GAMIFICATION THROUGH THE USE OF LEBANESE HERITAGE

by

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A thesis submitted to the Department of Design in partial fulfillment of the requirements for the degree of Master of Arts in Design

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Thesis

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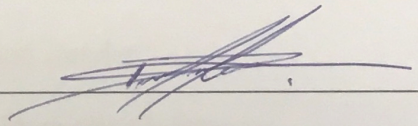

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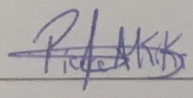

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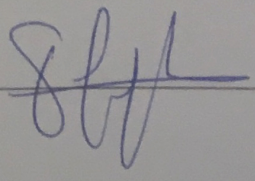

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ABSTRACT

LIST OF FIGURES

ABSTRACT

The term ‘Serious Games’ was coined to reflect the dual nature of games that exceeds entertainment purposes to provide some kind of educational value. Alternative terms have been used such as ‘Game-based Learning’ and ‘Gamification’. Educational children game apps in the Arab world are abundant, most of which are language learning apps. There seems to be an almost non-existent presence to the game apps that provide cultural context to the children beyond learning languages. In this thesis, we present a conceptual framework to gamifying Lebanese culture. We describe the process of gamification, design principles and practices and how culture can be incorporated and represented on various levels in the system. We investigate the needs of children and parents through an online survey. The results of the survey along with the findings of the literature review provides a clearer approach to the final game concept and serious game ‘Saving Gwal’. We conclude with the design process of ‘Saving Gwal’ and a discussion of the final findings of this thesis.

Chapter 1

INTRODUCTION

1.1 Background

Video games in today's world are becoming more popular than ever. It is forecasted that the gaming industry will hit $137.9 billion in revenues in 2018 generated by 2.3 billion gamers approximately (Wijman, 2018). This indicates that our global society is more interactive than ever before. Although games are mostly dedicated to entertainment purposes, there's a growing need for games to deliver more than simple entertainment.

The term 'Serious Games' was coined to reflect the dual nature of these games that exceeds entertainment purposes. In their paper *Classifying Serious Games,* Djaouti (et al) explain that these games have educational layers that fit within the structure of the game. Furthermore, they explain that 'Serious Game designers use people's interest in video games to capture their attention for a variety of purposes that go beyond pure entertainment.' (Djaouti, Alvarez, & Jessel, 2011). Alternative terms have been used to 'Serious Games', such as 'Game-based Learning' and 'Gamification' (Kapp, 2012). Gamified Apps have proved to enhance the player's knowledge in the subject matter covered by these games (Guillén-Nieto, 2012). The potential of Gamified Apps to expand the knowledge of the player could be applied in numerous fields (Science, History, Health, etc.) (Seaborn & Fels, 2015). It's application for educating younger generation specifically could hold extreme potential since the time children spend on digital devices with access to digital games is increasing every year (Kervin, 2016).

Electronic devices have high jacked the interests of children in many aspects; providing them with an exclusive access to their culture and cultures of the world. ‘Any computer can provide unlimited access to information, ideas, foreign lands, and cultures’ (McLaughlin, 2012). Second generation Lebanese children living abroad are a detached generation culturally, affected by the geographical and cultural distance. But can we remedy this cultural detachment using the power of digital media? Can we use the potential of Interactive Gamified Apps to provide these children with vital information about their cultural heritage within the framework of “Gamification”?

1.2 Research Focus

Game Design has evolved through the years transcending medium, language and culture (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011). ‘Gamification’ is the new phenomenon birthed from the growth of Game Design. A term used to understand the link between video game elements in non-gaming *services* and apps to improve the User Experience (UX) and User engagement in an informative manner (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011). Educational Apps in the Arab world are abundant, most of which are language learning apps (Arabnet, 2017). There seems to be an almost non-existent presence to the Apps that provide cultural context to the player beyond learning languages. Apps that cater to our Lebanese cultural history could be a great opportunity to connect with second generation children living abroad on a deeper level. The children of expats are detached from their heritage. Their only connection with the Lebanese culture, museums, landmark, etc. is through their parents or the internet. Gamified Apps that are informative in the Lebanese context are non-existent at this point. Designing a Gamified App that includes a historical landmark or a piece of Lebanese history or culture could provide children with an easier access to their heritage.

1.3 Aim and Objectives

The Aim of this thesis is to design a game app that could incorporate cultural representation within its gamification framework to help Lebanese children (aged 6 and up) specifically and anyone interested in the Lebanese culture gain easier access to the Lebanese heritage.

Research Objectives:

1. Explore the process of gamification, its importance and its psychological effect.
2. Examine different attributes and components of a successful gamified app.
3. Assess the landscape of gamified Arab Video Games in general while focusing on the Lebanese cultural representation. Explain why cultural heritage is important to be included in a gamified system.
4. Build a survey to help game designers understand the needs and interests of Lebanese children for serious games with a cultural background.
5. Apply the different findings in a newly designed gamified interactive game that incorporates Lebanese cultural representation, entertainment and education.

1.4 Statement of the Problem

The problem with the current local Arab and Lebanese game apps lies in the fact that they tend to misrepresent the culture they are trying to reflect. They tend to be political games mostly trying to push a certain political agenda (see section 3.3.3 Arab Representation in Video Games: A Closer Look) and they do not cater to children or offer a significant cultural value to the player (Šisler, 2008). Not only are our game apps operating in a cultural vacuum

but they do not attract sophisticated tastes in children or compete with international apps since they lack visual appeal in most cases due to the fact that the Lebanese gaming industry lacks funding, resources and specialized talents (Wilson, 2017). This is a beneficial opportunity for designers to start designing visually attractive games; by combining strong visual aesthetics with well researched and informative content, designers will succeed in creating successful games that resonates with children on a deeper level. Research shows that children are more likely to interact with a well-designed app. "A successful game requires not only a good gaming plan but it must also retain visual proficiency so it might have a chance of succeeding" (Friedman, 2015). Well-designed apps also elicit emotions in players (Karpouzis & Yannakakis, 2016). It is vital that game apps reflect the culture they're trying to communicate. Second generation Lebanese children are more exposed to the foreign cultures they inhabit through other successful games that communicates that foreign culture. We rarely find apps that represents our own culture. The aesthetic value along with the emotional value of a gamified app that reflect Lebanese culture will be at the heart of this thesis.

1.5 Game Concept

As discussed in section 1.2 (Research focus), there seems to be an almost rare presence to gamified applications that provide cultural context to the player beyond learning languages. Games that cater to our Lebanese cultural history could be a beneficial opportunity to connect children on a deeper level. This became the inspiration behind the game in this research. Historical landmarks are one of the main attractions in Lebanon. They hold important historical significance due to the many civilizations that conquered Lebanon throughout the years. Focusing on historical cities and landmarks and rendering them as the main settings for

games can become a direct tool to connect children with their heritage. This process of gamifying historical sites is entertaining and informative at the same time. In today's modern times, children are very tech savvy. As designers (game designers specifically) we can harness these technologies that are capturing the attention of our children and channel them for educational purposes. 'Saving Gwal' will try to introduce Lebanese historical stories in a game-like environment (see section 4.1.1, Game Concept in Focus). Children playing 'Saving Gwal' will learn about Lebanon's heritage in an entertaining way. The information they will absorb will hopefully inspire them to be more curious which could lead them to further research and exploration when it comes to their heritage.

1.6 Informative Aspect of the Game

The researcher chose an old Lebanese historical city as the setting of the game: Byblos (see section 4.1.1, Game Concept in Focus). The game will help educate the players on the history of Byblos through different acts. The information will be integrated within the story and the narrative structure of the game. The maze within the game will only be solved when the player interacts with the different pieces of information that the game presents (specifically through deciphering the Phoenician language). At the end the player will learn more about Byblos's history, be introduced to the Phoenician language and ideally make him/her more curious and interested in Byblos by researching more about Lebanon's history. Research shows that once curiosity is triggered it tends to induce information-seeking and motivational behaviors (Montambeau, 2018). This proposed informative structure of 'Saving Gwal' can be applied to different historical landmarks in Lebanon. The potential for future storylines and games is endless.

‘Saving Gwal’ was designed as a culmination of the different findings from the literature review along with a survey that touched on the children’s interests in such games (more information on the design process in Chapter 4). The following chapter digs deeper into the theoretical framework that was applied in the designing of ‘Saving Gwal’.

1.7 Thesis Structure

The research thesis is composed of six chapters. Chapter one is introductory, it presents the background and context of the research and states the problematic. It also introduces a brief discussion of the proposed concept along with the informative aspect behind the game. The literature is discussed in chapter two which is divided into three sections. Section one introduces the theoretical framework of this thesis: Gamification theory. Section two summarizes some of the successful components of a gamified application. Different educational attributes and design principles are discussed. How user interface and visual design interacts along with building successful storylines for any game will be discussed in section two. Section three concentrates on the cultural value of games. This section focuses on cultural representation: Why it’s important and how it can be manifested in games. The focus of this section then shifts to Arab and Lebanese case studies of cultural representation. Each section summarizes the literature review findings and defines the background for the qualitative research. Chapter three defines the research methodology: The survey, data collection, findings and data analysis. Chapter four presents the design process leading to the outcome of the final proposed game ‘Saving Gwal’. This chapter will introduce ‘Saving Gwal’ as a new approach to designing games, combining cultural representation, education and entertainment in its framework. Chapter five presents the conclusion, touching on the value of the research, the limitations faced and any suggestions for future research.

Chapter 2

LITERATURE REVIEW

This chapter introduces gamification theory and its components. How gamification came to be will be discussed in the beginning. The design principles, educational attributes, user interface and different storylines that constitutes a successful gamified system will be further examined. The phycological effect of gamification will also be explored for a more comprehensive understanding. The chapter then concentrates on the cultural background of games focusing on cultural representation where Lebanese case studies are analyzed.

2.1 Gamification Theory

This section defines gamification theory which was birthed from the concept of play. Its effect on motivation and active learning will be discussed. Then the psychological dimension of gamification will be examined further.

2.1.1 Concept of Play

Vygotsky wrote, 'The child moves forward essentially through play activity', further stating, 'In play the child is always behaving beyond his age, above his usual everyday behavior; in play he is, as it were, a head above himself' (Vygotsky, 1978, p. 74). Play is defined as one of the most important developmental influences that helps children advance their cognitive and socio-emotional development (Verenikina, Herrington, Peterson & Mantei, 2010). Language and literacy performances are also affected by play (Edwards, 2013; Heath, 1983). The United Nations Conventions of the Rights of the child (UNICEF, 2009) places ‘play’ as a fundamental ‘right of the child’.

Digital play is now taking over and it should be carefully examined given the importance of its role in transforming the lives of kids. It is considered the first shift in the form of play since hundreds of years ago (Salonius-Pasternak & Gelfond, 2005). Not only does digital play distort reality but, in some cases, it gives birth to whole new realities (Scarlett et al, 2012). More focus is now being shifted to children's digital play since tablet devices (such as iPads) are easier to access. Educators are already harnessing the power of digital technologies, integrating them with reading and writing lessons (Hutchison & Reinking, 2011). Compared to other technologies, tablets are more affordable and their portability renders them useful (Leoni, 2010).

Every year the number of children accessing digital devices increases. According to their annual report *Children in a Digital World 2017,* UNICEF declares that digital technologies are altering the world, and as more children have access to them these technologies are altering their childhood (The State of the World's Children, 2018). The survey *Media Use in the Middle East* estimates 45% of Arab children (1 to 6 years) surveyed in 6 Arab nations, play games on a digital device once a week; one in six spend time online on a digital device every day (Media Use in the Middle East, 2016).

Today a wide range of applications, programs and software can be accessed through tablets (Goodliff, Canning, Parry & Miller, 2018). The number of apps is growing exponentially each month. Teachers and parents are starting to utilize these applications to engage students more (Chiong & Shuler, 2010). Once children are engaged we can turn their attention to serious education. This is where gamification is filling the gaps between entertainment and information. To understand how this gap can be filled, first we need to understand the underlying theory of Gamification.

2.1.2 What is Gamification Theory?

Gamification is an 'informal umbrella term for the use of video game elements in non-gaming systems to improve user experience (UX) and user engagement.' (Deterding, Sicart, Nacke, O'Hara & Dixon, 2011). It's applying game-based mechanics, aesthetics and game strategy to '…engage, motivate action, promote learning and solve problems' (Kapp, 2012, p. 10). Gamification involves using 'elements of gamefulness, gameful interaction, and gameful design with a specific intention in mind" (Deterding et al, 2011).

Gamification succeeded in infiltrating many domains such as education, information studies, human-computer interaction and health (Seaborn & Fels, 2015). Although it's gaining attention in the business, marketing and the corporate world among many, it's still finding its place in the education world (Dicheva, Dichev, Agre & Angelova, 2015).

The 2011 Gamification Summit predicted that the revenue from the gamification market would reach € 2.8 billion by 2016 (M2 Research – Gamification, 2013) with more than 50% of innovative companies using gamification as a process (Gartner, 2011). The reason behind the boom of gamified content lies in the power of gamification. Its ability to motivate behavior along with having a positive impact on learning makes gamification a sought-after technique (Buckley & Doyle, 2016). Furthermore, when applied to mobile platforms gamification have the 'potential to affect an important set of retailing outcomes, to entertain customers, to accelerate repurchase, to retain customers, and to contribute to in-store engagement' (Hofacker at al, 2016).

Almost every field is benefiting from the process of gamification nowadays. Influencing behavior, motivation and decision making as mentioned before is what drives the interest in such a process. Understanding the power of gamification in the education sector, I believe,

could have the strongest impact. This correlation between gamification, motivation and education will be analyzed next.

2.1.3 Gamification, Motivation and Learning

To understand why gamification is so influential in education we have to understand first the intrinsic value of games. Games are capable of evoking emotional responses in players like anger, happiness and curiosity (McGonigal, 2011). When playing games, players are more engaged and productive (Kim, 2012). Although the concept of 'Games' and 'Play' are rooted in our cultural identity, we are starting to discover that 'we are hardwired to play, with researchers increasingly discovering complex relationships between our brains, neural systems and game play' (Zichermann & Cunningham, 2011). When applied in the right way, gamification can motivate the player in the direction that the game designer set forth (Buckley & Doyle, 2016). Educators are benefiting from this process of capturing the interests and attention of student gamers to encourage them to engage in beneficial learning goals.

Research describes some game design elements that can be utilized in educational contexts. Video games have 'Objective, specific rules' (Smith-Robbins, 2011). Rules construct the learning process within the game so the objective is reached (Salen & Zimmerman, 2004). In addition to 'Rules', games utilize a 'Reward' mechanism (badges, points, status, prizes, etc.) (Glover, 2013). Rewards may not be linked to the objectives of a game directly but could act as an indicator of the competency each player achieves. A reward system within a game serves as a tracking structure that enables a player to progress through levels towards the larger objective (Buckley & Doyle, 2016). A big component of game playing is trial and

error. Failure to reach the objectives of the game is part of the overall experience. It provides reflection, reassessing and learning from failure. Games should provide 'Feedback Cycles' within their structure to guide a player towards success (Lee & Hammer, 2011).

Since the Industrial Age, Education has been built as 'a system of status and points' (Smith-Robbins, 2011). Points are given on assignments finished; a student levels-up when graduating a class (Lee & Hammer, 2011). The pattern that we find in our educational systems is structured in very similar ways to that of the gaming system. But what sets gamification apart is the motivational aspect of it through challenge and competition. The 'Competitive element' is what drives motivation (Nicholson, 2012). It is usually displayed in leader boards classifying players based on their performance (Deterding, Dixon, Khaled, & Nacke, 2011). This system of ranking players drives motivation when players view their efforts displayed on boards (Domínguez et al., 2013).

Motivation is the framework with which we can measure the 'initiation, direction, intensity, persistence and quality of behavior' (Maehr & Meyer, 1997). Games are a powerful motivational tool, they are capable thorough different mechanisms to engage players (Dicheva, Dichev, Agre & Angelova, 2015). In education specifically, motivation can be a major influencer for learning (Brophy, 2013). The former American Secretary of Education Terrel Bell said it best: "There are three things to remember about education. The first is motivation. The second one is motivation. The third one is motivation" (Ames,1990). Student motivation can be classified into two categories: Intrinsic and Extrinsic (Deci et al., 2001). Intrinsic motivations are motivations that are birthed inside an individual. They usually bring self-gratification from within. It can be explained as an "innate psychological need for competence and self-determination" (Deci et al., 2001). Extrinsic motivation on the other hand are the motivations that come from the outside. They are usually used as a means to an

end (Harlen & Deakin Crick, 2003) and they could bring external rewards (monetary prizes, trophies, fame, etc.) (Nevid 2012).

Although the literature shows a correlation between motivation, education and gamification, there is a ‘research gap concerning the measurement of motivation created by gamification and which type of player is attracted by which kind of gameplay’ (Lenz et al., 2018). This gap does not negate the fact that there is an increased trend in gamifying education. "Everyone is doing it", "[It is] cool/awesome/fun/neat", "The learning will be effortless " or "It [gamification] is easy to design" are some reasons why gamification is making a splash in the education sector (Kapp et al., 2014).

To understand how gamification makes that splash (especially on the younger generation), we have to understand the phycological impact of a gamified system and how emotions can be evoked from the simple act of playing a game.

2.1.4 Gamification and Psychology

Psychological emotion theories have been trying to understand the gamification experience. They have not been widely utilized within gamification because researchers are still trying to pin point the definition of an ‘emotion’. Game researchers ‘have developed their own ideas on how emotions might contribute to the game experience that have little or no connection to the literature of emotion theories’ (Kivikangas,2015). But research also points out that games are able to evoke affective emotional responses (Karpouzis & Yannakakis, 2016)

> ‘Such responses range from the sadness of traversing a desolate landscape, to the feeling of achievement upon clearing a hard but fair challenge, to the delight of

finding a hidden treasure cache, to the frustration of butting one's head against an abusively hard challenge…' (Togelius & Yannakakis, 2016).

