Persuasiveness Against All Odds?

An explorative study on the differences in the degree of feeling persuaded after playing a persuasive game or watching a video of a recorded game play of the game, using a quasi-experimental research design

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Master Thesis
June 20

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ABSTRACT

Using a quasi-experimental research design in combination with a pre-test and post-test design, this explorative study aimed to find the differences between the interactive medium persuasive game and the non-interactive medium video, with respect to the final feeling of persuasion of the media user. Playing games still has an unwarranted negative connotation, while at the same time studies claim that digital games become more popular among youngsters young adults. Previous studies found out that the persuasive power of digital games can be used in a positive way, as some studies found out that interactivity has a positive effect on persuasion, and can contribute to educational or behavioral outcomes. In addition, the interactivity can influence the process of identification with the main character, which could reinforce the feeling of persuasion.

For this present study, in total 161 students of the fifth grade of pre-university education from the age 16 to 18 years old participated. One condition (N=87) had to play the persuasive game Against All Odds, the other condition (N=74) had to watch an edited recorded game play of the same game, which is considered as the video. Against All Odds is a game in which the player takes over the role of a refugee, and therefore represents a current pressing issue. The participants had to fill in a questionnaire before and after the media usage, of which the outcome measures were; Knowledge about refugees, perspective on learning, willingness to help, identification based on similarities, identification based on embodied presence, source credibility and feeling of persuasion. The results show that people felt more persuaded after playing the game, than after watching the video. Also, the identification process with respect to embodied presence was higher after playing the game than after watching the video. However, the identification process based on similarities was higher after watching the video. Moreover, the study showed that even though the participants felt persuaded, they did not seem to be persuaded, as the effects between pre-test and post-test, per condition based on knowledge, perspective on learning, and willingness to help in most cases decreased. Future research is needed to identify the causes of these interesting, but unexpected results. But following the results of this results, it can be concluded that the persuasive power must not yet be underestimated.

KEYWORDS: *Persuasive games, persuasion, Interactivity, Identification, Willingness to help, Attitude change*

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1. Introduction

"The media is the most powerful entity on earth. (...) Because they control the minds of the masses." (Malcolm X, n.d.)

In the past decades the media grew in tremendous ways and started to dominate everyone's everyday life (Rieger, Frischlich, Wulf, Bente & Kneer, 2015). Not surprisingly, much research has been done on the effects that media can have on its users. Research on positive outcomes of media like the positive outcomes of using video for marketing purposes (Hsieh, Hsieh, & Tang, 2012), or using digital games to repair someone's mood (Rieger et al., 2015). But also research about the negative effects, like aggression and aggressive thoughts (Connolly, Boyle, Macarthur, Hainey, & Boyle, 2012; Eastin, 2006), or the negative social effects of playing violent games, which can cause violence in real life (Jansz, 2005). Moreover, in particular digital games still seem to have an unwarranted negative connotation, which is implemented in our culture (McGonigal, 2011). However, at the same time digital games become more popular among youngsters and young adults (Lenhart, Dean, Middaugh, Macgill, Evans & Vitak, 2008), which makes it scientifically relevant to study the effects of these media on its users. It is important to study how to make use of this powerful entity in a positive way, as according to McGonical's (2011) book subtitle, games can "make us better and can change the world."

Moreover, many people think digital games are only useful for entertainment purposes. However, digital games can provide a lot more than just entertainment, they can cover many different topics and can be used to achieve different kind of goals (De Grove, Looy, Neys, & Jansz, 2012, p. 199). In fact, there are digital games that are not designed for learning objectives. Digital games that are designed for educational purposes, or games that are developed to cause a certain social change, can be determined as *serious games*. Serious games are becoming a very important genre of digital media and many scholars are enthusiastic about the abounding possibilities that this genre could offer (Ritterfeld, Shen, Wang, Nocera, & Wong, 2009). Moreover, serious games can be divided into several subsets, and the focus of this research will be on the subset *persuasive games*.

Besides persuasive games, on which this chapter will elaborate later on, this study also focuses on video. The aim of this explorative study is to empirically test the persuasive power of persuasive games and video. In addition, a comparison between the persuasion of the two media will be done, in order to get a better understanding on the persuasive aspects of these media. Therefore, the main research question of this study is;

> *To what extent is a youngster's degree of feeling persuaded after playing a persuasive game different from the degree of feeling persuaded after watching a recorded game play; a video?*

As the research question demands, the following section will elaborate on persuasive games and video, followed by the important concepts that are used in this research. Chapter 2 gives a theoretical background to this study, in which all the used concepts and the basis of this research will be discussed extensively. Chapter 3 explains the quasi-experimental design of this research and how all the used concepts are measured, followed by the results in chapter 4. Lastly, in chapter 5 a summary and interpretation of the findings is provided, which also leads to an answer to the research question. In addition, chapter 5 will give a critical reflection on this study, followed by suggestions for future research. But before elaborating on the research, the two media and the concepts need to be introduced.

1.1. Persuasive games

Persuasive games are games that aim for change and are developed to change or reinforce certain attitudes, or increase awareness about a social issue (Peng, Lee, & Heeter, 2010, p. 723). To define what aspects of a digital game can make it a serious or persuasive game, Raessens (2010) appoints four elements that characterize such a game; “(1) the intention or purpose with which these games are designed; (2) the intention or purpose with which they are used in a specific context; (3) the issues addressed by these games; and (4) their possible real-life effects” (p. 95). Neys and Jansz (2010) emphasize that possible positive effects of persuasive games can be based on three factors; "entertaining properties", "the interactive nature of games", and their "expressive power" (p. 3).

For this present research, especially the last two factors are important, because those are factors that distinguish digital games from traditional media like video. "The interactive nature of games" refers to the fact that a user has to pay attention to what he or she is doing, as it is impossible to play a game without active involvement. Therefore, interactivity is the main difference between the two media used in this research, and will be discussed more thoroughly in chapter 2. For the "expressive power" of games, Neys and Jansz (2010) refer to Bogost (2007), who argues that digital games are expressive media that can easily represent how real systems work, in order to let the player live this system. Players interact with the system, and have power over what happens on the screen.

Combining these positive factors of digital games with information about a complex issue seems to be interesting for many people. This convergence of serious information with entertainment is particularly interesting for youngsters, as it is an easy way for youngsters to learn (Neys & Jansz, 2010, p. 2), and an interesting way for the messengers to persuade. Not surprisingly, many persuasive games have already been developed and many people played these persuasive games. However, just little research is done on the outcomes of persuasive games, thus whether these persuasive games are really persuasive and have the effect on the players where the developers hoped for (Peng et al., 2010). Moreover, there

has been some research on the practical side, about what characteristics of a game could make a digital games persuasive. De La Hera (2013) for instance, proposes a model to show how persuasiveness can be structured within digital games, and argues that "persuasiveness in a digital game can be developed through three different persuasive levels" (p.1), which all consist of different persuasive dimensions. The model will be discussed in chapter 2, but for now the dimension *narrative persuasion* is important to mention briefly, as one of the elements that can be "manipulated to persuade players are the characters" (De la Hera, 2013, p. 9), which refers to one of the important concepts in this present study*; the process of identification*.

Klimmt, Hefner, Vorderer, Roth, and Blake (2010) argue that identification is a potential concept in relation to the digital game experience. The player of a digital game acts like the main character in the game, because every choice the player makes, will also be the choice of the character in the game. Because of this, the player can react emotionally on the events in the game, "as if they happened to themselves" (Van Looy, Courtois, De Vocht, & De Marez, 2012, p. 200). This connection with the main character increases the feeling of identification with the main character. But in order to understand the underlying theoretical basis of interactivity and identification of this research, first the game that is used in this research will be introduced, which is the game Against All Odds.

1.2. Against All Odds

Games like Against All Odds, persuasive games that let the player "taste life as a refugee" (Raessens, 2010, p.94), have the potential to convince players to change their attitude or view. It is a game that can be played online, and the game looks like shown in image 1. Against All Odds complies with the four previously discussed elements of Raessens' (2010) definition of a serious game;

Image 1: Home screen Against All Odds

First of all, the game is created by UNHCR and thus outside the big gaming industry. In addition, the intention of the game is to change the attitude of youngsters towards refugees, and make them more aware of the problems, fears and choices refugees have to deal with. This complies with the first element as this element has its focus on the intention and purpose of which a serious game is designed. This element is in a close relation with element two, which is about the intention an usage of games in a specific context. Besides that the game is on the website of the UNHCR, which has the goal to inform people about refugees, the game is also used on the website of

Games for change (G4C). Moreover, the game "aims at helping to organize an accelerate the adoption of computer games for a variety of challenges facing the world today" (Raessens, 2010, p. 95). Against All Odds can be used seriously to face the actual problems of the world today. The emphasis on seriousness in element two and the seriousness of Against All Odds refers to element three; "the issues addressed by these games" (p. 95). For the third element Raessens (2010) refers to websites like Serious Games Initiative (SGI) and G4C, which are websites that emphasize that it is a community for people that are interested in making games that focus on "pressing issues of our day" (p.95). G4C also provide a link to Against All Odds, and describes the game as "a series of short challenges that illustrates the complexity and dangers of the refugee experience" (Gamesforchange, n.d.). As the refugee crisis is an actual issue of today, the seriousness of the issue addressed by Against All Odds is momentous. This actuality of the refugee crisis provides a bridge to element four, the focus on real-life effects. As it is an actual problem, raising awareness about the refugee crisis could have real-life effects. The importance and actuality of the refugee crisis and the goal to create social change by the use of a medium also refers to the social relevance of this study, as the results of this study will give a better understanding in how to make people aware of the situation of refugees in Europe.

Moreover, many people already have an opinion about refugees and the refugee crisis because of its actuality. Against All Odds is therefore an interesting game to use to study persuasion. Chapter 3 will elaborate more on how the game Against All Odds actually looks like, how the game will be used and look like as a video, and how the feeling of persuasion is studied. As emphasized before, the process of identification is a very important concept in relation to persuasion. As Against All Odds gives the player the opportunity to choose his or her avatar, the process of identification can be analyzed well by using this particular game. Choosing the avatar means that the player can choose the main character of the game. Depending on what the player wants to say with his or her avatar, people will stay between the so called "actual self" (Dunn & Guadagno, 2012, p.98) and an alternative or idealized version of themselves in this avatar selection. An interactive feature like choosing the avatar, may therefore increase the process of identification. In addition, scholars argued and found out that people are more persuaded after identifying with the 'source', which is in this case the game or the recorded game play (Kelman, 1958; Perloff, 2003). As just mentioned, the second source is an edited video, using a recorded game play of Against All Odds.

1.3. Recorded game play as video

Just like for persuasive games, there is just little research on the persuasive power of videos. There is, for instance, a study on persuasion of online video for marketing purposes (Hsieh et

al., 2012), and a study on the discourse of job-application videos (Tseng, 2010), in which persuasion is treated as an "overall effect on the addressee, an accumulative effect based on a performative chain" (p.583). This emphasizes the fact that persuasion consists of a chain of factors. In addition, there is research on the persuasiveness of political YouTube-videos and their influence on the viewers' perceptions (English, Sweetser, & Ancu, 2011), and on whether showing a video with pictures of car accidents would have effects on the risky driving attitude in Ghana (Anakwah, Akotia, Osafa, Parimah, Owusu Sarfo & Aggrey, 2015). In this research from Anakwah et al. (2015) they used a video of images, in order to change behavior. This would imply that this research tested the persuasiveness of a video, and resulted in no effects on the risky driving attitudes. However, they showed a video of images for 60 seconds, not a video with a main character and narrative. The user of such a video can not identify with the main character. In this present study this will be different, as the video will be an edited video of a recorded game play of the persuasive game Against All Odds, in which the user can see the main character, and identify with it.

In sum, this explorative study aims to contribute to the understanding of the persuasive effects of the non-interactive medium video and the interactive medium persuasive game. By doing a quasi-experimental research, by using a pre-test and post-test design, the study aims to give a better understanding on differences between the two media on the feeling of persuasion, identification process and attitude change. The following chapter will provide this research with a theoretical background, in order to understand the concepts and understand the way they are used in this study.

2. Theoretical framework

The main purpose of this explorative research is to study if there are differences between the interactive medium persuasive game and the non-interactive medium video, in relation to persuasiveness. It is clear that the medium video and the medium digital game are two different kind of media; when watching a video, the user is just a passive spectator watching the main character making crucial decisions. When playing a digital game, the position of the user changes (Jansz, 2005). The user can make crucial decisions for him or herself. The user of a digital game interacts with the medium itself and controls what happens on the screen, as this depends on the actions of the user. This is in contrast with the medium video, in which the user has no power over what happens on the screen.

In this chapter the differences between digital games and video will be discussed, which leads to an explanation of the concept of interactivity, as it is the main difference between digital games and videos. Moreover, this difference can cause differences in the experience of the media user, such as a difference in how the user identifies with the main character. Why and how this process of identification can happen will therefore be discussed extensively in subsection 2.2.. In addition, since this study is about persuasive games and videos, section 2.3. will discuss persuasion. Subsection 2.3 will also elaborate on the related concepts attitude change and willingness to help, as these can be the possible wanted outcomes of persuasion. But first the different media will be discussed in the following subsection.

2.1. Digital games vs. Video

Digital games can be categorized as "a constant series of decision-making loops presented to players" (Joeckel, Bowman, & Dogruel, 2012, p. 462). While videos, on the other hand, do not ask the user to make any decisions at all. Digital games mainly differ from videos because of the higher cognitive attention that is needed, and in addition the required physical engagement (Bowman & Tamborini, 2012; Jansz, 2005). To successfully play a digital game, the player has to pay close attention, "make mental maps of environments, note objects and landmarks for future reference, and coordinate visual attention with motor behaviour" (Bowman & Tamborini, 2012, p.1340). Moreover, when speaking of understanding the digital game experiences, Joeckel et al. (2012) refer to a dual process approach suggested by Hartmann (2011), based on a cognitive-experiential self-theory. The approach distinguishes two systems: a cognitive-rational system, in which players of a digital game play logically by "processing novel situations", making decisions based on experiences happened in the past.

In addition there is the experiential system, in which players make quick "gut" decisions, that refers to the fact that people seem to trust their ‘guts’ or feelings more than that they really know what is best (Joeckel et al., 2012, pp.462-463). According to Joeckel et al. (2012) both the systems are active while playing a digital game, but the experiential system is dominant, because people tend to follow their feelings. However, before it is useful to know what happens cognitively when someone is already playing a game, it is important to understand why people want to play games in the first place. Knowing the players motivations to play a digital game instead of watching a movie or video, is important in order to understand the possibilities and the possible differences in effects that a digital game may have with the medium video.

An obvious claim about why people play games that Sweetser and Wyeth (2005) make, is the fact that player enjoyment is the most important aspect of why people play games; "If players do not enjoy the game, they will not play the game" (p. 1). Sweetser and Wyeth (2005) were inspired by the research of Csikszentmihalyi (1990), who discovered that an optimal experience, or as he called it 'flow', is experienced the same all over the world. So based on this research, Sweetser and Wyeth (2005) developed a flow model. They define flow, cited from Csikszentmihalyi (1990), as "an experience so gratifying that people are willing to do it for its own sake, with little concern for what they will get out of it, even when it is difficult or dangerous" (p. 3). This flow can consist out of eight elements that give such a deep enjoyment, that people feel a flow of energy; (1) a task can be completed, (2) the ability to concentrate on the task, (3) that concentration is possible because the task has clear goals, (4) that concentration is possible because the task provides immediate feedback, (5) the ability to exercise a sense of control over actions, (6) a deep but effortless involvement that removes awareness of the frustrations of everyday life, (7) concern for self disappears, but sense of self emerges stronger afterward, and (8) the sense of the duration of time is altered (Sweetser & Wyeth, 2005, p. 3). For persuasive games, this flow model can be used as well. A player of a persuasive game can come in a "highly energized state of concentration and focus" (Ruggiero 2014, p.4), which means that the player is in a state of flow. According to Ruggiero (2014), players can take up more knowledge in this state.

