

A STUDY OF USING A PERSUASIVE GAME AS A TOOL TO RAISE
AWARENESS ABOUT TROLLING BEHAVIOR

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AWARENESS ABOUT TROLLING BEHAVIOR**

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ABSTRACT

A STUDY OF USING A PERSUASIVE GAME AS A TOOL TO RAISE AWARENESS ABOUT TROLLING BEHAVIOR

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Persuasive games are powerful instruments that have the potential to influence audiences. Previous work reveals that there is a rise in awareness and change in knowledge, attitude and behavior after playing persuasive games on various topics. Although being very common, ‘trolling’ remains a complex phenomenon in literature. This is due to it being insufficiently researched and having a lack of consensus about the definition among researchers. However, it is often associated with disruptive and deceptive behaviors in online spaces. A persuasive game that was aimed to raise awareness about trolling behavior was designed and developed for this study. By applying descriptive research design, this study (1) observes the usage of a persuasive game as a tool to raise ‘awareness’ about trolling behavior, (2) explores the disruptive behaviors that are considered as trolling in the context of online gaming, (3) describes previous trolling experiences. The data was collected using an online questionnaire (N = 129). Playing the game was observed to have slight influences in the participants’ perception of trolling: it was perceived to be a more negative phenomenon after playing the game. It was found that insulting, trash-talking, feeding and griefing are the behaviors that are most commonly classified as trolling. Moreover, approximately half of the people who play multi-player online games had engaged in a trolling activity, most commonly being griefing or trash-talking. This study aims to contribute to the persuasive games and trolling literature by presenting findings about how trolling is perceived and how this perception was influenced by a persuasive game.

Keywords: *Persuasive games, Trolling, Toxic behavior, Video games*

ÖZ

İKNA-EDİCİ BİR OYUNU TROLLEME DAVRANIŞI HAKKINDAKİ FARKINDALIĞI ARTIRMAK İÇİN KULLANMA ÇALIŞMASI

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İkna-edici oyunlar, kitleleri etkileme potansiyeli olan güçlü araçlardır. Literatür, çeşitli konularda ikna-edici oyunlar oynandıktan sonra farkındalıkta artış ve bilgi, tutum ve davranışta değişiklik gözlemlendiğini ortaya koymaktadır. Çok yaygın olmasına rağmen “trolleme”, literatürde karmaşık bir olgu olarak yerini korumaktadır. Bunun sebebi bu konuda yeterince çalışma yapılmamış olması ve araştırmacıların tanım konusunda fikir birliği sağlayamamasıdır. Ancak, çevrimiçi alanlarda sıklıkla rahatsızlık vermeye ve kandırmaya yönelik davranışlarla ilişkilendirilir. Bu çalışma için, trolleme davranışı hakkında farkındalık artırmayı hedefleyen bir ikna-edici oyun tasarlanmış ve geliştirilmiştir. Tanımlayıcı araştırma tasarımı uygulayarak yapılan bu çalışma (1) ikna-edici oyunun trolleme davranışı hakkındaki farkındalığı artırmada araç olarak kullanımını gözlemlemekte, (2) çevrimiçi oyunlarda trolleme olarak kabul edilen, rahatsızlık verici davranışları araştırmakta ve (3) önceki trolleme deneyimlerini tanımlamaktadır. Veri toplama işlemi çevrimiçi anket aracılığıyla gerçekleştirilmiştir (N = 129). Oyunu oynamanın katılımcıların trolleme algısını az miktarda etkilediği gözlemlenmiştir: trolleme, oyun oynandıktan sonra daha negatif bir olgu olarak algılanmaktadır. En yaygın biçimde trolleme olarak sınıflandırılan davranışların hakaret etme, “trash-talking”, “feeding” ve “griefing” olduğu ortaya konmuştur. Bunun yanısıra, çevrimiçi oyun oynayanların yarıya yakını, çoğunlukla “griefing” veya “trash-talking” olmak üzere trolleme eylemini gerçekleştirmiştir. Bu çalışma, ikna-edici oyunlar ve trolleme literatürüne trollemenin nasıl algılandığı ve bu algının bir ikna-edici oyundan nasıl etkilendiği bulgularını sunarak katkıda bulunmayı hedeflemektedir.

Anahtar Sözcükler: *İkna-edici oyunlar, Trolleme, Toksik davranışlar, Video oyunları*

- *To my family* -

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¹ In video games

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LIST OF ABBREVIATIONS

AFK	Away From Keyboard
F2P	Free to Play
FPS	First Person Shooter
LGBTQ+	Lesbian Gay Bisexual Transgender Queer and Other
MMO	Massive Multiplayer Online
MMORPG	Massive Multiplayer Online Role-playing Game
MOBA	Multiplayer Online Battle Arena
NLP	Natural Language Processing
NPC	Non-player Character
RPG	Role-playing Game
TS	Troll Simulator

CHAPTER 1

INTRODUCTION

Video games serve the core purpose of entertainment and enjoyment. People play games for several reasons, sometimes because of their ability to let them dive deep in the fantasy universes or because of the challenges they offer. They often get carried away, become immersed in the virtual worlds and sometimes this happens to an extent where they lose their sense of time (Calleja, 2011; Csikszentmihalyi, 1990). Games invite us into their *magic circle*, a space where within limits the game rules override the real-life rules: objects obey the game physics, the game world turns into the real world and the player becomes the character, and it is where the act of *play* happens (Huizinga, 1955; Salen & Zimmerman, 2003). People enter these closed systems, or in other words, games, for their enjoyment.

It is fair to say that games are universally appreciated: the estimated number of active gamers all over the world exceeded 2.2 billion by 2017 (McDonald, 2017). The number of people who play games has been rising. The ratio of American adults that play video games has increased from 49% to 65% since 2015 (Duggan, 2015; Entertainment Software Association, 2019). The ubiquity of recent technologies could be one of the leading reasons for this growth. Another explanation could be derived from the drastic increase in the number of games that have been shipped, which results in the broader selection of games to choose from for the gamers. For instance, there are 811,911 games offered in Apple's App Store in 2018 (Clement, 2018). As of the second quarter of 2019, there are approximately 367,725 games available in Google Play (Gough, 2019). The number of video games released on other platforms also correspond to the ones in mobile markets. There are approximately 30,000 games on Steam and 16,000 of those games were released since 2017, while 9,300 of them were released in 2018 (Meer, 2019).

Arguably, there is a massive demand for video games. This fact raises the question of whether video games could be utilized to go beyond entertainment and provide solutions for real-world problems. In fact, researchers, education professionals and game developers have discovered that video games have a potential for this, and they proposed solutions to tailor games for education and training purposes. That is how the term *serious games* was born. Serious games are games that were designed to deliver educational goals. They have been applied in various domains, such as education, business, health and military (Bogost, 2011). In particular, they were used to teach topics like math, science, language, etc. for

students; they facilitated employee or worker training; they were made for healthcare; and they were used as army recruitment tools (Bogost, 2007; Michael & Chen, 2006). Moreover, these objectives aside, video games can be used as instruments of persuasion, and they are also a medium that enables critique, satire or commentary (Bogost, 2007, 2008). It has started becoming common for both commercial games and non-commercial games to have educational aspects or a desire to change people's perspectives. For instance, gamers can learn a language by playing an RPG in *Learn Japanese to Survive! Hiragana Battle*, explore the concept of 'consent' in *Radiator 2* or 'censorship' in *The Westport Independent*, have an immersive experience of how mental health issues affect people in *Hellblade: Senua's Sacrifice*, learn about the culture of Iñupiat² in *Never Alone (Kisima Ingitchuna)*, etc.

We can conclude that games are capable of educating, making an impact, raising awareness and influencing audiences. Some games have this as their mission. These kind of games are often called *persuasive games* (Bogost, 2007). Persuasive games are designed to persuade the audience to have a change in their knowledge or level of awareness about certain topics or their attitude or behavior towards those topics (Soekarjo & van Oostendorp, 2015; Trépanier-Jobin, 2016). Additionally, studies have found that other structures like flow, engagement and immersion are also involved in persuasive processes (Ruggiero, 2014; Soekarjo & van Oostendorp, 2015). In particular, immersion and perceived realism are considered to be the key components of persuasion (Graesser, Chipman, Leeming, & Biedenbach, 2009; Hafner & Jansz, 2018).

A phenomenon we could possibly learn about by playing games lies in online spaces. People benefit from online spaces every day whether they are looking for information, want to socialize or play games. Social media platforms and other online communities provide countless opportunities for these activities, although these spaces are not always inherently safe for all of their users. One of the reasons for this is *online trolls* inhabiting these spaces and causing disruption with a destructive or deceptive intent (Buckels, Trapnell, & Paulhus, 2014). Online games are also platforms of online communication and expression. As a result, this makes online games also susceptible to disruptive behaviors like *trolling*. In fact, previous research states that undesirable behavior like *trash-talking*, *flaming*, *misdirection*, *offensive language* and *spamming* are observed commonly in online games and these behaviors are often considered as trolling (Cook, Schaafsma, & Antheunis, 2018; Kwak, Blackburn, & Han, 2015; Thacker & Griffiths, 2012).

By applying a descriptive research design, this study aims to observe the results of using a persuasive game as a tool to raise awareness about online trolling, specifically trolling behavior that occurs in multi-player online games. A game was designed and developed to be used in this study, where the players play the role of an internet troll by trolling other

² An Alaska Native people

people in a fictitious virtual setting. The data was collected from the participants by pre-test and post-test questionnaires. Therefore, their perceptions of trolling before and after playing the game could be compared.

1.1. Scope of the Study

This study combines the term persuasive games (Bogost, 2007) with expressive games (Genvo, 2016) and forms one unified definition for persuasive games. Therefore, a persuasive game uses procedural rhetoric and “encourages players to experience various ethical and moral choices, allowing them to understand the consequences of those choices” (Genvo, 2016, p. 90). In this study, the features to observe in the name of persuasive game effects are knowledge and awareness, while immersion and perceived realism are expected to enhance the persuasive processes.

Even though this study acknowledges the existence of harmless trolling that is often performed for various purposes from entailing criticism (Karataş & Binark, 2016) to welcoming newcomers to an online community (Bishop, 2014), I aim to explore disruptive trolling in the context of gaming. However, trolling, in literature, has been a confusing expression. When asked “what constitutes as trolling?”, researchers provide different answers to this question. Therefore, this study conceptualizes trolling by adapting the findings of previous research and making a unified concept.

As stated earlier, this study also aims to observe if a persuasive game that was designed to troll can be used as a tool to raise awareness. The game designed for this study is influenced by rhetoric of failure (Bogost, 2007). It forces the players to go through a negative experience taking the role of the perpetrator, which eventually ends with the perpetrator -or the troll being kicked out. Therefore, the game can never be won. The game is expected to evoke a negative experience that is associated with trolling, so the participants would understand that the behavior they were forced to perform is considered disruptive. Literature found that toxic players are unaware that they are being toxic (Kwak & Blackburn, 2014; Lin & Sun, 2005) and trolling is often associated with toxic behaviors (Kwak et al., 2015). Considering this, I aim to assess if the gameplay experience of a persuasive game about trolling, raised awareness about disruptive trolling behavior. Some persuasive games are found to have long-lasting effects behavior-wise, meaning, they were found to create behavioral change for the participants after playing them (Soekarjo & van Oostendorp, 2015). However, this study only addresses a change in knowledge and a raise in awareness. Behavioral and attitudinal change is not a part of the scope of this study. Additionally, the link between two persuasive structures, immersion and perceived realism, and persuasion is aimed to be observed in this study.

1.2. Research Questions

This study aims to answer three research questions and their sub-questions:

RQ1: Can a persuasive game raise awareness or knowledge about disruptive behaviors that trolls perform in online games?

RQ1a: What is the influence of the game on trolling knowledge?

How knowledgeable do people consider themselves about trolling?

Is there a self-reported change in knowledge after playing the game?

RQ1b: What is the influence of the game on trolling awareness?

How effective do people consider video games in raising awareness?

How effective do people consider Troll Simulator in raising awareness?

Is there a self-reported raise in awareness after playing the game?

RQ1c: How does immersion contribute to persuasion?

Is the game found to have an immersive gameplay experience?

Is the game found to demonstrate realistic troll behavior?

Is the game found to demonstrate realistic victim behaviors?

RQ1d: Is there a change in how people see trolling after playing the game?

RQ1e: Can the game demonstrate trolling behaviors?

RQ2: What do people consider trolling in multi-player online games?

RQ2a: What disruptive behaviors are perceived as trolling?

RQ2b: What disruptive behaviors are observed in games?

RQ2c: What are the perceived motivations for trolling?

RQ3: What are the previous trolling experiences?

RQ3a: How many people have trolled previously?

RQ3b: What disruptive behaviors did they perform to troll?

RQ3c: What was their motivation for trolling?

RQ3d: Do they define themselves as a troll?

RQ3e: Who are the trolls?

The proposed research framework for RQ1 consists of themes of *immersion*, *perceived realism*, *persuasion*, *knowledge*, *awareness* and *perception of trolling behavior*. The relation between these themes is shown in Figure 1.

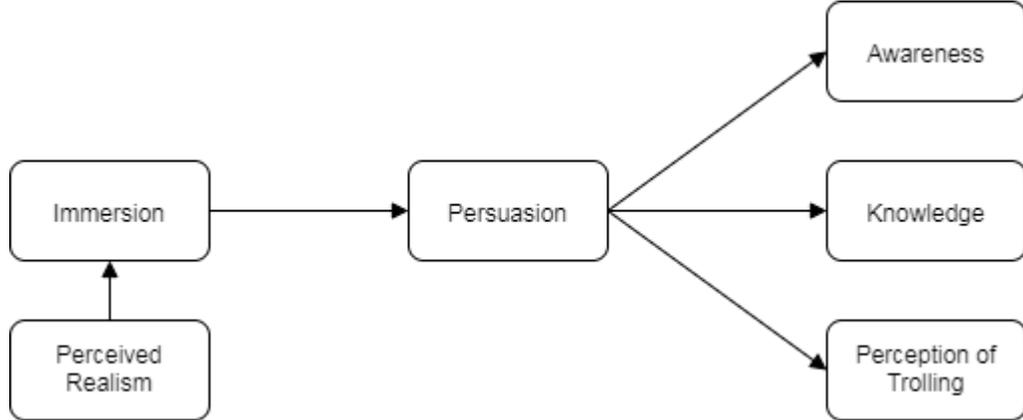


Figure 1: Proposed Research Framework for RQ1

1.3. Significance and Contribution of the Study

The literature about trolling behavior appears to have a great gap, especially in the context of gaming. The previous literature about trolling in online spaces mostly focuses on trolls in social networking platforms, forums and websites, like Twitter (Binark, Karataş, Çomu, & Koca, 2015; Karataş & Binark, 2016), YouTube (McCosker, 2014) and Wikipedia (Shachaf & Hara, 2010). While remaining as an under-researched field in literature, there is little empirical research about trolling behavior in the context of online gaming (Cook et al., 2018; Coyne, Chesney, Logan, & Madden, 2009; Kwak & Blackburn, 2014). In addition to that, most of the studies observe trolling behavior in a limited number of games and simulations, like *Second Life* and *League of Legends*. Multi-player online games are often considered to be synonymous with genres like MOBA's, MMORPG's and MMO's. However, trolling can occur in any kind of online game that is played with at least two people (i.e., multi-player game) as long as there is a medium for communication or some other sort of interaction. This study is significant because it observes the occurrences of trolling in games regardless of the genres and gaming platforms and includes trolls, bystanders and victims.