A range of emotions from happiness to sadness and anything in between can be experienced by the player. These emotions are influenced by many factors (sound effects, narrative and cinematography, etc.) (Karpouzis & Yannakakis, 2016). The ability of a gamified system to touch on the emotional and psychological needs of a player can be found in many game examples. *SPARX* (Figure 1) is an award-winning game designed to help adolescents with mild to moderate depression (Lee, 2016). It proved to be '…more effective than treatment by trained counselors, with 44% of those who played the game achieving remission from depression, as opposed to the 26% in usual care' (Merry et al., 2012). Also, in the health sector, gamification can affect emotions. In their paper *The gamification of risk: how health apps foster self-confidence,* Antonio and Francesca analyzed 20 successful weight loss apps that uses gamification as a framework. They discovered that '…gamification provides the emotional support needed to maintain motivation and continue with the diet' (Maturo & Setiffi, 2016). But what about the education sector? Can emotions play a role in gamified learning apps? And are children more accepting of education within a gamified structure?

Figure 1 SPARX: Computerized self-help game (Source: www.sparx.org.nz/about)

Research shows that children may have a stronger learning experience if more of their senses are targeted (Sandor & Klinker, 2005). Targeting a child's curiosity is crucial since curiosity

is recognized as the critical motivation leading a child into 'exploration, investigation and learning' (Wu & Miao, 2013; 2014). When children's curiosity is triggered they start to enjoy an activity more and they tend to understand difficult concepts quickly and '…what is enjoyably learned is less likely to be forgotten (Blecic et al., 2002). This is where games excel at. They advance knowledge and skills, develop thinking skills and improve a child's attention and memory capabilities (Furió et al., 2013). Learning and emotions are also linked. New techniques in Neuroscience has led to the conclusion that emotions are a prerequisite for learning (Elizegi, 2015). Including emotion when designing multimedia learning apps are critical in 'understanding and investigating learning, opening new perspectives on the integrative nature of learning processes' (Park et al., 2015). Emotions keeps us curious, reasonable and capable of making decisions while forcing us to communicate. The emotions – cognition link is inseparable. The release of dopamine (which is linked to motivation) affects a person's behavior and learning capabilities. Games, which are considered 'pleasure technologies can place the player in 'a positive motivational state which heightens focus on tasks as well as absolute concentration' (Elizegi, 2015). Gamification harness the power of these 'pleasure technologies' and, therefore, 'builds on the neuroscience of pleasure' to make learning simple and more motivational.

Not only does gamification alter our psychological mood but, according to McGonigal, it will soon be used to solve baffling problems such as cancer and global warming (McGonigal, 2011). Gamification, in the future will make it possible to design the future, simply by playing a game (McGonigal, 2011, p. 15). But before designing the future, we have to first understand how we should design the app itself and how to make it appealing for players. SPARX, the self-help game mentioned earlier (Figure 1), which helped patients control their depression, failed to reach wider success because of its bad design (Gartner, Inc., 2012). For

a gamified app to reach more players/patients/students, we have to first investigate the components of a successful game app on a design level.

2.2 Components of a Gamified App

Gamified learning apps or serious games have a main goal to achieve and that is *learning* (Yusoff, 2010). In his doctoral research *A conceptual framework for serious games and its validation*, Yusoff summarizes important attributes that needs to be incorporated with serious gamified games to enhance learning and support engagement. These attributes are based on established theories in education. They take into consideration the '…behaviorist, cognitive, constructivist, and psychology perspectives' (Yusoff, 2010). The main objective of these attributes is to encourage what is known as 'Active learning'. Active learning is where the real engagement happens, it's also where the player becomes curious enough to seek knowledge on their own (Gee, 2007). Therefore, serious games can encourage players to think critically, and through different levels can force the player to acquire new thinking strategies to achieve the main goal of the game (Yusoff, 2010).

2.2.1 Educational Attributes of a Gamified System

The educational attributes of a gamified serious game are many. For the purpose and scope of this research only the important relevant ones will be mentioned. They are: Learner Interaction, Reward System, Incremental learning, Linear learning, Attention span and Intermittent feedback (Yusoff, 2010). Each one of these attributes will be explored deeper along with how it's applied within my proposed serious game 'Saving Gwal' (see Chapter 4).

A. Learner Interaction

Interaction is one of the elements that immerses a player fully within the gameplay (Yusoff, 2010). It takes many forms: either as a conversation or a feedback. A game is more useful and balanced if the interaction is fully thought of in the design process (Frazer, Argles, & Wills, 2007a, 2007b). The game should be neither too difficult to understand nor too easy, to keep the player interested. Also, games should not make the player passive, but rather encourages active participation for the interaction to be meaningful (Yusoff, 2010).

B. Reward System

Reward is an integral factor in learning. It can be used to strengthen the learning process. It can also be used as an incentive to push the player to keep learning and playing (Yusoff, 2010). Players should be praised while playing, pushing their will to play and learn more (Mukherji & O‟Dea, 2000). Rewards can be translated as: points scored, money, more life, etc. (Yusoff, 2010). They help with boosting the players confidence and personal satisfaction. Human behavior is influenced by rewards. The human brain responds differently to any given reward (Schultz, 2004). The reward system should be a balanced one, over-rewarding could be valueless and decreases the effectiveness of learning in some cases. A balanced rewarding system can lead to higher satisfaction and motivation (Habgood & Overmars, 2006).

C. Incremental learning

Learning acquisition is achieved when the information is given incrementally believes Krashen (1982). The learning material should be given one task at a time. Each task should further be simplified into smaller tasks (Yusoff, 2010). Feedback should be given every step

of the way to assure that the learner is on the right path. Furthermore, contradicting information should be avoided and if given intentionally should be done while giving the learner more time to digest the information (Yusoff, 2010).

D. Linear Learning

Information should be provided to the learner in a linear sequence (Yusoff, 2010). Linear learning is similar to reading a book one page at a time with the information flowing from one to the other. Learning takes place in stages, with each stage leading the way to the next (Gori, 2009; Piaget, 1954). Linearity in games apply these different stages within the gamified system maximizing the learning outcomes if the game is planned in a linear sequence.

E. Attention span

When processing information, time should allow the learner to focus on the load of information being presented (Yusoff, 2010). Real learning happens when time accommodates the attention span of the learner. An American adult averages 7 minutes of attention learning span compared to 20 minutes elsewhere (Pritchard, 2005). The average attention span of a person focusing on a computer screen on the other hand is much less averaging around 9 seconds before the person clicks on other links (Gupta, 2009). Therefore, finding the correct pace when designing a game is crucial.

F. Intermittent feedback

Feedback should be given within the game to facilitate the learning process. The timing of the feedback should be carefully thought of so the learning process would not be obstructed (Yusoff, 2010). Excessive feedback could distract the player, making him/her anxious about the performance rather that the learning objective of the game.

The above-mentioned attributes can be mapped into design principles. These principles should take into consideration the benefits of these educational attributes and fit them within the scope of the serious game being designed (Yusoff, 2010). The following section will explore these design principals.

2.2.2 Design Principles

When gamifying to motivate a certain target group, different design principles should be applied (Stieglitz et al., 2017). These principles, when integrated correctly within a game, engage players and enhance the user experience.

They can be summarized as follows:

- Tracking the progress through a progression bar
- A fast and continuous feedback system
- Displaying the long-term and shot-term goals
- A rewarding system
- Providing a multiplayer mode to encourage competition and/or collaboration

These different design principles can be applied within the MDA framework (Mechanics, Dynamics and Aesthetics) (Hunicke et al., 2004).

Game Mechanics

Game Mechanics represents the inner components of a game in terms of data and algorithms (Hunicke et al., 2004). The mechanics can drive a player's motivation and engagement. An example of the game mechanic is implementing game levels for example which helps the player to level-up or level-down the game. Some of the game mechanics are:

- Points: helps with rewarding the player.
- Leaderboards: helps players view their achievement in comparison to other players. They should be designed to encourage motivation rather than designed to discourage a player to finish the game.
- Levels: like mentioned before, helps a player navigate different challenges by upgrading or downgrading the character's status within the game.
- Achievement system: described as 'meta-tasks' (tasks within the bigger main task of the game). These tasks drive a player into further goals that are independent of the main goal. 'Achievements are goals in an achievement/reward system (different system than the core game) whose fulfilment is defined through activities and events in other systems (commonly in the core game)' (Hamari and Eranti 2011). An achievement system is mainly structured of three parts (Identifier, Unlocking-logic, reward). An *identifier* mainly reveals an achievement through a name along with the reason / logic behind it and a visual representation (a badge for example). The *Unlocking-logic* consists of (A trigger which is an action taken by the player to

achieve something; Conditions that the trigger is based on; Count which refers to the amount of action that could trigger an achievement; Pre-requirements which describes certain actions that should be done before an achievement is triggered; and lastly a Reward which is the final prize and final representation of an achievement).

Game Dynamics

The dynamics represents the run-time and '…behavior of the game mechanics acting on player inputs and each other's outputs over time (Hunicke et al. 2004) (Lenz et al., 2018). The game mechanics produces the game dynamics. Dynamics is derived from the player's motivational behavior towards the mechanics of a certain game (Stieglitz et al., 2017). Within a gamification system, game dynamics help fulfill player's desires. These desires include (Bunchball.com 2010):

- Rewards: earned after an achievement and helps with motivation.
- Status: an intrinsic need to reach a certain level of prestige and respect from other people.
- Achievement: this ensures that a person is aiming high for new challenges.
- Self-expression: allows a person to feel one of a kind.
- Altruism: brings self-satisfaction and sometimes on a community level.

Game Aesthetics

The game aesthetics concern the emotional responses of a player when they engage within a gamified system (Hunicke et al. 2004). Motivation is enhanced when emotional triggers are

evoked in a player interacting within the MDA framework. Aesthetics include (Sensation, Fantasy, Drama, Challenge, Discovery, etc.). The aesthetics with a gamification structure is the hedonic part of the game. It represents the ultimate goal of the game that should not be too challenging (frustrating the player and adding to the negative experience of the user) (Stieglitz et al., 2017).

The three elements: Mechanics, dynamics and aesthetics work in unity to help keep the player engaged. These elements are applied differently in each game with one similar goal: to motivate learning in the player. The practices of applying these elements will be further discussed in the next section along with how these elements are applied in 'Saving Gwal'.

2.2.3 Practices in Designing Games

Designing a gamified app should take into consideration many design elements. The platforms that run a gamified system usually sets the design rules. Game apps are mostly accessed via tablet and mobiles. The daily consumption of mobile devices, within the American Millennials, grew form 107 minutes in 2012 to 223 minutes in 2017 (Mobile Gaming Industry, 2018). Mobile games brought in 40.6 billion dollars in revenue in 2017 alone, which merits a more thoughtful design process given the staggering reach these games are achieving. As a start, we need to identify some of the main elements to consider when designing a mobile app. In his article *5 Things Every Mobile Design Should Have,* Patrick Cox, a UX Designer and Researcher, presents 5 crucial elements (Cox,2012):

1- **Meaningful Navigation:** Understand what the user needs on a screen. All clickable icons should be visible and clear to notice (arrows, buttons, grips). Labeling are also vital and should stand out. The player should understand how to navigate the app simply.

2- **Focused Content:** Do not remove important content just re-purpose it in your app. smaller paragraphs with more focused content are better.
3- **Clear Branding:** Always include the branding of the app within the app (logo of the game for example). The logo/wordmark and the color scheme of the game should be clear in all the pages of the app.
4- **Plenty of Space:** Even though the apps are mostly displayed on small screens, white space is important for the eye. For the app to be effective and easily readable all the elements within (buttons, navigation, icons, text) should be visible within a proper frame. Some ways to properly use the white space: smaller fonts, more space around fonts, plenty of padding, a clear grid, etc.

A mobile game's success is shaped by the success of its Interaction Design. Interaction Design is basically how an interactive system behaves within the mobile structure (Hogue,2010). The mentioned 5 elements above all contribute to this Mobile Interaction. Today more mobile devices can react to '…pressure, motion, shaking, and even moving in space, which enhance means to observe and engage with data' (Zimmerman et al., 2007). Interaction design have changed the way we work, entertain and learn via mobiles dramatically (Sang et al., 2013). Angry Birds (Figure 2), a mega successful mobile game, serves as an example of how simple interaction design can contribute to the success of an app. It's important to point out the difference between Interaction Design and User Interface at this point. Interaction Design is how the player acts on the gamified system and how the gamified system acts on the player while User Interface is the overall process of designing this interaction ("User interaction and user interface design - EduTech Wiki", 2018). The User Interface should be planned as a first step in any gamified app.

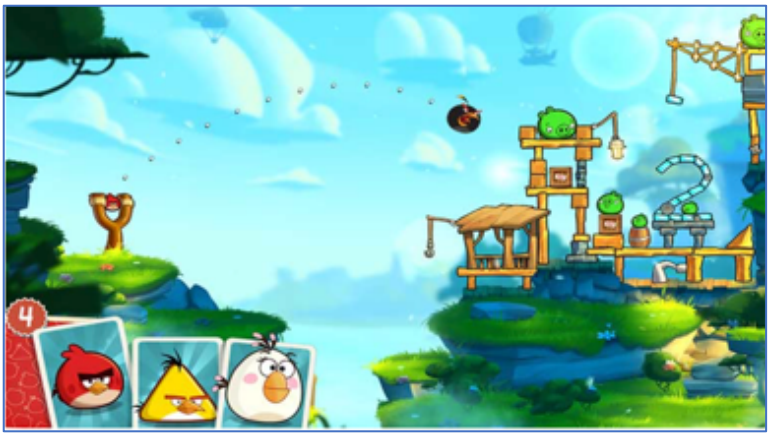


Figure 2 Angry Birds a game with simple interactive design (source indianexpress.com)

2.2.4 User Interface and Visual Design

One of the crucial decisions to be made when designing gamified apps is the layout of the User Interface. It plays an important role in 'the learning process because it is the channel for the interaction between the user and the e-learning object.' (Flores, Dufresne, & Levesque, 2013). Although the Interface should provide ease of usability, it should not be restricted to it 'but it must give special attention to the beauty and pleasure of using it.' (Flores, Dufresne, & Levesque, 2013). User interface designers usually face a difficult conundrum: which visual elements should be used when designing? The connection between user experience and visual user interface design is a complex one (Jokinen et al, 2018). Although there's an agreement that '…visual UI design does influence user experience, little consensus exists on the nature of this connection and the ways in which designers can ascertain that their design choices influence experiences in a predictable way.' (Jokinen et al, 2018). So, designers usually tackle this connection intuitively.

A clearer link is found between Interface and culture. Since the interface of e-learning apps consists of a system of signs 'over which the users build meanings from the knowledge,

expertise and cultural context where they are inserted. Users' interaction on web e-learning systems is related to the cultural environment where they are inserted' (Flores, Dufresne, & Levesque, 2013). So, the factor of success here is knowing which cultural symbols to implement within the Interface that would resonate with the expectation of the player. In successful games, the designer must predict these expectations and cater to them within the game (Friedman, 2015). A designer should take into consideration the many elements that constitute user interface design including: Graphics, colour, typography, sound, animation, navigation, simplicity or complexity and metaphors (Marcus & Gould, 2000). These elements will be further explored and applied in the design process (see section 5.1.1 Game Concept in Focus).

2.2.5 Game Perspective

Different genres of games require different perspectives. The 2 most known perspectives when designing games or gamified apps are: First-person perspective (Figure 3) and Isometric perspective (Figure 4) (Harrop, 2013). A game in an isometric view means that the placement of the camera is above the level of the game with a slight rotation (around 30 degrees from the horizontal) (Giant Bomb, 2013). On the other hand, a game in a first-person perspective utilizes the camera differently, and place it either through the character's eyes or behind the character (Third-person perspective) creating a more immersive and realistic game view (Harrop, 2013).

Figure 3 An example of First-person perspective game (source freeshooters.bkogspot.com)

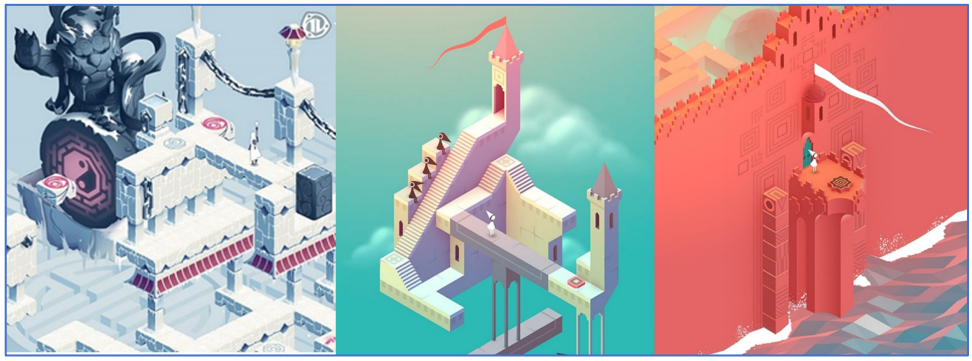


Figure 4 Different examples of games with Isometric Design (Ghosts of Memories, Monument Valley)

Isometric view offers the game more depth while placing all objects of the game in perspective and generating a larger area to view (Kundsen, 2012).

> Most games with an isometric view are strategy games. "*In games of this genre, the player usually assumes an abstract god-like position to control a simulated world seen from above. The objectives of such games can be manifold, but most commonly include successful expansion of territory, dominance over enemies or accumulation*

of a certain amount of a given item (credits, minerals, or even inhabitants). Depending on the nature of the game, special strategic, tactical, political, diplomatic or trading skills are required to varying extents." (Weske, 2000).