In addition, the definition emphasized flow as an experience "so gratifying", which refers to the uses and gratifications (U&G) approach. An approach that looks for media effects and looks for the certain gratifications that attract the audience and answers the audience's social and psychological needs (Ruggiero, 2014). U&G helps to understand what motives people have to choose one medium over another, so for instance, what motives does the audience have to choose a digital game instead of a video. According to Ruggiero (2000) the U&G approach had to adjust to the media landscape, as the user became more in charge and more active. The possibility to be interactive as a user, so the increase if

interactivity in media "strengthens the core U&G notion of active user" (p. 15). A digital game for instance, makes a player an active user. Therefore, Ruggiero (2000) refers to a definition of interactivity given by Williams, Rice & Rogers (1988); "the degree to which participants in the communication process have control over, and can exchange roles in their mutual discourse" (Ruggiero, 2000, p. 15). Interactivity as a feature of games, make digital game the most "immersive kinds of lean forward" (Jansz, 2005, p. 222) media. Jansz (2005) emphasizes the contrasts between lean forward media, like digital games, and the lean back media, like film and video (p.222).

Lean back media ask less from the user, while lean forward media ask investment and effort from the user. A lean forward medium demands a user to be interactive, and because digital games have become more important in the media landscape, many scholars are interested in the effects of this interactive medium. For instance, Bowman and Tamborini (2012) studied to what extend playing a digital game could affect someone's mood. Results showed that increasing the users amount of control over a mediated world, significantly increases a medium's so called *intervention potential*, which refers to the power of a medium to "break into people's current cognitions and to disrupt the actual emotional experience" (Bowman & Tamborini, 2012, p. 2). Thus, the higher the intervention potential, the higher the ability of a medium to direct the attention of the user away. The increased intervention potential leads to the ability to relieve boredom and stress. In addition, following Bowman and Tamborini's ideas of increasing control to repair someone's mood, Rieger, Frischlich, Wulf, Bente and Kneer (2015) compared a recorded game play video with a digital game in relation to mood repair. Following the Mood Management Theory, which assumes that people have a deep natural motivation to let go of negative moods and try to get more positive moods (Rieger et al., 2015, p. 2), they tried to see whether a game or recorded game play could reinforce this motivation. Their expectation that games would lead to more positive moods and distract the players from negative moods, because a digital game has a higher task demand than a video, was confirmed. Playing a digital game seemed to lead to the highest mood repair (Rieger et al., 2015).

Even though the current study is not about mood repair, it does also compare a non-interactive medium with an interactive medium and these studies do confirm that digital games can have a different effect on people than videos. Playing digital games can direct the attention away and elicit higher levels of arousal than when someone is watching a video (Rieger et al., 2015), and studies about digital games (e.g. Alhabash & Wise, 2012; Klimmt, Hefner, & Vorderer, 2009; De Grove, Looy, Neys, & Jansz, 2012; Jansz, 2005; Joeckel et al., 2012; Rieger et al., 2015) all emphasize "the interactive nature of digital games" (Neys & Jansz, 2010, p.3). A recent study from Ruggiero (2015) also made a distinction between interactivity of media, by comparing a persuasive game with a text, by using a Solomon

design, which means that half of the participants had to answer a pre-test and the post-test, and the other half did not answer a pre-test. The persuasive game used for this study was a game about the life of homeless people. For the research Ruggiero (2015) randomly assigned 5139 middle and high school students to a game group, text group, or control group. The control group just took the test, without exposure to any kind of media. The participants had to answer a post-test right after the media exposure, and three weeks after media exposure. The game group showed statistically significant positive changes towards the homeless immediately after exposure, and still after three weeks. This difference was also significantly higher than for the text group. Therefore, Ruggiero (2015) could conclude that playing the game is better to change attitudes, than doing nothing or reading a text about the same subject.

Following the studies from Bowman and Tamborini (2012), Rieger et al. (2015), and Ruggiero (2015), it could be expected that an interactive medium would have more effect and be more persuasive than an non-interactive medium. This implies that interactivity as feature of a medium affects the persuasiveness. However, the 'feeling of persuasion' is something emotional. Therefore, the following section will focus on how the user experiences the interactivity of a medium.

2.1.1. Experiencing interactivity

This study compares an interactive medium, a persuasive game, with a non-interactive medium, a recorded game play as a video. As emphasized before, the interactivity of a digital game forces the user to pay attention and engage physically. Interactivity could increase a players involvement "through behavioral participation and cognitive processing" (Ritterfeld, Shen, Wang, Nocera, & Wong, 2009, p. 692), and in addition a higher interactivity could perhaps also trigger a change in attitude towards something.

Interactivity is considered as an important property of a persuasive game, because it allows a player to communicate with the gaming system (Ritterfeld, Shen, Wang, Nocera, & Wong, 2009, p. 692). Ritterfeld et al. (2009) focus in their study on the aspect learning and argue that the interactivity of a game has great implications for learning. By allowing the player to communicate with the gaming system, it automatically allows the player to be or feel more involved to the story, which for Ritterfeld et al. (2009) meant that they expected that the learning interest and the learning processes would be reinforced more after the use of a interactive medium, than after the use of a non-interactive medium. Their expectations were confirmed, as interactivity did contribute positively to the educational outcomes. In addition, more studies found that interactivity has a positive effect on persuasion, and contributes to positive educational or behavioral outcomes of persuasive games (Liu & Shrum, 2009; Michael Lewis Barthel, 2013; Rieger et al., 2015; Sundar & Kim, 2005).

However, the positive outcomes depend on more than just interactivity. Liu and Shrum (2009) for instance, found positive effects of interactivity on certain attitudes, however they also found out that this effect depends on the ability of the user to use the medium. Thus, for a persuasive game this means that the user must have the ability to play games, the user needs to understand how the medium works. If the user does not understand how the medium works, it is impossible to fully experience the mediated world. In addition, the ability to use a medium becomes more important when speaking of interactive media, as interactive media induce a higher task load than non-interactive media (Rieger et al., 2015). A higher task load demands more focus, and this could direct the attention of the user away from reality. This distraction could automatically affect the *involvement* of the player (Rieger et al., 2015), which in this case can be described as "a psychological state experienced as a consequence of focusing one's energy and attention on a coherent set of stimuli or meaningfully related activities or events" (Witmer & Singer, 1998, p. 227).

Witmer and Singer (1998) discuss involvement in order to explain the concept of *presence*. They define presence as "the subjective experience of being in one place or environment, even when physically situated in another" (p. 225). According to Witmer and Singer (1998), the feeling of presence in the mediated world, depends on how much the user focus' his or her attention on that mediated world, and in addition feels involved with that environment. Presence is therefore measured in degrees, as it depends on the degrees to which someone's attention is shifted away from the physical environment to the mediated environment (Witmer & Singer, 1998). The concept of presence is important and applicable to both interactive and non-interactive media. Also, the concept of presence is linked to the concept of identification. "When identifying with a character (...), individuals tend to put themselves in the character's place, and in a sense, experience what that character experiences" (Witmer & Singer, 1998, p. 227). Thus, when the user of a medium starts identifying with the character in the medium, then the feeling of presence can occur.

As Van Looy et al. (2012) emphasize, the process of identification is one of the most important "drivers of media experiences and one of their main attractions" (p. 197). Identification with the main character in a digital game has been studied by many scholars, in which they found out that player identification can mediate effects on the user (Konijn, Nije Bijvank, & Bushman, 2007; Van Looy et al., 2012). Cohen (2001) also argues that identification increases involvement with the message that the medium tries to convey, and therefore decreases the chance that the user of the medium will be critical about this message (p. 261). In addition, as argued before, the extent to which someone feels involved, also affects the degree to which someone experiences presence. Thus, identification and presence are two concepts that are closely connected, because the two concepts reinforce each other. To elaborate on this and make it more clear, the following subsection will discuss

identification, and the levels it consists of.

2.2. Defining identification

In this section the concept of identification will be discussed. Identification knows many definitions given by many scholars. Therefore, the definition of identification for this present study is explained first. In addition, subsection 2.2.1. will explain the different levels of identification, followed by an explanation of the transportation theory in subsection 2.2.2., which is about the player identifying with the main character and being ‘transported’ into the mediated world.

Identification is a complex concept, because many scholars define it differently. Moreover, Cohen (2001) argues that identification with a media character is not conceptualized properly and therefore he attempts to conceptualize the concept himself, based on previous research. According to Cohen (2001) the degree to which someone identifies him or herself with the media character, depends on the degree to which someone is absorbed in the medium. Thus, the extent to which the user understands the character, feels involved and adopts his or her goals. Therefore, he proposed the following definition:

> *"Identification is an imaginative process through which an audience member assumes the identity, goals, and perspective of a character"* (Cohen, 2001, p. 261).

Cohen’s definition is a general definition of identification. However, taking into account that this study focuses on two different kind of media, it also has to be taken into account that the process of identification works differently. The process of identification is different when someone uses an interactive medium than when someone uses a non-interactive medium, because the level of involvement can be different. The general definition of Cohen (2001) explains what happens when someone identifies with a media character, but does not explain the different processes of identification. Other scholars found a solution to distinguish identification for different kind of media, by dividing the concept of identification into two different kinds of identification; dyadic identification and monadic identification (Hefner, Klimmt, & Vorderer, 2007; Klimmt et al., 2009). Hefner et al. (2007) and Klimmt et al. (2009) argue that dyadic identification occurs when someone is using a non-interactive medium, like video. The media user is identifying him or herself with the media character, but can still "perceive a social distinction between themselves (the observers) and the media characters" (Klimmt et al., 2009, p.352).

Contrasting with this 'general' notion of identification, Klimmt et al. (2009) define digital game identification as monadic identification, which refers to "a

temporal shift of players' self-perception through adoption of valued properties of the game character" (Klimmt et al., 2009, p. 351). For persuasive games this would mean that a process of monadic identification would occur. When playing a persuasive game, someone interacts with the gaming system and takes over the character's role, and could then adopt these valued properties of the character. Peng et al. (2010) emphasizes that the interactivity of digital games gives the player power over activities and experiences in the game, which blurs the line between the player and the main character; "the identities converge" (p. 727). As Peng et al. (2010) also explains, "during this role-taking process, an individual goes beyond his or her typically egocentric means of perceiving the world to contemplate a different point of view" (p. 724). This could mean that someone's way of thinking is different, and easier to change when he or she is playing a role in a game. The player is pretending to be someone else for a while, and this is a cognitive process in which the player takes over someone else's thoughts and behavior (Peng et al., 2010). Therefore, it could be expected that an interactive medium would result in a higher degree of identification of the player with the main character, than a non-interactive medium.

Thus, it is arguable to say that Cohen's definition of identification agrees with the process of dyadic identification, which is applicable to non-interactive media like video. Cohen (2001) argues that identifying with a media character, in this case a character in traditional media like video, could mean that the user can understand the media character's "feelings, goals, and perspectives" (p.255). However, he does not discuss identification that occurs when someone plays a digital game, which could be the stronger monadic identification. This kind of identification goes further than just understanding the media character's feelings, goals, and perspective; the player temporarily has the same feelings, goals, and perspective as the character. Therefore, Van Looy et al. (2012) expand the definition of identification by adding the idea that identification is a degree of association that a player can feel between him or herself and the role of the character.

This expansion of the definition of identification emphasizes the fact that the identification process is a matter of degrees. In addition, identifications is also a process with different levels. Many scholars (e.g. Hoffner & Buchanan, 2005; Konijn, Nije Bijvank, & Bushman, 2007; Moyer-Gusé, 2008;) emphasize two different levels of the concept identification: *wishful identification* and *similarity identification*. Van Looy et al. (2012) expands these theories by adding a third level; *embodied presence.* The levels will be discussed in the following subsection.

2.2.1. Levels of identification

The first level of identification is wishful identification, which can be defined as "the desire to be like or act like the character" (Hoffner & Buchanan, 2005, p.325). In general terms this means that the media character is like a role model for the user. In specific terms this means that the user wants to imitate and be like the media character (Konijn et al., 2007). However, this study uses the game Against All Odds, in which the player takes over the role of a refugee and need to flee the country and survive. It is reasonable to say that nobody wishes to be a refugee, or wishes to have the same problems and the life of a refugee. Wishful identification is therefore not in order in this study. The second level is similarity identification, which is certainly important for this study.

Similarity identification is about the extent to which the user can identify with the media character because they "share salient characteristics" (Konijn et al., 2007, p. 1039) and thus "feels a stronger affinity with it" (De Grove et al., 2012, p.202). It is about the process of identification during the time of media exposure, in which the user puts him or herself in the place of the character and participate in their world (Hoffner & Buchanan, 2005; Van Looy et al., 2012). Media users tend to identify themselves with the media characters the most, when the user has many common characteristics. These similarities can be in terms of physical appearance, mental constitution or social situation (Van Looy et al., 2012). One obvious and therefore important characteristic in which the player can be totally similar to the main character or totally not, is gender. As the persuasive game Against All Odds gives the player the possibility to choose a character to play with, the user can choose to play with a male or a female avatar. In contrast, when watching a video, the user can not choose the main character. Because gender can affect the similarity identification, it is important to understand the motivations people have when they choose their avatar.

A study from Vasalou, Joinson, Bänziger, Goldie, & Pitt (2008) aimed to investigate how users choose to present themselves with an avatar. They distinguished three main motivational factors in the avatar selection; (1) an accurate self presentation, which looked like the actual self, (2) a playful self-presentation, in which the player exploits the possibilities of the customisation options, (3) the avatar was used as a literal message to other players (Vasalou et al., 2008, p. 802). Depending on what the player wants to say with his or her avatar, in the avatar selection or creation people will stay between the so called "actual self" (Dunn & Guadagno, 2012, p.98) and an alternative or idealized version of themselves. These findings are consistent with the findings of a study from Bergstrom, Jenson, and De Castell (2012), in which they studied gender stereotyping in avatar selection by novice and expert players. They found out that the majority created an avatar that reflected their gender in the real world, so they created a representation of the self. In addition, Eastin (2006) conducted three different experiments looking at gender in relation to experiencing presence and having

aggressive thoughts. They found out that aggressive thoughts depend on the gender of the opponent, but even more important for this current study are the results that conclude that especially females experience greater presence when they have the same gender as the main character in the game. Thus, to be able to make a reliable comparison between a persuasive game in which the player can choose the main character, and a video in which a user can not choose the main character, gender has to (and will) be taken into account when creating the video, in order to improve the process of identification with respect the level identification similarities.

The third level is embodied presence. As mentioned before, this level is an expansion on the theories of the levels of identification, added by Van Looy et al. (2012). Embodied presence is quite similar to the previously discussed concept presence from Witmer and Singer (1998). They described presence as the subjective experience of being in another place than the user physically is. The embodied presence from Van Looy et al. (2012) refers to "the emotion of being embodied in the character" (Van Looy et al., 2012, p.202). It is a mental bond between the user and the media character. When this mental bond is strong, the degree to which the user identifies him- or herself with the media character gets higher. Van Looy et al. (2012) propose a scale to measure the identification process from a player in online games. They distinguish three dimensions; *avatar identification, group identification,* and *game identification*.