Similarly, persuasive games literature lacks sufficient empirical evidence to demonstrate the influence of persuasive games (Soekarjo & van Oostendorp, 2015). This study provides insight about how the persuasion works when participants are exposed to a short game with limited content and take the role of the perpetrator.

Moreover, it was found that toxic players are not always aware that they are toxic (Kwak & Blackburn, 2014; Lin & Sun, 2005) and trolling causes more trolling (Cook et al., 2018). The awareness needs to be raised, so it could potentially lead to a decrease in undesired behaviors. No other study about a trolling persuasive game was found. In this sense, this study plays a significant role in observing perceived trolling and how this perception can be altered by using a game.

Considering the research scope, this study contributes to persuasive games and trolling literature. Even though researchers appear to be the primary benefiter of this study, I aim for my work to be useful and educational for other people like game developers and gamers.

Furthermore, I made a presentation at an IEEE Conference that features the work from this current study: literature review of trolling behavior in online spaces and the context of gaming and early findings about how trolling behavior is perceived (Komaç & Çağıltay, 2019). The paper is soon to be published online in conference proceedings.

1.4. Outline of the Thesis

This thesis is constructed to consist of five chapters to discuss the aforementioned topics and find answers to the research questions. The chapters can be summarized as follows:

Chapter 1 - Introduction

This current chapter presents an introduction for the thesis by providing a brief background on the research fields, highlighting research questions and explaining the significance of the study.

Chapter 2 – Literature Review

Literature review regarding trolling, video games and, more specifically, persuasive games will be discussed in this chapter. The psychology of games will be introduced. Persuasive games literature will be presented with a focus on games for social change and games that encourage critical thinking. Additionally, effectiveness research will be outlined, and the other structures of persuasion will be elaborated. Then, an in-depth background is presented on trolling definitions and taxonomies in online spaces and the gaming context.

Chapter 3 – Methodology

This chapter is about the research design of this study. The methodology used will be explained in detail and research instruments will be presented.

Chapter 4 - Results

The analysis of the data collected for this study is explained in detail and the answers to the research questions will be discussed in this chapter.

Chapter 5 – Discussion & Conclusion

The fifth and final chapter will deliver the discussion of the findings, limitations for this study, implications for further research and conclusion.

CHAPTER 2

LITERATURE REVIEW

This chapter is composed of two parts; games and trolling, and presents an in-depth overview of the literature on persuasive games and trolling behavior. Even though persuasive games could be considered as a younger field of study, many researchers have built their works on it; they have given it different names, but purposes and meanings remain akin to it. These studies will be in focus. In order to have a thorough comprehension of persuasive games, supporting concepts such as psychology of games, serious games and psychology of persuasion are discussed. Furthermore, persuasive games will be exemplified, and persuasive structures and effectiveness measurement studies will be introduced. In the second part, trolling behavior in online spaces and gaming context will be explained in detail. The relation between trolling, toxic behavior and cyber-bullying will also be under the spotlight.

2.1. Psychology of Games

Enjoyment lies at the heart of games. “If players do not enjoy the game, then they will not play the game” (Sweetser & Wyeth, 2005, p. 1). In fact, enjoyment is the core of any activity one can think of. Scholars dedicated years of research in pursuit of understanding how and why enjoyment works. Psychology professor Csikszentmihalyi’s (1990) extensive observations led to a ubiquitous psychological concept: *flow theory*. Flow, or the optimal experience, defines a state of being fully immersed in what we are doing, regardless of the act itself. According to the flow theory, there is a relation between the abilities and skills of one and the difficulty of the task they are doing. When one’s skill level is balanced with the challenge of the task, they are neither bored because it is too easy for them, or frustrated because it is too hard for them (See Figure 2). Csikszentmihalyi (1990) identified the conditions that must be met in order one to be in *flow*:

1. A challenging activity that requires skills: One needs to have appropriate skills to overcome a challenge
2. The merging of action and awareness: “People become so involved in what they are doing that the activity becomes spontaneous, almost automatic; they stop being aware of themselves as separate from the actions they are performing” (Csikszentmihalyi, 1990, p. 53)

3. Clear Goals and Feedback: Goals need to be clear and feedback needs to be immediate
4. Concentration on the Task at Hand: “a complete focusing of attention” (Csikszentmihalyi, 1990, p. 58)
5. The paradox of control: “involving a sense of control” and “lacking the sense of worry about losing control that is typical in many situations of normal life” (Csikszentmihalyi, 1990, p. 59)
6. The Loss of Self-Consciousness: Not being concerned about self
7. The Transformation of Time: The way one perceives time is altered

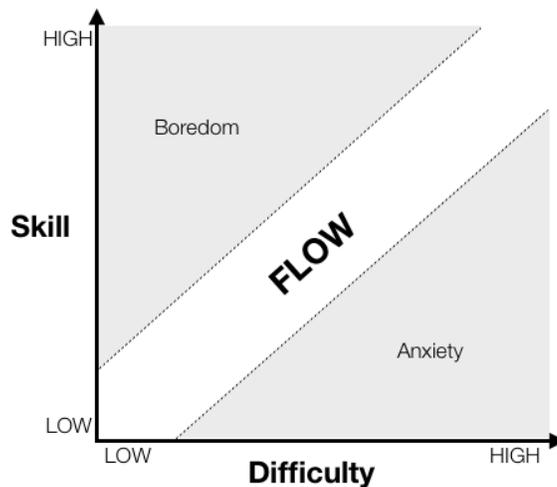


Figure 2: Baron’s (2012) adaptation of Csikszentmihalyi’s (1990) Flow Theory

Baron (2012) investigated Flow theory from a game design perspective and identified characteristics of flow in games, which are:

1. *Games should have concrete goals with manageable rules*
2. *Games should only demand actions that fit within a player's capabilities*
3. *Games should give clear and timely feedback on player performance.*
4. *Games should remove any extraneous information that inhibits concentration.*

Either knowingly or unknowingly, many game developers have applied these principles as a routine to achieve a successful game design. For instance, *Flow* is a game developed by Chen, that explores precisely the mechanism of *flow theory*. The gameplay experience is designed to automatically adjust the difficulty level of the game, specifically relative to the skill level that the player presents to have. In particular, if the game is easy for the player, the challenge is advanced, and if the game becomes too hard to manage, the challenge is reduced. This design approach intends to keep the player in the flow zone, so the player does not get bored or anxious.

Based on what we have learned from the literature, it would be fair to conclude with saying flow theory lies at the heart of any system that intends to engage enjoyment, and it would

not be surprising to encounter the principles of flow in highly immersive systems. In fact, Paras & Bizzocchi (2005) found the importance of flow in learning environments. They indicate that games are linked to learning by having ‘play’, ‘flow’ and ‘motivation’ as in-between steps: Games provide a medium for play; play enables a state of flow; flow increases motivation; motivation assists learning. Therefore, we can draw the conclusion that games can be tailored to initiate the learning process. Knowing this, now, we will focus on the educational aspects of video games first and get back to flow again later in this chapter.

2.2. Serious Games

As previously mentioned, the concept of *serious games* was formed from the idea of marrying educational materials with a medium of entertainment. But what are serious games? A serious game is defined as “a game in which education (in its various forms) is the primary goal, rather than entertainment” (Michael & Chen, 2006, p. 17). Similarly, Abt (1970) believes that while being entertaining, serious games also have an educational purpose. Although the name of the genre sounds like an oxymoron, the seriousness implies that there is another aspect of the game, which is the material that is related to learning. Considering this, a broader definition of the genre could be “using video games for serious purposes” (Djaouti, Alvarez, Jessel, & Rampnoux, 2011, p. 25), since there is more content involved than pure entertainment. It is also important to mention that, even though serious games are built with the education element at their core, it does not mean they have to be far from being entertaining or enjoyable (Michael & Chen, 2006). Adding to the thought that serious games serve a greater purpose than just the amusement of people, they utilize the artistic nature of games to “deliver a message, teach a lesson, or provide an experience” (Michael & Chen, 2006, p. 23). Even though the genre originates from the educational aspect, serious games are also used for a multitude of purposes, like training, health improvement and raising awareness (i.e., persuasive games). There is no doubt serious games are highly adopted; the literature finds the concept of teaching through a medium that is considered ‘fun’ (i.e., serious games) very effective and motivating (Abt, 1970; Gee, 2003; Michael & Chen, 2006).

Since the discovery of using playful systems to facilitate learning or similar activities, serious games became wide-spread and a very significant research field, besides creating myriad market opportunities. Hence, it drew the attention of scientists, scholars, game industry professionals and educators. There are numerous areas where serious games are being used, including, but not limited to: military games, government games, educational games, corporate games, health games, political games, religious games, art games, cyber security games, marketing and communication games (Bogost, 2007; Djaouti, Alvarez, & Jessel, 2011; Grevelink, 2015; Michael & Chen, 2006; Özorun, Çiçek, & Çağiltay, 2014). Among all of these sub-genres of serious games, there is one specific type of serious games that is dedicated to “communicating complex ethical and political messages” (Sicart, 2011). The next section focuses on this type of games, a.k.a. *persuasive games*.

2.3. Persuasive Games

2.3.1 What are Persuasive Games?

‘Persuasive Games’ is a term coined by Bogost (2007) and is often considered as a subcategory of serious games. As the name suggests, their main aim is to persuade the audience, in other words, to make the player think or behave in a certain way. The expression denotes games that deliver messages, draw arguments, alter or influence beliefs and behaviors (Bogost, 2007).

There are two models of persuasion, Bogost (2007) states, the classical model and the contemporary model; the former involving changing people’s opinions or actions, and the latter aiming to convey ideas in an effective way. This categorization is used to explain how serious games are different from persuasive games. Serious games, inherently, can also have a persuasive property. However, the persuasion by a serious game is performed by supporting the worldview of an institution (Trépanier-Jobin, 2016), as Bogost (2007, p. 57) puts it:

Educational games translate existing pedagogical goals into videogame form; government games translate existing political goals into videogame form; health games provide doctors and medical institutions with video game-based tools to accomplish their existing needs [etc.].

Trépanier-Jobin (2016) believes that this approach supports institutional goals and these goals do not include the whole range of persuasive possibilities. Therefore, it was necessary to introduce a new expression for the games that question the way things work, or demonstrate how they do not work (Bogost, 2007). Persuasive games, unlike serious games, dare to challenge and oppose the “fixed worldviews of institutions like governments or corporations” (Bogost, 2007, p. 57). Consequently, persuasive games differ from serious games in the sense that persuasive games are more about convincing the player about a topic.

In a recent study, a term that is closely interrelated with persuasive games was introduced. The term is called *expressive games* and it was coined to distinguish the domain of games that “encourages players to experience various ethical and moral choices, allowing them to understand the consequences of those choices” (Genvo, 2016, p. 90). Expressive games “explore cultural, social, psychological issues through an individual’s perspective in order to foster empathy, encourage reflection, and raise questions, while entertaining” (Trépanier-Jobin, 2016, pp. 112–113). Additionally, they challenge the players “without the intention of persuading, prescribing attitudes, provoking specific effects or achieving particular goals other than raising awareness or sensitizing people” (Trépanier-Jobin, 2016, p. 113).

The expressive power of video games is recognized by many other scholars and game designers as well. In their thesis, *Videogames of the Oppressed*, Frasca (2001) examines

video game design in the aspects of exploring social and political issues with the purpose of triggering critical thinking. The author considers video games to be accurate representations of reality. As of being interactive systems themselves, games engage players and encourage them to seek solutions for social problems.

Romero's controversial work called 'Train' could be considered as an example of such games (See 2.3.2 *Examples of Persuasive Games*). *Train* is a non-digital game about the Holocaust in a series of games called *The Message is the Mechanic* (Brathwaite & Sharp, 2010). According to the author, it "captures and expresses difficult experiences through the medium of a game. Much like photographs, paintings, literature and music are capable of transmitting the full range of the human experience from one human to another, so too can games. Due to their interactivity, games are capable of a higher form of communication, one which actively engages the participant and makes them a part of the experience rather than a passive observer" (Brathwaite & Sharp, 2010, p. 315). The author also states that "Train ultimately asks players to question their assumed knowledge of a system, in this case, a game—we are here to have fun, and we are going somewhere good." (Brathwaite & Sharp, 2010, p. 319). Although not being classified as a persuasive game, the characteristics of persuasive games can be observed, like the implementation of procedural rhetoric (Bogost, 2007), which will be discussed in detail in section 2.3.3. *How does persuasion work?*. Even though procedural rhetoric is a term that belongs to the domain of digital platforms, it would be reasonable to address the same mechanism in the domain of non-digital games.

Critical Play is another instance to observe "artistic, political, and social critique or intervention" in game design (Flanagan, 2009, p. 2). Flanagan, in their book sharing the same title, *Critical Play*, takes sociological aspects of games under the spotlight and sees games as a space for critical thinking and tools to trigger social change.

Likewise, *Games for Change*, a non-profit corporation that encourages the production of games "to drive real-world change using games and technology that help people to learn, improve their communities, and contribute to make the world a better place" (Games For Change, n.d.). They offer a broad range of educational and persuasive games that explore the themes of poverty, being a refugee, immigration, stigma associated with mental illness, challenges that LGBTQ+ people face, addiction, autism awareness and acceptance, child marriage, homelessness, news literacy and many more. One of the board members of Game for Change, McGonigal, who is also a scholar, argues that games are used to raise the quality of life and invent a better future in their book titled *Reality is Broken: Why Games Make Us Better and How They Can Change the World*. Their work proposes ways "to leverage the power of games to reinvent everything from government, health care, and education to traditional media, marketing, and entrepreneurship— even world peace" (McGonigal, 2011, p. 8).

Another scholar and game designer, Pedercini (2014), often addresses themes that criticize capitalism in their Molleindustria³ project, such as alienation and labor. The author believes the systems need to be represented in games as they are – with all of their flaws and conflicts. Moreover, the author states it is essential to problematize broken and dysfunctional systems, even if it means sacrificing playability and elegance in design: “Algorithms must learn to tell stories and scream in pain” (Pedercini, 2014).

From what the literature suggests, we conclude that persuasive games often introduce an issue, a system, a challenge, a question, and work towards influencing its audience. The persuasion process involves reasoning, demonstrating logical relations between the entities that all together form the system, and showing the possible or predicted outcomes of certain actions (Bogost, 2007). Furthermore, persuasive games, unlike serious games, are not only about teaching a subject but more about creating awareness and making us think. Considering this paradigm, it would be accurate to state that persuasive games are about creating an experience that is intended to result in *awareness*, and this awareness possibly leads to a *change*. They are about influencing the player’s world view.

This current study uses the expression *persuasive games* as an umbrella term that encompasses Bogost’s (2007) persuasive games and works of other scholars and communities discussed in this section. Knowing this conceptualization, games “that are united in their intentions to change or reinforce attitudes” (Jacobs, Jansz, & de la Hera, 2017), or sometimes to raise awareness (Antonacci, Bertolo, & Mariani, 2017; Sítas, 2017), are considered as persuasive games in this study. Some examples of persuasive games implementing these features are presented in the next section.

2.3.2 Examples of Persuasive Games

As discussed previously, persuasive games are a framework for games that often aspire to evoke critical thinking. Some examples of such persuasive games are given in this section.

Train:

Train is a non-digital game that is about the sensitive theme of the Holocaust. The message is conveyed with the help of the game mechanics. At first, the players are told the objective of the game is to fill the trains with people and transport them to a location. However, the locations are not revealed until certain progress is made in the game. Once the location names are revealed, which the players find out to be the names of Nazi concentration camps, players are often shocked and nauseated (Brathwaite & Sharp, 2010).