First-person perspectives are used commonly in combat games that tries to immerse the player in the virtual world (Harrop, 2013). Choosing which perspective to apply in the final proposed game app 'Saving Gwal' is based on this literature. Since the proposed concept places architectural exploration at the heart of the game (see section 4.1.1 Game Concept in Focus), it's preferable to choose the isometric design as the main perspective of the game. This isometric view will help the player control and navigate the structure of the architecture more fluidly within the interface of the game, while keeping the player focused on the overall goal which becomes easier to find in this perspective. Further reasons why the researcher chose this perspective will be discussed in chapter 4 (see section 4.1.2 Isometric Design).

The main goal of gamification mentioned earlier in the literature is to enhance the User Experience (Deterding, Sicart, Nacke, O'Hara & Dixon, 2011). The more these elements (User Interface, User Interaction Visual Design and Perspective) are applied correctly, the more the User Experience is enhanced and the more a game reaches wider players the more the main background story of a game resonates with its target audience. Which leads us to investigate further the components of a successful storyline that is at the heart of the user experience.

2.2.6 Successful Storylines

Traditionally, stories have been created to capture attention (Lopez et al., 2013). At the heart of any game lies a story that tries to capture the player's concentration. There are two ways to present a story: linear and non-linear (Lopez et al., 2013). Linear storytelling is a story that is

already planned and fixed. While in non-linear storytelling, external elements could help redefine a story. At the educational level, non-linear storytelling provides a better approach since it facilitates learning. The player here reshapes the story through the narrative (Heiden, 2006). A story is defined as '…all the elements that are part of the narrative content of the video game' (Lopez et al., 2013). When incorporating any story within a game we need to take into consideration 4 elements:

- **Narrative evolution or storyline:** This is the concept of the game and should be defined in the earlier stages. It corresponds to what happens within the story.
- **Narrative structure:** Corresponds to the development of the storyline. It puts in order the events of the game, how a player interacts/influence them and their order. The events of the story are grouped into scenes, these scenes are grouped into sequences, sequences are clustered into chapters (Padilla-Zea et al., 2013). The narrative structure should be defined within the technical script.
- **Scenarios:** This is the setting of the game, where the story is happening. Best visualized within a storyboard at the early stages of designing. Scenarios should place the characters and the objects of the game within a unified context.
- **Characters:** The heroes of the story that are involved in the scenarios. They play the crucial role of developing the narrative evolution. Characters should have unified features and their motives and actions should be aligned with these features. Characters should be defined and adapted according to the target audiences of the game.

Some type of games put more emphasis on the story, while others focuses on the challenge of the game. This balance between story and challenge classifies games into the following (No plot like Tetris and Minesweeper; Tiny Story with few lines; Little plot but well-crafter

atmosphere; The story is constructed by the actions the player performs; A comprehensive but simple story; The plot is very complex; The game mainly intended to tell a story; The game is a playable story) (Lopez-Arcos et al., 2013). But regardless of how much focus is shed on the story of the game, the narrative structure (or what is called the (stages of the hero's journey) can fit into one of these categories (Lopez et al, 2013) (Voytilla, 1999):

- *The Ordinary World:* helps us relate to the hero and identify with his/her desires, drives and issues. The story usually involves a dramatic problem that disrupts the ordinary world. The hero's goal is to bring balance to this world.
- *The Call to Adventure:* forces the hero to go out of his comfort zone and undertake a quest. The hero might need convincing within the story to start the adventure. Sometime the hero is forced to choose between two conflicting calls.
- *Refusing the Call:* The hero faces insecurities and fears so he/she chooses to stay in his comfort zone in the ordinary world. The danger in the story should escalate forcing the hero to accept the call.
- *The Mentor:* plays as the confidant, offering the hero guidance, advice and training. The mentor could be a person, or an object (A map, hieroglyphics or map).
- *The First Threshold*: When the hero crosses the first threshold that means he/she has committed to the journey. This is usually manifested in a big event that encourages the hero to cross from the ordinary world into the special world. Inner forces or outer forces can play a role in the Hero's acceptance.
- *The Journey/Tests, allies, enemies:* After the hero crosses into the special world he/she faces tests, allies and/or enemies. The test stage is the hero's first encounter with the Special World.

- *The Great Ordeal:* The hero faces life-or-death situations. Death could act as a resurrection for the hero giving him greater powers to reach the end of the game.
- *The Prize:* Given to the hero after avoiding death or overcoming a great ordeal. This gives the hero a chance to rejuvenate to finish the other events in the game.
- *The Road Home*: usually triggered from within the hero. The hero must choose between higher causes and inner ones (Like love).
- *The Return:* This comes as the hero makes a full circle journey back to the ordinary world after earning rewards and prizes. The balance of the ordinary world is finally restored by the end of the game. A new life (and maybe a new game) awaits our hero.

The journey of the hero is the main concept of any game. The hero is the main character that drives this journey. Characters can be classified into many Archetypes (Voytilla, 1999):

1. Hero: The central figure of any game (protagonist). The goal of the hero is to bring order back to the ordinary world. The hero can be an anti-hero as well.

2. Mentor: Motivates, guides and offers insights and training to the hero.

3. Threshold Guardian: Guards the Special World and holds its secret from the hero. Threshold Guardians could be a person, a locked door or a force of nature.

4. Herald: Announces big events that might happened in a game. They often appear to announce the Call to Adventure. A Herald could be lurking inside the hero taking the shape of dreams or visions.

5. Shapeshifter: The role of a Shapeshifter is to deceive and question the hero.

6. Shadow: Represents the inner dark desires or untapped powers. It could also represent fears and phobias. Usually the villain of the game wears the shadow mask.

7. Trickster: Usually disrupts the Ordinary World with laughter, wit or comedy. The Trickster Mask is usually worn by the Sidekick in the game.

These different character archetypes help define a character in a coherent way. Successful characters are the ones that are relatable to players. An important rule to storytelling is that '…every scene, every act and every sequence must have an attack, a complication, a crisis, a climax and a resolution' (Lopez et al, 2013). Unclimactic events in any game might contribute to the boredom of the player and the player giving up on the game eventually (Csikszentmihalyi, 1997).

The above findings (Storyline, characters, scenarios and narrative structure) are further explored in chapter 5 along with their application within the proposed game 'Saving Gwal' (see section 4.1.1 Game Concept in Focus).

Successful storylines are best derived from the cultural environment the game is trying to represent. Players who can relate to the storyline, character and/or narrative structure of the game on a cultural level are more likely to be engaged with the game. Incorporating culture therefore '…provide a powerful and increasing appeal and engagement for all user ages by possessing an integrated form of fun and play' (Gee, 2003). Understanding how culture can be represented within the gamified system is of utmost importance and will be examined next.

2.3 Culture in a Gamified System

2.3.1 What is culture?

'Culture is a difficult concept to define' argues Barwick (2012, p.71). Anthropologists suggest that 'culture is a complex whole which includes knowledge, belief, art, law, customs and any other capabilities and habits acquired by man as a member of society' (Birukou et al, 2009). It's how human activities and symbols interact to give meaning and significance, it's what '…we think, what we do and what we produce' (Salen & Zimmerman, 2004). Although this 'fragile phenomenon' (Birukou et al, 2009) is constantly evolving and could be easily lost (since it only lives and thrives inside our minds), humans tend to use culture as a tool to preserve their heritage. Material items produced along with nonmaterial belief systems, tradition, historic festivals could define culture as well (Balela & Mundy, 2016). The ability to produce and pass on culture is something only humans can do and sets us apart from other animals. In their paper, *Analyzing Cultural Heritage and Its Representation in Video Games*, Balela and Mundy (2016) argues that 'The essential feature of culture, is that it is learned and transmitted from one generation to the next, and rests on the human capacity to think symbolically'. Under this definition, digital games become a cultural vessel through which we can transmit cultural knowledge. Aarseth (2001) believes that digital games are the most intriguing cultural content to appear in our history.

Digital games nowadays (like television and music) hold a great cultural importance (Raessens, 2006). Not only does games influence our culture, any given culture influences games as well '…it is possible that culture could be a strong determinant of positive behavior change and preferences inside a gamified system' (Alomar, 2016). Although there is an academic awareness of the cultural importance of digital games in our society, these games

are still struggling with negative perceptions (Barwick, 2012). When it comes to perceived cultural value, digital games fail in comparison with films and music (Barwick, 2012).

Although digital games can be perceived negatively, game designers are more aware these days of the significance of cultural representation in video games. They are constantly driven to depict realism and realistic environments to increase '…the connection between the gamer and the narrative' (Cheng & Cairns, 2005) and encourage 'cultural tourism' through these video games (Losh, 2006). Not all games should mirror reality argues Balela and Mundy (2016), there should be a place for realism in the gamification process, but game designers need to focus on a critical component when applying culture in games which is the 'playability' of the game.

The adaptation of games to fit a specific culture is gaining more attention within interface designers. Individuals' perceptions could have a great effect on their acceptance and usability of a gamified system (Alomar, 2016). Culture and usability affect each other in the design process according to (Barber & Badre, 1998). They coined the term 'culturability' to merge the two terms. An example given by (Barber & Badre, 1998) shows how colors used in an app could lead to '…user satisfaction if these colours are consistent with the expectations of the target users.' Other elements that could enhance 'culturability' are: Images, icons, symbols, jargon and abbreviations (Juric, Kim, & Kuljis, 2003). User interface therefore has an important role when designing for different cultures. Interface designs becomes a reflection of a certain culture; for example, in cultures that avoids uncertainty, the interface should reflect '…simplicity, clear metaphors, redundant colours and typography' while cultures that embraces uncertainty '…the complexity of the elements should be extended to the choices and navigation of the system.' (Marcus & Gould, 2000). Moreover, people from different cultural backgrounds tend to have varying psychological beliefs that could be

catered to through the design of the user interface of a gamified application (Khaled, 2015). Design and culture therefore can be combined to enhance the 'culturability' of a certain game which further enhances the cultural representation within the gamified system. There are many important ways to ensure cultural representation in video games including but not limited to: Semiotics, Symbolic Interactionism and Metaphors (Khaled, 2015).

2.3.2 Semiotics, Symbolic Interactionism and Metaphors

The following theories should be examined when considering culture in a gamified system. How they are applied within the final proposed game will be further discussed in chapter 4 (see section 4.1.3 Game Elements).

Semiotics refers to the study of signs and the symbolic representations of certain ideas (Pierce, 1991). In a gamified context semiotics can be used to build a link between specific desired behaviors from players and the actual behavior through certain codes in the system (Stieglitz et al, 2017).

Symbolic Interactionism refers to the derived meanings from social activities. The actions of people, norms and rules constructs culture. In a gamified system this could be explored further to include the meaning people give to the system during the interaction (Blumer 1986).

Metaphors refers to analogies or familiarity. Players usually try to find a connection in their mind or associative memory before performing a task (Lang, 2006). Metaphors inside a gamified application can be visual or interactive representation depending on the desirable outcome of the game (Stieglitz et al, 2017). Furthermore, metaphors are usually sought after within a game to elicit certain emotions (Desmet & Hekkert, 2007). It is important to highlight that metaphors could be interpreted differently in different cultures. For example,

the symbol/icon for ‘thumbs up’ can infer a positive feeling or could be interpreted as an insult in different cultures (Alomar et al, 2016).

The possibilities of including these elements to trigger certain behaviors in players within a gamified system are endless. Careful thought should be given in the initial design process when incorporating them in any gamified app (Stieglitz et al, 2017). These elements can help make or break any video game. Game designers, therefore ‘…have a responsibility to consider the ways in which such items are designed and constructed’ to avoid cultural misrepresentation (Balela & Mundy, 2016).

2.3.3 Cultural Representation in Video Games: A Closer Look

There is a close relationship between culture and how it is represented. Representation is the reconstruction of any aspects of ‘reality such as people, places, objects, events, cultural identities’ in the mass media including video games (Balela & Mundy, 2016). According to Sisler (2008) representation is the deriving of meaning from images and symbols. Many video games throughout the years successfully incorporated representation to bring understanding and awareness of certain places and times. Representation is manifested in video games through images, music, character design, etc. and these simulations sometimes succeeded and at other times failed to represent a certain culture (Galloway, 2004). This is very clear in many western cases of Arab representation in media, ‘The dominant mode of representation of Arab and Muslim cultures in European and American media generally exploits stereotypical generalizations and clichés’ (Sisler, 2008). All twenty-two Arab countries with its rich religious, ethnic and linguistic backgrounds are ‘…reduced to a few simplistic images’ (Wingfield & Karaman, 2002). Video games are ‘cultural artifacts’ that

exploits these stereotypes in clearer more direct ways (Sisler, 2008). Reichmuth and Werning (2006) coined the term 'neglected media' to explain the studies behind video games. In their definition 'neglected media' are popular but lack culture prestige and scientific examination. They argue that stereotypical representations tend to be 'reproduced in neglected media in more explicit forms, partly because these media are considered to be less relevant in cultural discourse and thus less subject to media critique' (Reichmuth & Werning, 2006). Although video games are reinforcing stereotypical representation of Arabs, they have the power to potentially challenge these stereotypes and deliver a more balanced cultural representation according to Frasca (Frasca, 2004).

Arabs are usually misrepresented on three different levels within video games: iconographical, narrative and gameplay (Sisler, 2008). Furthermore, the mode of misrepresentation seems to be linked to the genre of the video game itself. Arabs and the Middle East are usually portrayed in 'fantasy or quasi-historical manner, exploiting Orientalist imagery' in adventure and role-playing games such as *Prince of Persia* (Figure 5), *The Magic of Scheherazade* (Figure 6) and *Arabian Nights* (Figure 7) (Sisler, 2008). Action games and first-person shooter genres usually paint the Middle East in a more '…contemporary and decidedly conflictual framework' painting Arabs as terrorists and enemies in games like *Delta Force* (Figure 8) and *Conflict: Desert Storm* (Figure 9).

Figure 5 Prince of Persia exploits the Oriental imagery (source: gamerant.com)

Figure 6 The Magic of Scheherazade asks the player to vanquish demons to save the princess (source: twentiethcenturygamer.wordpress.com)

Figure 7 Arabian Nights uses stereotypical middle eastern storylines to entertain (source: old-games.com)

Figure 8 Delta Force puts the player in the US Army perspective as they try to end terrorism in the Middle East (source: moddb.com)

Figure 9 Delta Storm another game allowing the player to fight the American or British war on terrorism (source: geforce.com)

The reason why these mentioned Western games fail to accurately represent the Arab world depends on many complex rationales. There is a strong link between production and consumption (Sisler, 2008). The players, who are the ultimate consumers of these games, dictate any game's success. Game producers usually take advantage of this to maximize '…revenue and implement their own assumptions of their audience's tastes, expectations, and consumption habits' (Reichmuth and Werning,2006). And since these games are already successful, game designers tend to use these successful patterns in their production to compete in video game markets (Sisler, 2008).

Arab game designers on the other hand have attempted to challenge this cultural misrepresentation by reversing these stereotypical depictions, narrative and gameplay of these European and American games (Sisler, 2008). Radwan Kasmiya, an executive manager in Afkar Media production says: 'Most video games on the market are anti-Arab and anti-Islam. Arab gamers are playing games that attack their culture, their beliefs and their way of

life. The youth who are playing the foreign games are feeling guilt.' (Roumani, 2006). Hezbollah, the Lebanese political movement echoes these concerns. The Central Internet Bureau of Hezbollah says that these foreign video games '…bear enormous false understanding and habituate teenagers to violence' in addition to that, some of these games are a '…humiliation to many of our Islamic and Arab countries' (Sisler, 2008). Some Arab games in our market tried to remedy this problem. Hezbollah themselves tried to challenge these Western games by designing games to push their own agendas. They produced an action game titled *Al-Quwwat al-Khasa* (*Special Force,* Solution, 2003) (Figure 10). The game revolves around the Israeli occupation of southern Lebanon and the heroic role the movement played to emancipate Lebanon from this occupation. The concept of the game is similar to the western first-player shooters: 'it has merely reversed the polarities of the narrative and iconographical stereotypes mentioned above by substituting the Arab Muslim hero for the American soldier' (Sisler, 2008). The game's main role is to stress the Muslim heroic identity by aligning itself with the Hezbollah martyrdom ideologies (Sisler, 2008). Another example of Arab representation and its attempt in reversing stereotypical imagery is a Syrian game titled *Tahta al-Ramad (Under Ash*, Dar al-Fikr,2002) (Figure 11). This game revolves around the Israeli siege of Palestine. The goal of the game is for the main hero Ahmad to survive the demonstration taking place and eventually joining the Palestinian resistance. This game tries to challenge Western narratives by humanizing Arab characters and using clear Islamic narratives instead. Both of these games (*Special Force* and *Under Ash*) are hailed as the first real attempts to represent Arabs objectively in video games (Sisler, 2008). Galloway (2004) says that these games are the '…First truly realist games in existence.'

Under Ash was followed by another game *Tahta al-Hisar* (*Under Siege*, Afkar Media, 2005) (Figure 12). Unlike the previous mentioned games, the game setting introduces real events.

All characters in this game (Arabs and Israeli) are humanized with emotional background stories. Radawan Kasmiya, creator of the game says: ‘It was our aim to show what happens in Palestine behind politics, to show people['s] stories and problems' (Sisler, 2008). He also stresses on the educational power of these games to usher a more positive and culturally balanced view of Arabs. Radawan coins the term ‘digital dignity’ when asked about his goal behind these games. ‘Digital dignity’ comprises ‘…pride, self-esteem and aptitude’ he says, and that’s what the Arab player should feel when playing these games. (Sisler, 2008).