For this study, only avatar identification is relevant, as it consist of the three previously discussed dimensions of wishful identification, similarity identification , and embodied presence. The dimension group identification is not relevant for this study, because it is about the connection the player feels with other players. In Against All Odds the player does not have the possibility to play online with others and therefore the measurement for group identification is not useful for this study. In addition, game identification is about the connection the player has with the game itself. It contains measurement items like "*the game is more than a hobby for me*" and "*the game is part of who I am*" (Van Looy et al., 2012, p. 211). As the participants not necessarily played the game Against All Odds before, and this study does not study to what extent the player likes this particular game, the dimension game identification is not relevant for this study either. Therefore, only avatar identification is relevant for measurement in this study. Moreover, Van Looy et al. (2012) argued that a reliable tool to measure identification was lacking, therefore they proposed the Player Identification Scale.

Van Looy et al. (2012) they tested the scale they constructed with a survey that contained all these theoretical based dimensions on 544 World of Warcraft players. The test confirmed the proposed structures, which means that their Player Identification Scale proved to be a reliable measure of identification. In their research, the scale is based on

identification particularly in online games. However, the measurement of the dimension 'avatar identification' could be considered as suitable for any digital game or medium in which it is possible to identify with the main character. Therefore, the part of the Player Identification Scale that measures avatar identification will be used to measure the process of identification in the persuasive game Against All Odds and the recorded game play in this study.

In short, by combining the previous discussed theories on interactivity and identification, and following the findings of the discussed studies, this study will expand on this by expecting that the differences in the interactivity have an effect on the process of identifying with the media character. Therefore, the following is expected in this study:

> *Hypothesis 1:* The degree to which someone identifies him- or herself with the media character (with respect to identification similarities and embodied presence), is higher when someone uses an interactive medium than when someone uses a non-interactive medium.

Thus, the user of a medium can identify with the media character. If the player is identifying him or herself with the character in the medium, and the level of embodied presence occurs, one could say that the user gets 'transported' into the mediated world. A transportation that can also be conceptualized as a mental process, "an integrative melding of attention, imagery, and feelings" (Green & Brock, p.701). The following subsection will elaborate on this idea of transportation.

2.2.2. Transportation theory

The transportation theory has a close link with the process of identification, as the two seem to be connected; "(...) to identify with a character means seeing the character's perspective as one's own, to share his or her existence. Achieving such an altered state of awareness relies upon transportation into the story world" (Klimmt et al., 2009, p. 353). Transportation can be seen as the "extent to which individuals become "lost" in a story" (Escalas, 2004, p. 37). Green and Brock (2000) based their ideas about the transportation theory on the conceptualization given by Gerrig (1993):

> *"Someone ("the traveler") is transported, by some means of transportation, as a result of performing certain actions. The traveler goes some distance from his or her world of origin, which makes some aspects of the world of origin inaccessible. The traveler returns to the world of origin, somewhat changed by the journey (…)"* (Green & Brock, 2000, p. 701).

The user is called the traveler to explain the process a user goes through when encountering a mediated world. In extreme terms, the so called ‘world of origin’, thus the reality, will be inaccessible for the so called traveler. This can happen physically, for instance when the user does not notice anyone around him or her. But most importantly this can occur psychologically, when the traveler is "subjective distancing from reality" (Green & Brock, 2000, p. 702). Some scholars (e.g. Green, Brock, & Kaufman, 2004) use the transportation theory to explain the concept of media enjoyment. However, for this study the transportation theory is interesting because of other complex matters. On one hand, the transportation theory is interesting for this study because of the link with identification, on the other hand it is even more interesting for the link with persuasion. Because transportation into a mediated world could lead to persuasion (Escalas, 2004; Green & Brock, 2000). Therefore, this study suggests that the process of identification during the media usage, affects the degree to which someone gets transported to the mediated world and feels present in that mediated environment, which subsequently could affect the degree to which the user feels persuaded by the medium. Therefore, the following section will explain the use of the concept persuasion in this study.

2.3. Persuasion

The attempt to analyse persuasion as concept is not something new, as it goes back to the ancient Greece. Back then, Aristotle already attempted to find out what factors made something persuasive. He started the idea to distinguish persuasion into three parts: ethos, pathos, and logos (Ruggiero, 2014). Ethos refers to the persuader's trustworthiness, so the credibility of the source. Pathos refers to the goodwill, or willingness of the receiver. Logos is the argument that is considered reasonable and appealing to the receiver (Ruggiero, 2014, p. 3). Three parts that affect the persuasiveness of a message in general. However, this study focuses on the media video and persuasive games. As persuasive games are developed to be persuasive, it is the question what factors make in particular persuasive games persuasive.

According to Bogost (2007), persuasive games can employ a so called *procedural rhetoric* (p. 2). This is according to him the power of persuasive games. Bogost (2007) defines the procedural rhetoric as "the practice of persuading through processes in general and computational processes in particular" (p. 3). A game can simulate processes that are actually happening in the real world, and a player can experience these processes and learn how it works because the player is interacting in this “rule-based representation” (Bogost, 2007, p. preface ix). According to Bogost (2007) this has a strong persuasive power because it is more than just “spoken words, writing, images or moving pictures” (p. preface ix). De la

Hera (2013) expands on the ideas of Bogost (2007) about the "procedural nature" (De la Hera, 2013, p. 2) of digital games and proposes a model to the study the characteristics that make persuasive games persuasive. De la Hera (2013) argues that there are many more characteristics than just Bogost's procedural rhetoric that makes a persuasive game persuasive.

In order to understand these characteristics, she first emphasizes that the players' cognitive frames, which is how players organize their view on the world, can be influenced by personal issues happening in the real world, but can also be constructed by the use of metacommunication. Metacommunication is the "capacity of persuasive games to influence players' attitudes" (p. 4). In sum, a persuasive game has the power to construct cognitive frames to influence the attitudes and beliefs of the player in the game world, but also in the real world (De la Hera, 2013, p. 4). She argues that there are persuasive structures within persuasive games. By proposing the persuasive structures, she also emphasizes that persuasiveness of digital games is constructed by eleven persuasive dimensions, distributed over three levels of persuasion; the representational world, the system and the context (pp. 3-4). These levels are for instance about the visual signs, about the rules and narrative of the game, and about the ways to generate cognitive frames. It is a practical model which is useful for a theoretical examination of the persuasive characteristics of a persuasive game. However, De la Hera (2013) does emphasize that players are not persuaded by all the dimensions individually, but that it is about the relationship between the dimensions that are established while playing the game. These relationships between the dimensions, the combination of several dimensions is what can make a persuasive game persuasive and help to change someone's attitude. Because, as Perloff (2003) argued, persuasion is "the study of attitudes and how to change them" (p. 4).

So, if a persuasive game is indeed persuasive because it established relationships between the dimensions, its goal is to change or reinforce the player's attitude. Therefore, attitude change will be discussed in subsection 2.3.2., followed by subsection 2.3.3 in which a link will be made to the importance of the previous discussed ethos, or in other words, the credibility of the source. In addition, subsection 2.3.4. is used to discuss willingness to help, which can also be considered as a component of someone's attitude. But first the concept of persuasion will be defined in subsection 2.3.1..

2.3.1. Defining persuasion

Persuasion is defined by many scholars. The concept contains many different factors and can have many different outcomes, and therefore the concept has many different definitions. For instance, according to O'Keefe (2004) persuasion involves, in its most basic form, "changing persons' mental status" (p.32). Fogg, Cuellar, & Danielson (2009) are more

precise but still a bit short by defining persuasion as *"a non-coercive attempt to change attitudes or behaviors"* (p. 134). In addition, Perloff (2003) combined the strengths of definitions given by other scholars, in order to create one "unified perspective" (p.8) on the concept of persuasion, which resulted in the following definition:

> *"A symbolic process in which communicators try to convince other people to change their attitudes or behavior regarding an issue through the transmission of a message, in an atmosphere of free choice"* (p.8).

Perloff (2003) elaborates on this definition by dividing it into five components that seem to be important in all the previous definitions (pp. 8-12). First of all, persuasion is a process. Persuasion does not happen all of a sudden, it is a process that takes time. Secondly, the source tries to convince, it is an attempt to influence the receiver. Even though the attempt may not work, the persuader needs to have the intention to persuade. Thirdly, Perloff (2003) emphasizes that people persuade themselves. The persuader only provides the arguments, but can not force the receiver to be persuaded. The fourth component is about the fact that "persuasion involves the transmission of a message (...). Persuasion is a communicative activity" (p.11). If there is no message, there is no persuasion. Lastly, there needs to be free choice when speaking of persuasion. As emphasized before, persuasion is defined by many scholars and the non-coercive nature is one of the most important aspects. If force is needed to persuade someone, then it can not be considered as persuasion (Fogg et al., 2009; Perloff, 2003).

This line between persuasion and coercion seems to be very clear; coercion employs force while persuasion does not. However, there can be a relation between the two (Perloff, 2014). Coercion would be defined as "a technique for forcing people to act as the coercer wants them to act" (Perloff, 2003a, p. 13). However, Perloff (2013) refers to Smith (1982), who argues that it depends more on the interpretation of the receiver; if an individual believes he or she is free to reject, than it is persuasion. If the individual is free to reject, but feels like he or she is not, and thus the individual perceives it as he or she has no choice, than the attempt to influence can be considered as coercion. Which makes the line between the two blurred, as a messenger may not uses force to influence, but the receiver may feel it that way. Therefore, in order to be sure that the receiver does not feel forced, it must be made sure that he or she knows that every answer is accepted. Only then any kinds of attitude change can be considered as persuasion.

Besides the process of persuasion, there also comes a moment that someone is or feels persuaded. According to Miller (2002) someone is persuaded "when they have been induced to abandon one set of behaviours and to adopt another" (p. 6). Moreover, Miller (2002) distinguishes three outcomes of persuasion; (1) Being persuaded as a Response-

Shaping Process, which can be compared with learning, (2) Being persuaded as a Response-Reinforcing Process, this aims for reinforcing attitudes, instead of changing them. (3) Being persuaded as a Response-Changing Process, which is the most typical thought when people think about "being persuaded". In this process 'being persuaded' equates with 'being changed', and can be seen as the outcome a persuader would prefer to have (pp. 6-11). O'Keefe (2004) agrees with Miller's (2002) notion on the different outcomes of persuasion, as he also argues that persuasion is not just about changing someone's attitude, but sometimes it is also about reinforcing someone's attitude (p. 32). The previous given definitions emphasizes the fact that persuasion is a process. Someone's behaviour can not change, unless their attitude towards a certain subjects is changed first. Therefore, this study will not focus on behavioural change, but just focus on attitude change, as a starting point of studying persuasion. Therefore, the following section will be about attitude change, and how to measure it.

2.3.2. Attitude change

Perloff (2003) emphasizes the fact that everyone has attitudes, "we've got attitudes as surely as we have arms, legs, cell phones, or personal computers" (p.4). But people do not notice how much their attitudes shape the way they see the world. It is, however, the question to what extent someone's attitude can be changed or reinforced by persuasive communications, and in addition how to know if someone's attitude has changed. There are many scholars that try to theorize how to measure attitude change. An example of a much used model to understand the process of persuasion is The Elaboration Likelihood Model (ELM), developed by Petty and Cacioppo (1986). The ELM is a framework to organize, categorize, and understand the processes of persuasive communications that can affect someone's attitude (Petty & Cacioppo, 1986).

It is called the Elaboration Likelihood model, as the model is about the amount of "issue-relevant elaboration in which people are willing or able to engage to evaluate a message" (Petty & Cacioppo, 1986, p. 128), which in turn depends on individual and situational factors. The specific 'elaboration' in this persuasive context is about the extent to which the receiver thinks about the message and it's issue-relevant arguments (p. 128). If people are willing and able to engage in the issue-relevant thinking, then the so called "elaboration likelihood is high" (Petty & Cacioppo, 1986, p. 128). When the elaboration likelihood is high, it means that the receiver is likely to "attend to the appeal" (p.128), which basically means that the receiver will think thoroughly about the message and issue-relevant arguments, elaborate on in it, and evaluate them, in order to derive an attitude towards the message or recommendation. Thus, the ELM is a model to understand the process of persuasive communications that can affect someone's attitude (Petty & Cacioppo, 1986). To

outline this model, the term ‘attitude’ needs a definition. Petty and Cacioppo (1986) define attitudes as:

> *"General evaluations people hold in regard to themselves, other people, objects, and issues. These general evaluations can be based on a variety of behavioral, affective, and cognitive experiences, and are capable of influencing or guiding behavioral, affective, and cognitive processes"* (p.127).

According to the ELM, someone can be persuaded when their issue-relevant elaboration is high or low. However, the processes and results of persuasion are different in both situations (Petty, Briñol, & Priester, 2009, p. 132). The model contains two routes a receiver could cognitively take to persuasion: the central route and the peripheral route. When the receiver is cognitively active and pays high attention to the message, experiences and knowledge to gain all the information, in order to determine the central essentials of the persuaders’ position, then the receiver takes the central route. After actively thinking about the message, the final step of this route is "integrating the new thoughts into one's overall cognitive structure" (Petty et al., 2009, p. 132). In contrast, there is the peripheral route. The ELM remarks that attitude change does not always indicate an active evaluation of the persuasive message, presented by for instance the media. When a person's motivation or ability to actively think about the presented information, so the issue relevant elaboration, is low, simple cues in this peripheral route can influence attitudes as well (Petty et al., 2009, p. 135). Besides that the ELM explains the process of how someone is persuaded, there are also some studies that studied whether people’s attitudes or opinions were actually influenced or changed by the use of persuasive games (e.g. Neys & Jansz, 2010; Peng et al., 2010; Wilson & Lu, 2008). For instance the study from Neys and Jansz (2010), in which they studied the sides that deal with persuasive games; the side of the developers of the games, in order to hear their opinion about the expressive and engaging power of these game, and the side of the players, in order to study the impact of a political game.

During interviews the developers made clear that they wanted to create awareness and stimulate debate with the political games (p. 6). The developers "explicitly" make use of the "expressive functions and power of digital game" (p. 12), as it is an easy way to show complex problems or situations. On the other end of the medium, there are the players. According to this study the intentions of the developers seemed to be answered, as the results of the second study of Neys and Jansz (2010) showed that the political game had a positive impact on the knowledge and opinion of the players about the addressed issue. Following the findings of Neys and Jansz (2010), and referring back to the discussion about ‘being in a state of flow’ when playing a game in subsection 2.3., about which Ruggiero

(2014) argues that someone can assimilate knowledge better in this state, the following can be expected:

> *Hypothesis 2:* Someone's knowledge about a complex situation will increase more after playing a persuasive game than after watching a video

In order to have an impact on, for instance knowledge and opinion, or in order to have a chance of changing someone's attitude, the receiver has to trust the messenger. If there is no trust, there can be no persuasion (Fogg et al., 2009). Therefore, the perceived *source credibility* is an important aspect of persuasion that needs clarification.

3.2.3. Source Credibility

Source credibility can be described as *"A perceived quality made up of multiple dimensions"* (Fogg et al., 2009, p. 141). It is about the perception of the user, the user has to perceive the source as credible. Fogg et al. (2009) discuss' two key dimensions, which are important for a source to be credible. The first dimension is *trustworthiness*. The user has to think the source is telling the truth or shows reality. The other dimension is *expertise*; the source has to be an expert, and the source has to know the facts.