³ The author describes it as “A project of reappropriation of video games” on <http://www.molleindustria.org/blog/about/>

Homelessness – It’s No Game:

Lavender (2008) developed Homelessness - It’s No Game as a persuasive game that aims for its players to experience how it is to be a homeless person. It is a short Flash-based video game where the player needs to make critical decisions to find safety, food and other essential needs for their survival.

Antiwargame:

Antiwargame is a persuasive game developed by Futurefarmers. It is a Flash-based web browser game. The game is played as the president of the United States of America. The game takes place in a post-9/11 era, which is heavily influenced by the war on terrorism. The role of the player as the president is to make decisions on the amount of budget each of three items receive, which are Military/Business, Social Spendings and Foreign Aid. The decisions made may lead to a revolution and resignation of the president or assassination of the president. Antiwargame argues “that business and military interests are two sides of the same coin” (Trépanier-Jobin, 2016, p. 112). The game also demonstrates how the mechanics of the war on terrorism in the U.S.A. do not work and lead to failure by deploying rhetoric of failure and it “opposes war by claiming that a broken logic drives post-9/11 conflicts” (Bogost, 2007, p. 84).

My Cotton Picking Life:

My Cotton Picking Life is about child labor in the cotton fields. The game progresses as the player’s avatar, a child, picks cotton. However, the gameplay is very slow and not rewarding. The player needs to spend many hours in order to collect the required amount of cotton to earn money, which is intended to make a depiction on a realistic scale; child labor is exploited as children pick cotton and get a very low wage while doing that.

Baayan:

Baayan is an adventure game developed by Komaç, Çetin and Keleş in Global Game Jam⁴ 2016. It consists of three chapters and each chapter tells a different story regarding women’s issues. These issues include traditions that have affected women’s lives throughout history. In the stories, themes like child marriage, violence against women and misogyny are explored.

⁴ A public game development event that is held annually all around the world, where game developers gather at jam sites during a whole weekend and develop their games with the given theme.

2.3.3 How Does Persuasion Work?

Psychology of Persuasion:

Communication scholars have had different definitions of persuasion. To demonstrate their varying approaches to the topic, Perloff listed some of the major definitions, which are as follows (Perloff, 2017, pp. 21–22):

- a communication process in which the communicator seeks to elicit a desired response from his receiver (Andersen, 1971, p. 6);
- a conscious attempt by one individual to change the attitudes, beliefs, or behavior of another individual or group of individuals through the transmission of some message (Bettinghaus & Cody, 1987, p. 3);
- a symbolic activity whose purpose is to effect the internalization or voluntary acceptance of new cognitive states or patterns of overt behavior through the exchange of messages (Smith, 1982, p. 7);
- a successful intentional effort at influencing another's mental state through communication in a circumstance in which the persuadee has some measure of freedom (O'Keefe, 2016, p. 4).

Perloff has conceptualized persuasion based on other scholars' work added their own perspective to it. According to Perloff, persuasion is “a symbolic process in which communicators try to convince other people to change their own attitudes or behaviors regarding an issue through the transmission of a message in an atmosphere of free choice” (Perloff, 2017, p. 22). Persuasion involves the use of symbols, an intent to influence a person's attitude or behavior, the transmission of a message, self-persuasion and free choice (Perloff, 2017).

With the motive of understanding the reasons behind people saying yes to one another and how compliance works, experimental social psychologist Cialdini (2009) has started researching psychology of persuasion. The scholar has observed professionals in sales and advertising and similar other professions that practice compliance as a part of their job to identify the “weapons of influence” (Cialdini, 2009, p. xi). The most common strategies that lead to persuasion are grouped under six categories in the book *Influence: Science and Practice*, which are *reciprocation, commitment and consistency, social proof, liking, authority and scarcity*.

These scholars' works provide a general explanation of what is persuasion and how it works. The persuasive properties within the scope of game studies are discussed by other scholars, such as Bogost, Sicart and Evans.

Bogost's 'Procedural Rhetoric':

In their book, *Persuasive Games: The Expressive Power of Video Games*, Bogost (2007) states that rhetoric is the crucial ingredient of persuasive games. Rhetoric, as the author notes, has been demonstrated in many forms throughout history, adapting to different

media and their means of communication; there is oral rhetoric, written rhetoric, visual rhetoric and digital rhetoric (Bogost, 2007). Oral and written rhetoric depends on the usage of language, in the same way, visual rhetoric is expressed through images and digital rhetoric appears in digital spaces like “e-mail, web sites, message boards, blogs, and wikis” (Bogost, 2008, p. 125). With the rise of the expressive characteristic of video games, a new type of rhetoric has emerged, and it is called *procedural rhetoric*.

Procedural rhetoric is a term introduced by Bogost and is defined as “using processes persuasively” (2007, p. 3). In other words, procedural rhetoric operates by deploying procedures in a meaningful manner that functions as the core of the game. What Bogost means by ‘procedures’ is the code of the computer program. The message is conveyed through the code, which is a closed system of a certain set of rules (Bogost, 2008), or ‘*game mechanics*’, as it is referred to in game studies. The player’s actions determine the consequences; hence the message is conveyed by demonstrating the links between the action and the outcome. This technique aims to depict how complex systems work and how the player’s actions and choices can affect these systems.

Another concept that shows similarity to procedural rhetoric with a twist is called ‘rhetoric of failure’ (Bogost, 2007). According to Bogost, since procedural rhetoric aims to present how systems work, rhetoric of failure demonstrates how systems do not work. Therefore, regardless of the actions taken, the game is designed to lead the player to failure. As Bogost notes, “tragedy in games tends to find its procedural representation in this trope” (2007, p. 84). Furthermore, by leading the player to failure, the message is conveyed by the game mechanics design as in procedural rhetoric.

In short, Bogost introduced procedural rhetoric to disclose the mechanisms of persuasion within games. The scholar’s contribution helps us have a solid grasp of how rule-based systems shape the persuasive process in video games. Contrarily, other scholars such as Sicart and Evans argue that Bogost’s theory is inadequate in explaining how persuasion works in video games and further theory is required to understand it.

Sicart is ‘Against Procedurality’:

Sicart (2011), in their work titled *Against Procedurality*, takes a critical stance on procedural rhetoric by questioning the validity of the literature on this topic and presenting the flaws in procedural discourse. They state that proceduralist discourse “started as a ludological focus on how games can convey political message” with Bogost’s work, which is based on Murray’s (1997) work, that emphasizes the procedural nature of video games (Sicart, 2011). Previously discussed ‘*critical play*’ (Flanagan, 2009) and ‘*the mechanic is the message*’ (Brathwaite & Sharp, 2010) concepts are classified as proceduralist, along with Bogost, by Sicart.

Before elaborating more on how the author pinpoints the flaws of proceduralilty, we should have a look at their viewpoint (Sicart, 2011):

- *Proceduralism is interested in the ways arguments are embedded in the rules of a game, and how these rules are expressed, communicated to, and understood by a player.*
- *Proceduralists claim that players, by reconstructing the meaning embedded in the rules, are persuaded by virtue of the games' procedural nature.*
- *[Bogost's work's] success has also implied the widespread acceptance of procedural rhetoric as a way of understanding videogames are capable of communicating complex ethical and political messages.*

According to Sicart (2011), proceduralist tradition applies a designer-centric approach in game design process. This is understandable in a sense that the designer has the concern of conveying a certain message. However, the author states, this distances the player from the game by inherently having a “lack of interest in player and play” (Sicart, 2011). The author also notes that there is no room for self-expression for the player and it takes away the player's productivity and creativity. Additionally, the author clarifies why it is necessary to combine ‘*procedurality*’ and ‘*play*’, but leave some room for exploration while doing so:

Procedurality explains the whys and hows of how game technology operates, and how games can aspire, as designed objects, to funnel behaviors for reflection. Play, however, is personal, individual, and communitarian, played with others, for others, in an intensely, deeply personal way. And politics and ethics are personal, too. Therefore, when a player engages with a game, we enter the realm of play, where the rules are a dialogue and the message, a conversation.

Evans's ‘Procedural Ethos’:

Evans (2011) states that, for a serious game to achieve persuasion, Bogost's (2007) concept of procedural rhetoric alone is inadequate and adds that such games fail to fulfill classical requisites for persuasion. Moreover, the author adds that in order to be considered persuasive, serious games need to “additionally demonstrate the components of ethos, which include: phronesis (practical knowledge, factual basis), arête (integrity, virtue), and eunoia (goodwill, concern for the hearer)” (Evans, 2011, p. 70). Based on the author's findings, procedural ethos can be achieved by following these components:

- **Phronesis (Persuasion by fact):** Demonstrate the link between the argument and the fact and assure the speaker is eligible (The speaker is the game developer in the context of games)
- **Arête (Persuasion by integrity):** Demonstrate the objectivity of the argument and credibility of the source
- **Eunoia (Persuasion by Empathy):** Demonstrate that the argument is sincerely made

Furthermore, the questions that need to be answered in order to have a functioning persuasiveness considering procedural ethos are (Evans, 2011, p. 72):

1) *Is it demonstrated to the player that the characters, actions, events, processes, and/or rules in the game are factual, and that these are accurately represented in the game (phronesis)?*

2) *Is a player convinced that the game play or simulation is a fair and just model of reality, that the real world works as represented in the procedural rhetoric of the game, and that the designers are presenting the whole truth with integrity (arête)?*

3) *Is a player convinced that the game is not manipulating or deceiving the player by the procedural arguments but is rather on the player's side (eunoia)?*

2.3.4 Persuasive Structures in Persuasive Games

A Model for Persuasive Dimensions:

Similar to what Sicart believes, other studies also place the player in focus. For instance, De la Hera Conde-Pumpido (2015; 2013) proposed a player-centric model to analyze persuasion in video games. The model is used to identify different aspects of persuasion the game communicates. The model consists of three levels of persuasion: *the signs, the system* and *the context* (see Figure 3). The signs are derived from the representational world of digital games and they are manipulated to gain a persuasive quality. The signs level includes *visual persuasion, sonic persuasion, linguistic persuasion* and *haptic persuasion*. These dimensions all-together form the inner-most layer of the author's model. Then, the middle layer in the model corresponds to the system, which is the second level of persuasion. It contains the persuasive dimensions that "help the player to establish relationships between the signs of the first level, thus guiding his interpretation" (De La Hera Conde-Pumpido, 2013, p. 6). The author groups them as *procedural persuasion, narrative persuasion* and *cinematic persuasion*. The outer-most layer, or the contexts level is the third level of persuasion and it consists of *sensorial persuasion, affective persuasion, tactical persuasion* and *social persuasion*. These dimensions are "able to generate cognitive frames that result in contexts that affect how players interpret the game" (De La Hera Conde-Pumpido, 2013, p. 6). The author believes that this model could be used to facilitate the study and implementation of persuasive strategies in video games.

Immersion and Flow:

Game studies literature often addresses the concepts of *engagement, flow, immersion, involvement, transportation* and *enjoyment* while explaining why players play a game or how to keep them playing (Calleja, 2011; Csikszentmihalyi, 1990; Green & Brock, 2002; Hafner & Jansz, 2018; Michailidis, Balaguer-Ballester, & He, 2018; Otzen, 2015; Ruggiero, 2014; Soekarjo & van Oostendorp, 2015). As discussed previously, flow is the name given to the optimal experience and, in the gaming context, it requires the player to

be immersed in the activity as a prerequisite (Csikszentmihalyi, 1990; Otzen, 2015). Arguably these often overlapping or otherwise related structures are equally important and valid in game studies. However, as stated earlier, I have taken immersion as the focus of this study to simplify matters and avoid confusion.

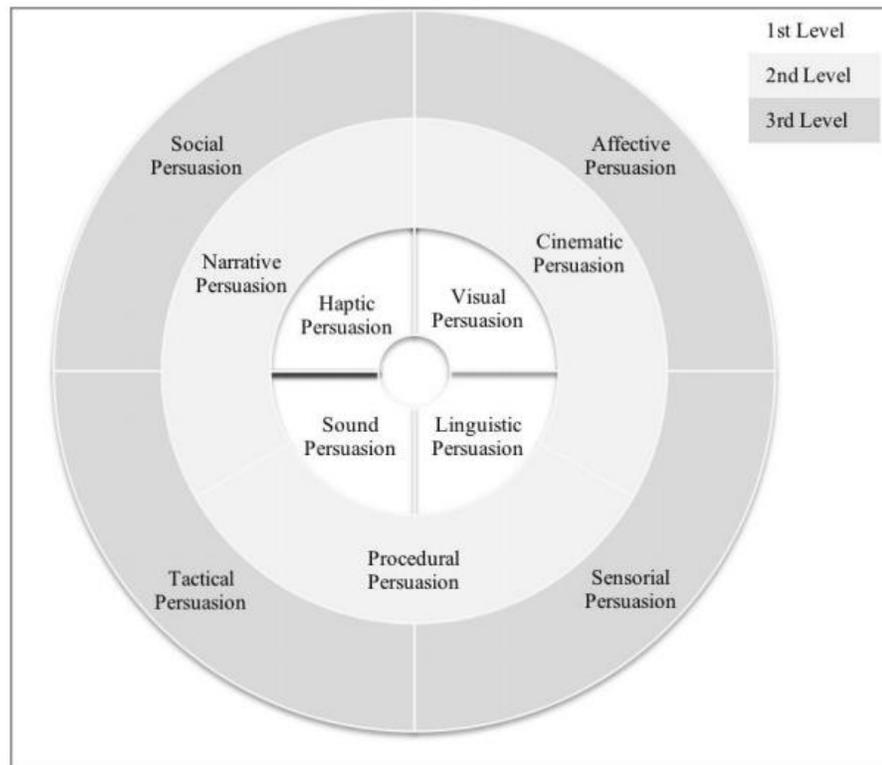


Figure 3: Model of Persuasive Dimensions in Games (Jacobs et al., 2017, p. 155)

Immersion, in the context of gaming, is defined as “when players become virtually a part of a gaming experience themselves” (Pine & Gilmore, 1999, as cited in Hafner, 2016, p. 7), and is one of the key components of persuasion (Hafner & Jansz, 2018; Murray, 1997). Researchers found that the more immersive readers considered a narrative, the more persuasive it will be (Green & Brock, 2002; Hafner, 2016; Hafner & Jansz, 2018). Moreover, immersion is found to be a highly relevant component of successful game design (Csikszentmihalyi, 1990; Otzen, 2015) besides playing a significant role in persuasion. In the pursuit of discovering the connection between flow and immersion, Otzen (2015) examined the comparison of Csikszentmihalyi’s flow elements with Jones’s manifestations of these elements in games (see Table 1). They found that immersive elements are included in flow, and more specifically, immersion acts as a precursor to flow.

Although Frasca (2001) believes that realistic accuracy of simulations is not a priority and video games would still be effective in triggering and guiding discussions without implementing highly realistic representations, Hafner and Jansz’s (2018) study

demonstrated that the relevance of perceived realism contributed to immersion. Even though perceived realism is seen as an essential aspect of video games and acts as a precedent for immersion (Hafner & Jansz, 2018), more empirical research is required to support this statement.

Table 1: Comparison of flow and manifestation (Otzen, 2015, p. 4)

Element of Flow	Manifestation in a game
1. Task that we can complete	The use of levels in games provides small sections that lead to the completion of the entire task.
2. Ability to concentrate on task	Creation of convincing worlds that draw users in. The dungeons and labyrinths in Doom II help suspend your belief systems for a time.
3. Task has clear goals	Survival, collection of points, gathering of objects and artefacts, solving the puzzle.
4. Task provides immediate feedback	Shoot people and they die. Find a clue, and you can put it in your bag.
5. Deep but effortless involvement (losing awareness of worry and frustration of everyday)	The creation of environments far removed from what we know to be real helps suspend belief systems and takes us away from the ordinary.
6. Exercising a sense of control over their actions	Mastering controls of the game, such as a mouse movement or keyboard combinations.
7. Concern for self disappears during flow, but sense of self is stronger after flow activity	Many games provide for an environment that is a simulation of life and death. One can cheat death and not really die. People stay up all night to play these games. It is the creation of an integration of representation, problem, and control over systems that promotes this.
8. Sense of duration of time is altered.	Years can be played out in hours; battles can be conducted in minutes. The key point is that people stay up all night playing these games.