Figure 10 Special Force allows players to join Hezbollah in its battle against ISIS (source: newsweek.com)

Figure 11 Under Ash allows players to play the game through the Arab perspective (source: gamesforchange.org)

Figure 12 Under Siege, a sequel to Under Ash, is just one of the new video games targeting Arabs and Muslims (source foreignpolicy.com)

Radawan is not the only game developer trying to transcend cultural stereotypes in the game industry, other European and American attempts are worth mentioning. These games are part of an emerging trend in media called 'Serious Games'. These games are unique in their built-in agendas (Sisler, 2008). Not only do they try to entertain like mentioned in chapter 1 but they also try to deliver a message or morale. Some examples of these games are: *Real Lives* (Educational Simulation, 2004); *Global Conflicts: Palestine* (Serious Games, 2007); *PeaceMaker* (ImpactGames, 2007). In *Global Conflicts* for example, the role of the player is to become a journalist and write unbiased articles about the events happening in Palestine. In *PeaceMaker,* the player is asked to find peaceful solutions to the Palestinian/Israeli conflict. The game was implemented in Danish high schools and the results it's producing are promising (Egenfeldt-Nielsen and Buch, 2006). These promising results and the initial attempts to portray Arab representation truthfully in an unbiased approach further begs the question: why is cultural representation important?

2.3.4 Why is Cultural Representation Important?

In her article *Is That Just Some Game? No, it's a Cultural Artifact*, Heather Chaplin suggests that '[the] notion that video games were something with a history worth preserving and a culture worth studying has gone from absurd to worthy of consideration by the Library of Congress' (Chaplin 2007). The value of games as a cultural artifact relates directly to the issues of preservation and can only be understood through the analysis of cultural heritage (Barwick, 2012). The term 'heritage' refers to any inheritance history leaves behind for future generations (Balela & Mundy, 2016). It is recognized as a crucial element in developing and advancing societies. Furthermore, cultural heritage is an important part of one's identity: 'the relics of the past are necessary to identity' and it 'embodies the symbolic values of cultural identities' (Lowenthal, 1985). Not only is cultural heritage central to one's identity it's also considered the foundation of future civilizations: 'the ability of a culture to survive into the future depends on the richness and acuity of its members' sense of history' (Task Force on Archiving of Digital Information 1996, p. 1). Highlighting the importance of cultural heritage in game designs will lead to greater awareness and greater cultural impact (Balela & Mundy, 2016). Cultures that are struggling to stay relevant (including our Arab culture) need to hang on to its cultural heritage the most: 'We value our heritage most when it seems at risk' (Lowenthal 1998, p. 24). So, more integration of heritage in our video games can lead to greater awareness which in turn leads to greater consideration and eventually a more informed video game (Balela & Mundy, 2016).

This chapter concentrated mainly on how gamified apps are planned and designed. The literature review showed us how culture can be represented throughout the gamified system. From the different case studies presented by the research there seems to be a growing need for games that carry the Arab ideology and identity to western societies on one hand and to

reinforce Arab heritage on the other. After investigating the added value of cultural representation and why it's important, this research, will explore in the next chapter how game designers can harness gamification of culture to produce a well-designed game for children, one that would help them gain access to their heritage. My game design outcome 'Saving Gwal' is an example of how game designers can achieve that.

Chapter 3

METHODOLOGY

This chapter presents the research design of this thesis. One of the objectives of the thesis is to provide game designers with a deeper understanding of the needs and interests of Lebanese children (living in Lebanon and abroad) when it comes to cultural serious games. A second objective is to apply the different findings from the research design in a newly designed gamified interactive game that incorporates Lebanese cultural representation. This chapter explains how the research design was conducted and how the data was collected, including the population sampling for the survey, sampling techniques, instrument for data collection, administration of the instrument and method of data analysis.

3.1 Research Design

A survey was chosen by the researcher as a methodology. It best serves to answer one of the objectives in this thesis and that is to understand the needs of Lebanese children for games with a cultural significance. Survey findings can help shape the process of designing 'Saving Gwal' which is the last objective in this thesis. The human side is reflected in the survey method, bringing human insights from children and their parents. The literature review offered a closer look at the gamification process, the best practices in designing games and why cultural representation is needed. This survey will add a new dimension to the literature review, showing potential gaming patterns in the Arab world. Also, the survey is designed to understand how frequently Lebanese children play games. From these patterns and frequencies, the researcher can build a serious game that could cater to the needs of these children and their parents.

3.1.1 Population Sampling

The target population for this research comprised parents in general. Parents are the gateway to the children's gaming world. They can identify their children's gaming behaviors, interests and patterns. The researcher chose parents to be surveyed rather than children because parents can provide more reliable information. Surveying children needs more time and resources, which are limited for the scope of this research. Sixty-one parents responded to the online survey titled 'Your Child and Video Games' sent via social media platforms. The parents remained anonymous, only their answers are relevant to this research. Almost 90% of the parents surveyed are Lebanese living between Lebanon and abroad while 10% of those surveyed are non-Lebanese parents. Although the objective of this thesis is to understand the interests of Lebanese young gamers specifically, surveying other nationalities can also give wider insights on the interests of other children in cultural serious games. The final game app is targeted towards Lebanese children specifically but the game could also be of interest to children from other nationalities; Therefore, the survey was open to other nationalities as well.

3.1.2 Instrument for Data Collection

The researcher designed a survey (see Appendix B) titled 'Your Child and Video Games' as the data collection instrument for this study. The survey was designed on an online platform 'Survey Monkey' and sent via the researcher's personal social media accounts. Also, parents were asked to share the survey with other parents they know so the researcher can reach more subjects. The survey had 12 questions. The questions could have more than one answer unless stated otherwise. The parent surveyed were asked to fill one survey for each child they

may have. Questions one and two surveyed the gender and age of the child. Questions three and four surveyed the nationality and place of residence of the parent surveyed. The gaming pattern and frequency of playing video games in general and game apps specifically are surveyed in questions five and seven. Question six asked the parent their preferences of video games when it comes to their children. Question eight tried to understand the most enjoyable genre of application the children use. Question nine explored the personality of the children especially the curious side of their character. Question ten and eleven tried to understand the interests of children in new cultures and in their cultural identity as well. Finally question twelve summarized all the factors mentioned in this survey in one direct question: If a game exists that combines educational, entertainment and cultural aspects to it would you purchase it?

Each question brought further understanding of where the young Lebanese child stands in the vast landscape of video games. As the questions became more focused on cultural impact, the needs and interests of these children became a bit clearer. No absolute understanding can be derived from such surveys of course, but they help in bringing more awareness of how the Lebanese young gamers are approaching their games.

3.1.3 Confidentiality, Ethics and Informed Consent

All participants in this survey were asked to sign an electronic consent form before participating. Participation was completely voluntary, and declining to participate was given as an option before the survey started. All subjects of this survey agreed to participate. Specific steps were taken to ensure the confidentially of the subjects. They were not given the option to write their names and none of the questions were stated in a way to give any

personal details that could identify them. Participants were assured that their responses would remain confidential along with their IP addresses. Furthermore, all data collected will be kept confidential as well. Paper records would be shredded and destroyed after the completion of the research, and all the responses given will be stored in a password protected electronic format on the researcher's personal computer.

3.1.4 Limitations

This survey touches on the behavior of children and their gaming activities. These activities may not reflect the behavior of all children. The behavior varies from child to child depending on many variables such as age, location, experiences, educational level, etc. Therefore, the findings derived from this survey will be only relevant to the group this survey reached. Generalization could not be made when it comes to behavior and psychology. Another limitation is the number of the population that responded to this survey. Sixty one parents are not enough to draw any definitive directions but rather offer a first step towards the right direction. Additional limitation could be in the data analysis. The researcher relies on his integrity and professionalism when coding the results. Also, personal feelings and biases might be included in such an analysis. To resolve this constraint more than one researcher could repeat the data analysis but due to time and resource limitations this could not have been done.

3.2 Survey Results

The survey included both quantitative and qualitative questions. The results include summaries regarding both metrics. The quantitative results provided facts about the parents

and their children, while the qualitative results gave insights and individual perspectives to the questions.

A. Demographics

The survey 'Your Child and Video Games' received 61 responses from parents in Lebanon and abroad. Almost 92% of those surveyed were Lebanese and only 8% were not. Thirty-two participants are living with their children in Lebanon at the time of the survey, 18 of them are living with their children abroad and 11 preferred not to mention their residence. Forty eight percent of the children are male, 46% are female and 6% of the parents preferred not to specify their children's gender. The ages of the children in this survey ranges from 8 months to 13 years old.

B. Frequency of the child's gaming activity

Two of the survey questions posed to participants attempted to understand the frequency of the children's video gaming activity (Q5 & Q7). The first question (Q5) tried to understand the time spent by each child on video games. This question could derive some insights on the interests of children in video games in general. These games could be played on consoles, mobiles, tablets or on any other platform. The responses were categorized into 4 increments (Figure 13). The largest segment of respondents was those with children that played video games often.

The second question (Q7) tried to understand the frequency of children playing game apps on mobile devices and tablets specifically. Since the final outcome is a game app, this question could help in giving more insights on the best platforms that could host video games and

whether mobile and tablet game apps are of any interest to children. The responses were categorized into 4 incriminates (Figure 13). The largest segment of respondents was those with children that used game apps frequently.

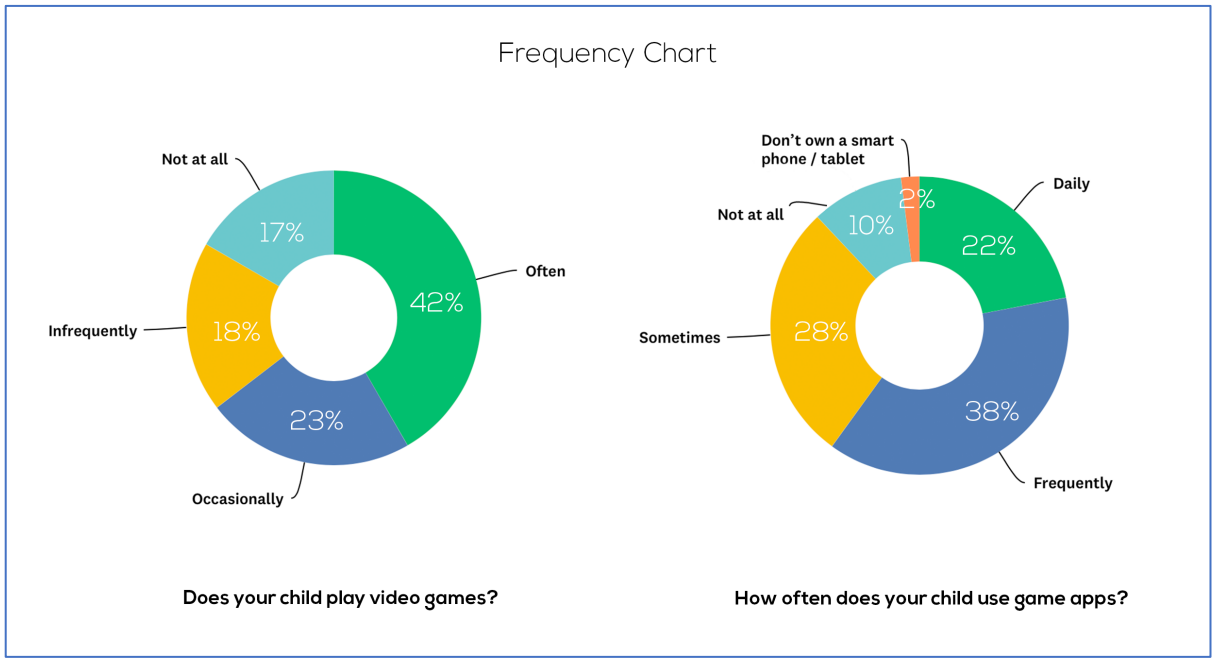


Figure 13 Two charts summarizing the frequency of a child's gaming habits.

C. App genre preferences

Two of the survey questions posed to participants attempted to shed some awareness on the preferences of parents and children when it comes to game apps specifically and other app genres in general (Q6 & Q8). The first question (Q6) tried to survey the parent's preferences of which game app they like their children to be exposed to (Figure 14). From this question the researcher can identify the interests of parents and what kind of game apps they hope their children are playing more. The responses were categorized into 4 genres. 60% of parents preferred their children to be exposed to both 'Educational' and 'Entertainment' game apps.

The second ‘Preference’ question (Q8) tried to understand what the children preferred in apps in general. This question could help the researcher understand the current needs and interests of children. Choosing from different genres can bring some insight on what kind of content resonates with children more and how we can enhance such content and harness it in the final game app. The question surveyed the genre of apps children enjoyed the most (Figure 14). The parents could choose more than one genre in this question since genres are not a fixed entity but they are fluid in nature and children could enjoy more than one genre at the same time. Four genres were given as options to this question. The results came close but 67% of children preferred entertainment kind of apps. Games and Educational apps tied with 54% of children enjoying these genres of apps. 20% of children enjoyed other genres not mentioned as a choice. YouTube, video apps and eBooks were some of the answers selected as other genres.

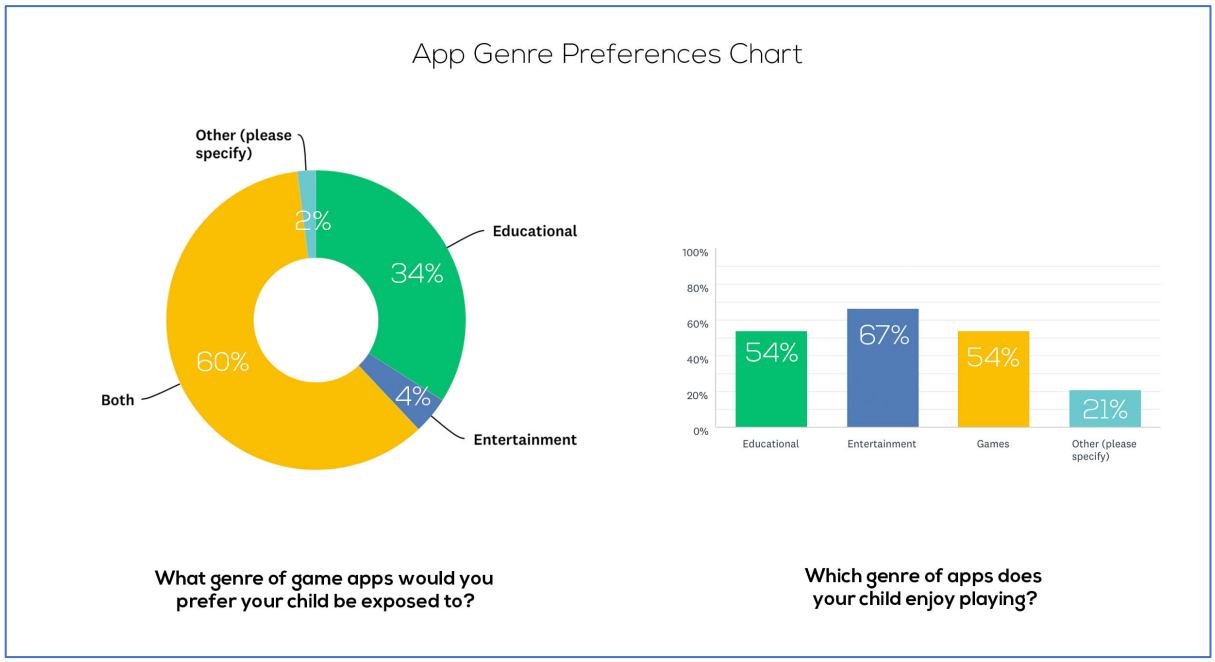


Figure 14 Two charts summarizing the genre of game apps children prefer vs apps parents prefer their children to be using

D. Psychology

Question 9 in the survey tried to touch on the psychology of children playing games. The researcher chose to survey the 'Curiosity Factor' since literature shows that curiosity is the building block of any learning process and an important factor in the pursuit of knowledge (Newman, 2018). The more a child exhibits curiosity attributes the more likely the child will be interested in a serious game app. The results will help the researcher build a stronger final game app that motivates and caters to a child's curious character. The responses were categorized into 4 categories to measure the level of curiosity (Figure 15). The largest segment of children parents believed that their children are curious 'All the time' and 38% of them are curious 'Frequently'.

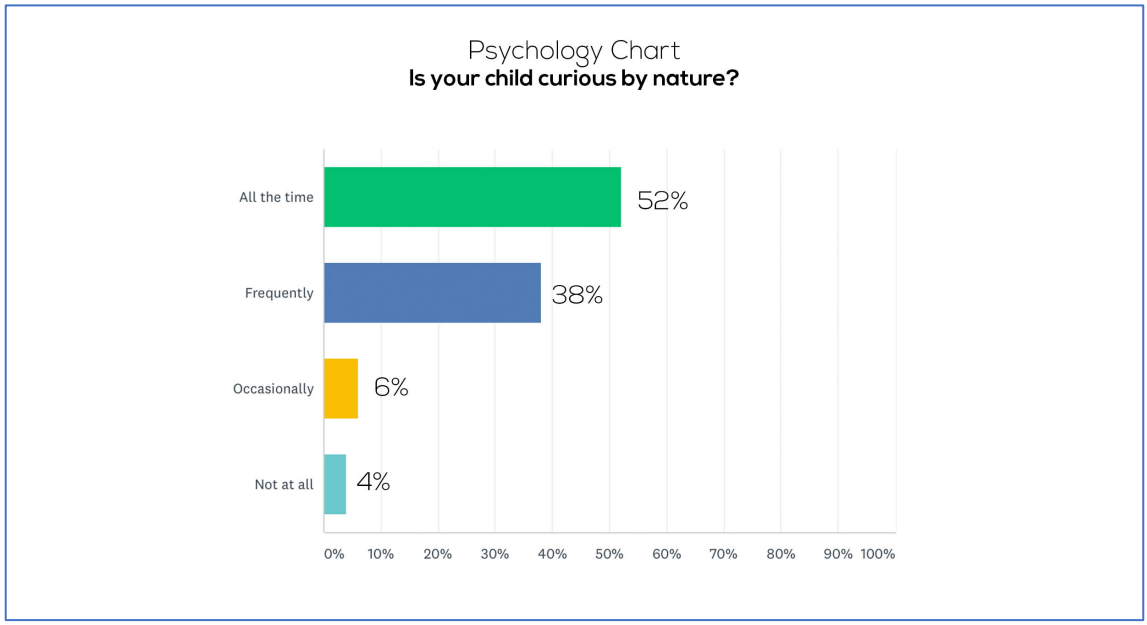


Figure 15 Is your child curious by nature?