In addition, to refer back to the ELM, source credibility is considered as one of these previous mentioned simple, or peripheral cues. Petty and Cacioppo (1986) argue that peripheral cues like source credibility are much more important and have more effect on someone's attitude when the personal relevance and the user's issue-relevant elaboration is low (p. 160). According to Petty and Cacioppo (1968) argue that "credibility enhances persuasion when distraction is high" (p.161). Thus, when someone is distracted, simple cues as source credibility become more powerful aspects of influence. Thus, Petty and Cacioppo (1968) conclude that credibility can affect persuasion in many ways, but the ELM defines credibility as a peripheral cue, which is most powerful when the receiver's issue-relevant elaboration is low. Following this conclusion, it could mean that the credibility of the source becomes more important when someone is watching a video, rather than when they are playing a game. Just because playing a game demands more attention and thinking of the user, than watching a video. Therefore, it is important to measure how credible someone thinks the medium is, before measuring their feeling of persuasion. Following the ideas of Fogg et al. (2009) and Petty and Cacioppo (1968), the following hypothesis will be tested;

> *Hypothesis 3:* The higher the perceived credibility, the higher the feeling of persuasion

Besides the measurements that are important to measure the persuasiveness of a medium, there are also measurements to measure someone's attitude, and perhaps someone's

attitude change. The degree to which someone is willing to help is a great measure of someone's attitude towards a certain complex situation. In addition, it is an aspect of attitude that is changeable. Therefore, the extent to which someone is willing to help others, the concept of willingness to help will be explained in the following subsection.

2.3.4. Willingness to help

"Helping behaviour involves at least two parties; a person or a group of people providing help and a person or a group of people receiving help" (Koster, 2007, p. 538).

Willingness to help as a concept is not difficult to define, as it has the core meaning in its name. Koster (2007) does define certain aspects of willingness to help, of which the aspect of *learning* is the most interesting one for this study. Learning refers to the information people have or want to learn. Moreover, Neys and Jansz (2010) call this concept of learning "*individual facilitation" (*p.6). They use this element in combination with "*social facilitation",* in order to measure behavioural change after playing a political game. Individual facilitation was measured by asking the intention of the participants to obtain more information about the issue in the game. Social facilitation refers to the need the participants has to interact with their friends or family about the issue. In their research, they found out that playing the political game and therefore expressing "a political self through the game" (p.11), might have resulted changes in the real world; a quarter of the participants wanted to obtain more information and more than a half wanted to interact with friends about it (Neys & Jansz, 2010, p. 11). According to Koster (2007), this learning aspect, or in the words from Neys and Jansz (2010), the individual facilitation and social facilitation can be considered as a start of changing attitudes. In addition, Koster (2007) emphasizes that if the obtained information by the users is positive, people are more willing to learn and therefore more willing to help. Following the ideas and findings from Koster (2007) and Neys and Jansz (2010), in combination with theories on attitude change and persuasion from Petty and Cacioppo (1968), De La Hera (2013) and Bogost (2007), it can be expected that:

> *Hypothesis 4:* People's perspective on learning increases more after playing a game than after watching a video

Besides the perspective on learning about an issue, willingness to help can also be considered as something that can be changed. However, empirical research on persuasive games with a focus on the willingness to help is scarce. Lavender (2008) wanted to test the effectiveness of persuasive games on the willingness to help homeless people. Volunteers first filled in a survey about homeless people, then played a digital game about the homeless, or read a short story about homeless people, or did nothing. Two weeks later, the volunteers received the same survey. There was no change in knowledge or interest and therefore no

big change in attitude towards homeless people. However, the sympathy towards the homeless was higher after playing the game, than after reading a short text. In addition, Peng, Lee, and Heeter (2010) also provided the empirical world with some new knowledge about the subject.

Peng et al. (2010) first compared the change in willingness to help of people after playing a persuasive game and after reading a text, by using a pre-test and post-test design. For this study they used the persuasive game Darfur is Dying, and a text with information about the Darfur crisis. For the study, 132 undergraduates received a pre-test questionnaire to measure their knowledge and issue involvement before playing the game or reading the text. After playing the game or reading the text, they received a post-questionnaire which measured, among other things, willingness to help. They found out that the respondents who played the game were more willing to help residents of Darfur, in comparison with the respondents who read the text. In addition, a second study of Peng et al. (2010) analyzed whether the willingness to help depends on interactivity. They compared a condition in which respondents played the game themselves, and a condition in which the respondents could only observe the game. This study also showed greater willingness to help from people who played the game, than from people who just watched someone playing the game. Following the findings from Peng et al. (2010), the following can be expected for this present study:

> *Hypothesis 5:* The willingness to help increases more after playing the game than after watching a video

Looking back at this chapter, it can be stated that someone's knowledge, someone's perspective on learning, and someone's willingness to help are all elements of someone's attitude towards a pressing issue. Therefore, in this study these elements will all be first order elements of the second order element 'attitude change'. As hypothesis 2, 4, and 5 all expect that playing the game will be more effective than watching the video, the following can be expected to combine all the attitude change elements:

> *Hypothesis 6:* Someone's attitude towards a complex situation will change more positively after playing a persuasive game than after watching a video

In order to structure what concepts will be used and measured in this research, the following subsection will give a short summary of all the discussed concepts and theories.

2.4. In sum

To summarize this chapter, the main difference between persuasive games and videos is the difference in interactivity. After discussing previous theories on interactivity and researches

on interactivity in relation to identification (e.g. Hefner et al., 2007; Klimmt et al., 2009), this study expects that the interactivity of a medium can influence the degree to which someone can identify with the main character. For this study the identification process is divided into two levels; identification similarities and identification based on embodied presence, which are mainly based on the theories of Van Looy et al. (2012). In addition, this study argues that the interactivity of the medium and the degree to which someone identifies with the media character in the medium, has an effect on the mediated experience of the user, and therefore the persuasion. Also, it is argued that the credibility of the source, so the credibility of the medium can also influence the persuasion (Fogg et al., 2009; Koster, 2007). Therefore, for this study persuasion is measured by dividing it into source credibility and the feeling of persuasion of the user. However, as cited before by Perloff (2003), persuasion is "the study of attitude's and how to change them" (p. 4). Therefore, attitude change is discussed and divided into three different aspects of someone's attitude that can actually change by the use of a medium; someone's knowledge, someone's perspective on learning, and someone's willingness to help.

All these aspects will be analyzed in this study, in order to find if there are differences between the interactive medium persuasive game, and the non-interactive medium video.

After finding possible differences, the main research question can be answered, which is as followed:

> *"To what extent is a teen's degree of feeling persuaded after playing a persuasive game different from the degree of feeling persuaded after watching a recorded game play; a video?"*

To add to this chapter, following previous research all the discussed concepts of identification, source credibility, and persuasion could affect the feeling of persuasion of the media user. Therefore, with respect to the main question, the following can be expected:

> *Hypothesis 7:* The degree of feeling persuaded is higher after playing a persuasive game, than after watching a video

In addition, as the research question also says, this study will focus on teens from 16 to 18 years old. By focusing on teens the scientific relevance increases, as not many studies are focused on teens. Therefore, this study will expand on the previous studies, which is especially relevant because digital games become more and more popular among particularly teens and young adults (Lenhart et al., 2008). In addition, this study will also contribute to this field by aiming for a better understanding about the differences of different kind of media and how this can be used as an advantage. As argued before, because of the growing popularity it is important to know if and how the power of media can be used in a

useful way. Which also refers to the societal relevance of this study, as it will give a better understanding in the possibilities of persuasive games and videos. These possibilities can, for instance, be used for educational and behavioral purposes.

The following chapter will discuss the methodology of this research. The use of Against All Odds as a game, and the use of Against All Odds as a video will be explained. In addition, the quasi-experimental research with the use of a pre-test and post-test design will be explained, in combination with an explanation of how identification, persuasion, and attitude change will be measured and used as variables in this research.

3. Method

This explorative study aimed to examine differences in the degree to which someone feels persuaded after using a non-interactive medium in comparison to using an interactive medium. In this case the interactive medium was the persuasive game Against All Odds, and the non-interactive medium was an edited recorded game play of the same game, thus used the game used as a video. In the game it is possible to choose your own character. Therefore, in order to maintain equal chances for the identification process, two videos were made; one video with a male main character for male participants, and one video with a female main character for the female participants (Link to videos and screenshots characters in appendix 1).

This study used a quasi-experimental research design, with the use of a pre-test and post-test design. The type of medium is used as an independent variable with two conditions; playing game (interactive) and watching video (non-interactive). The dependent variables are; identification, with respect identification similarities and identification based on embodied presence, persuasion with respect to source credibility and feeling of persuasion, and attitude change, measured with respect to knowledge, perspective on learning, and willingness to help. All the participants were asked to fill in a questionnaire before playing the game or watching the video, which was used as pre-test. In addition, the participants were asked to fill in a questionnaire after playing the game or watching the video, which was used as post-test.

To analyse the differences between the two conditions, two analyses are done, which are explained in chapter 4. In this chapter, first the used stimuli will be discussed in subsection 3.1.. Subsection 3.2. explains the used sample, and subsection 3.3. discusses the procedure of the research. Lastly, subsection 3.4 explains the important dependent variables that were included in the questionnaire and the new variables that were computed.

3.1 Stimuli

For this study the game Against All Odds is used in the game condition, and a recorded game play of this game is used as the video for the video condition. Against All Odds is a web-based game, and is developed by workers from the United Nations of the High Commissioner for Refugees (UNHCR), in order to raise the player's awareness and increase their knowledge about refugees (UNHCR, 2007). In 2005 the game was originally released in Swedish, but it is translated into 11 different languages; Danish, Greek, Russian, Finnish, Spanish, French, Norwegian, German, Icelandic, Estonian, and English.

Against All Odds is a role-playing game, in which the player takes over the role of a

refugee (Link of the game in appendix 1). In total, there are twelve different stages to play, starting from the persecution and fleeing from the refugee's native country, to the eventually integration into another country as an asylum seeker (UNRIC, n.d.). According to the developers, the game is aimed at children from the age of 12, because at that age they start to create ideas about refugees and other similar issues (UNRIC, n.d.). Besides the information the player gets while playing the game, the player can also read the web facts. The web facts section in the game provides important refugee information articles and resources. For this study only the first chapter, called 'War and Conflict', is used. The participants need to play all the four stages of this chapter, in order to succeed and leave the country as a refugee. Before the player can start the game, he or she has to choose a character and enter his or her name. Then they go to the first stage of the first chapter.

This stage starts with an interrogation, because the police in the country of the main character in the game suspects that the main character, thus the player, has "dissenting opinions". The player gets 10 statements to which they have to respond. These statements are along the lines of "*I give up the right to vote*" (see image 2). To succeed the player needs to answer '*yes*' on every statement, otherwise the character in the gets hit and will not be able to survive. After finishing this stage, the player has to flee the city. First the player has two minutes to pack his or her small bag before the police come. After this the player needs to lead the refugee out of the city without getting caught by the guards, by running through the city using the arrow buttons. After making the right choices and choosing the right way, the next goal is to flee the country in a truck. The player has to make some difficult decisions to make it the end of the game. For instance, at one point the player has to decide who to leave behind, as there is not enough space in the truck (see image 3). All these decisions can change the outcome, and can change whether the player succeeds to leave the country or not. At every stage the decisions of the player can mean the character's death. If this happens, the player has to try again and play the whole stage again.

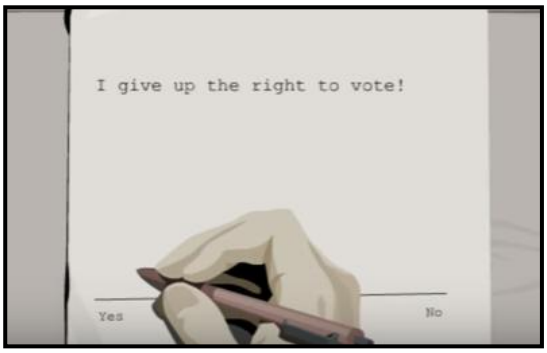


Image 2: Interrogation part Against All Odds

Image 3: Difficult decision in Against All Odds

In order to be able to make a good and reliable comparison between the interactive medium and the non-interactive medium, the video in this current study contained parts of a

recorded game play, and was edited by the researcher of this study. In this way, it was made sure that the content and information given to the participants was the same in the game as in the video. By constructing the video on the basis of a recorded game play, the narrative of Against All Odds was protected. In order to make sure that the identification process was not affected by gender, two videos were made. One video in which the main character is a male, and will be used for male participants. In addition, in the other video the main character is a female, and will be used for female participants. (Link to videos on YouTube in Appendix A).

The video also starts by choosing a character and giving a name to it, just like in the game. The male character is called Mohammed in the video, the female character is called Fatima in the video (Screenshot of characters and their names in Appendix A). In both videos happens the same and they are both 06:12 minutes long. These videos also show all the four stages of the first chapter, and in the end the main character in the video managed to flee the country. At the interrogation part, the main character in the video gets hit one time, to show the participant what happens when the refugee does not answers "*yes*" on every statement. Because playing the game takes longer than 06.12 minutes, the recorded game play parts were edited into the video. For instance, loading screens or very long non-playing parts in the game were cut out, but it was made sure that the video had as much and the same content and information as the whole game.

3.2 Sample

In total 161 participants took part in this study. 87 participants played the game and 74 participants watched the video. The study took place at two high schools in the Netherlands: Emmauscollege in Rotterdam and Oosterlicht College in Nieuwegein. All the respondents in this study were in their fifth year of the pre-university education on one of these two high schools, and were all between 16 and 18 years old. There were 11 participants who did not tell their gender, 85 participants were female, of which 45 participants were assigned in the game condition, and the remaining 40 female participants were assigned in the video condition. In total there were 65 male participants, of which 34 were assigned in the game condition, the remaining 31 male participants were assigned in the video condition. Gender was equally distributed, $\chi^2(1, N=150) = 2.67$, $p = .102$.

3.3. Procedure

The first school was the Emmauscollege in Rotterdam. After having contact with one of the civic social science teachers, who teaches 6 classes in the fifth year of pre-university education, an appointment was made to conduct the research in four classes on a Monday, and two classes on a Tuesday. Because they had classes of 40 minutes on Monday, and classes of 50 minutes on Tuesday, it was decided to let the first three classes on Monday watch the video, as playing the game could take a little bit more time than watching the

video. The last class of the day had a little bit more time, as there was no class afterwards. Therefore, the last class of the day became participants for the game condition. The students in the classes of Tuesday also became participants for the game condition. All classes consisted of approximately twenty to twenty-five students.

The research was conducted in a computer lab in the school itself. All the participants per class took a place behind a computer and the researcher introduced the research. In this introduction it was explained that the research was about refugees. They had to log into their own school account, and go to the website, of which the link was written on the white board. This link directed them to the first online questionnaire (Appendix B). In the video condition, before the participants started the first online questionnaire, it was explained that after finishing the first page with questions, they would go to the second page, on which just a YouTube video was shown. The video was shown next to the question to give a grade to the video. It was pointed out that they had to put on the headphones before starting the video. The last question of the first questionnaire asked the gender of the participant. The questionnaire was programmed to lead male participants to the video with a male main character, and lead the female participants to the video with a female main character. After watching the video, the next page showed the second online questionnaire (Appendix C). The participants were also asked to stay quietly in the class if they finished the second questionnaire. Firstly to let others finish quietly, but also because at the end of each class, when everyone finished the two questionnaires, a VVV-cheque of €7,50,- was raffled.