2.3.5 Measuring Effectiveness of Persuasive Games

The literature helped us understand when and how to use persuasive games and how they persuade. In addition to that, it is essential to review effectiveness studies in serious and persuasive games. Measuring effectiveness is worthy of attention because it assesses the tools of communication that shape the future of society. The results could notify the scientists if the design is working as intended and guide game developers in future designs. The effectiveness of persuasive games is yet a maturing domain. However, empirical research could give us insight.

One of the first studies about measuring effectiveness of persuasive games was a thesis study by Lavender (2008). They conducted this study to evaluate the effectiveness of a persuasive game about homelessness that they had developed. The research design included three conditions; control condition, narrative group, and game group where the narrative group read a narrative text and the game group played a game about the same topic. It was found that the participants in the game group had an increased sympathy towards the homeless on the post-test (immediately after playing the game) and this result

persisted in the follow-up test days later, even though demonstrating similar effects on post-test, the narrative group's level of sympathy dropped.

Soekarjo and van Oostendorp (2015) surveyed the literature for studies about measuring the effectiveness of persuasive games. They found 15 games with studies to evaluate their effectiveness. They summarized the methodologies used and compared the research designs and results of these studies. The effects that persuasive games have are classified under 3 categories: change in knowledge, change in attitude and change in behavior (Soekarjo & van Oostendorp, 2015). As an important note, Soekarjo and van Oostendorp grouped 'awareness' together with 'knowledge'. While some games only aim for acknowledgment of the introduced topic, some others intend to cause behavioral changes up to an extent.

Of the 15 studies Soekarjo and van Oostendorp (2015) examined, 7 included a control condition, while the other 8 did not. The majority of these studies (13 out of 15) deployed a pre-test and post-test design, with some having extra measures either during the test or as a follow-up. Moreover, 9 out of 15 studies observed if there was a change in knowledge. The results state that 5 studies demonstrated a significant increase in knowledge after playing the game and 2 studies found increased awareness after playing the game.

2.4. Trolling

2.4.1 What is Trolling?

Trolling is a broad and yet an ambiguous term. Even though it has started attracting the attention of researchers, especially in recent years, it remains as a sophisticated phenomenon with little empirical research made, that has yet to be observed thoroughly. What makes this research area even more complicated is the lack of consensus amongst the literature about what could be considered as a troll and to what extent a particular behavior is labeled as trolling. Trolling is often associated and sometimes merged with toxic behaviors and cyber-bullying. The distinction between the terms is sometimes unclear. For convenience, this study conceptualizes trolling as a combination of trolling behaviors and toxic behaviors, which will be elaborated on in this chapter.

Before starting to dig into the literature, I will firstly introduce the actors in an occurrence of trolling in order to follow the dynamics of the behavior easily. The roles observed in an occurrence of trolling are *troll* (or an *online troll*), *bystander* and *trolling victim* (or in short, *victim*) and they are derived from Huang & Chou's (2010) study. A 'troll' is the perpetrator of the trolling behavior. A 'victim' is the person whom the act of trolling is directed at. A 'bystander' is the witness of trolling behavior; however, they do not experience it first-hand like the victim.

It is unknown where the word *troll* originates from. However, there are multiple theories. Some researchers associate it with terms used by U.S. military and U.S. Navy (Bishop, 2014), but some others think it derives from a fishing term: "the trailing of a baited hook

to see what bites” (Crystal, 2004, p. 52). Online troll could possibly be named after the fishing term since trolling behavior often involves throwing bait in order to provoke their victim into a distressing interaction. Crystal (2004) believes that the ancestor of the online troll could be the creature in Scandinavian folklore with the same name, troll. Making its appearance in the *Prose Edda*⁵, trolls are usually depicted as unfriendly beings that dwell in the wilderness and guard bridges and would not let people pass if they get a wrong answer to their question (Crystal, 2004; Geller, 2017). Their contemporary equivalent, online trolls, lurk under the bridges of the internet, choose their victims and perform their attacks. Considering the resemblance, the warnings made about trolls in Scandinavian folklore seems to be also valid for online trolls: "Unless you are a quick-thinker, an encounter with a Troll never ends well" (Geller, 2017).

When we examine the literature of trolling in online spaces and online games, we can see the recurring themes of ‘deception’ and ‘disruption’ are used for defining trolls (Bishop, 2014; Buckels et al., 2014; Donath, 1999; Herring, Job-Sluder, Scheckler, & Barab, 2002; Thacker & Griffiths, 2012). For example, Donath’s (1999, p. 43) definition of trolling is “a game about identity deception, albeit one that is played without the consent of most of the players”. Similarly, Buckels et al. (2014, p. 97) consider trolling as acting in a “deceptive, destructive, or disruptive manner in a social setting on the Internet with no apparent instrumental purpose”. Contrarily, deception is not necessarily a criterion for defining troll for other researchers (Fichman and Sanfilippo, 2014, as cited in Cook, Schaafsma, & Antheunis, 2018). In addition to that, some other studies highlight other attributes of trolling. For instance, Hardaker’s (2010) findings shed light on the key characteristics of trolling, which are aggression and success, along with deception and disruption. A troll, as defined by the author, is someone who gains the trust of a group by disguising into a non-hostile identity, and conceals their true intention(s), which “is/are to cause disruption and/or to trigger or exacerbate conflict” (Hardaker, 2010, p. 237). Besides of these themes, the literature often considers trolling as a useless and pointless act, where the perpetrator drags the victim into a conversation which has no relevance to the primary topic discussed and often results in wasting time (Buckels et al., 2014; Herring et al., 2002; Turner, Smith, Fisher, & Welse, 2005).

Moreover, a vast majority of literature discloses the hostile nature of trolling (Buckels et al., 2014; Cook et al., 2018; Fichman & Sanfilippo, 2015; Herring et al., 2002; O’Sullivan & Flanagan, 2003; Shachaf & Hara, 2010). However, it was also revealed that trolling is not always performed with a hostile intent (Bishop, 2014; Cook et al., 2018). More specifically, Cook et al. (2018) suggest that trolling can vary in the way it was presented depending on the intention: anti-social, asocial and prosocial. They have split trolling into three categories based on the elements of trolling, which are attack, sensation-seeking and interaction-seeking. According to the authors, while ‘attack’ category corresponds to anti-social behaviors, ‘sensation-seeking’ trolling is not inherently good or bad and therefore

⁵ One of the oldest texts of Scandinavian culture

seems asocial. However, ‘interaction-seeking’ trolling could be either prosocial or asocial, in a sense that it is “an unorthodox method of communication designed to make players get involved in both the conversation and the game” (Cook et al., 2018). Furthermore, non-hostility is observed in Bishop’s (2014) classifications based on the history of trolling in a study where they examined representations of trolls in mass media communication.

Acknowledging that trolling does not inherently involve hostile intents, we should take a closer look at the history of trolling to have an image of how the phenomenon started and evolved throughout its life. Bishop (2014) states that the dynamics of trolling have changed in roughly the last decade: what trolling is today looks nothing like what it was in the early 1990’s when it became a common expression on Usenet⁶. According to the author, trolling used to be a tool to welcome the new members to a community and make a bond in the community, which all parties benefit from. This finding resembles Cook et al.’s (2018) interaction-seeking trolls. However, once serving for the purpose of mutual enjoyment in an online community, its practice has shifted towards a more sinister nature, as Bishop (2014, p. 8) describes it: “The term trolling has essentially gone from meaning provoking others for mutual enjoyment to meaning abusing others for only one’s own enjoyment”. The toxicity started rising as a series of ‘*R.I.P. Trolling*’ where the memorial pages of deceased people were attacked (Bishop, 2014). “Transgressive and subversive humor” became synonymous to troll when the perpetrators started sharing their abuses of others on a website, for their own enjoyment (Bishop, 2014, p. 9). To clarify the distinction between the former type and the latter type, two terms were introduced by Bishop: “classical trolling” and “anonymous trolling”. Anonymous trolling is considered as an action performed for a “person’s own sick enjoyment” (Bishop, 2014, p. 9). Before being evolved into anonymous trolling, classical trolling was a harmless source for consensual entertainment of the community.

In addition to that, Bishop (2014) classified trolling under two other categories, ‘kudos trolling’ and ‘flame trolling’. The author introduced an analogy to explain the terms *kudos trolling* and *flame trolling* for the sake of convenience. “Lolz not Lulz”, being the author’s proposed version of an anti-troll campaign called “Lolz not trolls”, would serve the purpose of encouraging the mutual entertainment and discouraging abuse. Lolz⁷ is a synonym for kudos trolling and Lulz⁸ is a synonym for flame trolling (Bishop, 2014).

When the in-game communication dynamics are taken into account, online trolling needs to be redefined to include gameplay-specific behaviors. For instance, terms like ‘griefing’ and ‘feeding’ are introduced. This topic is explained in detail later in this chapter, in 2.4.3 *Trolling in the gaming context* section.

⁶ A platform for online discussions.

⁷ ‘Lolz’ is an abbreviation derived from ‘LOL’, which in the online chat jargon means ‘laughing out loud’

⁸ ‘Lulz’ also means ‘laughing out loud’ but also has a hostile intent

2.4.2 Why Does Trolling Occur?

A study examined comprehensive personality profiles of Internet trolls and found that trolling correlated positively with three of four variables of *Dark Tetrad* of personality, which are sadism, psychopathy, and Machiavellianism (Buckels et al., 2014). Out of the three, sadism showed the highest association with trolling. According to the authors, trolling seems like “an Internet manifestation of everyday sadism” (Buckels et al., 2014, p. 97). In the same study, a similarity of trolling behavior and sadism was emphasized: Both trolls and sadists feel joy by distressing others. Moreover, they associated ‘lulz’ trolling with sadism by stating that it is the troll-speak equivalent of sadistic pleasure, which aligns with literature’s findings (Bishop, 2014).

To understand trolling motivations, data was collected directly from self-confessed online trolls, in a recent study (Cook et al., 2018). The researchers conducted semi-structured interviews with the trolls and identified trolling triggers and goals, where “triggers were referred to as a catalyst to begin trolling” and “goals refer to the ultimate achievement desired by the troll” (Cook et al., 2018, p. 3330). Trolling goals identified in the same study are ‘personal enjoyment’, ‘revenge’ and ‘thrill-seeking’. Out of all the trolling triggers, ‘being trolled’ is identified as the single most popular trolling initiator. Other trolling triggers include noticing weakness in others, boredom, trying to win at trolling. In addition to that, trolling due to boredom is perceived as a meta-game to the troll. There is also a mention of circumstantial triggers, for example, trolling in the pre-game lobby of online multi-player games (Cook et al., 2018):

In most online games, there is a ‘pre-game lobby’ in which players select their characters or avatars. Players can also chat in this pre-game lobby. The pre-game seems to set the tone for the rest of the game, and it is where trolling initiates in games [...].

The findings from other studies aligned with what Cook and colleagues suggested. A study that was conducted on gamers identified reasons for trolling as ‘amusement’, ‘boredom’ and ‘revenge’ (Thacker & Griffiths, 2012). Expectedly, *Wikipedia* trolls were found to have similar motivations: ‘boredom’, ‘attention-seeking’ and ‘revenge’ (Shachaf & Hara, 2010).

There are other types of trolling that cease to be linked to these properties in literature. A recently conducted study about Twitter trolls found that politically charged trolls played a significant role in promoting lynching of the opposition leaders and journalists during key political happenings in Turkey in the past few years (Binark et al., 2015). Another study (Mihaylov, Georgiev, & Nakov, 2015) states that ‘*opinion manipulation trolls*’ spread misinformation in order to manipulate user opinion about products, companies and politics. Moreover, hired manipulative trolls are used to influence public opinion, which was exposed by Bulgarian media (Mihaylov et al., 2015). Another research found that there are trolls that do not engage in toxic behavior on Twitter, in Turkey, who create content that also functions as criticism (Karataş & Binark, 2016).

2.4.3 Trolling in the Gaming Context

As aforementioned, the trolling behavior observed in online spaces is inadequate in covering trolling behavior in the gaming context. This is due to the communication characteristics of games. Some types of toxic behaviors that are observed in online spaces also appear in multi-player online games, for instance, flaming. In fact, it is often merged with trolling (Herring et al., 2002). Flaming is a term used to describe general hostile and aggressive behavior, which sometimes involves profanity, name-calling, insults and holds the purpose of provoking (Cook et al., 2018; Kayany, 1998; O'Sullivan & Flanagin, 2003). However, there are other types of toxic behaviors that are gameplay-specific, namely, griefing and feeding. Warner & Raiter (2005, as cited in, Coyne et al., 2009, p. 215) define griefing as “intentional harassment of other players ... which utilizes aspects of the game structure or physics in unintended ways to cause distress for other players”. Like griefing, ‘feeding’ or ‘intentional feeding’ is considered as a toxic behavior. It is defined as “when a player deliberately allows the other team to kill them, thus feeding the enemies with gold and experience in turn allowing them to become quite powerful” (Kwak & Blackburn, 2014, p. 6). Although some researchers classified these behaviors separate from trolling (Coyne et al., 2009; Kwak & Blackburn, 2014), for this study, these behaviors are merged as trolling behavior.

The literature review led to three comprehensive studies on trolling behavior in the gaming context. The first one is an exploratory study that identified types of trolling and trolling motivations by conducting an online survey to a self-selected sample of 125 gamers (Thacker & Griffiths, 2012). The types of trolling were identified as griefing, sexism/racism and faking/intentional fallacy. In the same study, they have found that two-thirds of gamers have trolled previously, and frequent trolls are younger and male.

Another study (Kwak et al., 2015) explored toxic behavior in team competition online games. They have used large datasets based on crowdsourced decisions of the MOBA game named *League of Legends*. The crowdsourcing system is used to resolve what happens to reported players; should they be punished or not. The categories for toxic playing are defined in the system as assisting enemy team, intentional feeding, offensive language, verbal abuse, negative attitude, inappropriate name, spamming, unskilled player, refusing to communicate with the team and leaving the game/AFK. However, the last three of these behaviors are not taken into evaluation in the crowdsourcing system.

As of now, on Riot Games website, the developer of *League of Legends*, the disciplinary system for the game has a list of behaviors that are “unacceptable and may be acted on” (“Reporting a Player - Riot Games Support,” n.d.). Those behaviors are as follows:

- *Insulting, harassing, or offensive language directed at other players.*
- *Any kind of hate speech such as homophobia, sexism, racism, and ableism.*
- *Intentionally ruining the game for other players with in game actions such as griefing, feeding, or purposely playing in a way to make it harder for the rest of the team.*

- *Leaving or going AFK at any point during the match being played.*
- *Unnecessarily disruptive language or behavior that derails the match for other players.*
- *Inappropriate Summoner Names.*

The last of the comprehensive studies about trolling behavior in the context of gaming that was placed in focus is Cook et al.'s (2018) study, where data was collected directly from self-confessed trolls. They categorized trolling behavior depending on how they can be performed: verbal and behavioral trolling. These trolling types and their subdivisions found in their study is shown in Table 2.

