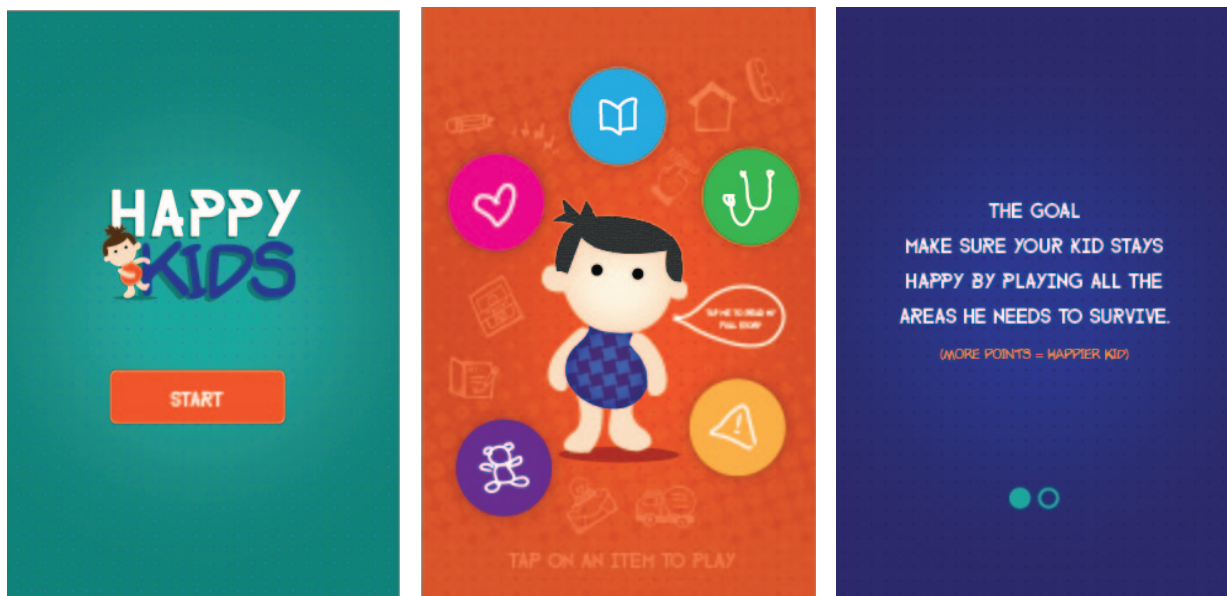

Figure 29 - Happy Kids Design

Figure 14 shows the micro games screen from start to finish vertically. The five different elements were designed in five different colors and icons. The intention was that once the participant finishes the game, he/she will be able to relate to the articles learnt from to that specific category and therefore learn the rights faster. While the design was being developed it was also crucial to test the touch interactions in the phone, how to drag the icon, how to achieve better scores, etc.

6. DESIGN PROCESS

Figure 30 - Micro Games Design

The user interface, user experience and game experience all differ in the way the player interacts with the game and they most play off of each other to have a successful play experience (Charles, 2005). These elements were kept in mind when designing the prototype and were continuously tested in the phone.

Proto.Io allowed for simple interactions like spinning the wheel in the education section or dragging Guhn down the road to safety to be produced and tested. Most of the interactions, like tapping, swiping, tilting the phone, etc. were inspired from the lo-fi prototypes and the study of casual games. In order to make the game teach the player about the CRC and not only refugee and immigrant children's cases, information of the articles was added after each level was completed. The text was kept to the minimal and the person could choose to skip this section so the playful experience was not interrupted.

6. DESIGN PROCESS

6.7 CONCEPT VALIDATION

6.6.1 Method

One of the reasons *Happy Kids* was designed for was to observe the effect serious games could have on players' attitudes and behaviors towards children's rights. The purpose of the game was to raise awareness about children's poverty in Sweden. In order to define if the game was successful or not, surveys and interviews were used pre- and post player testing. The different methods used in the evaluation were meant to cover different ways the participant could express an interest in children's rights.

The evaluation of the game consisted of 5 different participants. The participants were chosen in order to satisfy different types of players plus one domain expert. The test included a pre-test survey, identifying with user scenarios, playing the game, chatting about the game with the designer and a 24 hour post-test survey.