For the game condition the procedure went almost the same. In the introduction it was explained that the participants had to play a game after finishing the first page of the online questionnaire. In the original set up of the logistics, it was planned to already open the game into another tab before the participants would enter the room. However, because they had to log in into their own school account this was not possible. Therefore, the explanation in the questionnaire was not correct because it says that the participant had to open the other tab with the game. This was explained in advance, and the participants were asked to copy the link that was presented in the questionnaire as well, into another tab themselves. This went smoothly. In addition, it was explained that the participants had to play the whole first chapter of the game, which is called ‘War and Conflict’, and that they had to go on with the second online questionnaire when they managed to flee the country in the game. After answering the first online questionnaire, the participants went to the second page of the online questionnaire, on which was explained how to start playing the game, after it was opened in a new tab. After finishing the second questionnaire the participants were asked to stay in class quietly, in order to let others finish and to win a VVV-cheque of €7,50,-. Most of the participants started to play the rest of the game, after finishing the final questionnaire.

On the Oosterlicht College the procedure went the same. The class tested in this

school participated in the game condition. The following section will discuss the important variables that were included in the questionnaires.

3.4. Variables in questionnaires

The questionnaire consisted of the following variables: identification, persuasion and attitude. All these variables are questioned with theoretically corresponding items. In order to combine the items into useful and comparable variables, a Factor Analysis was done. The Factor Analysis combined items that belong together and could make a new variable. In addition, a reliability test measured the internal consistency of these items, thus whether they can be computed into a new variable or not. In this subsection all the used items, the Factor Analyses, the reliability tests and the new variables are discussed.

3.4.1. Items for Identification

Identification was split into two theoretical variables; *Identification Similarities* and *Identification Embodied Presence*. For Identification Similarities 6 items from Van Looy et al. (2012) were used. The questions all started with "*The main character…",* the questions then consisted out of the following statements *"...thinks like me", "...behaves like me", "...is comparable to me", "...shares the same values as me", "...treats other people like I do", and "...looks like me."* For Identification Embodied Presence also in total 6 items were used. Three of these items were also adapted from Van Looy and his colleagues; *I became one with the main character in the game/video", "It felt like I was the main character in the game", "It felt like the movements of the main character in the game/video were my own".* Two of the items were adapted from Green & Brock (2000); "*During the game/video, I had no attention for the real world"* and *"I lost myself in the game."* The final item was based on a question from Hefner et al. (2007), which was "*The goals of the main character in the video/game became my own goals."* All the 12 items were questioned using a 7-point scale (1= *Totally disagree*, 7 = *Totally agree*).

Using a factor analysis (KMO = .86), two factors (with Eigenvalues exceeding 1) were identified, explaining in total 66.40% of the variance. Table 1 shows how the items loaded on a factor. The theoretical based variables, which are used in previous research as well, are clearly confirmed. First, an identification score based on similarities was calculated by averaging all 6 items (α = .90). Secondly, an identification score based on embodied presence was calculated by averaging all 6 items (α = .89). Thus, two new variables were computed, called '*Identification similarities'* and '*Identification embodied presence'.*

Table 1: Factor and reliability analyses for scales for identification (N = 161)

Items	Factor 1: Similarities	Factor 2: embodied presence
…looks like me	**.836**	
…is comparable to me	**.800**	
…acts like me	**.799**	
…shares the same values as me	**.759**	
…treats others like I do	**.754**	
…thinks like me	**.736**	
I became one with the main character in the game/video		**.920**
It felt like I was the main character in the game/video		**.797**
I lost myself in the game/video	-.124	**.754**
During the game/video, I had no attention for the real world		**.738**
It felt like the movements of the main character in the game/video were my own		**.723**
The goals of the main character in the video/game became my own goals		**.609**
Cronbach's α	.90	.89

3.4.2. Items for Persuasion

Persuasion was also split into two variables; source credibility and feeling of persuasion. Source credibility was questioned with 4 items, all constructed in this study on the basis of information given by Fogg et al. (2009) about the credibility dimensions trustworthiness and expertise, and items used by Wilson and Lu (2008), which resulted in; "*This video/game shows the reality", "I believe what is shown in the video/game", "After playing the game/after watching the video, I know more about the life of a refugee than before"* and *"This game/video clearly shows the facts".* The second variable is the participants *Feeling of persuasion*, which measured to what extent the participant thinks he or she changed his or her mind and thoughts about refugees. In total 4 items measured the feeling of persuasion, of which one item, "*This video/game made me more aware of the severity of the problems that refugees have to deal with",* was adapted from Smalec & Klingle (2000). The other three items were constructed during this study, but based on theories about attitude change from Petty and Cacioppo (1986), Perloff (2003), and Miller (2002), but also from research on persuasive games from Neys and Jansz (2010) and De Grove et al. (2012). The items were as follows; *"This game changed my attitude towards refugees", "By playing this game/watching this video, I became more worried about the life of the refugees than before",*

"This game changed my opinion about refugees." All the 8 items were questioned using a 7-point scale (1= *Totally disagree*, 7 = *Totally agree*).

Using a factor analysis (KMO = .76), two factors (with Eigenvalues exceeding 1) were identified, explaining in total 62.66% of the variance. Table 2 shows how the items loaded on a factor. The theoretical based variable are confirmed: a persuasion score based on source credibility was calculated by averaging 3 items (α = .86). The factor analysis combined all 4 items in the factor, but a closer examination indicated that Cronbach's alpha would increase significantly if item *"After watching the video/game, I know more about the life of a refugee than before*" was deleted. Secondly, a persuasion score based on feeling of persuasion was calculated by averaging all 4 items (α = .76). Thus, two new variables were computed, called '*Source Credibility'* and *'Feeling of persuasion'.*

Table 2: Factor and reliability analyses for scales for persuasion (N = 161)

Items	**Factor 1: Source credibility**	**Factor 2: Feeling of persuasion**
This game/video clearly shows the facts	**.899**	
This video/game shows the reality	**.819**	
I believe what is shown in the video/game	**.771**	
After playing the game/after watching the video, I know more about the life of a refugee than before	**.392**	.127
This game changed my attitude towards refugees		**.792**
By playing this game/watching this video, I became more worried about the life of the refugees than before		**.739**
This game changed my opinion about refugees		**.685**
This video/game made me more aware of the severity of the problems that refugees have to deal with	.272	**.379**
Cronbach's α	.86	.76

3.4.3. Items for Attitude

The pre-test and post-test parts had three different variables. First of all the participants *Knowledge* was questioned by using 5 items, based on the first stage of the first chapter of the game Against All Odds itself. In this part the main character is called for an interrogation, and he or she needs to answer 10 statements with "yes" or "no". In total 5 of these

statements are changed into a statement for the question, which resulted in "*In the countries of the refugees, it is okay to be homosexual*", "*Refugees flee because they want to", "The police in the countries of the refugees, treats the citizens with respect", "Refugees are free to leave their country and travel the world", "Refugees have enough time to think about the choice of leaving their country."*

Secondly, the *Perspective on learning* was questioned using 4 items. One question was based on the theory of social facilitation from Neys and Jansz (2010), and adapted from Peng et al. (2010), ("*I will talk more about the refugee crisis with my friends and family*"), and three questions inspired by questions from Jackson and Esses (2000), information from Koster (2007) and the theory of individual facilitation of Neys and Jansz (2010). The questioned are adjusted to this study, as they needed to specifically question to what extent the participant thinks they, and other people should learn more about the refugee crisis, which resulted in the following items; *"People should learn more about the problems of refugees", "I want to learn more about the refugee crisis",* and *"The EU should inform EU citizens better about the lives of refugees."*

The third variable is *willingness to help*, also measured with 4 items of which 1 item was inspired by information from Wilson and Lu (2008) and Peng et al. (2010); "*I would donate €1,- to help refugees, if someone would ask for it".* In addition, *"I would volunteer to help refugees, if someone would ask for it"* was also adapted from Wilson and Lu (2008). The last two were adapted and inspired by the information from Koster (2007) and again Peng et al. (2010); *"I want to help refugees if I can", "I would be prepared to truly do something to help the refugees in our country")*. These items questioned the participant's willingness to help refugees. All the 13 items were questioned using a 7-point scale (1= *Totally disagree*, 7 = *Totally agree*). Therefore the questions on about Knowledge had to be recoded into reversed codes, as the lower the answer the better their knowledge.

Starting by analysing the questions on knowledge, perspective on learning, and willingness to help in the pre-test, a factor analysis (KMO = .79), identified four factors (with Eigenvalues exceeding 1), explaining in total 69.09% of the variance. For the post-test, with the same questions asked for the second time, a factor analysis (KMO = .84), identified only three factors (with Eigenvalues exceeding 1), explaining in total 67.74% of the variance. Therefore, for the pre-test and post-test, three factors using the same questions for the pre-test and the post-test were used in order to enable the required comparison between the pre-test results and post-test results. Table 3 shows how the items loaded on a factor.

The knowledge factor was calculated by averaging 3 items (Pre-test: $\alpha = .60$, post-test: $\alpha = .82$). The two items "*Refugees flee because they want to themselves"* and "*Refugees have enough time to think about their choice to leave the country"* are excluded from the calculations, because these questions did not fit in the variables according to the

factor analysis. The perspective on learning factor was calculated by averaging all 4 items (pre-test: α = .75, post-test: α = .87). The willingness to help factor was calculated by averaging all 4 items (Pre-test: α = .88, post-test: α = .86). Thus, six new variables were computed; '*Pre-test Knowledge', 'Post-test Knowledge', 'Pre-test', 'Perspective on learning', 'Post-test Perspective on learning', 'Pre-test Willingness to help'*, and '*Post-test Willingness to help'.*

Table 3: Factor analysis for scales for attitude (N = 161)

	Factor						
	Pre-test				Post-test		
Items	**1: Knowledge**	**2: Perspective on learning**	**3: Willingness to help**	**4: Rest**	**1: Knowledge**	**2: Perspective on learning**	**3: Willingness to help**
I would be prepared to truly do something to help the refugees in our country			**1.018**				**.759**
I would volunteer to help refugees, if someone would ask for it			**.935**				**.874**
I want to help refugees if I can			**.934**			.365	**.422**
The EU should inform EU citizens better about the lives of refugees		**.301**	.336			**.771**	
I would donate €1,- to help refugees, if someone would ask for it			**.327**			.316	**.512**
I want to learn more about the refugee crisis		**.857**				**.728**	
I will talk more about the refugee crisis with my friends and family		**.831**				**.649**	
Refugees have enough time to think about the choice of leaving their country	**-.817**				**.738**		
Refugees flee because they want to	**-.656**				**.566**		
People should learn more about the problems refugees have to deal with	.406	**.390**				**.940**	
The police in the countries of the refugees treats its citizens with respect				.730	**.842**		
Refugees are free to leave their own country and travel the world				.543	.718		
In the countries of the refugees, it is okay to be homosexual				.477	.743		

3.4.4. Remaining questions

The first question after watching the video or after playing the game was if the participants wanted to give a school grade to the game or video, from 1 (very bad) to 10 (Very good). The game scored an average grade of 7,7 (N=86) and the video scored an average grade of 7.2 (N=71).

The participants were also asked; *"To what extent were you already interested in the life and the fleeing motives of refugees?"* All 161 participants answered the question; a small 8,0% were "extremely interested". Most of the participants, 49,7%, were "a little bit interested", 38,5% were simply "interested, and the last 6,8% were "not interested at all" .

The game condition had one extra question, questioning the gaming habits of the participants. The question was as following; *"How often do you play video games?"* The answer possibilities were; "*Never", "Less than once a week", "1-2 times a week", "3-4 times a week", "5-6 times a week",* and "*Daily."* Of all the 74 participants 38,0% of the participants said they never play games, followed by 19,5% of the participants saying they play games less than one time a week. 11,5% said they played games two to three times a week, another 11,5% said they played games four to six times a week, and the last 12,6% played games on a daily basis.

4. Results

In this section four general analyses will be discussed. First of all, by using a One-Way Between Groups ANOVA the game condition and video condition are compared with respect to the effects of the two media on the identification process, differentiated in similarities and embodied presence. In addition, the effects of the two media on the persuasion, differentiated in source credibility and feeling of persuasion, will be compared. This analysis will discussed in subsection 4.1.. In subsection 4.2., the two conditions are compared to find out whether there is a difference in attitude change, differentiated into the variables knowledge, perspective on learning, and willingness to help, by analyzing the two conditions and comparing the pretest and posttest. In subsection 4.3. an analysis is done to find out whether gaming habits, so the ability to play games, and interest in the lives and motives of refugees affect the feeling of persuasion. Lastly, in subsection 4.4. a standard multiple regression analysis is performed, to estimate the proportion to which the identification, source credibility and interest in refugees have an influence on the feeling of persuasion.

4.1. Differences between conditions on identification and persuasion

The differences between the two conditions on identification similarities, identification embodied presence, feeling of persuasion and source credibility have been be analyzed by using a One-Way Between Groups ANOVA. The means and standard deviations of the analyzed variables per condition are shown in table 4.

Table 4: Means and standard deviations per variable, per condition

	Mean (SD)	
	Game (N=87)	**Video (N=74)**
Identification Similarities	3.49 (1.29)*	3.99 (1.11)*
Identification Embodied Presence	4.45 (1.25)*	4.04 (1.28)*
Persuasion Source Credibility	5.08 (.97)	5.23 (1.05)
	Game (N=87)	**(N=70)**
Feeling of persuasion	4.13 (1.09)*	3.74 (1.18)*

*** *p* < .05, ** *p* < .001**

The ANOVA revealed that the source credibility did not differ between the game condition and video condition. However, the other three variables did differ significantly between the two conditions. The feeling of identification based on similarities differed significantly, (F(1, 159) = 7.00, p = .009). Looking at the means of identification similarities in Table 1, it can be

concluded that watching the video resulted in a higher feeling of identification based on similarities, than after playing the game. Also the feeling of identification based on embodied presence differed significantly between the two conditions ($F(1,159) = 4.37$, $p = .038$). By looking at the means in table 4 it can be concluded that playing the game resulted in a higher feeling of identification based on embodied presence, than watching the video. In addition, the feeling of persuasion also differed significantly ($F(1,155) = 4.72$, $p = .031$), the means show that playing the game resulted in a higher feeling of persuasion than after watching the video.

4.2. Effects of media usage on Knowledge, perspective on learning and willingness to help

In order to compare the game condition with the video condition and measure the impact of the two media on the participant's knowledge, willingness to learn and willingness to help, three 2x2 Mixed Model ANOVA's were conducted. In table 5 the means and standard deviations of all the pre-tests and post-tests per category and per condition are shown.