Table 2: Cook et al.'s (2018, p. 3329) Trolling Types and Explanations

Trolling Type	Explanation
Verbal Trolling	Using a chat function in-game to troll another player.
Trash-talking	Putting down or making fun of other players
Flaming	Presenting emotionally fueled or contrary statements with an instrumental purpose.
Misdirection	Spread false information among targeted or general players
Spamming	Repeating game-unrelated chat either textually or audibly in-game.
Inappropriate Roleplaying	Pretending you are a different person (non-game-related) to obtain some kind of specific reaction.
Behavioral Trolling	Using existing game mechanics to troll another player.
Inhibiting team	Actively hampering your teammates' in their goals.
Contrary play	Playing the game outside of what is intended by most players.
Aiding the enemy	Disregarding strategic play to make it easier for the opposing team to win.

Cook et al.'s findings provide a general framework for having a grasp of the perpetrator's own perception of trolling. It has also broadened the literature's trolling taxonomy. Despite that, some overlapping properties with other studies are spotted. For instance, 'contrary play' resembles 'griefing' without the mention of harassment in its definition. Likewise, 'feeding' could include both 'inhibiting team' and 'aiding the enemy' and is also similar to 'assisting enemy team'. 'Misdirection' might seem to mesh with 'faking/intentional fallacy', although the latter one often involves deceitful behavior like pretending to be unaware of game mechanics (Thacker & Griffiths, 2012).

Based on the findings of the literature, trolling taxonomy in this study is implemented as (1) insulting, using offensive language or hate speech, (2) spamming, (3) feeding, (4) faking/intentional fallacy, (5) misdirection, (6) inappropriate roleplaying, (7) griefing, (8) flaming and (9) trash-talking. The guidance of the literature also shaped the trolling motivations that are taken into account in this study, which are (1) provoke, anger or frustrate other players, (2) troll another troll to stop them from trolling, (3) personal enjoyment, (4) revenge, (5) boredom, (6) racism, sexism, etc.

2.4.4 Trolling, Cyber-bullying and Toxic Behavior

There are many studies that point out the relation between often overlapping or interrelated concepts of trolling, cyber-bullying and toxic behavior. According to Binark and colleagues (2015), trolling could be considered as cyber-bullying depending on the extent of the act, for instance, when it starts to include threats that might be harmful to the victim. Nicol (2012) classifies trolling as one of the two types of online bullying, along with cyber-bullying, with the major distinction between the two phenomena being trolling occurring often anonymously and being less severe. Similarly, Shachaf and Hara (2010) stress the anonymous nature of trolling. Furthermore, it is suggested that bullies usually know their victims (Law, Shapka, Hymel, Olson, & Waterhouse, 2012) and their identities are usually clear (Buckels et al., 2014). Contrarily, trolls seemingly do not have any purpose for performing their attacks (Buckels et al., 2014). Trolling is considered as a form of online anti-sociality together with cyberbullying, and disruptive and deceptive nature of trolling may be distinguishing it from cyberbullying (Buckels et al., 2014). On the contrary, some studies found that trolling is a separate phenomenon from cyber-bullying. For instance, Hardaker (2010) defines trolling as impoliteness.

Toxic behavior is defined as bad behavior that evokes negative emotions and it has long term harmful effects, such as 'griefing', 'cyber-bullying', 'mischief' and 'cheating' (Kwak & Blackburn, 2014; Kwak et al., 2015). Even though the link between trolling and cyber-bullying is still under debate, arguably trolling is often done with a hostile intent and in order to get a negative response. Thus, disruptive trolling could be considered as toxic behavior.

Lastly, an important finding needs attention: according to Kwak et al. (2015), cyberbullying is linked to depression and anxiety. Knowing the relation between trolling,

toxic behavior and cyber-bullying, this is a concern to be considered. In this sense, it becomes essential to eradicate disruptive trolling from online spaces to build an ecosystem that is safe for everyone.

2.5. Gap in Literature

After conducting the literature review on trolling, it was found that trolling is often associated with disruption and deception. There were attempts to identify types of trolling behavior that is observed in games, but there is a lack of empirical research. This study aims to fill this gap by collecting data from the parties involved in an occurrence of trolling; trolls, bystanders and victims and addressing this issue independently of game genre and gaming platforms and devices. Moreover, trolling taxonomy is expanded corresponding to the findings of the literature and includes both verbal and behavioral types of trolling that was previously introduced.

Persuasive games literature review revealed that expressing ideas and messages through games is a promising, yet a still maturing domain. Literature focuses on identifying what structures are effective in persuasive processes and how persuasion works. However, the factors that affect the persuasive processes are sophisticated and we have a limited understanding of them. There is a need for further observations. This current study proposes an under-researched way of implementing persuasion; by playing the role of the perpetrator. Furthermore, no study was found to make an investigation of persuasion using a game about trolling behavior.

CHAPTER 3

METHODOLOGY

In this chapter, I will introduce the research design for this study and discuss the instrument development process by going through pilot tests and finalizing the design. The questions on the questionnaires and their correspondence to the research questions will be explained in detail. Participants and sample methods will be discussed. The experiment will be elaborated in the subtopics such as general information about the game, trolling taxonomy in the game, story and narration, game mechanics design and implementation. Lastly, the data collection procedure will be discussed.

3.1. Research Design and Research Questions

As stated previously, this study aims to use a persuasive game as a tool to raise trolling behavior awareness and observe the participants before and after playing the game. Considering this purpose, a convenient research design for this study was determined to be a descriptive study (Creswell & Creswell, 2018; Jackson, 2016). This decision was made because I aim to get an in-depth observation of how trolling behavior is perceived and influenced by said persuasive game and describe the findings: using the game as a tool to raise awareness.

The study design is one-group pre-test and post-test design (Creswell & Creswell, 2018). The data is collected via an online questionnaire in a quantitative manner, with text options in a few questions. The data collection is held in a single session, which consists of three parts. The parts of this process are in this consecutive order: pre-test questionnaire, the experiment and post-test questionnaire. In this case, the experiment consists of a short, text-based narrative game about trolling behavior, where the player is playing the role of the perpetrator. The data is only collected from the questionnaires and not from the gameplay. The participants were informed accordingly. This research design was determined because literature has implemented similar pre-test and post-test design in many studies (Lavender, 2008; Ruggiero, 2014; Soekarjo & van Oostendorp, 2015) and this design seemed suitable to fulfill the research goals of this study.

The research questions aimed to be answered in this study, as discussed in Chapter 1, are as follows (see Table 3 for sub-questions):

RQ1: Can a persuasive game raise awareness or knowledge about disruptive behaviors that trolls perform in online games?

RQ2: What do people consider trolling in multi-player online games?

RQ3: What are the previous trolling experiences?

Before explaining the whole data collection procedure in detail, first, I would like to discuss the timeline of the research design. The research design process has started with a literature review of persuasive games in August 2018. Finding a suitable game for this study was an issue. This is because the game needed to be compact, accessible and simple. Existing games were not found to be convenient; they were either implemented with obsolete technology or potentially had other technical issues, required downloading, had an extensive playthrough, were commercial games or had other distribution difficulties. While I was exploring trolling literature, the gaps in previous research were revealed. After deciding to research trolling behavior, an extensive literature review was conducted, starting in October 2018. Then, shortly after, the design process of a game to be used in this research began in December 2018. This decision was made because finding a suitable game, that explores the theme of trolling or toxic behavior in general, was a major problem. The game was designed with the guidance of the literature's findings. Meanwhile, research instruments were also being surveyed to be used in this study. However, since trolling in the gaming context is a relatively new research area, a suitable scale for this study could not be found. Then the instrument development process started, followed by the first pilot test. The results led to some adjustments and a second pilot test. Game mechanics were also revised in this process. Afterwards, the second pilot test was conducted and found to be working properly. Finally, actual data collection had started in October 2019 and ended in November 2019 (See Figure 4 for Research Timeline).

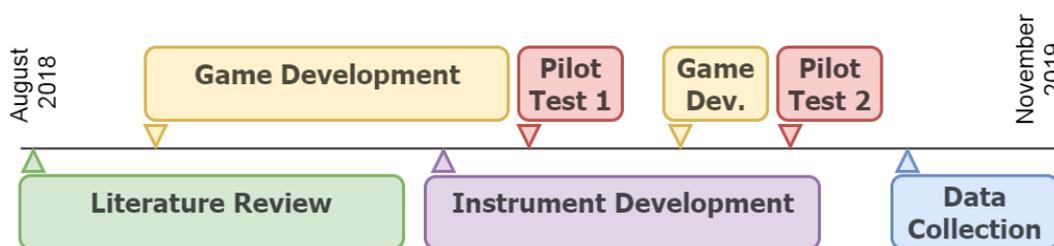


Figure 4: Research Timeline

3.2. Participants

A sample of 134 people completed an online questionnaire. However, the data of 5 people whose English level is beginner were discarded. This resulted in a final sample of 129 people, of which 90 (69.77%) males and 39 (30.23%) females. None of the participants selected 'other' as their gender. The participants' ages ranged from 19 to 51 years ($M = 28.83$ years; $SD = 4.97$ years). Most of the participants lived in Turkey (109; 84.5%), and the remaining 20 participants (15.5%) said they live in Ireland (5), UK (3), Germany (2),

Norway (2) and 1 participant each in USA, Iran, Canada, France, China, Czechia, Finland and the Netherlands. Most participants (81) completed Bachelors' or equivalent level and a total of 35 participants completed Master's/Ph.D. or equivalent. Most of the participants' reported English level was either advanced (103; 79.84%) or native/bilingual (14; 10.85%). There were 12 participants (9.3%) who reported having intermediate as their level for English. The majority of the participants noted that they play multi-player online games (79; 61.24%), followed by 36 participants who played in the past but do not play any longer and 14 participants do not play multi-player online games.

3.3. Instrument Development

Pilot test 1

The instrument used in this study is inspired by instruments existing in the literature on exploring trolling behavior in games and measuring game effectiveness (Knol, 2011; Lavender, 2008; Thacker & Griffiths, 2012). Some questions from those studies are used in this study, and some other questions were modified to be consonant with the research.

The first pilot test included questions about general demographics, gaming habits, knowledge and perception of trolling, previous trolling experience, mood scale PANAS (Watson, Clark, & Tellegan, 1988), perception of trolling having played the game and statements about trolling and the game in a 5-point Likert scale. No suitable scale was found in literature, which led to developing a tailored scale on trolling for this study.

The participation was estimated to be completed in between 20 to 30 minutes. It was conducted on 4 participants. The findings and corrections are as follows:

- (1) Some of the terms and definitions are not clear. For instance, multi-player online games is a term that is often synonymous with a few genres (e.g., MOBA, MMORPG, Battle Royale). However, it is not interpreted the same way for everyone. To eliminate this confusion, I stated that this study is inclusive for all genres and platforms and added more questions about the participants' gaming habits, such as their gaming platform(s) of choice, game genre(s) of choice. Additionally, other questions that had words or terms that could be ambiguous or subjective were fixed by either improving the wording or removing the question.
- (2) Some questions were found to be irrelevant for this study, and therefore removed. The questions that had duplicates were either discarded or combined.
- (3) One participant's feedback led to adding a question: "Who do you play online multi-player games with?". This addition is critical because the literature found trolls to be anonymous (Shachaf & Hara, 2010), and therefore, there's a higher chance to encounter trolls in games with random people rather than acquaintances.
- (4) It took between 40 minutes to 1 hour for the participants to complete the questionnaire, which is excessively higher than what was estimated. It was found that after removing and shortening questions, another pilot test was needed.

Table 3: Research questions, sub-questions and corresponding questions on questionnaires

	Research Questions and Sub-question	Questionnaire
RQ1	Can a persuasive game raise awareness or knowledge about disruptive behaviors that trolls perform in online games?	
	RQ1a: What is the influence of the game on trolling knowledge? <ul style="list-style-type: none"> • How knowledgeable do people consider themselves about trolling? • Is there a self-reported change in knowledge after playing the game? 	Pre-Test Q13 Post-Test Q6
	RQ1b: What is the influence of the game on trolling awareness? <ul style="list-style-type: none"> • How effective do people consider video games in raising awareness? • How effective do people consider Troll Simulator in raising awareness? • Is there a self-reported raise in awareness after playing the game? 	Pre-Test Q22 Post-Test Q6 Post-Test Q6
	RQ1c: How does immersion contribute to persuasion? <ul style="list-style-type: none"> • Is the game found to have an immersive gameplay experience? • Is the game found to demonstrate realistic troll behavior? • Is the game found to demonstrate realistic victim behaviors? 	Post-Test Q6 Post-Test Q6 Post-Test Q6
	RQ1d: Is there a change in how people see trolling after playing the game?	Pre-Test Q21 Post-Test Q7
	RQ1e: Can the game demonstrate trolling behaviors?	Post-Test Q5
RQ2	What do people consider trolling in multi-player online games?	
	RQ2a: What disruptive behaviors are perceived as trolling? RQ2b: What disruptive behaviors are observed in games? RQ2c: What are the perceived motivations for trolling?	Pre-Test Q14 Pre-Test Q16 Pre-Test Q15
RQ3	What are the previous trolling experiences?	
	RQ3a: How many people have trolled previously? RQ3b: What disruptive behaviors did they perform to troll? RQ3c: What was their motivation for trolling? RQ3d: Do they define themselves as a troll? RQ3e: Who are the trolls?	Pre-Test Q17 Pre-Test Q19 Pre-Test Q20 Pre-Test Q18 Pre-Test Q1, Q2, Q9, Q10, Q17

Pilot test 2

After the improvements were made based on the outcomes of the first pilot test, some other improvements were added to the study. These changes are as follows:

- (1) The experiment had two options for dialogues in each dialogue block, which seemed to be ineffective in persuasion. The experiment was re-designed to include more dialogue options, including both trolling cases and neutral options.
- (2) Questions were added to the post-test regarding finishing the game. If the participant stated that they left before finishing, their progress in game and the reason for leaving early is asked.

The second pilot test was conducted on 4 participants and all of them completed the questionnaires in less than 15 minutes. It was found that no participants had any trouble understanding the questions. Since I did not encounter any other problems, I decided to finalize the design at this point.

Final Instrument

The first questionnaire (pre-test) includes questions about general demographics, gaming habits, knowledge about trolling behavior, prior trolling experience, perception of trolling, thoughts on games raising awareness. The second questionnaire (post-test) has questions about the game and thoughts on trolling (See Appendix B: PRE-TEST QUESTIONNAIRE and Appendix D: POST-TEST QUESTIONNAIRE). The questions that are instrumented to answer research questions and sub-questions, and corresponding questions on questionnaires are shown in Table 3.

3.4. Experiment

3.4.1 General Information About the Game

A persuasive game, that was designed specifically for this study, was used to conduct the experiment. The game is a text-based narrative game called Troll Simulator. Throughout the section *3.4 Experiment* it will be referred to as TS. As the name suggests, it works as a simulator to perform trolling behavior. In other words, the player plays the role of the troll. TS simulates the pre-game lobby of a fictitious multi-player online game and it has a short playtime; it takes less than 5 minutes to complete the game. The player progresses by selecting an option from the dialogue block. The game design is inspired by Romero's *Train*.

The pre-game lobby in TS is designed based on the pre-game lobby of actual multi-player online games, specifically *Town of Salem* (see Figure 5 for comparison). It is a virtual place, a chat room, where the players are automatically directed to, before the game session starts. Most of the online games have a pre-game lobby and players may select their characters or avatars (Cook et al., 2018). It is a medium for meeting and chatting

with the players in the game. As the previous literature suggests, the conversations made in the pre-game lobby create an occasion for circumstantial trolling (Cook et al., 2018) and in that sense, it plays a critical role in the initiation of trolling.