E. Culture

The last three questions of the survey tried to add the cultural factor (Q10, Q11, Q12). One of the main objectives of this thesis is to build a serious game app that represents the Lebanese culture. Understanding the interests of parents and children in culture in general and their culture specifically is crucial in building of the final game app. The first question (Figure 16)

asked parents to rank their most enjoyable activities to do when traveling with their children. 'Exploring historical sites' received the highest ranking (2.5 score), followed by 'Exploring cuisine' (1.98 score) and 'Meeting locals' (1.6 score) respectively. The second question tried to survey the importance of children connecting with their cultural identity. The largest segment of parents (61%) believed that it's 'Very Important' that their children connect with their cultural Identity. The final question tried to understand if there is any interest in games that combine educational, entertainment and cultural aspects to it. The largest segment of parents (62%) would be interested in purchasing their children such a game.

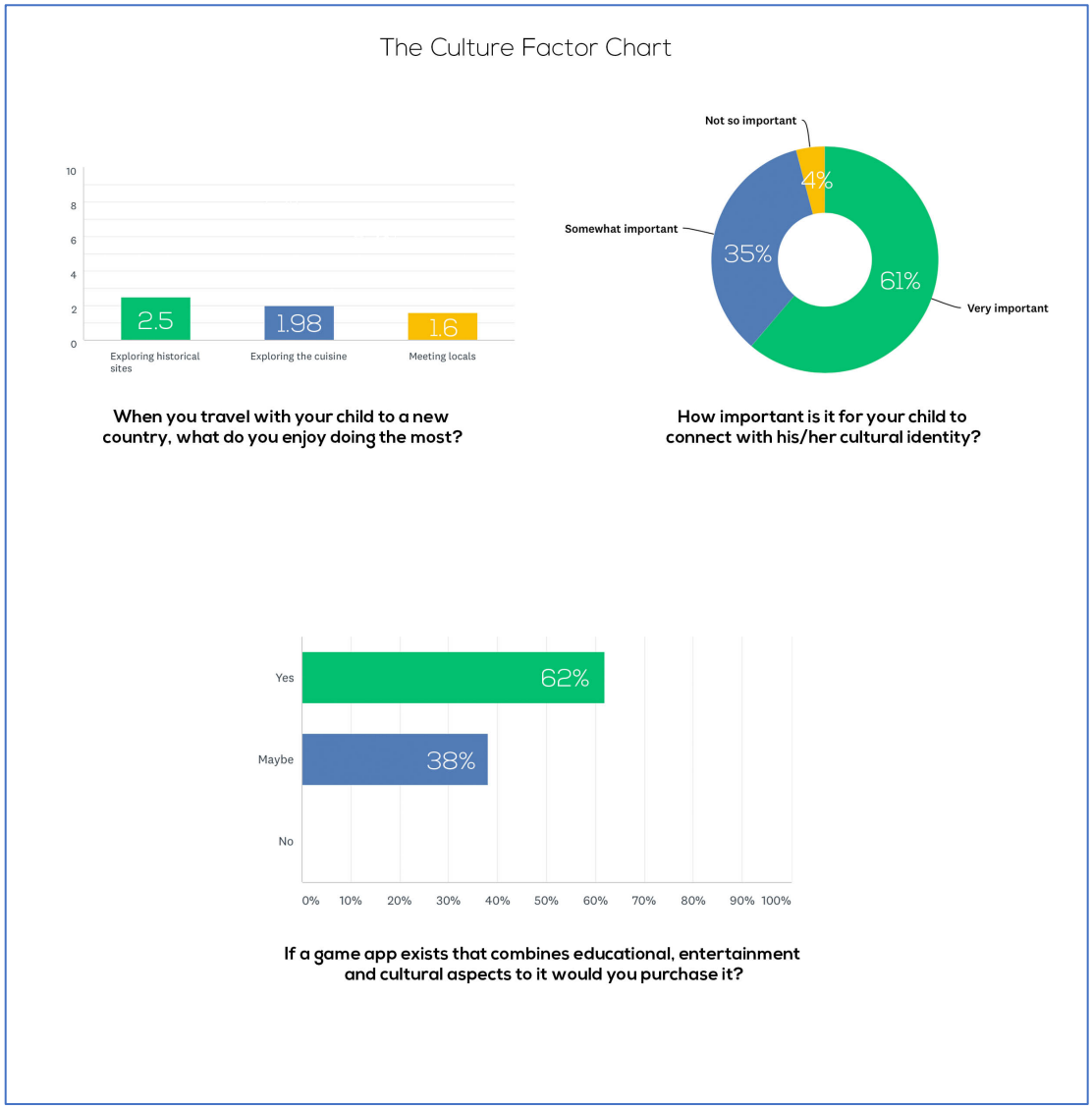


Figure 16 Different charts summarizing the interests of parents and children in culture and cultural game apps

3.3 Discussion of Results and Findings

The next step the researcher took is filtering the results. Since the final game app is targeted towards Lebanese children aged 6 and up specifically and children from other nationalities in general it is important to filter the survey answers. Responses with children aged below 6 are excluded from the discussion. Although they can give some insight on the gaming interests, the focus of the game should only include the interests of the children the game is trying to target. Almost 85% of children aged 6 and up are video games enthusiasts and almost 74% of them are avid users of game apps. These children could be (potentially) interested in the final game the researcher is designing.

Parents on the other hand are more interested in exposing their children to both 'Educational' and 'Entertainment' game apps. Parents seems to prefer combining both of these factors together. Sixty two percent of the parents surveyed chose the category of combining entertaining games with educational ones. The results clearly indicate that parents want their children to have some educational value when playing game apps. The results resonate with the findings in the literature review that games are a powerful motivational tool (Dicheva, Dichev, Agre & Angelova, 2015) capable, when played in an educational context, of motivating players into learning (Brophy, 2013). If parents are interested in both of these factors, then this could dictate the final concept of the game app the researcher is building.

To understand the interests of children further in such games, the researcher included the curiosity factor. Almost 85% of the parents surveyed believed that their children are curious by nature. Curiosity as literature proposes is the '… intrinsic motivation for exploration, learning, and creativity' (Wu & Miao, 2013;2014). Also, games that illicit emotions are more likely to keep children '…curious, reasonable and capable of making decisions (Elizegi, 2015). The researcher's final game design should take into consideration both of these factors

(Curiosity and emotions) for a positive outcome capable of bringing cultural education to the curious children surveyed in this research.

Curiosity in cultural aspects is surveyed further in the next part of the questionnaire. To understand what aspect/s of the culture the researcher should focus on in the final design of the game, it was important to survey the curiosity and interests of parents and their children when it comes to culture. The question surveyed three aspects of a culture that could be of interest to parents and children when visiting new countries for example (Exploring historical sites, exploring cuisine and meeting locals). Although the three categories received close answers, the interest in historical landmarks seemed to peak the curiosity of parents and children the most. The results are not enough to build a concrete insight of course, but it's enough to show that there could potentially be interest in building games with historical landmarks as a central theme to the game. The researcher will further explore this theme in the final game design.

The last insights that the survey answers provide, show us that parents are adamant to expose their children to content that could help them explore their cultural identity and heritage more. Seventy percent of the parents believed that it's 'Very Important' for their child to connect with his/her cultural identity. The results resonate with the literature of this research that cultural heritage is an important part of one's identity (Lowenthal, 1985). Furthermore, highlighting the importance of cultural heritage in game designs will lead to greater awareness and greater cultural impact (Balela & Mundy, 2016). Translating this into the final game design will ensure that the game is functioning on a level that respects cultural representation and evoke cultural curiosity even more. The final question of the survey brought the clearest insight into this matter. Almost 69% of parents are interested in games

that integrates cultural representation in an entertaining and educating format, making the final outcome of the game a combination of these three elements.

3.4 Recapitulation of Survey Findings

The survey findings provided a clearer understanding of how the final game should be designed and which elements to include. Three key findings emerged from the data analysis: Concept, platform and psychological impact. These findings are in accordance with the theories presented earlier in the literature study. The concept of the game should include cultural themes. One of the themes that could be of interest is the historical landmarks. The final game should research further how Lebanese historical landmarks could be gamified as a serious game. The other key finding that the survey provided is what platform the game should be played on. The platform that seems to be of the most interest to children are the smart phones / tablets, which is also reflected in the literature review. The last key finding touches upon the psychological impact of the final game. The game should cater to the curious nature of children these days, tackling their senses for a positive educational outcome. These findings underline the importance of the role of gamification and its impact on children especially in a cultural context. Furthermore, they have direct implications on the design of the final game app ‘Saving Gwal’ which will be examined further (from concept to design) in the following chapter.

Chapter 4

Design Outcome

The final objective of this research is to apply the different findings of the literature review and the survey in a newly designed gamified interactive app ‘Saving Gwal’ that incorporates Lebanese cultural representation, entertainment and education. This chapter explores the game concept and development. The researcher will explain the design process from concept to final outcome, starting with the storyline, design decisions, branding and the final mockup animation of the game. Drawing from the methodology and the literature findings the final game will be presented as full functioning game ready to be developed by game developers. The design thinking, sketching and inspirations can be found in Appendix C.

4.1 Saving Gwal: The Design Process

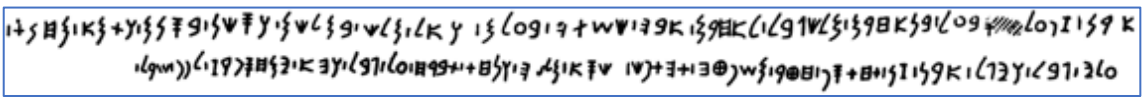
The researcher started the design process by taking into consideration the findings of the literature review. The educational attributes of ‘Saving Gwal’ are directly derived from the literature (see section 2.2.1 Educational Attributes of a Gamified System). The practices in designing games (see section 2.2.3) helped in shaping the final game structure. Also, the User interface and any visual decisions in ‘Saving Gwal’ were inspired by the literature findings (see section 2.2.4 User Interface and Visual Design). The first step taken by the researcher after reviewing the literature findings along with the findings of the survey (see section 3.4 Recapitulation of survey findings) is to find a storyline that could fit one of the themes found in the literature (see section 2.2.6 Successful Storylines) and that could be a strong concept for a game app that integrates cultural representation, education and entertainment within its gamified structure.

4.1.1 Game Concept in Focus

As the literature review states (see section 2.2.6), the storyline of the game should be defined in the earlier stages. Insights from the survey helped in directing the researcher towards focusing on Lebanese historical landmarks as a central theme. Byblos was chosen as a setting for the game given the historical significance and richness of that area. A book titled 'Byblos through the ages' helped in developing the storyline of the game further. The researcher focused on researching stories with cultural representation in mind, therefore an accurate historical story or event from Byblos could help in inspiring the storyline and the events of the game. The researcher found a story that could fit into one of the successful themes in storytelling (see section 2.2.6). This story will be briefly explained next.

A. Storyline of Saving Gwal

Byblos is an old royal city known for trading cedars with Egyptian papyrus in ancient Phoenicia. In 1922 a land-slide on an excavation site led by the Egyptologist Pierre Montet in Byblos, revealed 9 royal tombs from various periods (Jidejian, 1971). One of the most important discoveries was the royal tomb of King of Gwal (Byblos used to be referred to as Gwal in Phoenician times) (Figure 17). An inscription carved in Phoenician characters at the entrance and also on the lid of the sarcophagus found warned against desecrating the tomb:



'The coffin which Ithobaal, son of Ahiram, King of Gwal (Byblos), made for his father as his abode in eternity. And if any king or any governor or any army commander attacks Gwal and exposes his coffin, let his judicial scepter be broken, let his royal throne be overthrown, and let peace flee from Gwal …' (Sweeney, 2006)

Figure 17 King Ahiram's Tomb is at the heart of Saving Gwal's storyline (Source ancient-origins.net)

Another warning was found down the excavation site warning excavators from digging further, it reads:

'Concerning knowledge:
here and now be humble (you yourself!)
‹in› this basement!'
(Reinhard, 2005)

The story of King Ahiram's tomb and the warnings found inspired the final concept of the game. The researcher decided to revolve the game around this storyline because of the intrigue of tombs that could capture the curiosity of children on one hand and inspire these children on the other hand into digging deeper into the history of Byblos when enjoying the game. In the game the tomb's excavation site will be discovered by the main hero of the game. The hero (which will be named after the player's name) will discover that the tomb has been stolen. Reading the warnings mentioned above will entice the hero to accept the goal of

the game, which is to find the tomb and bring peace back to Gwal (Byblos). During the game the hero will be asked to find the letters of his/her name in Phoenician. Each letter will guide the hero through the hallways and mazes of the Byblos castle. Once the hero collects all the letters of his/her Phoenician name he/she will be able to find the missing tomb and restore it to end the curse on Gwal (Byblos). Since the game requires the hero/player to find the tomb and save Gwal, the researcher decided to name the game 'Saving Gwal'.

B. Narrative structure

After deciding on the storyline, the researcher started mapping out the narrative structure of the game. Literature says (see section 2.2.6) that the narrative structure corresponds to the development of the storyline through different acts. The below (Figure 18) shows how the researcher divided the narrative structure into different acts representing one level of the game and taking into consideration the different categories discussed in the literature (see section 2.2.6).

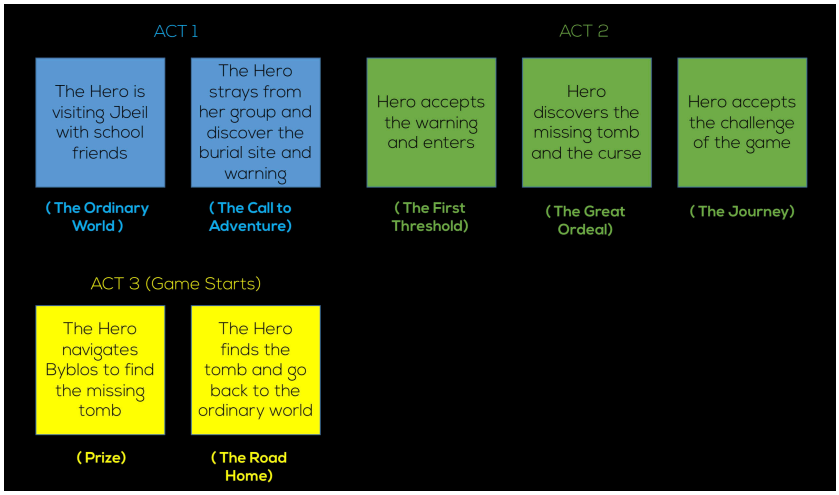


Figure 18 The narrative structure of 'Saving Gwal'

C. Scenarios

Scenario refers mainly to the setting where the game is taking place (see section 2.2.6). The game 'Saving Gwal' as mentioned earlier takes places in Byblos. Given the time constraint of this research the storyline evolves within three acts only (one level) (Figure 19), more levels can be designed in the future. These acts take place mainly in two timelines (Modern Byblos and Ancient Byblos). Therefore, the setting of the game should reflect modern Byblos, King Ahiram's excavation site and ancient Gwal where the game actually takes place. The researcher relied mainly on field visits to Byblos, using photography to document the different architectural sites (see Appendix C). Inspiration from these visits and photos were drawn during the sketching phase (Figure 19)

Figure 19 Sketching phase

D. Character

Characters should be defined and adapted according to the target audiences of the game (see section 2.2.6). Since the game is targeting young children, it was crucial to design a character that would reflect this age group. The hero of this game is a young student who is curious in character. This hero should exhibit features that are relatable to the young Arab target audience. As the literature showed (see section 2.3.4 Why is Cultural Representation Important?), players who can relate to the storyline, character and/or narrative structure of the game on a cultural level are more likely to be engaged with the game (Gee, 2003). The main hero of 'Saving Gwal' is a young curious girl with Lebanese features. The hero was designed (Figure 20) with minimal features giving it an abstract form that could reflect any girl her age. The researcher chose a girl because of the lack of girl representations as heroes in video games. Further adaptations of this game in the future can include a boy figure as well so the player can choose which character they identify with. Phoenician patterns were added to the hero's garment to embed her in the historical context of the game. Also, the green scarf covering her hair adds to the middle eastern features the researcher is aiming to achieve.