Table 5: Means and standard deviations per variable, per moment and per condition

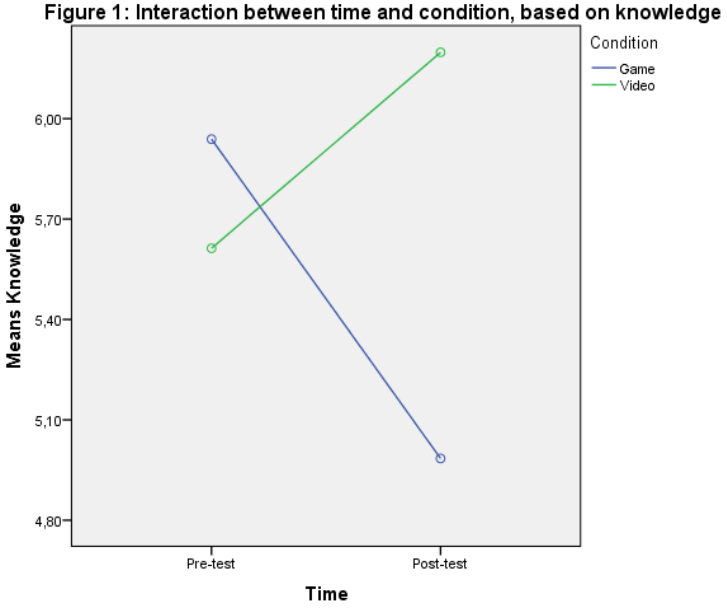
		Mean (SD)	
		Pre-test	**Post-test**
Knowledge	Game (N=87)	5.94 (.82)**	4.98 (1.60)**
	Video (N=74)	5.61 (1.04)**	6.20 (.80)**
	Total (N=161)	5.79 (.94)	5.54 (1.43)
Perspective on learning	Game (N=87)	4.95 (.99)**	4.05(1.69)**
	Video (N=74)	5.02 (.99)**	4.97 (1.09)**
	Total (N=161)	4.98 (.98)**	4.47 (1.51)**
Willingness to help	Game (N=87)	4.60 (1.30)*	4.21 (1.52)*
	Video (N=74)	4.79 (1.49)*	4.82 (1.53)*
	Total (N=161)	4.66 (1.39)	4.49 (1.55)

*** $p < .05$, ** $p < .001$**

4.2.1. Effect media usage on knowledge about the refugees

First the knowledge is tested. By calculating the F_{max} it can be concluded that the homogeneity of variance assumption for this mixed model ANOVA has not been violated. The ANOVA revealed a significant difference between the conditions $F(1, 159) = 9.464$, $p = .002$, $\eta_p^2 = .056$, and no effect on the total pre- and post-test of the conditions was obtained. However, the ANOVA does show a significant interaction between the pre-test and post-test of knowledge and condition $F(1,159) = 53.826$, $p < .001$, $\eta_p^2 = .253$. Figure 1 clearly shows the interaction effect in a plot. Looking at the plot and the means of knowledge in table 5, it is clear that the knowledge after playing the game decreases, while the knowledge after watching a video increases.

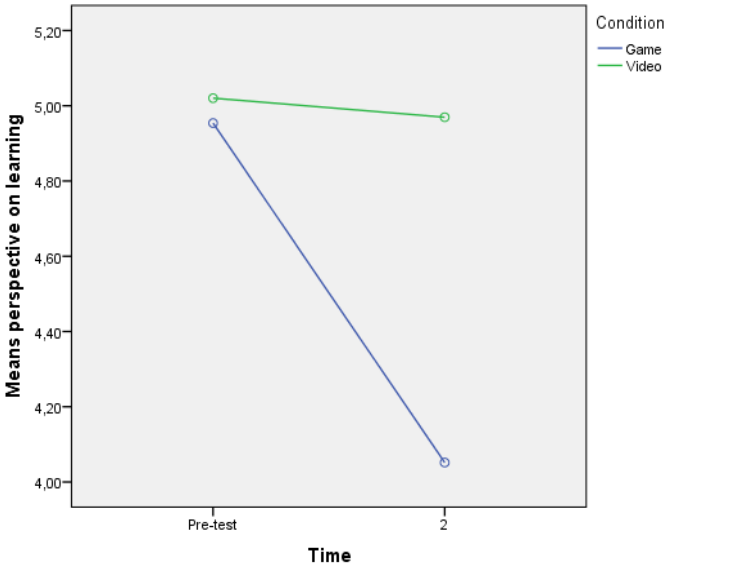
Figure 1: Interaction between time and condition, based on knowledge



4.2.2. Effects media usage on perspective on learning

Secondly, the learning perspective is tested. By calculating the F_{max} it can be concluded that the homogeneity of variance assumption for this mixed model ANOVA has not been violated. The ANOVA revealed a significant difference between the conditions (F (1, 159) = 8.732, p = 004, η_p^2= .052) and a significant difference between pre- and post-test of both conditions was obtained ($F(1, 159) = 21.694$, $p < .001$, $\eta_p^2 = .120$). By looking at the total means of learning perspective in table 5, it can be concluded that the degree to which the participants think people should learn more about refugees, after the media usage is significantly lower than before the media usage. The ANOVA also revealed a significant interaction effect between the moment, perspective on learning and condition $F(1, 159) = 17.325$, $p < .001$, η_p^2=.098. When looking back at the means and standard deviations in table 5, and as clearly shown in the plot in figure

Figure 2: Interaction between time and condition, based on perspective on learning



2, the degree to which people should learn more about the refugees according to the participants is in both conditions lower in the post-test than in the pre-test. It is also clear that in the gaming condition the learning perspective decreased more than in the video condition.

4.2.3. Effects media usage on willingness to help

Thirdly, the willingness to help is tested. By calculating the F_{max} it can be concluded that the homogeneity of variance assumption for this mixed model ANOVA has not been violated. The ANOVA revealed no significant differences between the conditions and no effect on time (pre- and post-test) was obtained. The ANOVA did reveal a very small significant effect between the time, learning perspectives and condition $F(1, 159) = 3.939$, $p = .049$, $\eta_p^2 = .024$. By looking at the total means of willingness to help in table 5, and as shown in figure 3, it can be concluded that while the willingness to help slightly increases after watching a video, the willingness to help decreases after playing a game.

Figure 3: Interaction between time and condition, based on willingness to help

4.3. Effects of gender, gaming habits and interest in refugees on persuasion

The credibility of the source and the feeling of persuasion after using a medium could depend on factors like gender, gaming habits, and the interest in refugees. Therefore, several analyses are done to see if there are any effects. Before testing the effects on the feeling of persuasion, first an Independent Samples *t*-test is done to compare the gaming habits of male and female and showed that there is significant difference ($t(48,74) = -7.47$, $p < .001$). Looking at the means it is clear that female participants ($M = 1.60$, $SD = 1.66$) play games less than male participants ($M = 3.97$, $SD = .94$). There are no effects found of gender on the feeling of persuasion.

In addition, an One-way in between groups ANOVA was used, in which the general source credibility and the general feeling of persuasion function as dependent variables and the gaming habits and the interest in refugees (goes from 'totally uninterested' to 'extremely interested' in three steps) function as independent variables. No effect was found on feeling of persuasion and source credibility when comparing the gaming habits, but there was a significant difference on source credibility and the feeling of persuasion when the extent to

which someone is interested in refugees was used as independent variable. The means and standard deviations per group of interest on source credibility and feeling of persuasion are shown in table 6.

Table 6: Mean and standard deviations of feeling of persuasion and source credibility, per group of amount of interest in refugees

	Mean (SD)	
	Feeling of Persuasion*	**Source Credibility***
Extremely interested	(N=7) 4.79 (1.05)	(N=8) 5.67 (.69)
Interested	(N=61) 3.95 (1.05)	(N=62) 5.26 (1.01)
A little bit interested	(N=78) 4.01 (1.07)	(N=80) 5.16 (.85)
Totally uninterested	(N=11) 2.98 (1.66)	(N=11) 4.03 (1.58)

*** *p* < .05, ** *p* < .001**

However, the assumption of homogeneity of variance was not met, therefore the Brown-Forsyth statistic is used. Using the Brown-Forsyth statistic, the ANOVA shows that there is a significant difference in the feeling of persuasion between the groups of interest ($F(3, 27.84) = 3.228$, $p = .038$), and also a significant difference between the groups on the rated source credibility ($F(3, 24.29) = 4.403$, $p = .013$).

To see which groups differ significantly a Bonferroni Post Hoc Test was performed. The Bonferroni Post Hoc Test clearly reveals where the significant differences can be found. The only significant differences are between the groups in which the people are at least a little bit interested in the lives and motives of refugees, compared to the group in which people said they were totally uninterested in the lives and motive of refugees. Thus, the group *Extremely interested* differs significantly from the group *Totally uninterested* on feeling of persuasion ($p = .006$) and on source credibility ($p = .002$). The group *Interested* differs significantly from the group *Totally uninterested* on feeling of persuasion ($p = .048$) and on source credibility ($p = .004$). Lastly, the group *A little bit interested* differs significantly from the group *Totally uninterested* on feeling of persuasion ($p = .025$) and on source credibility ($p = .002$). Looking at the means and standard deviations in table 6, it is clearly shown that the people in the *Totally uninterested*-group have a lower feeling of persuasion, and a lower source credibility. This means that the less interested the participant was in the lives and motives of a refugee, the lower the feeling of persuasion by any medium, and the lower the perceived credibility of the source.

4.4. Regression analysis on persuasion

Some of the variables used in this study could influence the feeling of persuasion. To analyse to what extent these variables affect the feeling of persuasion, and what variable affects the feeling of persuasion the most, a Standard Multiple Regression Analysis was performed. The independent variables used in this analysis are: identification similarities, identification embodied presence, source credibility and interest in refugees . These variables are measured only once in the post-test, and the regression analysis estimates the proportion of variance in the feeling of persuasion that can be accounted for these variables.

First of all, the inspection of the normal probability plot of standardised residuals against the standardised predicted values showed that the assumptions of normality and linearity of residuals were met. The identification similarities, identification embodied presence, source credibility and interest in refugees together accounted for a significant 15,1% of the variability in the feeling of persuasion, (Adjusted R^2 = .151, $F(4, 8.842) = 7.95$, $p < .001$). Moreover, Unstandardized (*B*), Standardized ß regression coefficients, and semi-partial correlations for every predictor in the model are shown in table 7.

Table 7: Unstandardized (B), standardized (ß) regression coefficients and squared semi-partial correlations (sr^2) per predictor of feeling of persuasion

Predictor	*B*[95% CI]	ß	sr^2
Identification Similarities	-.001 [-.145, .142]	-.001	-.001
Identification Embodied Presence	.189 [.042, .335]*	.210*	.188*
Source Credibility	.300 [.116, .484]*	.260*	.237*
Interest refugees	-.125 [-.379, .129]	-.075	.072

N= 161. CI = confidence interval
* $p < .05$

The variable identification embodied presence has a significant effect on feeling of persuasion ($t(152) = 2.54$, $p = .012$), and also the variable source credibility has a significant effect on feeling of persuasion ($t(152) = 3.21$, $p = .002$). As shown in table 7, the unstandardized *B* from the variables embodied presence and source credibility are positive, which indicates that only these two predictors account for a positive significant proportion of unique variance, for feeling of persuasion. The fact that it is a positive effect means that the influences of the variables cause an increase. Thus, if the strength of embodied presence increases, the feeling of persuasion increases as well. Also, if the rated credibility of the source increases, the feeling of persuasion increases as well.

To summarize, this chapter discussed the differences between the two media on identification, persuasion and attitude change. Attitude change was measured comparing by the variables knowledge, perspective on learning, and willingness to help between the two

conditions, using and comparing the pre-test and post-test. It was examined whether factors like gender, gaming habits, and interest in refugees affect the source credibility or feeling of persuasion, and lastly a regression analysis was performed to see the amount to which the variables identification, source credibility and interest in refugees affect the feeling of persuasion. In the following chapter the interpretation of these results will be discussed, with respect to previous research.

5. Conclusion & Discussion

5.1. Conclusion

This study contributes to a project which is concerned with persuasive gaming and therefore how to combine the spreading of information with engaging players and their behaviors and attitudes (Raessens, Jansz, & Schouten, 2013). The present explorative study aimed to gather more information about the possible differences between the non-interactive medium video and the interactive medium digital game, with respect to the process of identification, feeling of persuasion and attitude change. The persuasive game used for this study was the persuasive game Against All Odds. Against All Odds is a game in which the player takes over the role of a refugee, and the first goal is to flee the country alive, without being caught. The refugee crisis in Europe is a very current issue. Because of conflicts in the Middle-East and some parts of Asia and Africa, the European Union has to deal with a big inflow of refugees in recent years. For instance, 600.000 asylum applications were filed in the first nine months of the year 2015 (Catchpole & Coulombier, 2015). The persuasive game Against All Odds was developed to make players aware of the plights of refugees.

Against All Odds can be considered as a sufficient game, as the participants in this study graded the game with an average grade of 7,7 out of 10. In addition, the video, which was edited by the researcher by using a recorded game play of Against All Odds, was graded with an average grade of 7,2 out of 10. Therefore, it is suitable to say that the two media were both sufficient to use for this research on teens from the age 16 to 18 years old. However, the results in this research were not quite as expected, which sums up questions. But before a critically reflection on this study is given, the results will be interpreted in this subsection. In addition, an answer will be formulated on the main research question:

> *To what extent is a teen's degree of feeling persuaded after playing a persuasive game different from the degree of feeling persuaded after watching a recorded game play; a video?*

In order to answer this question several hypotheses were tested, which will first be discussed. The first hypothesis was;

Hypothesis 1: The degree to which someone identifies him- or herself with the media character (with respect to identification similarities and embodied presence), is higher when someone uses an interactive medium than when someone uses a non-interactive medium.

This hypothesis was first of all based on the theories of Hefner et al. (2007), Klimmt et al. (2009), Konijn et al. (2007), Moyer-Gusé (2008), and Van Looy et al. (2012), which all

emphasize that identification is a second-order factor which consist of first-order levels. Van Looy (2012) expanded the theory and therefore the levels similarity identification and embodied presence were used in this study. In addition, Peng et al. (2010) emphasizes that the interactivity of digital games gives the player power over activities and experiences in the game, which blurs the line between the player and the main character; "the identities converge" (p. 727). Therefore, it could be expected that an interactive medium would result in a higher degree of identification of the player with the main character, than a non-interactive medium.

However, hypothesis 1 can just be partially accepted. When speaking of identification with respect to embodied presence the null hypothesis can be accepted. The feeling of embodied presence was significantly higher for the people who played the game than for the people who watched the video. When speaking of identification with respect to the rated similarities with the main character, the null hypothesis must be rejected, as the participants in the video condition felt more similarities with the main character than the participants in the game condition. Thus, playing a game makes the player feel more present in the mediated environment than watching a video, while watching a video increases the feeling of having similarities with main character more than when playing a game. This is partially contrasting with the expectations based on the discussed previous research.

In addition, hypothesis 2, 4 and 5 were all about attitude change in relation to knowledge, perspective on learning and willingness to help.

Hypothesis 2: Someone's knowledge about a complex situation will increase more after playing a persuasive game than after watching a video

Hypothesis 4: People's perspective on learning increases after the media usage

Hypothesis 5: The willingness to help increases more after playing the game than after watching the recorded game play

Hypothesis 2 was based on research from Neys and Jansz (2010). In their research the knowledge of the participants changed substantially. In combination with the ideas that a game takes more attention cognitively and therefore would the players would be more focused on gaining information (Sweetser & Wyeth, 2005; Ruggiero, 2014), it was expected that the knowledge would increase more after playing a game than after watching a video. Because of the interactivity of a game, a player has to concentrate and could get into some state of flow. According to Ruggiero (2014) this would lead to an increase of assimilating knowledge. However, this hypothesis must be rejected in this study. In contrast with the expectations that the knowledge would increase more after playing a game, it seems the other way around. After playing a game, the knowledge decreases. While after watching the video, the knowledge increased. Thus, the participants learned more after watching a video,

while they seemed to forget information after playing a game. An interesting and unexpected result, which needs to and will be discussed in sub section 5.2..