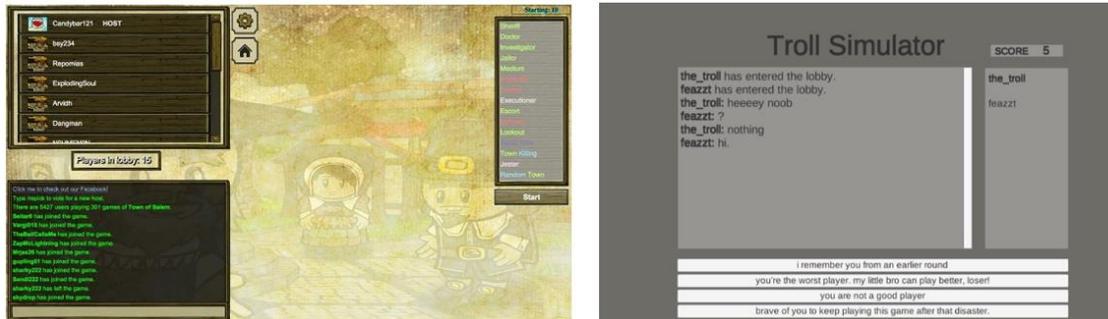


Figure 5: Comparison of Town of Salem's (left) and Troll Simulator's (right) user interfaces
(Image on the left is retrieved from <https://www.blankmediagames.com/gameplay/>)

The player starts playing TS by clicking the play button (See Figure 6a) and reading the instructions about how to play (See Figure 6b). They are informed that the objective of the game is to collect the most points and they are instructed how to do that. Afterwards, they are explicitly informed about the trolling types that can be performed in the game together with their explanations (See Figure 6c). Then, they are asked to create a character by typing the name of their character (See Figure 6d). When they are done, they proceed to the simulated pre-game lobby. When they are finally in the lobby, as the troll, they start performing trolling behavior (See Figure 6e). There are 3 panels in the lobby: top left panel is where the chat dialogues can be read, top right panel has the list of the characters in the lobby and down panel contains a dialogue block with four options. The score bar is located on the top right corner. The player proceeds by selecting one of the four options until the end of the game. When the game is over, they are given feedback on how they scored in the game and they are assigned a rank (e.g., Junior Troll with 115 points) depending on the points collected (See Figure 6f).

3.4.2 Trolling Taxonomy in the Game

As previously mentioned, trolling taxonomy in this study is (1) insulting, using offensive language or hate speech, (2) spamming, (3) feeding, (4) faking/intentional fallacy, (5) misdirection, (6) inappropriate roleplaying, (7) grieving, (8) flaming and (9) trash-talking. The list includes both verbal and behavioral trolling. However, all of the items could not be simulated due to some design constraints (See 3.4.5 *Implementation & Distribution*). These constraints were taken into consideration and the types were determined based on their convenience to be simulated and frequency of observation in literature. The types that fit into these conditions are (1) insulting, using offensive language or hate speech, (2) spamming, (3) misdirection, (4) flaming and (5) trash-talking. Each of these behaviors are placed at least twice in the game. Some of them are placed more and sometimes as a combination with another type of trolling. This design decision was made based on the

literature's findings: Trolling types are sometimes observed as a combination rather than one type alone (Cook et al., 2018; Thacker & Griffiths, 2012).

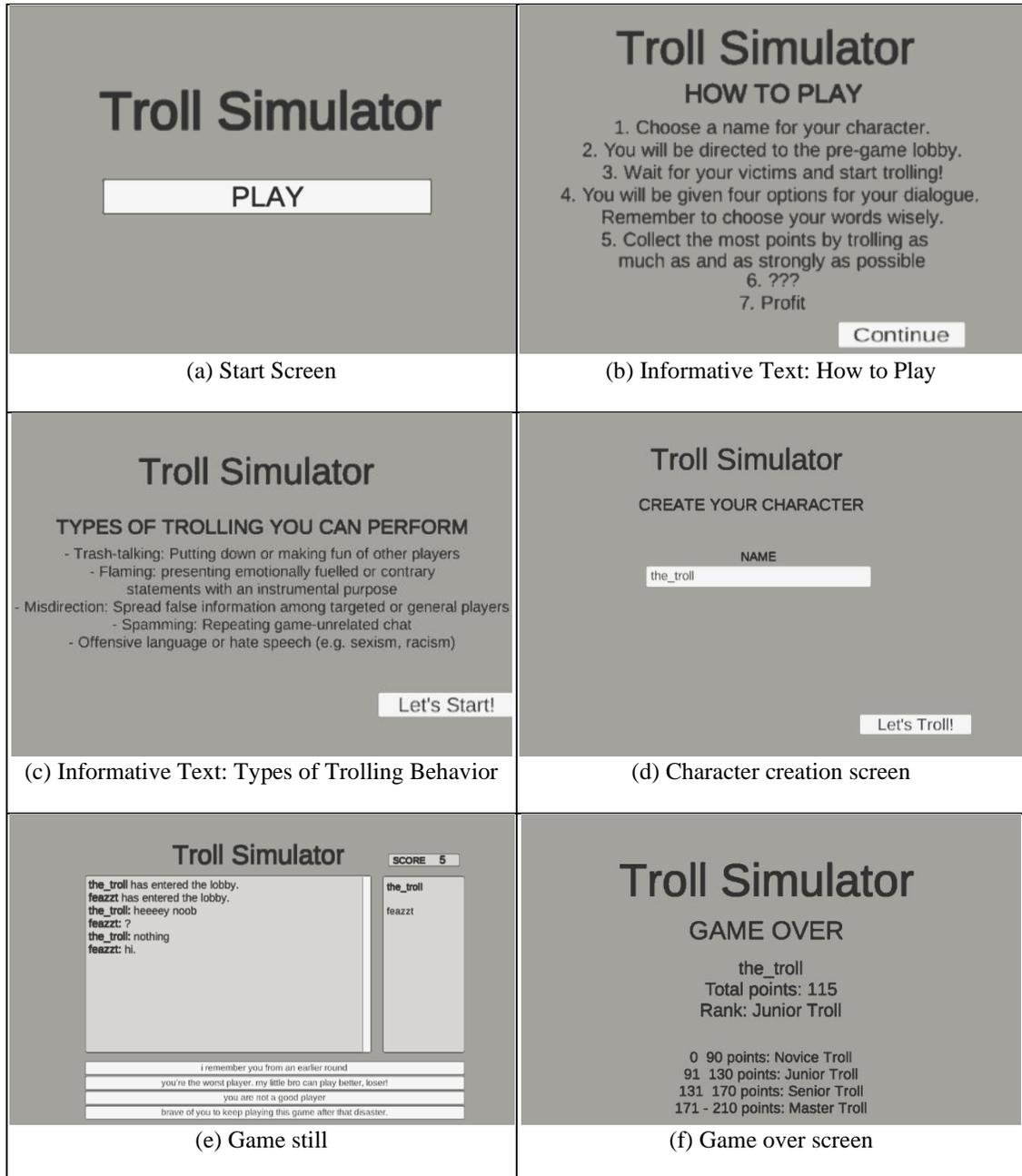


Figure 6: Screenshots from Troll Simulator
(The images were processed for better visibility.)

3.4.3 Story & Narrative Design

The game offers a playable scenario with a linear storyline. A linear story, in the context of video games is the story experienced by the player but the “player cannot change the plot or the ending of the story” (Adams, 2009, p. 168). No matter which one of the four dialogue options is selected, it does not have an influence on the story. Hence the response of the NPC’s is the same most of the time, with minor changes (See Appendix C: GAME DIALOGUES).

One key factor that shaped the game design is realism. Researchers have found that perceived realism plays an essential role in immersion and immersion is one of the factors that lead to persuasion (Hafner, 2016). In order to provide a realistic experience, troll, bystander and victim behavior is simulated based on the findings of the literature. For instance, one of the bystanders is trolling back because revenge appears as a motivation for trolling (Cook et al., 2018). The role of the community is found to be important in literature. Victim and bystander responses to trolling involved ignoring (e.g., the first victim in the game ignores the troll) and preventing (e.g., proactive behavior of one player in reporting the troll and encouraging the others to do so, which leads to troll being kicked out of the lobby at the end of TS) (Cook et al., 2018). These behaviors are implemented in TS. Some dialogue blocks include options where the troll correctly directs another player who asks a question. However, there is no explicit mention of such occurrences in literature where a troll engages in both deceptive and helpful behaviors at the same time.

3.4.4 Game Mechanics Design

The game is played by choosing one of the four dialogue options in each dialogue block. All dialogue blocks include at least one neutral option and trolling options, except one block. All options in the said block are trolling related. This is due to the concern of having a consistent storyline. Since the story of TS ends with the troll being kicked out, there must be at least one tangible proof to convince other players to take action in reporting the troll. If this step was ignored, and all of the dialogue blocks would have included neutral options, and therefore it would have been possible to end the game without trolling (i.e., by selecting neutral options). The trolling options included at least one of the 5 trolling types to a certain extent (e.g., less intense trolling or more intense trolling) or a combination of at least two types of trolling.

The objective of the game is to collect the most points, and this could be done by trolling frequently and intensively. The points that can be collected from a dialogue block vary between 0 and 15. If one of the neutral options is selected, then 0 points are received. Depending on the intensity of trolling (e.g., less intensive trolling, combination of two types, etc.), 5 – 15 points are collected.

The victims or bystanders give the same responses most of the time, regardless of the choice the player makes, except for a few choices. The reason why the participant is given

a choice is to create a sense of autonomy, which is one of the three must-haves for immersive systems in order to satisfy the basic psychological needs (Przybylski, Rigby, & Ryan, 2010).

3.4.5 Implementation & Distribution

There were some design constraints for making the game: (1) the duration of the gameplay should not be long (2) the game should not require downloading (3) loading the game should not take long (4) the game should be easy to play.

A research was conducted to acquire the optimal solutions that provide these criteria. When the research was completed, it was decided to implement a browser-based game with WebGL technology using Unity⁹. Technical assistance was required in the code implementation process due to time and technological constraints. Bas van Oerle volunteered to assist as a programmer. A game design document was sent to the programmer explaining the details about the game. When the implementation was completed, the game is linked in the questionnaire.

3.5. Procedure

For this study, I determined the population as any person who is at least 18 years old, and with an English level that is at least intermediate. This is due to the language of the study being English. Moreover, the participants are asked to accept the conditions for participation, which includes confirming that they are 18 or over. It was not possible to conduct this study with minors due to ethical constraints. Both conditions are validated, and the participation is automatically terminated if conditions are not met. Before starting data collection, an application for permission to conduct this study was sent to METU Human Subjects Ethics Committee and data collection process started after their approval (See Appendix G: APPROVAL OF METU HUMAN SUBJECTS ETHICS COMMITTEE).

The sampling methods used are snowball sampling and convenience sampling (Taherdoost, 2016). I have announced this study to my acquaintances and requested them to participate in the study. Some of them shared the link with their acquaintances. A recruitment text was also shared on various online general discussion groups, Discord¹⁰ servers and mail lists among staff and students of several universities.

The whole data collection process is online, meaning, the researcher does not necessarily need to be present at the location of data collection. All of the material regarding the data

⁹ A game development engine

¹⁰ An application for voice, video and text chat

collection, which are both pre-test and post-test questionnaires and the game itself, are on Qualtrics¹¹. The participants are given the link to the study. After they visited the link, firstly, they would see the Informed Consent Form (see Appendix A: INFORMED CONSENT FORM). After reading and clicking on “I accept”, they start answering the questions on Pre-Test Questionnaire (see Appendix B: PRE-TEST QUESTIONNAIRE). Then, they play the game (see Appendix C: GAME DIALOGUES) and continue with the Post-Test Questionnaire (see Appendix D: POST-TEST QUESTIONNAIRE). When the survey is over, the Debriefing Form is displayed (see Appendix E: DEBRIEFING TEXT).

¹¹ A browser-based data collection tool

CHAPTER 4

RESULTS

The results from the data collection process are presented in this chapter. For convenience, they are grouped under the corresponding research question and sub-questions and visualized with bar charts and tables.

4.1. Gaming Habits of the Participants

The sample size of this study is 129, of which 79 participants (61.24%) currently played multi-player online games, as previously stated in *Chapter 3* (See 3.2 *Participants* for general demographics). The participants who played multi-player online games in the past but do not play any longer (36) are not included here, along with the participants who do not play games (14). Among the participants who play multi-player online games (N=79), approximately everyone plays games on computers (72; 91.14%), followed by 41 participants (51.9%) playing on mobile devices and 20 participants (25.32%) on consoles. For these 79 participants who play multi-player online games, the most preferred genres of multi-player online games are FPS (52; 65.82%), MOBA (41; 51.9%), MMORPG and other role-playing games (41; 51.9%), Board and Card Games (38; 48.1%), Strategy (34; 43.04%) and Sandbox/Survival/Crafting (32; 40.51%). The number of players playing each game genre is shown in Table 4 and Figure 7.

Table 4: Multi-player online games genre preferences of participants (N = 79)

genre	FPS	MOBA	MMORPG/ RPG	Board/ Card	Strategy	Sandbox/ Survival/ Crafting	Action adventure	Convo- based
%	65.82%	51.90%	51.90%	48.10%	43.04%	40.51%	34.18%	31.65%
#	52	41	41	38	34	32	27	25
genre	Battle royale	Sports	Racing	Word games	Other			
%	30.38%	24.05%	17.72%	16.46%	5.06%			
#	24	19	14	13	4			

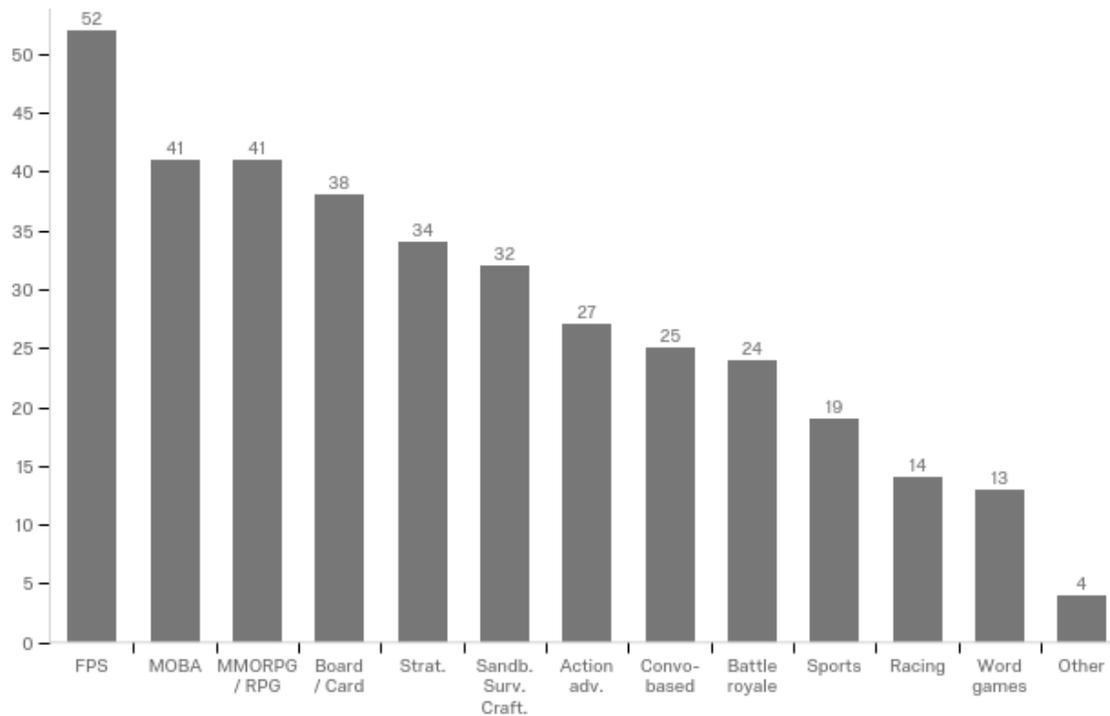


Figure 7: Multi-player online games genre preferences of participants (N = 79)

Among the participants who currently play multi-player online games (N = 79), in an average week, 51 participants said they play at least 5 hours of multi-player online games (M = 3.19; SD = 1.18; Variance = 1.39). To be specific, 15 participants reported playing more than 20 hours; 16 participants reported playing between 10 to 20 hours; 20 participants reported playing from 5 to 10 hours; 25 participants reported playing less than 5 hours; 3 participants reported never playing. These data represent their playtime in the past 6 months (See Figure 8).