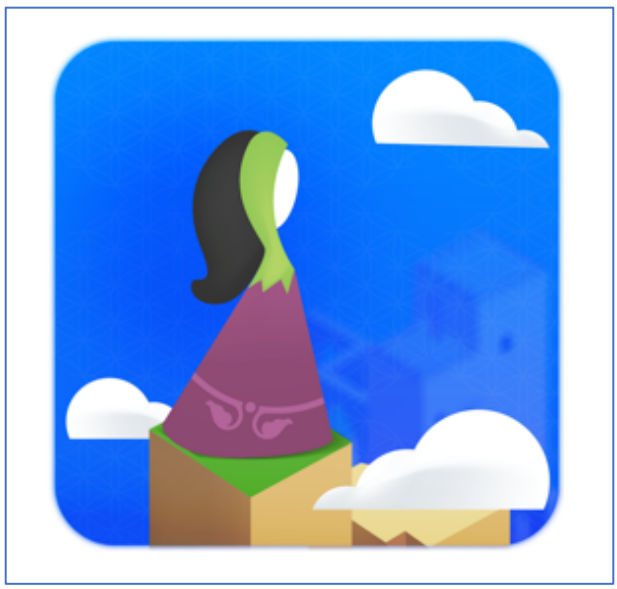


Figure 20 The main hero of 'Saving Gwal'

4.1.2 Isometric Design

One of the design decisions the researcher had to make is which perspective to use for 'Saving Gwal'. Researching the best practices in design led the researcher to 'Isometric Design'. It's a technique that allows flat two-dimensional objects look like 3D images (Figure 4). The viewpoint is angled in a way that reveals a larger portion of the game environment than in regular top-down perspective or side-scroll one. Most of the modern games are applying Isometric Design because '…Isometric illustrations offer a unique view, perfect for technical illustrations, city scenes, and retro-inspired design. What they lack in perspective, they make up for in clarity, and have been used to diagram complex information for centuries.' Says the creative director Von Glitschka (Glitschka, 2018). Another reason why Isometric design is applied in games is for its convenience. It allows player to focus on gameplay alone rather than a camera first perspective confusing view (Gregorczyk, 2018).

Applying Isometric perspective to 'Saving Gwal' started during the sketching phase (Figure 21). This perspective will reveal a big portion of the game allowing the hero to be visible at all times while the player can view the landscape he/she needs to cover. The retro feeling that Isometric perspective gives the game matches the historical context of the game setting.

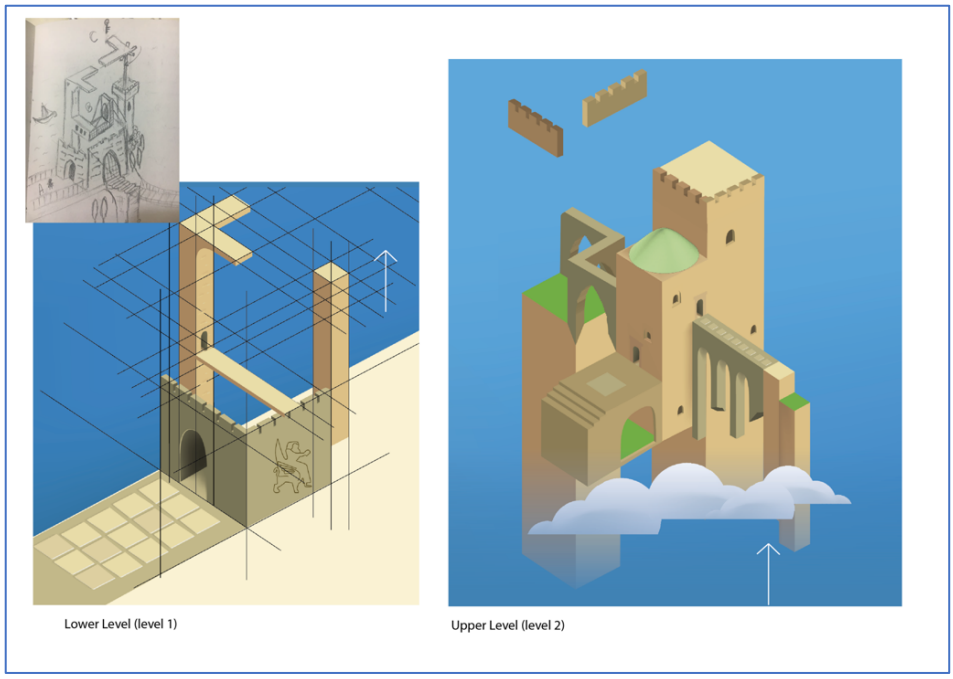


Figure 21 Applying Isometric Perspective to 'Saving Gwal'

4.1.3 Game Design: Practices and Attributes

The Literature review provided great insights when it comes to designing gamified apps. Sections 2.2.1 (Educational Attributes of a Gamified System) and 2.2.3 (Practices in Designing Games) summarized different elements when it comes to designing which were applied in the design process of 'Saving Gwal'. These elements are presented within the game as such:

Learner Interaction

Applying the 'Learner Interaction' in the proposed game 'Saving Gwal', will ensure a successful interaction with the players. The game is designed in a way that feels like a conversation with the player. The script used is written in an easy format, to appeal to the younger generation (Figure 22). The requests given throughout the game are neither easy nor

hard, keeping the player interested in what comes next (Figure 23). The success of playing ‘Saving Gwal’ and achieving its goal tells how well the player is able to understand the different interactions within the game.

Figure 22 Screenshot from the proposed game 'Saving Gwal' showing the simplicity of the script

Figure 23 Screenshot from 'Saving Gwal' showing the simplicity of the tasks

Reward System

Integrating a reward system within ‘Saving Gwal’ will keep players engaged in the storyline of the game. The rewards of finding missing elements for example (Figure 24) within the game will help the player reach closer to the overall goal of the game. In addition, verbal rewards and congratulatory phrases will be given throughout the game (Figure 25).

Figure 24 Rewards are given in 'Saving Gwal' to ensure engagement

Figure 25 Congratulatory phrases and praise are embedded in 'Saving Gwal' for the ultimate learning experience

Incremental learning

Incremental learning is applied within ‘Saving Gwal’. Simple tasks are given first, for example translating a player’s name to Phoenician is a simple task (Figure 26), this will help the player to adjust their mindset that more and harder tasks are on the way within the game.

Figure 26 Screen shot from 'Saving Gwal' showing the simple task of writing in Phoenician which sets the player on the path of incremental learning

Linear learning

In 'Saving Gwal' linearity is applied logically. The concept of finding the lost tomb sets the motion of the game in a linear fashion. Searching for the tomb and then finding it provides the player with information about Byblos and its history every step of the way. The player is provided extra information with every task achieved without revealing everything at once. For example, in figure 2 the player is given some historical information on Byblos. More information is given throughout the game as well (Figure 27).

Figure 27 Information on Byblos are inserted within the game as part of the linear learning process

Attention span

In ’Saving Gwal’ the information given in the introduction of the game (Figure 23) are timed in a way that would give the player some reflection space. Also, the time to achieve the task of navigating through the maze and finding pieces of the puzzle depends on the momentum of the player. Ye and Nicholas (2009) believes that the most effective place to insert a piece of knowledge is at the end where the attention span of the player is at its peak. Feedbacks in ‘Saving Gwal’ is given in a balanced way and mostly to entice the player to finish the task (Figure 28).

Figure 28 Feedback in 'Saving Gwal' motivates the player to finish the task

Meaningful Navigation

In ‘Saving Gwal’, tips are introduced to help the player navigate his/her way around the game with no complications (Figure 29).

Figure 29 To navigate 'Saving Gwal' tips were introduced for ease of navigation

Focused Content:

Applying this in the proposed game ‘Saving Gwal’ means resorting to simple short paragraphs that provides the data directly without sharing excessive information (Figure 30).

Figure 30 Different screenshots from 'Saving Gwal' showing how focused content can be utilized for clearer presentation of the game

Clear Branding:

Applying this in ‘Saving Gwal’ can be seen throughout the game (same typography, same colors, logo, etc.) (Figure 31).

Figure 10 Different screen shots showing how branding should be consistent throughout the game

Plenty of Space:

In 'Saving Gwal' space is taken into consideration in the design progress. Plenty of space is given especially when typography is introduced (Figure 32).

Figure 11 Screen shot from 'Saving Gwal'. Giving the design some space helps in enhancing the legibility of the information presented

4.1.4 Game Elements

The literature stated that cultural representation is manifested in video games through images, character designs, music, etc. (Galloway, 2004) (see section 2.3.3 Arab Representation in Video Games: A closer look). The researcher took advantage of further integrating Arab representation in the game through the design of different game elements in 'Saving Gwal'.

Phoenician patterns and art were integrated within the game elements to enhance the ‘culturabilitiy’ of ‘Saving Gwal’ (see section 2.3.1 What is culture?). Semiotics and Metaphors were used in the final designs. Signs from the Phoenician language helped form the logo of the game for example (Figure 34). Also signs and drawings found on the actual tomb of king Ahiram are embedded in ‘Saving Gwal’ (Figure 35). Metaphor on the other hand can also be found in ‘Saving Gwal’; the castle in the final game is a metaphor of certain architectural sites found in Byblos like the crusaders castle (Figure 33).

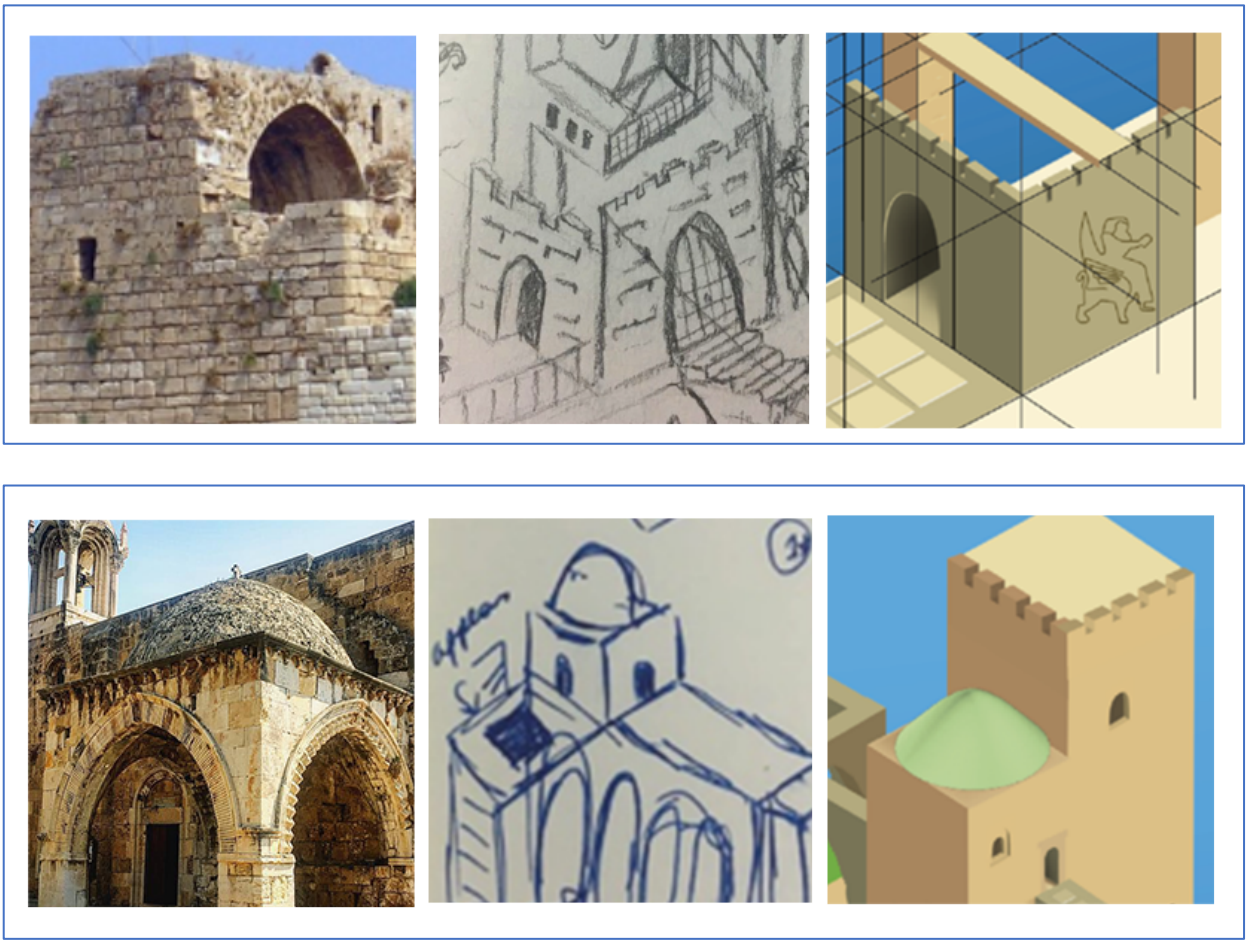


Figure 33 The architectural structures in 'Saving Gwal' are Metaphors for the real castle found in Byblos today

Phoenician patterns were integrated as well in many elements within the game such as the dress of the main hero, background patterns and on the different papyrus maps popping up

within the game. Papyrus paper was used as a recurring element for its historical significance; Papyrus was one of the principal articles traded in ancient Byblos (J. Mark, 2009). Literature stated that the more heritage is integrated in a video game the greater the awareness which in turn leads to greater consideration and eventually a more informed video game (Balela & Mundy, 2016) (see section 2.3.4 Why is Cultural Representation Important?).

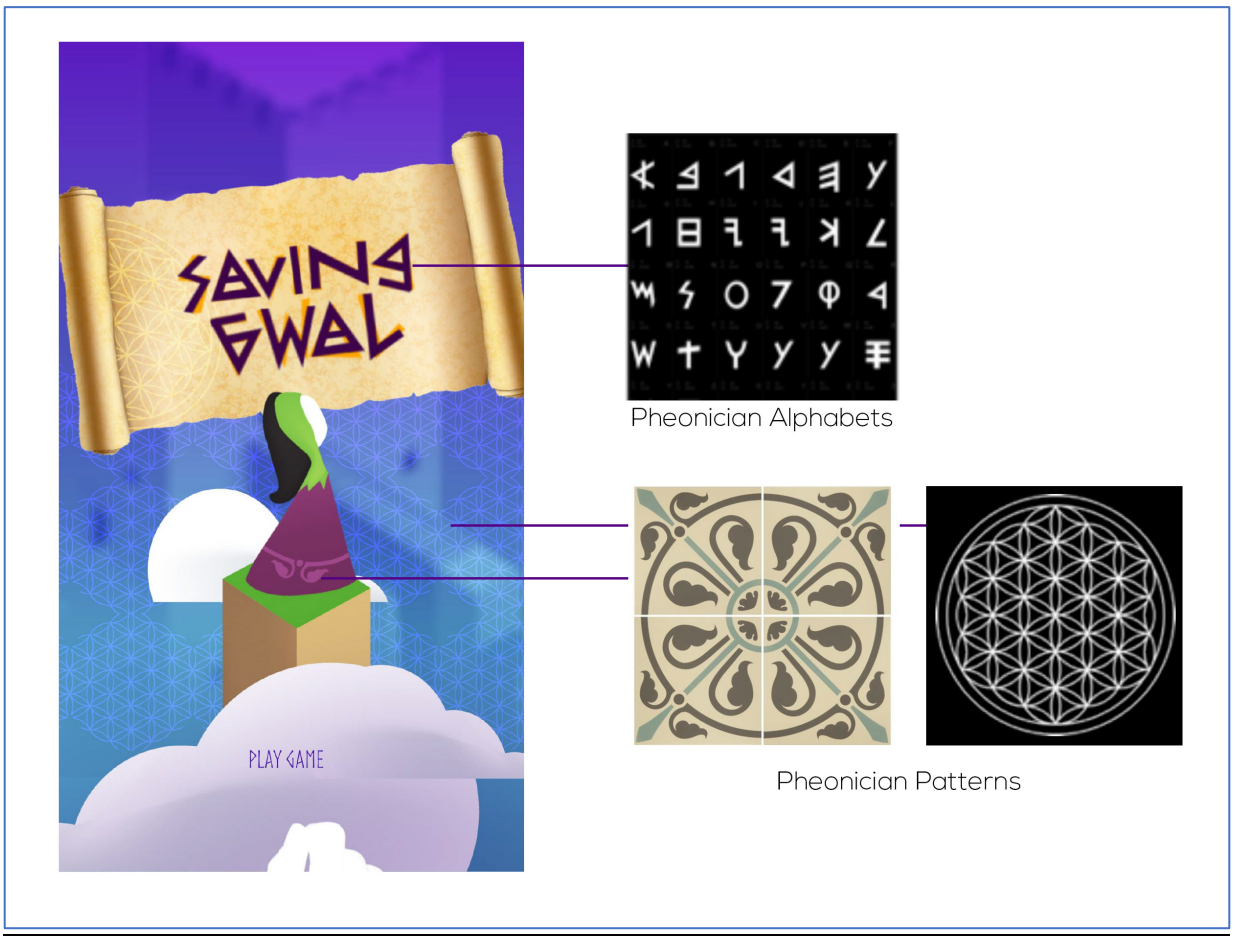


Figure 34 The different game elements of 'Saving Gwal'

Figure 35 Screen shot from 'Saving Gwal' showing how semiotics is embedded in the final design of the game

The coins in 'Saving Gwal' that the hero needs to collect to win the game are also inspired by the historical heritage of Phoenicia. The Phoenician letters of the hero's name are inscribed on these coins (Figure 36)

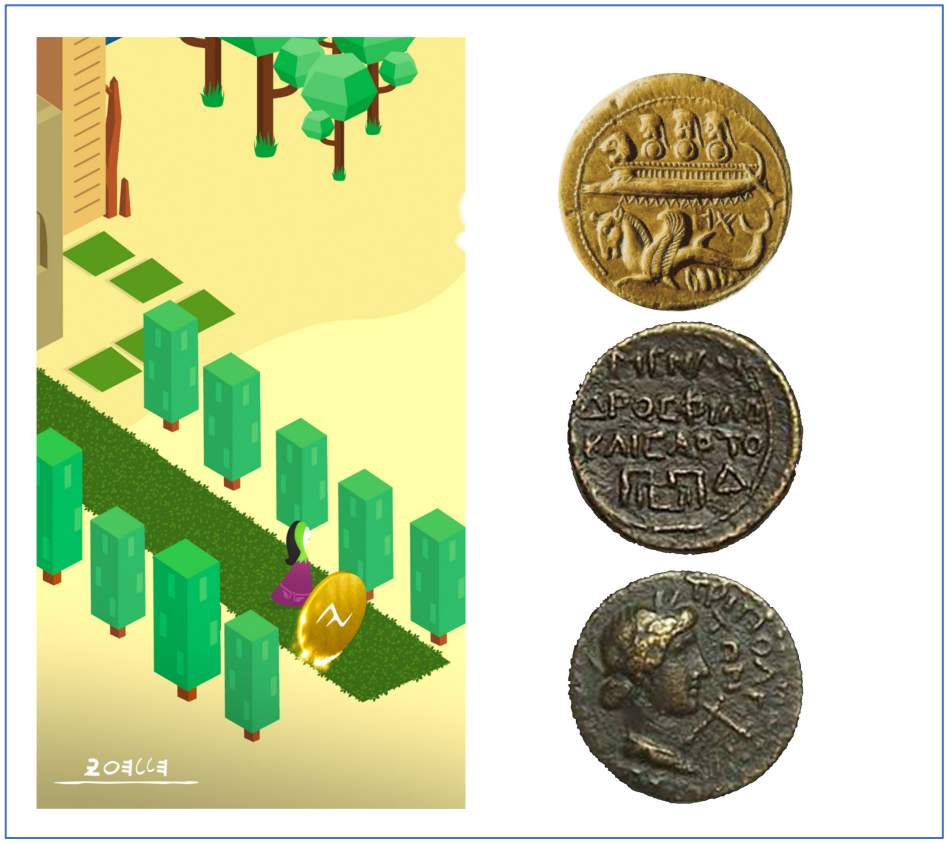


Figure 36 The coins in 'Saving Gwal' are inspired by real Phoenician coins

Typography choice was made in accordance to the historical context of the game. Norse font was used by the researcher within the game (Figure 37) to further add to the realism of ancient Byblos. The font is inspired by the ancient Greek inscriptions, which can be found on different ruins in Byblos today. The colors on the other hand were chosen to be vibrant. Children react positively to vivid colors and are more likely to interact with a game with vibrant colors. Purple color was used when possible for its historical significance (Background color and the hero's dress for example) (Figure 37). The word Phoenicia is derived from the purple dye they produced and traded (Phoenicia,2001).