Hypotheses 4 and 5 were based on Kelman's (2007) notion that the willingness to help also depend on the interest of learning. Positive information would increase people's interest in learning, and would therefore want to learn and talk more about the issue. The research from Neys and Jansz (2010) also found out that people felt the urge to obtain more information about the issue, and talk with family about it. In addition, Peng et al. (2010) studied people's willingness to help, and found people were more willing to help after playing a game than after just watching it, or reading a text about it. However, both hypotheses are rejected in this study. The perspective on learning decreased more after playing a game than after watching a video. As this may sound like a negative result, it could also be that the participants thought they learned enough already after the media usage, and therefore did not feel like there was more to learn. However, these are just speculations, which are not tested statistically. In addition, the willingness to help increased after watching the video, but decreased after playing a game. All together, hypothesis 6; "*Someone's attitude towards a complex situation will change more positively after playing a persuasive game than after watching a video*", is rejected. Attitude change was measured as second-order factor, by the first-order factors knowledge, perspective on learning, and willingness to help. All the factors had significant changes, but it turned out that in all cases it would be better to use no media, or show the video instead of let people play the game.

Hypothesis 3 is about the credibility of the source with respect to persuasion;

Hypothesis 3: The higher the perceived credibility, the higher the feeling of persuasion.

Hypothesis 3 is based on Fogg et al. (2009), as they discuss the two key dimensions of persuasion; trustworthiness and expertise, and argue that the source has to be credible in order to be persuasive. Petty and Cacioppa (1968) agree, by saying that credibility is even more important when someone's attention is low. The hypothesis is accepted. Even though there was no significant difference on the rated credibility of the two media, the regression analysis did show a positive effect of source credibility on the feeling of persuasion. If the credibility of the source increases, the feeling of persuasion will increase as well. This is in line with previous research and implies that people are influenced by how credible they find the source. In addition, to finalize this study, hypothesis 7 is tested;

Hypothesis 7: The degree of feeling persuaded is higher after playing a persuasive game, than after watching a video

Hypothesis 7 is accepted. The participants in the game condition felt like they changed their attitude towards refugees more, than the participants in the video condition. This result would

in theory answer the main question as well, as people do feel more persuaded after playing a game than after watching a video. However, even though the identification process and feeling of persuasion were higher after playing a game than after watching a video, after testing the other hypotheses, it can be concluded that the participants were not really persuaded, as their knowledge, perspective on learning and willingness to help did not increase, but even decreased at some points. Moreover, the regression analysis showed a small proportion of variance, as just 15,1% of the variance of the feeling of persuasion can be explained by the predictors identification similarities, embodied presence, source credibility, and interest in refugees. Also, only embodied presence and source credibility had a positive effect on the feeling of persuasion, which means that only an increase of embodied presence or an increase of the source credibility seemed to increase the feeling of persuasion.

These results are contrasting with previous research on the differences between the effects of interactive media and the effects of non-interactive media. As recent research from Peng et al. (2010) showed a positive change on willingness to help, Rieger et al. (2015) found a positive change on mood repair by using a interactive medium, in comparison with a non-interactive medium, as did Ruggiero (2015) on attitude change. However, even though this explorative study did not meet the expectations, this does not mean that persuasive games do not have the ability to persuade. Mediated interventions with the use of persuasive games could still be effective, but as Perloff (2003) emphasizes, persuasion takes time, persuasion is a process.

Moreover, this study can be considered as a reminder that the persuasive power of the more traditional media like video, should not yet be underestimated. In addition, taking the results of this present study into account, it is the question whether persuasive games are indeed more effective than videos. Because according to this study there is a difference in the feeling of persuasion, as people feel more persuaded after playing a game than after watching a video. But they are not actually more persuaded. Therefore, more research is necessary, which will be discussed in the following subsection, after a critical reflection on this research showing the weaknesses and strengths of this research.

5.2. Discussion

Because digital games become more popular, especially among youngsters(Lenhart et al., 2008a; Li, Liau, & Khoo, 2013), research on the possible effects of digital games on the player's has to be continued. This present study aimed to contribute to the understanding of these effects, by focusing on the differences between a non-interactive and an interactive medium. However, this explorative research resulted in some unexpected findings. These findings evoke questions, which asks for more research. The strengths and weaknesses of

this study may explain some of the interesting results, and will be discussed in this subsection. In addition, ideas for future research are suggested.

Some parts of this research could be improved, in order to improve the internal validity of this research. First of all, as also appointed by Ritterfeld et al. (2009) as something that has to be taken into account, is that interactivity in this present research is used as a dichotomous factor; Interactive compared to non-interactive. However, there are scholars (e.g. Moreno & Mayer, 2005) that suggest that interactivity can not be operationalized like that, as they argue that there are different levels of interactivity.

In addition, there were some practical problems that have to be taken in to account. The first practical issue was that the participants on the Emmauscollege did not seem to understand the first five statements correctly right away. This were the statements about the interrogation in the game Against All Odds. The participants were not sure if they had to answer how they wanted it to be for the refugees, or how they thought the situation was in reality. After it was clear that not every participant understood that question correctly, it was mentioned several times in the class by the researcher. However, there is a possibility that some of the participants were not listening, and answered the questions not as they were supposed to be answered. In addition, on the Oosterlicht College the students had to make an exam after the research. Therefore, there is a good possibility that some participants were not fully focused on the game, but more on the exam later that day. Also, because of some problems with the internet the research started later than planned. The participants were asked to stay a bit longer to finish the game and questionnaire, and their teacher would reward them for that. However, some of the participants may have answered the questionnaire to quickly without paying real attention, in order to leave earlier.

An other practical issue is about the game itself. The game Against All Odds is in general quite easy, because at most stages the player only has to use the mouse and click. However, at some point in the game the player has to escape the city by running with the arrow buttons. This part is a bit more difficult, and some of the non-gamers had troubles with finishing this part of the game. One girl on the Emmauscollege even needed help from others, otherwise she could not finish the first chapter of the game. For the research, however, it was important that everyone finished the first chapter before they moved on to the second online questionnaire. The participants that found the game a bit difficult, needed much more time to finish the game than the participants who were used to gaming. In addition, when speaking of internal validity, it could also be the case that the participants that could not finish the game as easy as others, became frustrated. Frustration could affect the results, because a frustrated player may be more concentrated on which buttons to use on the keyboard, than concentrated on the game and the information it is providing. Even though there were no significant differences between the groups of different gaming habits

with respect to the feeling of persuasion, it could still have affected the attitude change on the basis of knowledge, perspective on learning, and willingness to help.

In addition, while this previously discussed part of the game could be considered as difficult, it could also be argued that the 'only click-parts' of the game are too easy for people who play digital games very often. Then it would mean that Against All Odds as a persuasive game, is not sufficient enough to elicit the right focus and involvement of the participants, and fails to persuade. In addition, the game attempts to represent the life of a refugee. By giving the player difficult choices, for instance leaving some people behind, the game tries to show what difficult decisions refugees have to make. This would theoretically be in line with Bogost (2007), who argues that persuasive games make use of procedural rhetoric, in order to be persuasive; the game simulates how the situation is in reality, in order to let the player experience how it works in the real world. However, the choices in the game Against All Odds are emotionally hard. For instance, the player can feel sorry for leaving his injured friend behind, but technically the player is just one mouse-click away from enlarging his or her chance to succeed in the game. Therefore the procedural rhetoric of Against All Odds that should elicit persuasion, may not work as it is not difficult for the player in a practical sense.

The ability of the participants to play games, leads to the next problem in this research; the question about the gaming habits of the participants. The question was "*How often do you play video games?"* The answer possibilities were; "*Never", "Less than once a week", "1-2 times a week", "3-4 times a week", "5-6 times a week",* and "*Daily."* However, it is not clear what is meant exactly by 'video game'. It would have been better to give examples of what was considered as video game, and what was not considered as video game. In addition, it may have been better to question how many hours a week the participants play these digital games. For instance, a participant may only play digital games in the weekend, but for eight hours each day. In this present study the participant would have answered '1-2 times a week', which is considered as not very often. While sixteen hours a week would be considered as quite a lot.

In addition, also other behavioral characteristics of the participants are important to take into account . Participants can have demand characteristics, which refers to characteristics that appear when the participants knows that he or she is taking part of an experiment (Weber & Cook, 1972). The teen's in this present research knew they were contributing to a research. According to Weber and Cook (1972) there are four kind of roles a participant can adopt, and could influence the results with. The roles Weber and Cook (1972) suggest are; the good participant role, the faithful participant role, the apprehensive participant role, and the negative participant role. It is unlikely that the good participant role and the faithful participant role are applicable on the participants who contributed to this

present study. However, the apprehensive participant role may be the case, because it is a role in which the participant gives "socially desirable responses (Weber & Cook, 1972, p. 275). As the refugee crisis is a sensitive subject, and it could be considered as socially desirable to say that you want to help refugees. It could be the case that the participant gave higher responses already in the pre-test than they actually should have according to their real opinion. In addition, the negative participant role may be the most likely role to have occurred. This role is about the participant giving responses that are not useful for the researcher, in their eyes. It is also called the "screw you effect" (Weber & Cook, 1972, p. 275). This role may have occurred at some points, because to measure to what extent the knowledge, perspective on learning and willingness to help of the participants changed, some of the questions in the pre-test and post-test were the same. Moreover, without generalizing too much, it can be argued that teens do not have a lot of patience, and therefore they may have had the "screw you effect" in the post-test, when they had to answer the same questions as the questions in the pre-test. Speaking of the problems with pre-testing and post-testing, it is impossible to measure whether the pre-test did not influence the participant a bit already. For instance, they may already started to be more interested or less interested in the subject, just by reading the questions.

5.2.1. Strengths of this research

Besides the downsides of this research, there are also some very strong parts of this research, which make this study a valuable contribution. These parts increased the internal and external validity, and they also have to be taken into account when doing further research. Starting with procedural strengths trying to reckon with the external validity, this research was done on 161 teen's from the age of 16 to 18 years old. They were all in the fifth class of pre-university education. It is a clear population, and the quasi-experimental design made it semi-randomized. Therefore, it seems that for this generation, video works as well or even better than a game. In addition, to organize all the procedures as equally as possible, the researcher was also in the room where the participants were using the media and were filling in the questionnaires. The researcher paid close attention to the structure of every participant. When they finished the first chapter and wanted to play further, they were alerted that they had to fill in the second online questionnaire first. The participants were free to ask any question to the researcher if something was unclear.

In addition, the used stimuli in this study were unique as well. Because the video, and the recorded game play used to edit the video, was all made by the researcher. Therefore, the narrative of the game was protected and the video was exactly like the game itself, only a bit shorter than when a participant would play the game. This made the comparison very reliable and it improved the internal validity of the research. The difference between the

persuasive game and the video lies just in the difference in interactivity, and the researcher made sure that it did not come because of different content. In addition, gender was taken into account in the video's as well. Expecting that people would choose a main character of their own gender (Eastin, 2006; Vasalou et al., 2008), a male participant automatically had to watch a video with a male main character, and a female participant had to watch a video with a female main character. This was in order to make the identification process in the video condition comparable to the identification process of participants in the game condition, and not depending on gender.

Especially because the results of this study did not meet the expectations, it is a useful contribution to the persuasive game studies and media studies. The results trigger more questions about persuasive games and their effect on the users, but also the relationship between interactivity and persuasion. In sum, these are interesting perspectives for future research.

5.2.2. Future research

There are some perspectives that would be interesting and be a great contribution to this field. First of all, it would be interesting to study the specific characteristics that make a persuasive game actually persuasive. This would be in line with De La Hera's (2013) model, which aims to show how persuasiveness is structured within digital games. However, an experimental research which compares different kind of persuasive games would be of great contribution, as it adds empirical information to see what kind of persuasive games are really persuasive. In addition, it became very clear in this study that the persuasiveness of the traditional media like video should not be underestimated. When thinking about a mediated intervention to persuade or educate people, it could be an idea to combine game with video. In many big digital entertainment games the player has to watch a little video between the playing sessions. As emphasized in chapter 2, the identification process of the player with the main character is different when watching a video (dyadic identification) than when playing a game (monadic identification) (Hefner et al., 2007; Klimmt et al., 2009). Perhaps combining the two would reinforce the degree to which someone can identify with the main character, which theoretically could have a positive effect on the persuasion.

Also, as emphasized several times before, persuasion is a process. More longitudinal research on persuasive games, but also on videos would be interesting. Even though there are some studies that had a second test a few weeks after the media exposure (e.g. Lavender, 2008; Ritterfeld et al., 2009; Ruggiero, 2015), it would be useful to test participants even longer after the media usage, or during media usage. If a school takes on an educational programme in which students or teens play a stage of a game every week of a school year about a current pressing issue, it would be reasonable to say that the process of

persuasion and attitude change is way better than when the teens are exposed to the medium just once. In addition, also in this research the persuasive game can be compared with a non-interactive medium like video. Comparing a gaming-condition with a video-condition for, for instance a whole year, could show whether there are differences in increase over a long time. Perhaps the video is more persuasive right after the media usage, but does not increase as much as the game after a few weeks or months.

To finalize, this study contributed to the understanding of the differences between interactive and non-interactive media, in relation to identification and persuasion. The results of the study did not meet the expectations, as the persuasive game did not have a higher persuasive effect on the users than the video. It even seemed to be the other way around. Therefore, the main message that this study can bring to the scientific field of media studies, is that the influential power of traditional media like video must not be underestimated yet.

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7. Appendices

7.1. Appendix A: Links to game and video

Game: http://www.playagainstallodds.ca/

Videos on YouTube:

With female main character:

https://www.youtube.com/watch?v=-n4FlysBxHw

With male main character:

https://www.youtube.com/watch?v=6wqCaaX6Zjk

7.2. Appendix B: Pre-test questionnaire

This questionnaire was exactly the same for the two conditions. Only the introduction text was different, as shown below;

Video NL:

Beste deelnemer,

Mijn naam is Annika Meeuwes en ik doe de Master Media, Culture & Society aan de Erasmus Universiteit Rotterdam. Bij deze ben je uitgenodigd om deel te nemen aan een onderzoek waarbij we op zoek zijn naar jouw persoonlijke mening over vluchtelingen. Op de eerste pagina van de online vragenlijst krijg je een aantal stellingen te zien waar je jouw mening over kan geven aan de hand van een zeven punten schaal (1 = Totaal mee oneens, 7 = Totaal mee eens). Na de eerste pagina bekijk je een video. Deze video vind je in de online vragenlijst zelf. De video gaat over het leven van een vluchteling. Na het kijken van de video kun je verder met het tweede deel van de online vragenlijst, waar opnieuw voornamelijk stellingen worden gegeven. Ook hier geef je aan de hand van een zeven punten schaal aan in hoeverre je het eens bent met de stelling (1 = Totaal mee oneens, 7 = Totaal mee eens). Het gaat om jouw persoonlijke oordeel. Er zijn dus geen goede of foute antwoorden. Daarbij is je anonimiteit gewaarborgd en worden jouw antwoorden of gegevens onder geen enkele voorwaarde aan derden verstrekt, tenzij hier van te voren toestemming voor gevraagd is.Na het invullen van de vragenlijst zal er per klas een VVV-bon van €7,50 worden verloot.

Bij voorbaat dank voor de deelname aan dit onderzoek, dat voor mij van grote waarde is.

Met vriendelijke groet,

Annika Meeuwes

Video English:

Dear participant,

My name is Annika Meeuwes and I'm attending the Master Media, Culture, and Society at the Erasmus University of Rotterdam. You are now invited to participate in this research, in which we are looking for your personal opinion about refugees. On the first page of the online questionnaire you will see a few statements, on which you can give your opinion by using a seven point scale (1= Totally disagree, 7= totally agree). After the first page you will watch a video. You will find the video in the questionnaire. This video is about the life of a refugee. After watching the video you can move on to the second part of the online questionnaire, where once again mainly statements are given. Also on these you can fill in to what extent you agree with statement (1= Totally disagree, 7= totally agree). It is about your personal opionion. Thus, there are no right or wrong answers. In addition, your anonymity will be guaranteed and your answers and data will under conditions shared with third parties, unless your permission is asked beforehand. After filling in the questionnaire there will be a VVV-bon of €7,50,- be raffled per class.