The interviews consisted on presenting the three different scenarios to the players and asking them to identify with the one closest to them and describe why. Afterwards, the players were asked to think out loud while playing the game and were asked questions about how they felt after the game had finished. The questions asked them if the game had taught them something, if their feelings had been touched, if they would contribute to the community and if they would play this game again and in what circumstances.

The surveys, pre- (Appendix 9.1.1) and post-test (Appendix 9.1.2) were specifically designed to measure attitudes towards children's poverty. In the design various scales were used in order to see which ones could gather the most data. The scales and questions were adapted from Lavender's use of Batson's (1997) nine-item scale and questions relating to attitudes towards homeless (Lavender, 2010). The questions were changed to fit the study of behavior towards children's rights and the scales were taken down to a five-item scale that distributed either very sympathy to not sympathetic, strongly agree to strongly disagree, very interested to not interested and knowledgeable to not knowledgeable. After a 24 hour period the players were given the post-test survey that contained almost the same questions based on the same scales. Once both surveys were completed a ratio of the answers was calculated to see if there was a change in their attitude towards children's rights.

6. DESIGN PROCESS

6.7.2 Results

To better understand the results of the evaluation, the results were divided into the following sections: playful experience, qualitative results and quantitative results. All of the sections were meant to cover the interests of the participants and help the designer categorize the information received.

6.7.2.1 Playful Experience

The playful experience in the game was evaluated in order to also test if the game was successful at entertaining. The participants were asked to play the game and to think out loud while playing it. Most participants chose to go to next levels and wanted to continue playing the micro games while reading the information they were playing with but skipped the information given once they had won the level. Some of the participants returned to play the game just to read the information given after they had lost the game and once they realized this had information about articles within the CRC they wanted to learn more. All participants claimed that their interest in reading the information after the micro games increased the more they played and would have liked to read more accurate information like statistics. The participants had a fast learning curve with the micro games but a slow curve for reading the information about the articles. The micro games were said to be interesting and fast to learn. During the play sessions all participants played all the items voluntarily without guiding through any of them. However, most participants did not know what items to choose first because they did not know what the micro games in that section were. The participants were engaged in the game but did not ask what their score was or if the kid was living or dying according to their results.

6.7.2.2 Qualitative Results

During the interviews before and after the game the participants seemed very open minded about learning about children's rights. Three out of the five participants said they would contribute to the community by either sharing, donating or looking up volunteer opportunities for this cause. Most participants said the game had not taught them anything but had highlighted situations they were not aware of. The participants expressed trust in the game because of the information given when they had won/ lost but wanted to learn more about the avatar's story. The reason the credibility of the game was high was due to the use of articles from the CRC. The emotions said were mixed, producing different levels of empathy and engagement in the game. The domain expert was not interested in the play experience but instead wanted to learn more about children's situations, instead the rest of the participants wanted a stronger playful experience. However, all participants did want more random facts and statistics about refugee children in Sweden and were less interested in learning the articles.

"The game did not teach me something but it made me think more about this subject."
(Participant, 2015)

"I did learn. it was fun. It was simple of course, but giving information and play experience was good combo." (Participant 2, 2015)

"i don't know if I would remember the information given if I play fast." (Participant 4, 2015)

"The game tells you what you need to know. However, I skipped the information because I was busy dragging Guhn (the character) down." (Domain Expert, 2015)

Generally, the interviews gave a lot of insight on what the players were thinking, how they would act after the game and if their mind was changing about the situation while playing. The game was generally well accepted by the players. They said there was a good balance between play and information. However, most participants could not remember what they had just read in relation to the articles.

6.7.2.3 Quantitative Results

To test the level of awareness created by the game, measurements were made of changes in the following areas: knowledge of refugee children's rights, interest in children's rights, major causes of children's suffering, and attitudes towards children's rights.

The data in *Table 2* shows the average difference in answers about children's rights. Most of the outcome gave a positive result. They increased in average 10% in sympathy, knowledge and interest in children's rights. Question 2 produced a negative effect, meaning that the participants answered that their feelings towards children's poverty became less sympathetic. Statements like 5 and 6 in *Table 2* did not show a difference in the results. This might be due to the fact the statements have a strong opinion and attitude towards children's rights. The results of the surveys were successful in the fact that they managed to bring up the numbers relating to awareness. However, the limited amount of participants used for the testing did not allow for clearer and well-defined results. The change produced in the data, although shows a difference, shows a minimal change that could have happened based on one participant changing a number. In order to have successful quantitative data more participants need to be used, more time has to be given between play and test, and a better scale needs to be implemented.