Figure 37 Greek inspired typography was used within 'Saving Gwal'

The final design of the game structures in 'Saving Gwal' stands as a metaphor to the real Crusaders castle that is still accessible to tourists in Byblos today. The researcher was inspired by the Crusaders castle to build the different structural forms that represents the different mazes the hero needs to navigate to reach the ultimate goal of the game (Figure 38)

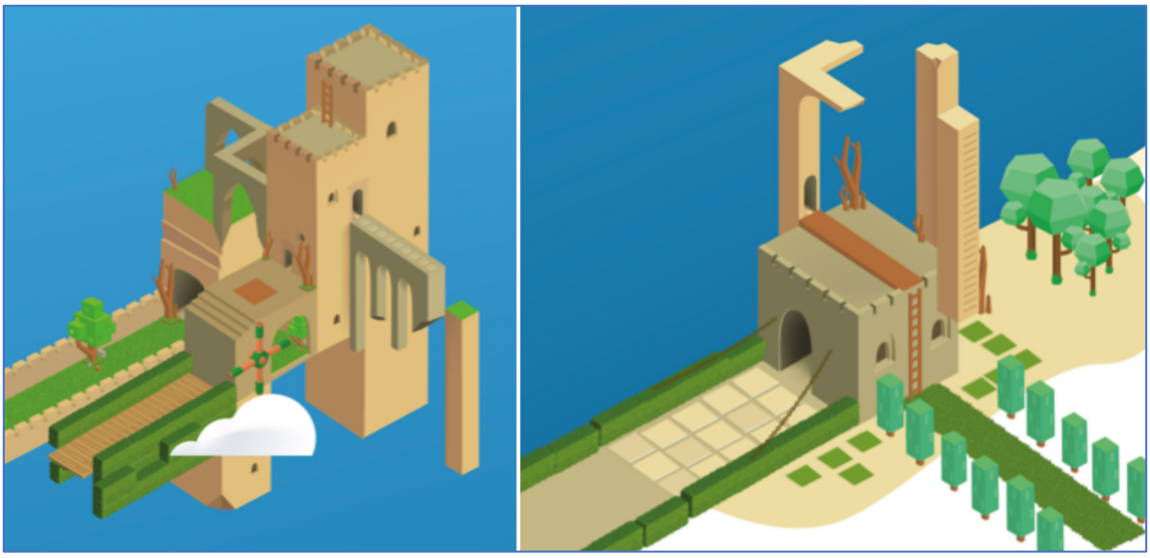


Figure 38 The final structures in 'Saving Gwal' inspired by the Crusaders Castle in Byblos

4.1.5 Final Design

The final design of the game is presented as a mockup. A simulation of how the researcher envisions the game will be played is provided as an mp4 file submitted on a USB along with this research. The final animation includes the main menu along with the introduction of the storyline then the different acts of the game. The game mockup only shows key elements of the final vision of the game which could not be designed within the time frame of this thesis.

This chapter explored the design process of ‘Saving Gwal’. A detailed analysis of the game elements was described. Each design decision was presented and connected with the literature review and survey findings. The final prototype of the game was also presented in a video format. The following chapter will investigate the implications, any suggestions for future research and the limitations encountered throughout the research.

Chapter 5

Conclusion

The main aim of this thesis was to incorporate culture within the gamification framework to help Lebanese children (aged 6 and up) specifically and anyone interested in the Lebanese culture gain easier access to the Lebanese heritage. Five chapters tried to answer the five objectives of this research to understand if Lebanese game designers can incorporate culture within the gamification framework to help bring awareness to the Lebanese heritage. And If so, how would a game designer go about designing a serious game that incorporates cultural representation, education and entertainment within its structure. This chapter reports the findings, the limitations faced and the recommendations for further future research.

5.1 Summary of Findings

This research reported findings from the literature review and the survey conducted. The literature confirmed the importance of cultural representation in video games, gave reasons why serious games are influential on children and provided guidelines to the best practices of designing gamified apps. The survey on the other hand provided a more specific approach to what should be included in the final game app while touching on the needs of the children playing this game. Both the literature and the survey findings helped guide the researcher through the final design process of "Saving Gwal'. From these findings it's clear that Lebanese game designers can incorporate culture within games. The process is rewarding when all the elements (User Interface, Storyline, Concept, Visual Design, etc.) comes together. Furthermore, the literature findings provided practices on how a game designer can incorporate culture by utilizing Semiotics, Symbolic Representations and Metaphors to design a game that reflects one's culture. The survey on the other hand, provided the most

important finding in this research and that is the great interests of parents for their children to play serious games that reflect Lebanese culture and heritage. Historical landmarks are the most intriguing subject found the survey. It also showed that children are curious by nature and they are seeking games that would feed their curiosity. In conclusion, serious games that uses historical landmarks in a fun and entertaining manner are games the Lebanese children would respond to. There's a great market for this genre of game apps and game developers should look into this untapped potential of serious games in the Arab world, because as the literature stated: highlighting the importance of cultural heritage in game designs will lead to greater awareness and greater cultural impact (Balela & Mundy, 2016).

5.2 Research Limitations

Although the aim of this research was achieved, some limitations were raised during the survey procedure and the final design outcome. The survey represented a small group of people. The views, insights and findings from this survey are limited to the characteristics of a small population of parents and their children and should not be used to generalizing. However, the survey was able to touch on some important needs the parents and children might have that could guide the design of the final game app. Other limitations faced involved the time and cost to develop the final game as a full-function app ready to be played. To develop such a complex isometric game would require a huge budget that is beyond the researcher's capabilities. One important limitation to be considered as well is the testing and piloting of this game. Further tuning and redesigning would be ideal had the game been played by actual children while taking into consideration their feedback and concerns. All of these limitations must be taken into consideration for they could influence the results of this research. Despite these limitations, the research question and the different objectives

were addressed by the researcher. Further research and design could be guided by these limitations, so future research is recommended and will be discussed at the end.

5.3 Contribution of this Thesis

The contribution of this research can be divided into two categories: Methodological and practical, and will be discussed further in this section.

5.3.1 Methodological Implications

The literature findings along with the survey findings (see section 3.4, Recapitulation of Survey Findings) provide game designers with a clearer vision of how to design game apps that incorporates cultural representation while catering to the audiences in the middle east in general and Lebanon more specifically. First, the gamification process was investigated (see Chapter 2). This investigation further led to the psychological implications of gamified apps on children which game designers can use as a building block in future games. Then different components and educational attributes of a successful gamified app were explained to guide game designers further in the right direction in their design process (see section 2.2, Components of a Gamified App). The biggest methodological implication of this research is the different ways a game designer could explore to ensure proper cultural representation within their games (see section 2.3, Culture in a Gamified System). Why is cultural representation important in video games is a conversation that needs to happen more often amongst game designers and developers. This research (with the design outcome) is a further voice added to this conversation.

5.3.2 Practical Implications

The final game app that was birthed from this research ‘Saving Gwal’ could offer a solution to the problem of cultural misrepresentation that was discussed in chapter 2 (see section 2.3.3, Arab Representation in Video Games: A Closer Look). Research showed that games with a proper Arab representation are rare (especially in the Lebanese context), so ‘Saving Gwal’ could be one more game added to this short list that needs to expand. Game designers can benefit from the applications of the different findings in this research within ‘Saving Gwal’ and make them reflect on new ways we can incorporate Lebanese culture in children’s games. The final game app could be a basis for which other game designers and developers can build upon. The practical implications of ‘Saving Gwal’ could only be truly measured once the final game is played by actual children. The psychological and intellectual impact of this game on children could be the basis for further future research.

5.4 Suggestions for Future Research

Future research is recommended to ensure that the conversation regarding the importance of gamified apps with cultural representation continues. Further research could consider the reason behind the lack of such games in our Lebanese market and address the different issues facing game designers and developers from achieving better games. Only by addressing the challenges faced could further discussions and solutions be provided in our future research in this matter. Also, further investigation on how to incorporate Lebanese landmarks and different cultural elements in our gamified apps could prove beneficial to the gaming industry. Other storylines and game concepts could be explored in the future while focusing on different genres of games as well.

The population sample surveyed in this thesis is not enough to build a generalized focused data, so more surveys and a bigger population in the future research could yield more accurate and solid insights. Also, it would also be interesting to examine the point of view of the different children who will play ‘Saving Gwal’ for it will shed better light on their interests and how these cultural serious games could affect their phycological and intellectual capabilities. The insights from piloting this game to children will bring more interesting questions that future research could help answer.

Finally, although the final game provides a sample level of how cultural representation is applied within the game, further levels could be the focus of future investigation by the researcher, but given the time limitation to finish this thesis one level was designed as sample to achieve the main objective of this thesis which is to provide children with an entreating way to learn more about their culture.

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL FORM

APPENDIX B

Your Child and Video Games: Research Survey / SurveyMonkey.com

Thank you for participating in this survey. Your feedback is important.
Your responses will be confidential and we do not collect identifying information such as your name, email address or IP address. The survey questions will be about your child's Video Game interests.

We will do our best to keep your information confidential. All data is stored in a password protected electronic format. To help protect your confidentiality, the surveys will not contain information that will personally identify you.

If you have any questions about the research study, please contact Nabil Narch 70738380 , or via email nabilnarch@gmail.com .

ELECTRONIC CONSENT: Please select your choice below.

Clicking on the "agree" button below indicates that:

- you have read the above information
- you voluntarily agree to participate
- you are at least 18 years of age

If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

This questionnaire will take around 10 minutes of your time. I appreciate filling one survey for each child in your family. Please choose one answer (unless specified otherwise). Your participation is highly appreciated.

1- Gender of your child

Male Female Prefer not to mention

2- Age of your child ……. (Please write your answer)

3- Are you Lebanese?

Yes No

4- Where do you live? …… (Please write your answer)

5- Does your child play video games?

Often Occasionally Infrequently Not at all

6- As a parent what kind of game apps would you prefer your child to be exposed to

Educational Entertainment Both Others (Please specify):

7- How often do they use game apps?

Daily Frequently Sometimes Not at all Don't own a smart phone or tablet

8- Which genre of apps do they enjoy playing (you can choose more than one)

Educational Entertainment Games Other (Please specify):

9- Is your child curious by nature?

All the time Frequently Occasionally Not at all

10- When you travel with your child to a new country, what do you enjoy doing the most? (number your answers from 1 to 3, with 1 being the most enjoyable)

Exploring historical sites Exploring the cuisine Meeting locals

11- How important is it for your child to connect with his/her cultural identity?

Very Important Mildly Important Not Important

12- If a game exists that combines educational, entertainment and cultural aspects to it would you purchase it?

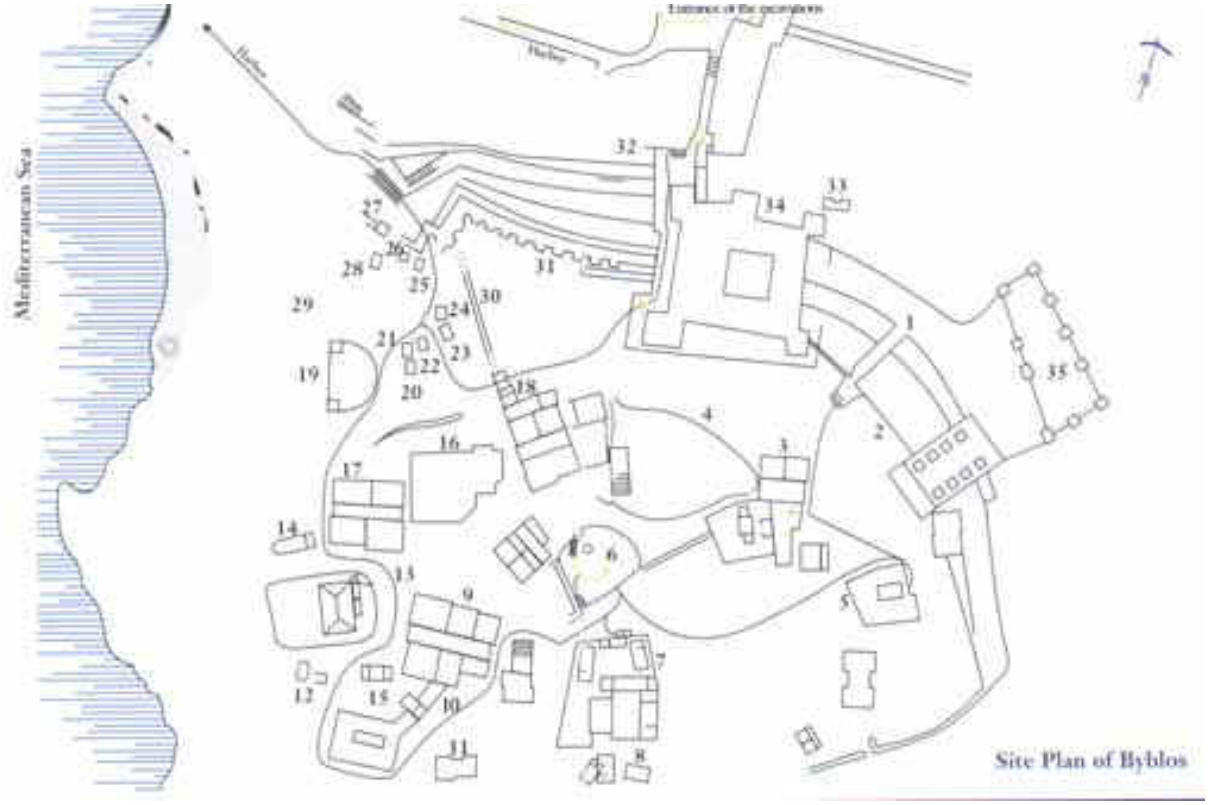
Yes Maybe No

APPENDIX C

Field visit observations / Photos

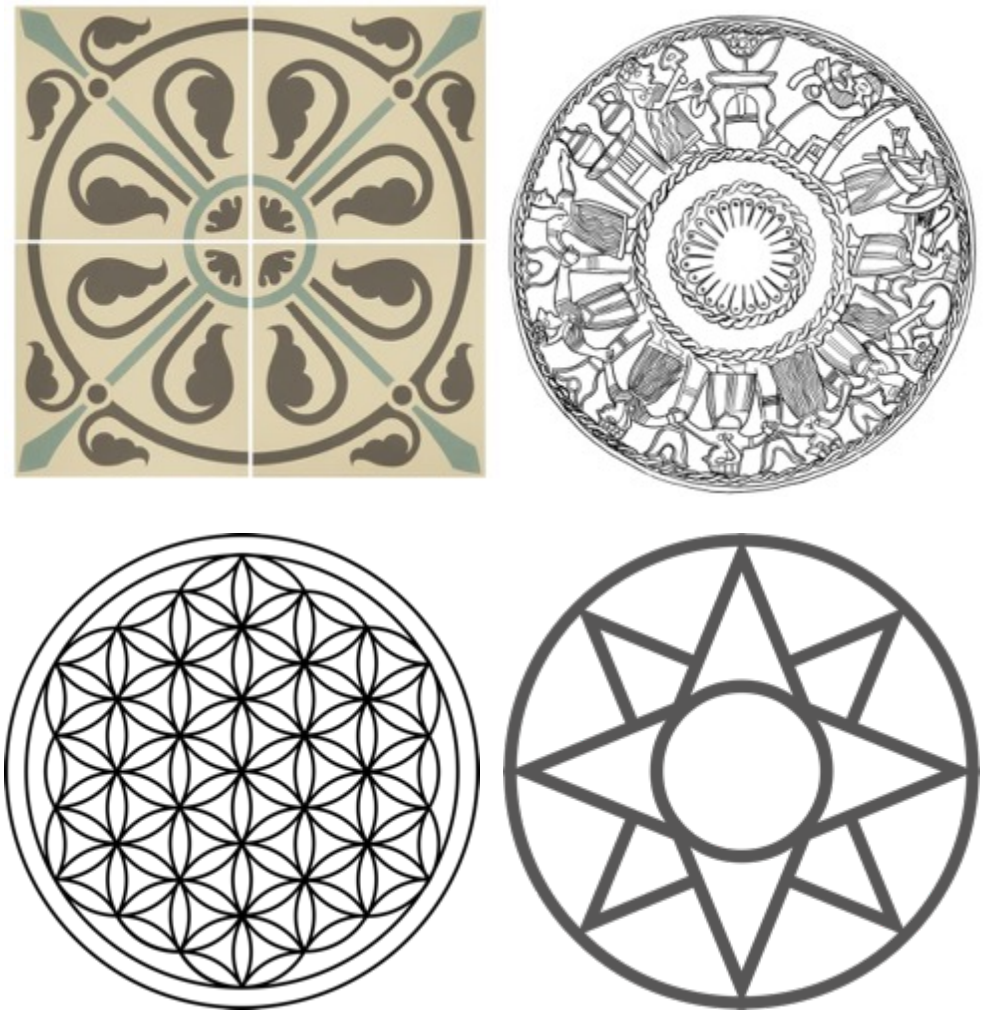
All pictures were taken by the researcher on different field trips to Byblos