A large majority of the participants who play multi-player online games (N = 79) said they have played multi-player online games for 7 years or longer (62). Considering the remaining answers, 11 participants reported having played between 4 and 7 years and 6 participants reported having played for less than 4 years (See Table 5).

Table 5: Years of playing multi-player online games (N = 79)

Years of playing	%	#
> 7 years	78.48%	62
4 - 7 years	13.92%	11
1 - 4 years	6.33%	5
< 1 year	1.27%	1

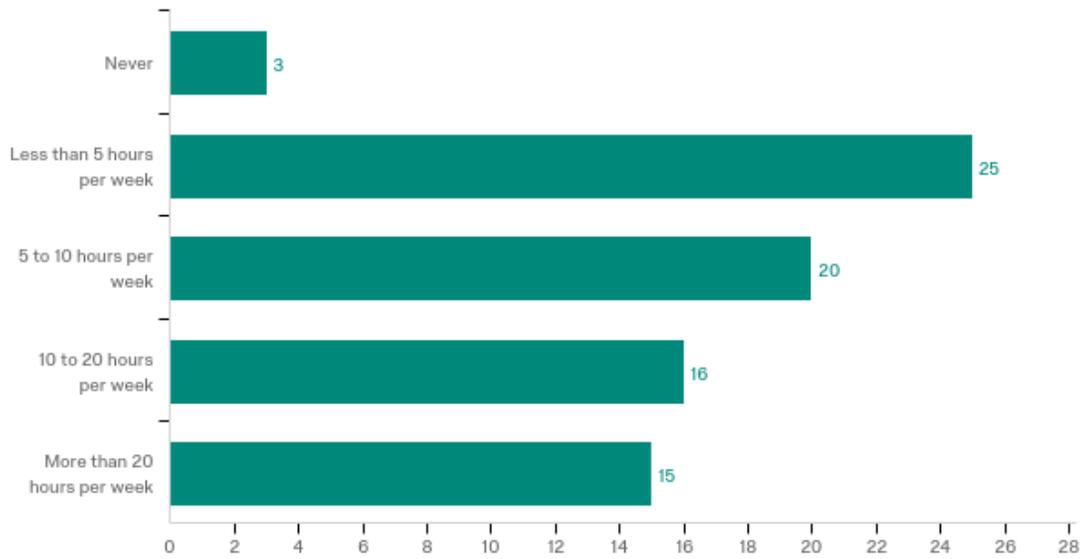


Figure 8: Hours of playing multi-player online games in an average week (N = 79)

Out of 79 participants who play multi-player online games, 70 (88.61%) reported playing games online with *random players that they do not know*. These participants are asked how frequently they meet trolls in their games (1 = every time, 2 = often, 3 = sometimes, 4 = rarely, 5 = never). The majority (53) stated they meet trolls sometimes or more frequently (M = 2.89). From the remaining participants, 14 of them reported meeting trolls rarely and only 3 participants reported never meeting with a troll (See Figure 9).

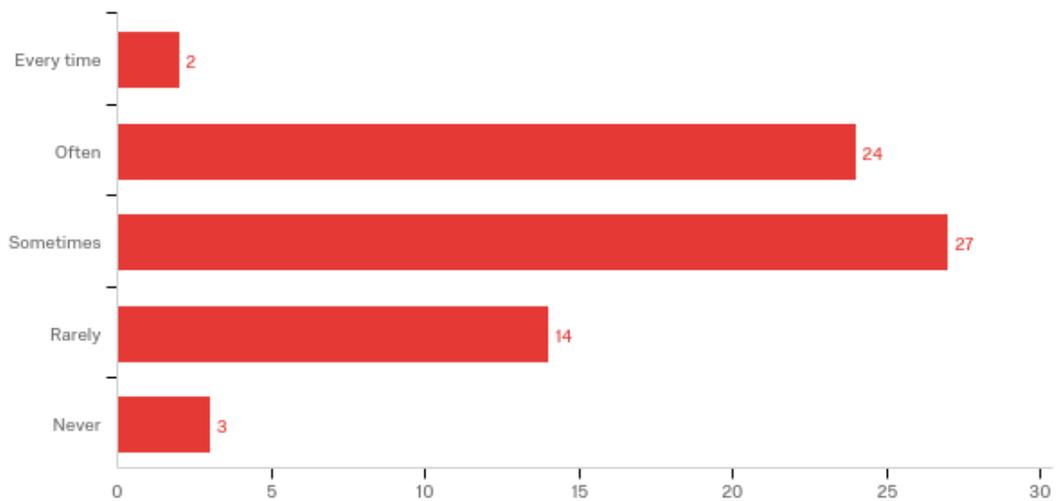


Figure 9: Frequency of meeting with an online troll in games with random players (N = 70)

4.2. Participating in the Experiment

In the post-test questionnaire, the participants ($N = 129$) were asked if they had played Troll Simulator. The majority (99) said they had finished the game and 12 participants started playing it but reported quitting it at some point before finishing. A total of 111 participants have played the game at least up to a point. The remaining 18 participants reported they did not play the game at all.

The participants who quit the game earlier ($N = 12$) were asked questions about quitting the game. To be specific, the reason for their leaving and the last dialogue block they have seen before leaving was asked. The answers for the last dialogue block seen ranged from 6 to 14, with 9 being the most frequent answer. The ninth dialogue block included 1 neutral option and 3 options for verbally attacking another player who refuses to engage in a dialogue with the troll and ignores the troll. Of the 12 participants who quit the game before it finished, 8 participants said they left the game because of boredom; 3 participants reported leaving due to offensive language; 4 participants had other reasons for quitting: 3 reported they did not want to continue trolling and 1 did not find the game similar to real-life trolling. Out of the people who did not play the game ($N = 18$), 15 of them said they could not get the game to work, and other reasons (3) were, having 1 participant each: they could not figure out how to play, they did not have time and they were in their office.

4.3. Research Questions

The data provided by the participants who had played the game are used to answer the research question RQ1. The other research questions (RQ2 and RQ3) are not dependent on the game. The research question RQ1 is about observing the influence of a persuasive game in raising awareness and enhancing knowledge on disruptive behaviors that the trolls perform in games. It was divided into five sub-questions in order to focus on each theme separately. The research question RQ2 is about how trolling behaviors are perceived and has three sub-questions. The last research question, RQ3, is about previous trolling experiences and includes five sub-questions.

RQ1: Can a persuasive game raise awareness or knowledge about disruptive behaviors that trolls perform in online games?

The sample for this research question is the people who have played the game ($N = 111$). Before presenting the results of sub-questions of this research question, some other results about the game need to be shared: The game was found to be easy to play ($M = 4.18$; $SD = 0.85$) and the participants neither disagreed nor agreed on the game being entertaining ($M = 2.98$; $SD = 1.27$).

RQ1a: What is the influence of the game on trolling knowledge? ($N = 111$)

In order to understand the influence of the game on trolling knowledge, two questions need to be discussed:

1. How knowledgeable do people consider themselves about trolling? (1 = not knowledgeable at all, 2 = slightly knowledgeable, 3 = moderately knowledgeable, 4 = very knowledgeable, 5 = extremely knowledgeable)
2. Is there a self-reported change in knowledge after playing the game? (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree)

When asked about how knowledgeable they consider themselves about trolling behavior in online games in the pre-test questionnaire, 26 participants considered themselves moderately knowledgeable and in a total of 60 participants considered themselves to be either very knowledgeable or extremely knowledgeable. The number of participants who considered themselves not knowledgeable or slightly knowledgeable is 25. The values for the participants' knowledge of online trolls are similar, 61 participants are either very or extremely knowledgeable; 29 participants are moderately knowledgeable; 21 participants are slightly knowledgeable or not knowledgeable at all (See Table 6, Figure 10 and Table 7).

Table 6: Participants' self-assessment of their knowledge about trolling (N = 111)

Research Question	Knowledge about	Mean	SD	Variance
RQ1a (1)	Online trolls	3.56	1.11	1.24
	Trolling behavior in online games	3.48	1.21	1.46

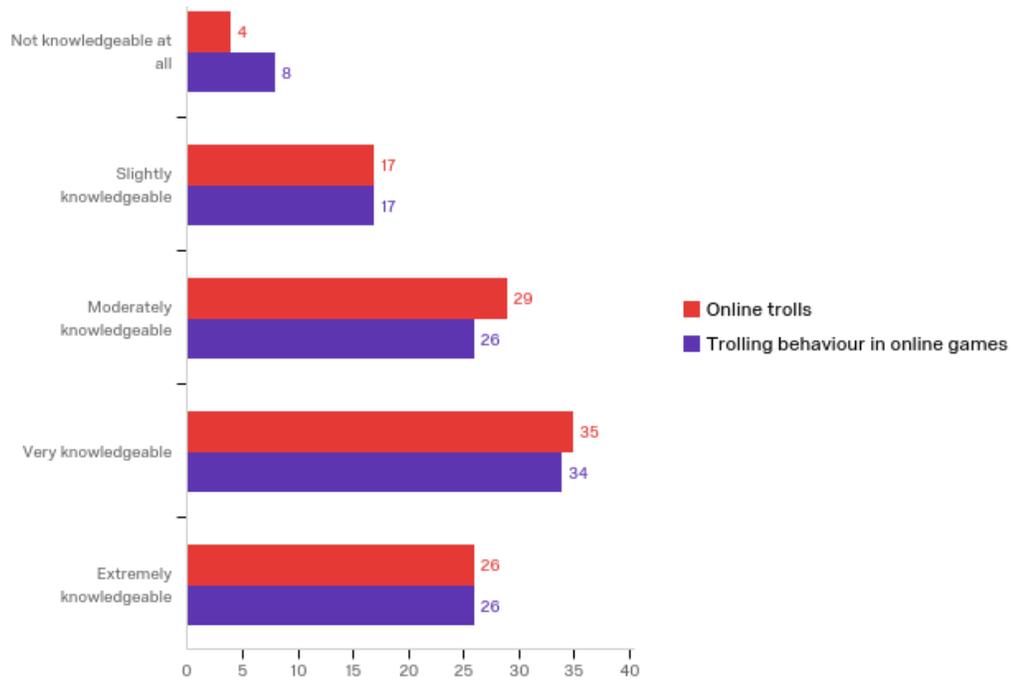


Figure 10: Participants' self-assessment of their knowledge about trolling (N = 111)

Table 7: Distribution of answers for self-assessment of their knowledge about trolling (N = 111)

RQ1a (1)	1 Not knowledgeable at all		2 Slightly knowledgeable		3 Moderately knowledgeable		4 Very knowledgeable		5 Extremely knowledgeable	
	%	#	%	#	%	#	%	#	%	#
Online trolls	3.60%	4	15.32%	17	26.13%	29	31.53%	35	23.42%	26
Trolling behavior in online games	7.21%	8	15.32%	17	23.42%	26	30.63%	34	23.42%	26

Participants were directly asked whether they have learned something new about trolling by playing this game. The mean value for learning something new by playing this game was 2.8, which means it was neutral with a slight lean towards disagreeing (See Table 8 and Table 9).

Table 8: Participants' self-reported change in knowledge after playing the game (N = 111)

Research Question	Statement	Mean	SD	Var
RQ1a (2)	I have learned something new about trolling by playing this game.	2.8	1.42	2.01

Table 9: Distribution of self-reported change in knowledge after playing the game (N = 111)

Research Question	1 Strongly disagree		2 Disagree		3 Neither agree nor disagree		4 Agree		5 Strongly agree	
	%	#	%	#	%	#	%	#	%	#
RQ1a (2)	27.03%	30	18.92%	21	13.51%	15	27.93%	31	12.61%	14

RQ1b: What is the influence of the game on trolling awareness? (N = 111)

Data regarding the influence of the game on trolling awareness was collected from the following questions (*1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree*):

1. How effective do people consider video games in raising awareness?
2. How effective do people consider Troll Simulator in raising awareness?
3. Is there a self-reported raise in awareness after playing the game?

Participants were also asked about their thoughts on whether video games can be effective in raising awareness about disruptive behaviors. They mostly agreed that video games could be effective in raising awareness, with a mean score of 3.75. They slightly agreed (M = 3.23) that Troll Simulator could be effective in raising awareness about disruptive

behaviors that trolls perform. The participants neither agree nor disagree ($M = 2.93$) to being more aware of trolling after playing the game (See Table 10 and Table 11).

Table 10: Participants' self-reported influence of the game on trolling awareness ($N = 111$)

Research Question	Statement	Mean	SD	Variance
RQ1b (1)	Video games could be effective in raising awareness about disruptive behaviors.	3.75	0.94	0.89
RQ1b (2)	This game is effective in raising awareness about disruptive behaviors that trolls perform.	3.23	1.29	1.66
RQ1b (3)	I am more aware about trolling after playing this game.	2.93	1.43	2.05

Table 11: Distribution of self-reported influence of the game on trolling awareness ($N = 111$)

Research Question	1 Strongly disagree		2 Disagree		3 Neither agree nor disagree		4 Agree		5 Strongly agree	
	%	#	%	#	%	#	%	#	%	#
RQ1b (1)	2.70%	3	8.11%	9	19.82%	22	50.45%	56	18.92%	21
RQ1b (2)	12.61%	14	18.92%	21	18.02%	20	33.33%	37	17.12%	19
RQ1b (3)	24.32%	27	16.22%	18	18.92%	21	23.42%	26	17.12%	19

RQ1c: How does immersion contribute to persuasion? ($N = 111$)

The participants were asked about their level of agreement with statements regarding immersion as ($1 = strongly disagree$, $2 = disagree$, $3 = neither agree nor disagree$, $4 = agree$, $5 = strongly agree$):

1. Is the game found to have an immersive gameplay experience?
2. Is the game found to demonstrate realistic troll behavior?
3. Is the game found to demonstrate realistic victim behaviors?

The mean score indicates that the gameplay experience was found to be neither immersive nor non-immersive. However, troll and victim behaviors were found to be slightly realistic (See Table 12 and Table 13).

Table 12: Immersion's contribution to persuasion (N = 111)

Research Question	Statement	Mean	SD	Variance
RQ1c (1)	The gameplay experience was immersive.	3.03	1.16	1.34
RQ1c (2)	Trolling behavior was realistic.	3.5	1.22	1.49
RQ1c (3)	The behavior of other players who were trolled was realistic.	3.46	1.18	1.4

Table 13: Distribution of Immersion's contribution to persuasion (N = 111)

Research Question	1 Strongly disagree		2 Disagree		3 Neither agree nor disagree		4 Agree		5 Strongly agree	
	%	#	%	#	%	#	%	#	%	#
RQ1c (1)	12.61%	14	18.92%	21	30.63%	34	28.83%	32	9.01%	10
RQ1c (2)	9.01%	10	16.22%	18	9.01%	10	46.85%	52	18.92%	21
RQ1c (3)	8.11%	9	16.22%	18	14.41%	16	44.14%	49	17.12%	19

RQ1d: Is there a change in how people see trolling after playing the game? (N = 111)

The participants were asked to rate their level of agreement with some statements about trolling before and after playing Troll Simulator (*1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree*).