6. DESIGN PROCESS

Questions	Pre-test Mean	Post-test Mean	% Difference
1. How knowledgeable do you consider yourself about refugee children's rights?	2.00	2.50	+10
2. How interested are you in the issue of children's rights?	3.00	3.50	+10
3. Please rate your feelings towards children's poverty	5.00	4.50	-10
4. Indicate level of agreement with the following statement: All children in Sweden have access to the same rights.	1.33	1.67	+6.8
5. Indicate level of agreement with the following statement: Most refugee children are suffering due to parents irresponsibility.	2.33	2.33	0
6. Indicate level of agreement with the following statement: Our society should do more to protect the welfare of children.	5.00	5.00	0
7. Indicate level of agreement with the following statement: Our society does not do enough to help refugee, immigrant and undocumented children. Compared with other social problems we face today (e.g., crime, education, AIDS, global warming, traffic)	4.00	4.33	+6.6

Table 2 - Attitudes towards children's rights issues (5-item scale)

7. CONCLUSION

7.1 CONCLUSION

Serious games can be regarded as an authentic and meaningful tool for teaching about societal issues. Games provides players challenges, objectives and stories that create strong empathy between a player and a global issue. As such, games have great potential for communicating a shared understanding of complex social phenomena that leads to raising awareness and motivation (Swain, 2007).

Achieving awareness through gaming is a complex process. Each player will receive and learn different information and therefore learn about societal issues in his/her own way (Lavender, 2008). *Happy Kids* was designed to raise awareness about children's rights and lead the players to take action in the cause. It was ambitious to think that one game could raise awareness equally in each player and that the game could motivate to immediate contribution. The intended outcome of the game was satisfied but there are many factors that affected the way children's poverty was perceived by each player. It was seen that *Happy Kids* sits fairly low in the scale of play, to learning, to action.

Games like *Homelessness, It's No Game!* and *FloodSim*, studied in earlier chapters, produced similar results. The games intended to reach awareness, create a strong playful experience and persuade the player to change his/ her behavior. The evaluation of these games brought up the following questions: Does a game with more complexity get across a message better than a simpler game, or does the message get lost in the complexity and immersion? What is the balance between enjoyment, information and awareness? (Lavender, 2008) What factors lead to some players being affected by the game and others not? If the societal issue was highlighted and understood, how long will the information last in the players mind?

For further studies on how serious games can raise awareness of a societal issue it is important to focus in three elements: the correct balance of fun and information, the levels of complexity of a game, and how to allow all players to gain from the game. Using casual games and serious games to highlight children's poverty in Sweden proved to be a good way of addressing awareness. Although the results were limited, they showed promising data of how a game can help societal causes. It is important to mention that designers of games for change should strive to achieve a play experience that is both fun and imparts social messages (Swain, 2007). The stronger the balance, the stronger the awareness and persuasion of the game.

Happy Kids was said to be an enjoyable game that taught participants about children's rights without interrupting the playful experience. The players said that they felt more empathic towards children's poverty and that they would consider learning more about the issue. The results of the game showed that one can use games for awareness and that people are open to helping make the world a better place.

7. CONCLUSION

7.2 FUTURE WORK

Happy Kids worked as a good tool to let people know about refugee children's poverty in Sweden. The game had positive results in both the playful experience and the awareness raised. However, for future endeavors there are many things that the game can expand on in order to be more effective. There is much more work still to be done. *Happy Kids* could collaborate with an organization in order to make the game sustainable and self-standing, and it could develop better game evaluation methods so participants don't have to undergo long before and after test sessions, and produce *Happy Kids II* were more game elements essential to the playful experience can be added.

A strong collaboration with an organization for children's rights is needed in order to increase the credibility and sustainability of the game. Save the Children was involved in the process of designing *Happy Kids* and deciding some of the content, however if the organization were to include it in one of their campaigns, a larger audience would be reached and the game could have stronger ties to the issue. Adding an organization would also encourage the players decide on the way they would contribute back to the community. The content for *Happy Kids* was not fully developed. The hi-fi prototype consisted on micro games that could only reach one level, therefore not much information about children's rights issues was shown. For further development, the game should include statistics, sample cases and different levels of complexity according to the level of expertise of the player.