Visual Diary / Inspiration

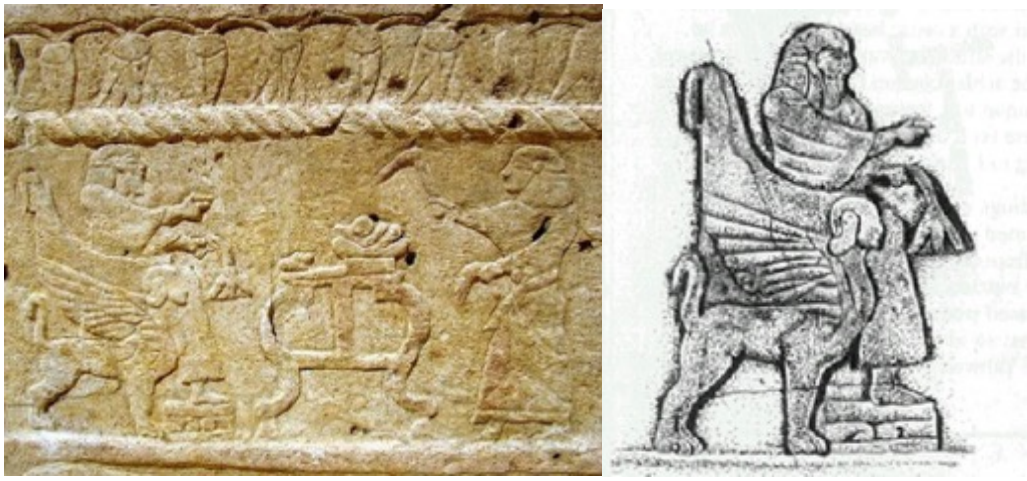


Site map of Byblos (source http://www.minero.net/byblos.htm)

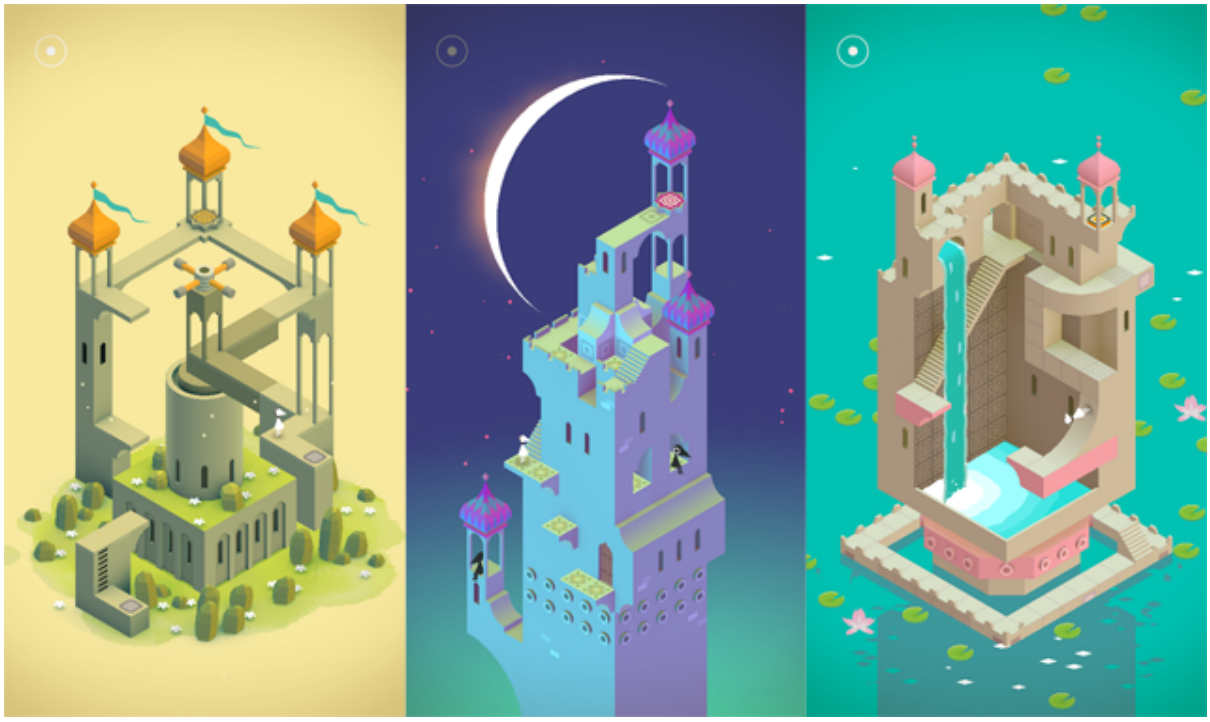
The map found was inserted on the final map in the game



Different Phoenician patterns (source originalstyle.com/us/tiles/product/8073V)

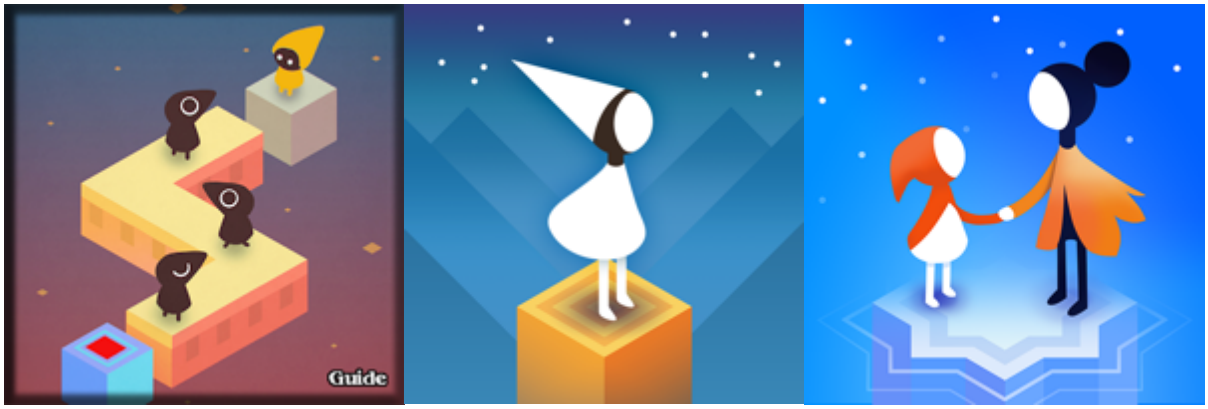


King Ahiram's tomb inspired some designs in the game (source 365daysoflebanon.com/2016/05/17/the-sarcophagus-of-king-ahiram/)



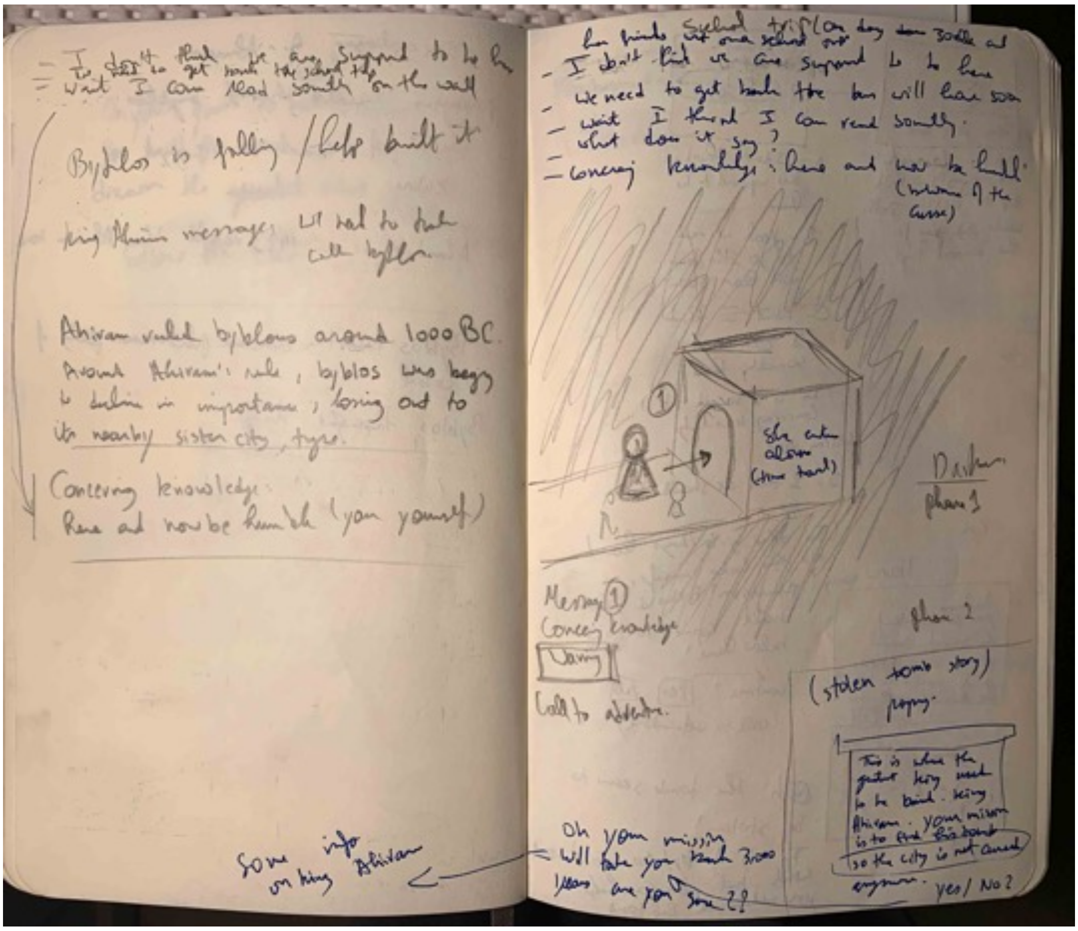
Different games with Isometric design played an inspiration in the final design of Saving Gwal

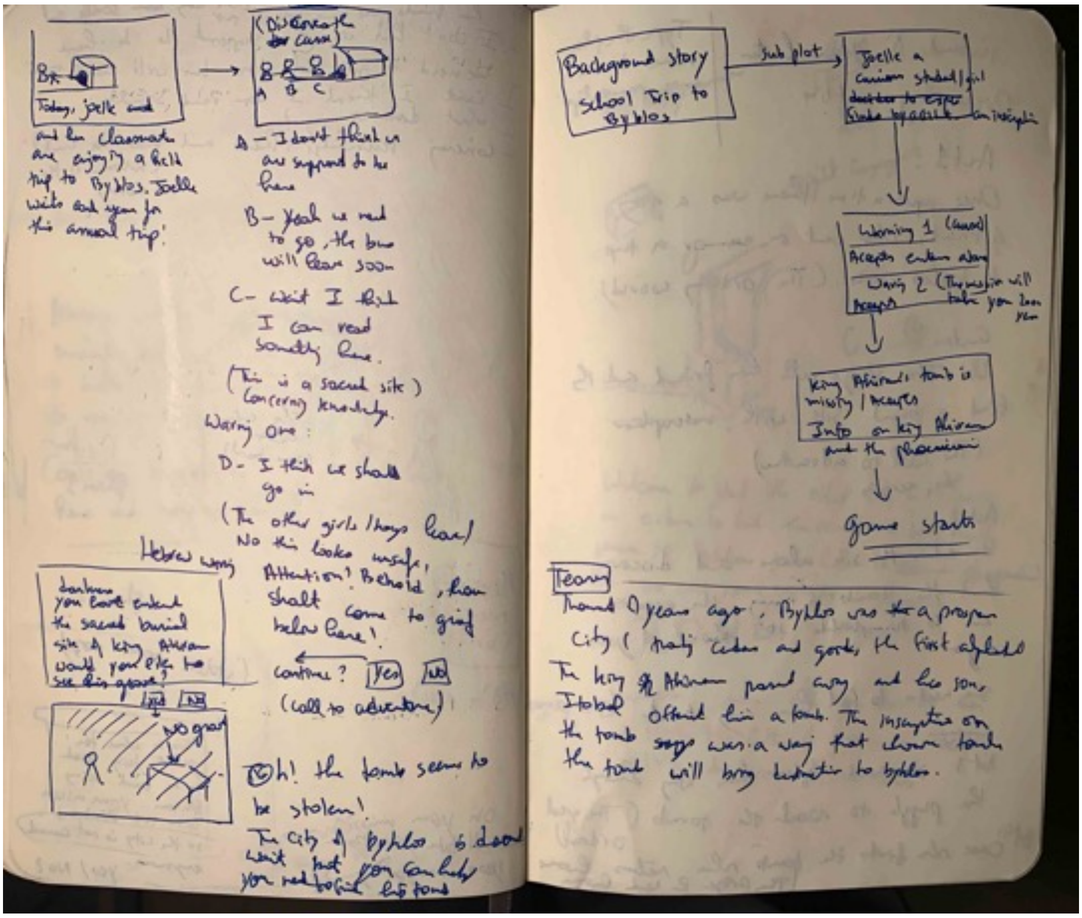
(source http://www.funoon.co.uk/monument-valley/)

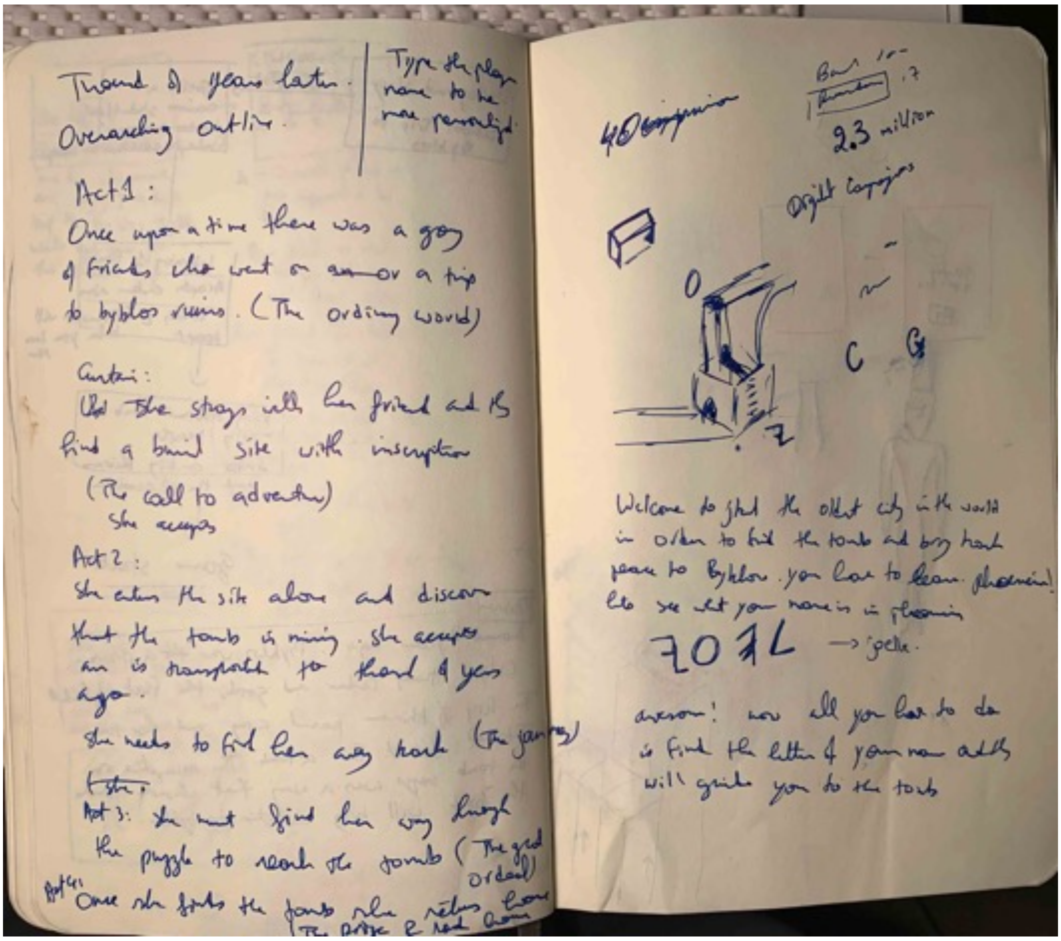


Different game characters were an inspiration for the final game character (source myappwiz.com)

Different game feedback menus helped inspire the game (gamedev.stackexchange.com)


Athiram ruled byblos around 1000 BC.
Concerning knowledge
phase 1
phase 2
(stolen tomb story)
Call to adventure.
yes / No?


Background story
School Trip to Byblos
Sub plot
Game starts
Theory


Overarching outline.
Act1 :
Act 2 :
2.3 million

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