Thank you in advance for your participation, it is of great value for me.

Kind regards,

Annika Meeuwes

Q22 Ik verklaar hierbij dat ik op een duidelijke wijze ben ingelicht over de aard van het onderzoek. Ik stem hierbij vrijwillig in met deelname aan dit onderzoek, maar behoud het recht deze instemming weer in te trekken. Ik besef dat ik op elk moment mag stoppen met het onderzoek, zonder hier een reden voor te hoeven geven. Mijn anonimiteit wordt gewaarborgd en mijn persoonsgegevens worden niet door derden ingezien, zonder dat ik daar uitdrukkelijk toestemming voor heb gegeven.

- ❍ Ik begrijp de bovenstaande tekst en ga akkoord met deelname aan dit onderzoek (1)
- ❍ Ik ga niet akkoord en neem geen deel aan dit onderzoek (2)

Video translated in English:

I hereby declare that I have been clearly informed about the nature of this research. I hereby voluntarily participate in this research, but I retain the right to revok this consent. I know I can stop participating in this research, without having to give a reason for it. My anonymity is guarenteed and my personal information will not be shared with third parties, withouth my explicit permission.

- ❍ I understand the text about and accept to participate in this research
- ❍ I do not agree and do not participate in this research.

V1QAA1 Bedankt voor de medewerking.Er volgen 5 stellingen over het leven van een vluchteling. Geef aan in hoeverre je het eens of oneens bent met deze stellingen.
Thank you for your participation. There will follow 5 statements about the life of a refugee. Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
In de landen van de vluchtelingen is het oké om homoseksueel te zijn (2) In the countries of the refugees, it is okay to be homoseksual	❍	❍	❍	❍	❍	❍	❍
De politie in de landen van de vluchtelingen behandelt de burgers met respect (4) The police in the countries of the refugees treats the citizens with respect	❍	❍	❍	❍	❍	❍	❍
Vluchtelingen zijn vrij om hun eigen land te verlaten en de wereld over te reizen (6) Refugees are free to leave their country and travel the world	❍	❍	❍	❍	❍	❍	❍
Vluchtelingen vluchten omdat ze dat zelf willen (8) Refugees flee because they want to	❍	❍	❍	❍	❍	❍	❍

Vluchtelingen hebben voldoende de tijd om na te denken over de keuze om hun land te verlaten (10) Refugees have enough time to think about the decision to leave their country	❍	❍	❍	❍	❍	❍	❍

V1QAE2 Er volgen 4 stellingen over de bekendheid van de problematiek rond de vluchtelingencrisis. Geef aan in hoeverre je het eens of oneens bent met deze stellingen.

There will follow 4 statements about your awareness of the issues surrounding the refugee crisis. Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
Ik wil meer leren over de vluchtelingencrisis (1) I want to learn more about the refugee crisis	❍	❍	❍	❍	❍	❍	❍
Ik ben van plan meer over de vluchtelingencrisis te praten met vrienden en familie (2) I'm planning to talk more about the refugee crisis to my friends and family	❍	❍	❍	❍	❍	❍	❍
Mensen moeten meer leren over de problemen van vluchtelingen (3) People should learn more about the problems of refugees	❍	❍	❍	❍	❍	❍	❍
De EU moet de EU-burgers beter informeren over het leven van de vluchtelingen (4) The EU should inform the EU-citizens more about the lives of refugees	❍	❍	❍	❍	❍	❍	❍

V1QW3 Er volgen 4 stellingen over jouw bereidheid om te helpen. Geef aan in hoeverre je het eens of oneens bent met deze stellingen.

There will follow 4 statements about your willingness to help. Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
Ik wil vluchtelingen helpen als ik dat kan (1) I want to help refugees if I can	❍	❍	❍	❍	❍	❍	❍
Ik zou bereid zijn om daadwerkelijk iets te doen om de vluchtelingen in ons land te helpen (2) I would be prepared to actually do something to help the refugees in our country	❍	❍	❍	❍	❍	❍	❍
Ik zou als vrijwilliger de vluchtelingen helpen als iemand het zou vragen (3) I would help the refugees as a volunteer if someone would ask	❍	❍	❍	❍	❍	❍	❍
Ik zou €1,- euro doneren om vluchtelingen te helpen als iemand het zou vragen (4) I would donate €1,- to help	❍	❍	❍	❍	❍	❍	❍

refugees if someone would ask							

V2QD4 Wat is je geslacht?
What is your gender?

- ❍ Man (1)
  Male
- ❍ Vrouw (2)
  Female

Video condition:

→If 'male', video with male main character appeared; if 'female', video with female main character appeared. Both with the text; Zet de koptelefoon op en bekijk de volgende video.

Game condition:

Following text appeared:

Ga naar het andere al openstaande tabblad en doe de koptelefoon op. Kijk een paar seconden de video en klik vervolgens op 'Play Against All Odds'. Kies een personage en klik vervolgens op het pijltje voor 'No! Play without registering'. Hierna kies je level 1 in het hoofdstuk 'War en Conflict'. Dit doe je door op het meest linkse rondje met de 1 erin te klikken. Hierna volgt het spel en het is de bedoeling dat je doorspeelt tot het je als vluchteling gelukt is om het land te verlaten. Vul de vragenlijst verder in na het spelen van hoofdstuk 1. Als er onduidelijkheden zijn en je hebt vragen, roep dan Annika erbij voor hulp. http://www.playagainstallodds.ca/game_us.html

EN:

Go to the the other tab and put on your headphones. Watch the little video for a few seconds and then click on 'Play Against All Odds'. Choose a character and click on the arrow before 'No! Play without registering'. Then you choose level 1 in the chapter 'War and Conflict'. You do this by clicking on the circle with the 1 in it on the left. Then the game starts and the goal is to flee the country as a refugee. If you managed to finish chapter 1, you can fill in the rest of the questionnaire. If there is something unclear, then ask Annika for help.
http://www.playagainstallodds.ca/game_us.html

7.2. Appendix C: Post-test questionnaire

The participants filled this questionnaire after watching the video or after playing the game. The questionnaire was almost the same for both conditions, only the word 'game' and 'video' were adjusted to the condition; in the video condition the video was

mentioned, in the game condition the game was mentioned. Also, in the game condition the participants were asked how much they played games, this was not asked in the video condition.

G2Q4 Welk schoolcijfer van 1 tot 10 zou je deze game geven?
Which schoolgrade from 1 to 10 would you give this game/video?
0 (0)
1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

G2QIS5 Er volgen 6 stellingen over hoe jij denkt over de persoonlijkheid van de hoofdpersoon. Geef aan in hoeverre je het eens of oneens bent met de stellingen. De hoofdpersoon...

There will follow 6 statements about how you think about the personality of the main character. Indicate to what extent you agree or disagree with the statements. The main character…

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
...denkt zoals ik (1) …thinks like me	❍	❍	❍	❍	❍	❍	❍
...gedraagt zich zoals ik (2) …acts like me	❍	❍	❍	❍	❍	❍	❍
...is vergelijkbaar met mij (3) …is comparible to me	❍	❍	❍	❍	❍	❍	❍
...deelt dezelfde waarden als ik (4) ...shares the same values as me	❍	❍	❍	❍	❍	❍	❍
...gaat met anderen om zoals ik dat doe (5) …treats others like I do	❍	❍	❍	❍	❍	❍	❍
...lijkt op mij (6) ...looks like me	❍	❍	❍	❍	❍	❍	❍

G2QIP6 Er volgen 6 stellingen over hoe jij je voelde tijdens het spelen van de game/kijken van de video. Geef aan in hoeverre je het eens of oneens bent met de stellingen.

There will follow 6 statements about how you felt during the game/watching the video. Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
Ik ging op in de game/video (1) I lost myself in the game/video	❍	❍	❍	❍	❍	❍	❍
Het voelde alsof ik zelf de hoofdpersoon was in de game/video (2) It felt like I was the main character in the game/video	❍	❍	❍	❍	❍	❍	❍
De doelen van de hoofdpersoon in de game/video werden mijn eigen doelen (3) The goals of the main character became my own goals	❍	❍	❍	❍	❍	❍	❍
Ik had tijdens het spelen van de game/kijken van de video geen aandacht	❍	❍	❍	❍	❍	❍	❍

meer voor de echte wereld (4) While playing the game/wacthing the video, I had no attention for the real world							
Ik werd één met de hoofdpersoon in de game/video (5) I became one with the main character in the game/video	❍	❍	❍	❍	❍	❍	❍
Het voelde alsof de handelingen van de hoofdpersoon in de game/video mijn eigen handelingen waren (7) It felt like the actions of the main character became my own actions	❍	❍	❍	❍	❍	❍	❍

G2QPC7 Er volgen 4 stellingen over wat je van de game/video vond. Geef aan in hoeverre je het eens of oneens bent met de stellingen.

There will follow 4 statements about what you thought of the game/video Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
Na het spelen van de game /kijken van de video weet ik meer over het leven van een vluchteling dan eerst (1) After playing the game/watching the video I know more about the life of a refugee than before	❍	❍	❍	❍	❍	❍	❍
De game/video geeft de realiteit weer (2) The game/video shows the reality	❍	❍	❍	❍	❍	❍	❍
De game/video geeft duidelijk de feiten weer (3) The game/video clearly shows the facts	❍	❍	❍	❍	❍	❍	❍
Ik geloof wat er in de game/video weergegeven wordt (4) I believe what	❍	❍	❍	❍	❍	❍	❍

is shown in the game/video							

G2QPA8 Er volgen 4 stellingen over jouw houding tegenover vluchtelingen. Geef aan in hoeverre je het eens of oneens bent met de stellingen.

There will follow 4 statements about your attitude towards refugees. Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
Deze game/video heeft mij bewuster gemaakt van de ernst van de problemen waar vluchtelingen mee te maken hebben (1) This game/video made me more aware of the severity of the problems refugees have to deal with	❍	❍	❍	❍	❍	❍	❍
Deze game/video heeft mijn houding tegenover vluchtelingen veranderd (2) This game/video changed my attitude towards refugees	❍	❍	❍	❍	❍	❍	❍
Door het spelen van deze	❍	❍	❍	❍	❍	❍	❍

game/kijken van de video, maak ik me meer zorgen over het leven de vluchtelingen dan eerst (3) Because of this game/video, I am more concerned about the lives of refugees than before							
Deze game/video heeft mijn mening over vluchtelingen veranderd (4) This game/video changes my opinion towards refugees	❍	❍	❍	❍	❍	❍	❍

Er volgen 5 bekende stellingen over het leven van een vluchteling. Geef aan in hoeverre je het eens of oneens bent met deze stellingen.
There will follow 5 known statements about the life of a refugee. Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
In de landen van de vluchtelingen is het oké om homoseksueel te zijn (2) In the countries of the refugees, it is okay to be homoseksual	❍	❍	❍	❍	❍	❍	❍
De politie in de landen van de vluchtelingen behandelt de burgers met respect (4) The police in the countries of the refugees treats the citizens with respect	❍	❍	❍	❍	❍	❍	❍
Vluchtelingen zijn vrij om hun eigen land te verlaten en de wereld over te reizen (6) Refugees are free to leave their country and travel the world	❍	❍	❍	❍	❍	❍	❍
Vluchtelingen vluchten omdat ze dat zelf willen (8) Refugees flee because they want to	❍	❍	❍	❍	❍	❍	❍

Vluchtelingen hebben voldoende de tijd om na te denken over de keuze om hun land te verlaten (10) Refugees have enough time to think about the decision to leave their country	❍	❍	❍	❍	❍	❍	❍

V1QAE2 Er volgen 4 bekende stellingen over de bekendheid van de problematiek rond de vluchtelingencrisis. Geef aan in hoeverre je het eens of oneens bent met deze stellingen.

There will follow 4 known statements about your awareness of the issues surrounding the refugee crisis. Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
Ik wil meer leren over de vluchtelingencrisis (1) I want to learn more about the refugee crisis	❍	❍	❍	❍	❍	❍	❍
Ik ben van plan meer over de vluchtelingencrisis te praten met vrienden en familie (2) I'm planning to talk more about the refugee crisis to my friends and family	❍	❍	❍	❍	❍	❍	❍
Mensen moeten meer leren over de problemen van vluchtelingen (3) People should learn more about the problems of	❍	❍	❍	❍	❍	❍	❍

refugees **De EU moet de EU-burgers beter informeren over het leven van de vluchtelingen (4)** The EU should inform the EU-citizens more about the lives of refugees	❍	❍	❍	❍	❍	❍	❍

V1QW3 Er volgen 4 bekende stellingen over jouw bereidheid om te helpen. Geef aan in hoeverre je het eens of oneens bent met deze stellingen.
There will follow 4 known statements about your willingness to help. Indicate to what extent you agree or disagree with the statements.

	Totaal mee oneens (1) Totally disagee	Mee oneens (2) Disagree	Een beetje mee oneens (3) Disagree a little bit	Niet mee oneens, niet mee eens (4) Do not agree, do not disagree	Een beetje mee eens (5) Agree a little bit	Mee eens (6) Agree	Totaal mee eens (7) Totally agree
Ik wil vluchtelingen helpen als ik dat kan (1) I want to help refugees if I can	❍	❍	❍	❍	❍	❍	❍
Ik zou bereid zijn om daadwerkelijk iets te doen om de vluchtelingen in ons land te helpen (2) I would be prepared to actually do something to help the refugees in our country	❍	❍	❍	❍	❍	❍	❍
Ik zou als vrijwilliger de vluchtelingen helpen als iemand het zou vragen (3)	❍	❍	❍	❍	❍	❍	❍

I would help the refugees as a volunteer if someone would ask **Ik zou €1,- euro doneren om vluchtelingen te helpen als iemand het zou vragen (4)** I would donate €1,- to help refugees if someone would ask	❍	❍	❍	❍	❍	❍	❍

G2QD12 Tot slot nog wat vragen over jezelf.Hoe vaak speel je video games?
Finally, a few questions about yourself. How often do you play games?

- ❍ **Dagelijks (1)** Daily
- ❍ **4-6 keer per week (2)** 4-2 times a week
- ❍ **2-3 keer per week (3)** 2-3 times a week
- ❍ **Eens per week (4)** Once a week
- ❍ **Minder dan een keer per week (5)** Less than once a week
- ❍ **Nooit (6)** Never

G2QD13 In hoeverre was je hiervoor al geïnteresseerd in het leven en de beweegredenen van vluchtelingen?
To what extent were you already interested in the lives and motives of refugees?

- ❍ **Extreem geïnteresseerd (1**) Extremely interested
- ❍ **Geïnteresseerd (2**) Interested
- ❍ **Een beetje geïnteresseerd (3)** A little bit interested
- ❍ **Helemaal niet geïnteresseerd (4)** Totally not interested

Q19 Voor vragen of opmerkingen kun je mailen naar: 429129am@student.eur.nl.Vul hieronder je e-mailadres in als je benieuwd bent naar uiteindelijke resultaten van het onderzoek. Verder hoef je alleen nog op de pijltjes rechtsonderin te klikken om jouw antwoorden in te leveren.

For questions or remarks you can email to: 429129am@student.eur.nl. Fill in your e-mail adress if you are curious about the final results of the research. Then you only have to click on the arrows on the right below to hand in you answers.