The evaluation method used for testing awareness proved to be successful but still needs to be developed further. The evaluation of the game proved to have changed people's attitudes and feelings but when the players were interviewed they claimed that the game had not taught them anything new. The content of the game has to better show what the CRC is, how the articles work and examples of the lack of fulfillment. The goal of increasing public awareness of societal issues is an ambitious one and requires a more thoughtful design process, with stronger teaching and evaluation techniques (Rebolledo-Mendez, 2009).

Several game elements, essential for motivating the players, were not included in the last prototype. The game is meant to be a nurturing game. The more the participant plays and the more points he/she gets, the happier the avatar is; if the avatar gets sad or starts to die because of lack of play he/she would send the player notifications. In the prototype this feature was not included, which affected the playful experience. Another important game element was the opportunity to either choose or introduce new avatars in order to read different child cases in Sweden. This feature was meant to attract the player to either get more avatars through high score. The avatars, although designed were not included in the evaluation so that the test could focus in awareness and the correct balance of fun and information.

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8.1 LIST OF FIGURES

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9. APPENDIX

9.1 SURVEYS

9.1.1 Survey I

Happy Kids I

Introduction

1. How knowledgeable do you consider yourself about refugee children's rights?

not knowledgeable		knowledgeable		very knowledgeable
○	○	○	○	○

2. How interested are you in the issue of children's rights?

not interested		interested		very interested
○	○	○	○	○

3. Please rate your feelings towards children's poverty

less sympathetic		no change in feeling		much more sympathetic
○	○	○	○	○

4. Please rank children's rights issues according to importance

- [⇕] Lack of Education
- [⇕] Safety
- [⇕] Health Access and Mental State
- [⇕] Free Play and Leisure Time
- [⇕] Family Separaiton

Statements

5. Indicate level of agreement with the following statement: All children in Sweden have access to the same rights.

Strongly Disagree		Neutral		Strongly Agree
○	○	○	○	○

6. Indicate level of agreement with the following statement: Most refugee children are suffering due to parents irresponsibility.

Strongly Disagree		Neutral		Strongly Agree
○	○	○	○	○

7. Indicate level of agreement with the following statement: Our society should do more to protect the welfare of children.

Strongly Disagree		Neutral		Strongly Agree
○	○	○	○	○

8. Indicate level of agreement with the following statement: Our society does not do enough to help refugee, immigrant and undocumented children. Compared with other social problems we face today (e.g., crime, education, drugs, AIDS, global warming, traffic)

Strongly Disagree		Neutral		Strongly Agree
○	○	○	○	○

9. How would you rate the importance of helping children in Sweden?

Not important at all				Very important
○	○	○	○	○

10. You consider children's rights a pressing issue to be:

Not important at all				Very important
○	○	○	○	○

9. APPENDIX

9.1 SURVEYS

9.1.2 Survey II

Happy Kids II

Introduction

1. How knowledgeable do you consider yourself about refugee children's rights?

not knowledgeable		knowledgeable		very knowledgeable
○	○	○	○	○

2. How interested are you in the issue of children's rights?

not interested		interested		very interested
○	○	○	○	○

3. Please rate your feelings towards children's poverty

less sympathetic		no change in feeling		much more sympathetic
○	○	○	○	○

4. Please rank children's rights issues according to importance

- [÷] Lack of Education
- [÷] Safety
- [÷] Health Access and Mental State
- [÷] Free Play and Leisure Time
- [÷] Family Separaiton

Statements

5. Indicate level of agreement with the following statement: All children in Sweden have access to the same rights.

Strongly Disagree		Neutral		Strongly Agree
○	○	○	○	○

6. Indicate level of agreement with the following statement: Most refugee children are suffering due to parents irresponsibility.

Strongly Disagree		Neutral		Strongly Agree
○	○	○	○	○

7. Indicate level of agreement with the following statement: Our society should do more to protect the welfare of children.

Strongly Disagree		Neutral		Strongly Agree
○	○	○	○	○

8. Indicate level of agreement with the following statement: Our society does not do enough to help refugee, immigrant and undocumented children. Compared with other social problems we face today (e.g., crime, education, drugs, AIDS, global warming, traffic)

Strongly Disagree		Neutral		Strongly Agree
○	○	○	○	○

9. Having played the game, do you consider children's right's different?

Less sympathetic		Neutral		Very sympathetic
○	○	○	○	○

Other (please specify)

10. Having played the game, do you understand children's situation in Sweden?

Very confused		Not affected		Understand
○	○	○	○	○