The mean score for the statement *Trolling is a serious problem* has increased by 0.18 point from 3.41 to 3.59. The participants slightly agreed with this statement before the experiment. A slight increase in the level of agreement after the experiment is observed.

The participants already agreed with the statement *Trolling is a harmful behavior* before the experiment with a mean score of 3.84 and it is observed to be nearly the same with a mean score of 3.85 after the experiment.

The mean score for the statement *Trolling is just for fun and trolls should not be taken seriously* has dropped from 2.8 to 2.55, by 0.25. The participants slightly disagreed before the experiment and the level of disagreement is slightly strengthened after the experiment.

For the statement *Trolls should be free to play around unless the situation puts the victim in a life-threatening danger*, the mean score has dropped from 2.46 to 2.29, by 0.17 points. The level of disagreement of participants has slightly strengthened after the experiments.

There was a slight decrease in the level of disagreement for the statement *When a player is being trolled, it is their own fault* by 0.07 points, which went from 1.69 to 1.76 (See Table 14 and Table 15).

Table 14: Comparison of statements about trolling in pre-test and post-test (N = 111)

	Statement	PRE-TEST			POST-TEST		
		Mean	SD	Variance	Mean	SD	Variance
1	Trolling is a serious problem.	3.41	1.05	1.11	3.59	1.14	1.3
2	Trolling is a harmful behavior.	3.84	0.96	0.93	3.85	1.02	1.05
3	Trolling is just for fun and trolls should not be taken seriously.	2.8	1.19	1.42	2.55	1.14	1.31
4	Trolls should be free to play around unless the situation puts the victim in a life-threatening danger.	2.46	1.11	1.24	2.29	1.13	1.29
5	When a player is being trolled, it is their own fault.	1.69	0.86	0.74	1.76	0.93	0.87

Table 15: Distribution of comparison of trolling statements in pre-test and post-test (N = 111)

	#	1 Strongly disagree		2 Disagree		3 Neither agree nor disagree		4 Agree		5 Strongly agree	
		%	#	%	#	%	#	%	#	%	#
		PRE-TEST									
1		2.70%	3	19.82%	22	27.03%	30	35.14%	39	15.32%	17
2		2.70%	3	7.21%	8	18.02%	20	47.75%	53	24.32%	27
3		14.41%	16	31.53%	35	21.62%	24	24.32%	27	8.11%	9
4		19.82%	22	40.54%	45	17.12%	19	18.92%	21	3.60%	4
5		51.35%	57	33.33%	37	9.91%	11	5.41%	6	0.00%	0
POST-TEST											
1		3.60%	4	17.12%	19	20.72%	23	33.33%	37	25.23%	28
2		2.70%	3	9.91%	11	15.32%	17	44.14%	49	27.93%	31
3		20.72%	23	33.33%	37	18.92%	21	24.32%	27	2.70%	3
4		27.93%	31	37.84%	42	15.32%	17	15.32%	17	3.60%	4
5		49.55%	55	33.33%	37	9.91%	11	6.31%	7	0.90%	1

RQ1e: Can the game demonstrate trolling behaviors? (N = 111)

The trolling behaviors that were presented in the game are (1) insulting, using offensive language or hate speech, (2) spamming, (3) misdirection, (4) flaming and (5) trash-talking. The participants are asked which of these behaviors they had observed in Troll Simulator. The participants mostly captured all of the trolling types that were presented in the game.

Trash-talking (95) and misdirection (92) were the ones most easily spotted and they both were observed by a high majority of participants. They are followed by offensive language or hate speech (84), spamming (79) and flaming (74) (See Figure 11). However, 3 participants said they have not observed any of them.

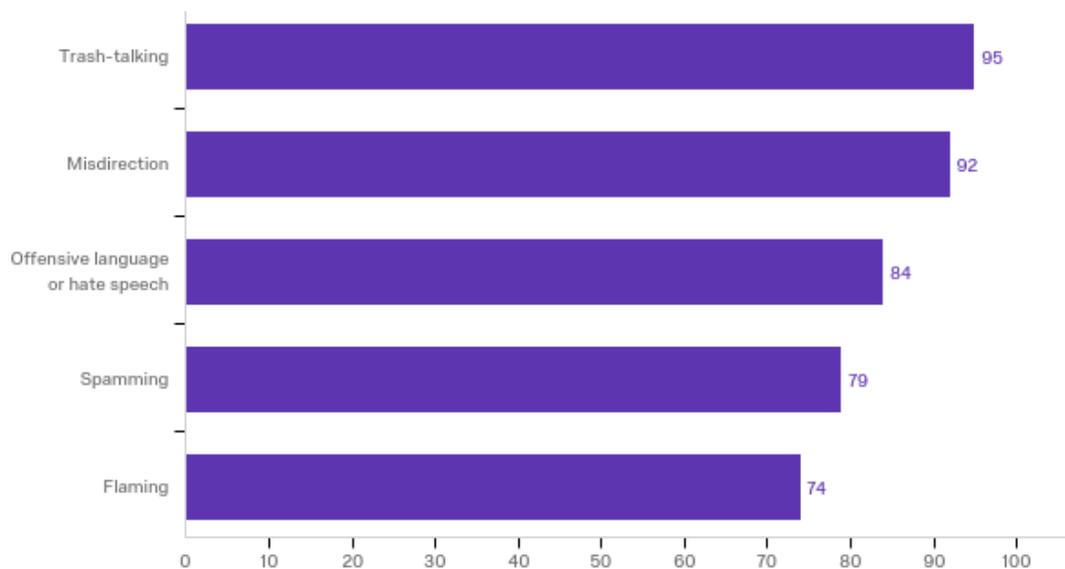


Figure 11: Behaviors observed in Troll Simulator (N = 111)

RQ2: What do people consider trolling in multi-player online games?

RQ2a: What disruptive behaviors are perceived as trolling?

The participants were given a list of trolling types identified in this study based on the literature's findings. As previously stated, the trolling taxonomy in this study consists of (1) insulting, using offensive language or hate speech, (2) spamming, (3) feeding, (4) faking/intentional fallacy, (5) misdirection, (6) inappropriate roleplaying, (7) griefing, (8) flaming and (9) trash-talking. The participants were asked to select the ones they think trolls would perform in games (N = 129). Most of the participants think trolls performed insulting, using offensive language or hate speech (101), trash-talking (99), feeding (92) and griefing (85). Spamming, misdirection, flaming and intentional fallacy were also reported to be considered as behaviors trolls performed in games but fewer participants reported them (76 to 65 respectively). However, the majority of the participants disagreed on inappropriate roleplaying; only 56 considered it as a trolling behavior in games (See Figure 12).

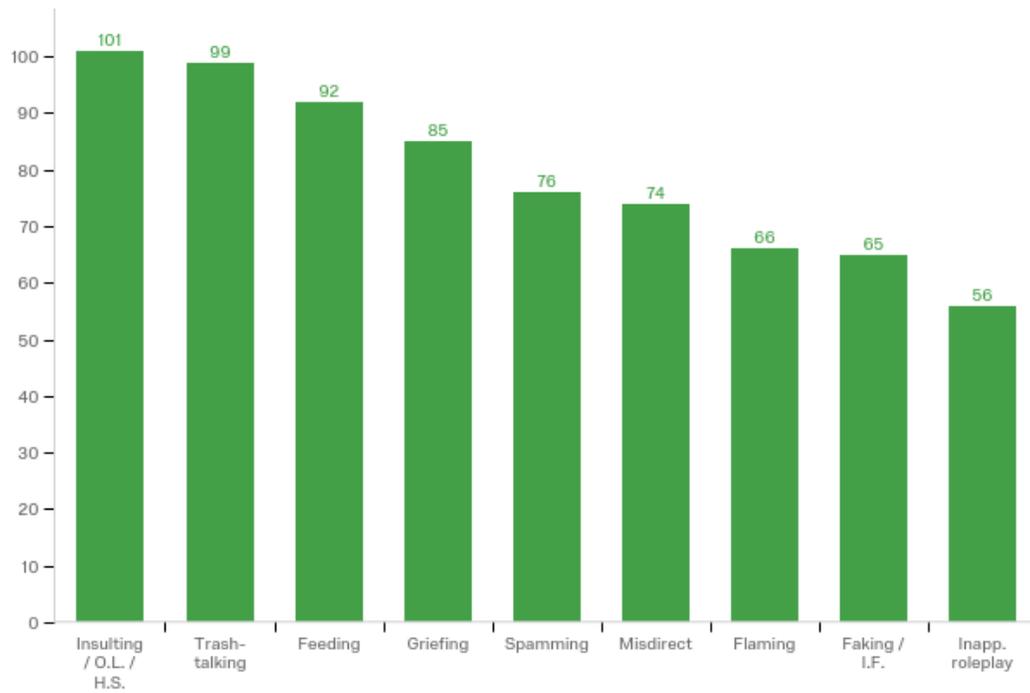


Figure 12: Disruptive behaviors perceived as trolling (N = 129)

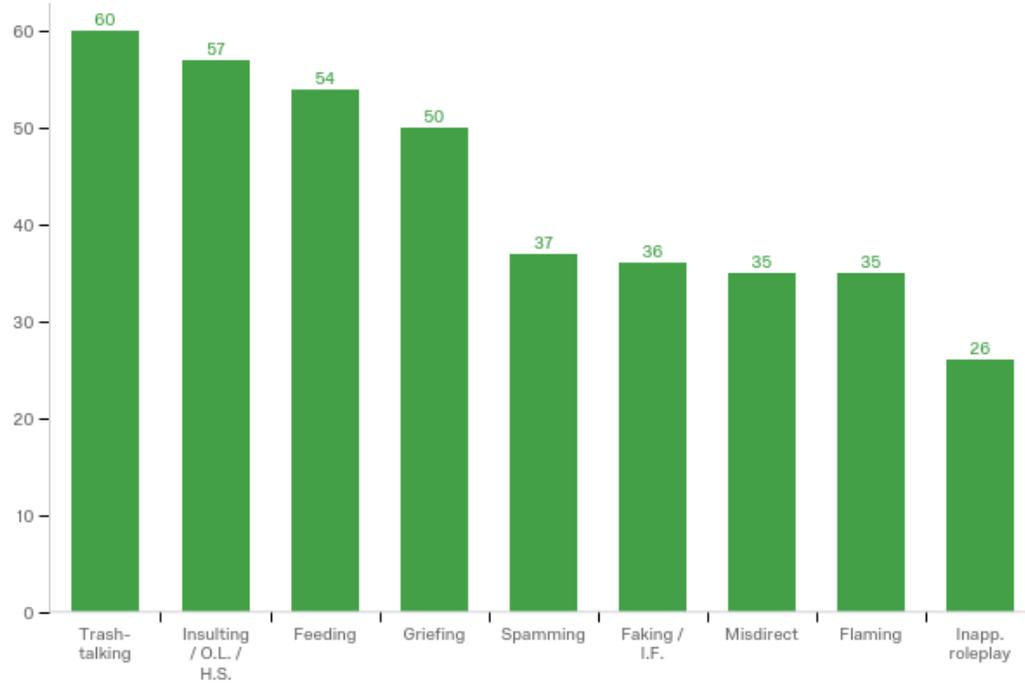


Figure 13: Disruptive behaviors perceived as trolling (N = 70, people who currently play multi-player online games)

When we take a look at the answers from participants who play multi-player online games with random players online (N = 70) for the disruptive behaviors that are perceived as trolling, we can see that a few orders have been changed. They consider trash-talking (60), insulting, using offensive language or hate speech (57), feeding (54) and griefing (50) as behaviors that trolls perform the in games more than other behaviors. Nearly half or less than half of them considered spamming, faking/intentional fallacy, misdirection, flaming and inappropriate roleplaying as behaviors that trolls perform (See Figure 13).

RQ2b: What disruptive behaviors are observed in games? (N = 70)

The participants who play with random players (N = 70) were asked the behaviors they have witnessed in their games with random players. This question is different from the previous one. The previous question was about the behaviors that trolls perform, and this question is about behaviors that the players have encountered in games, regardless of the said behaviors being considered trolling or not. When we compare the results with the ones from the previous question, we can see that the order has changed to place all of the deception related behaviors (faking, misdirection, inappropriate roleplaying) at the lowest rating. The highest rated were insulting, offensive language or hate speech (66), trash-talking (61), griefing (55), flaming (51), spamming (50) and feeding (50). A fewer number of participants noted encountering faking/intentional fallacy (32), misdirection (31) and inappropriate roleplaying (26). The order is shown in Figure 14.

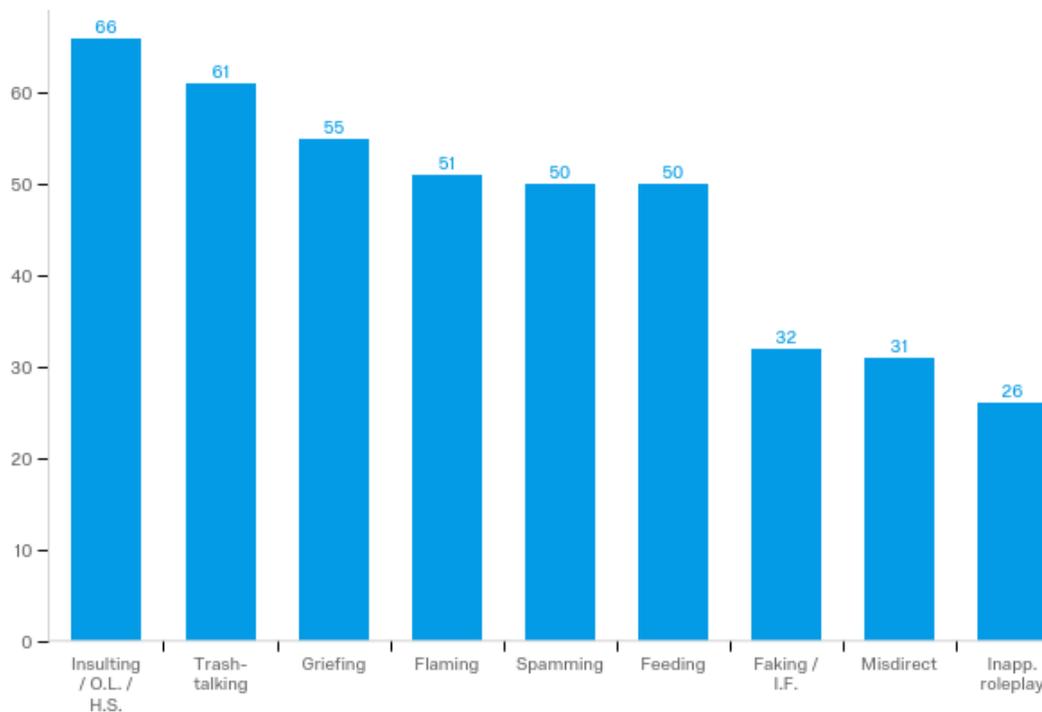


Figure 14: Disruptive behaviors observed in games (N = 70)

RQ2c: What are the perceived motivations for trolling? (N = 129)

All participants (N = 129) were asked what are the motivations of the trolls in games according to them. A majority agreed that trolls' motivation for trolling is personal enjoyment (120). Other motivations that ranked relatively high were "provoke, anger or frustrate other players" (109) and boredom (95). Approximately half of the participants or less considered racism, sexism, etc. (65), revenge (42) and troll another troll to stop them from trolling (27) as trolling motivations (See Figure 15).

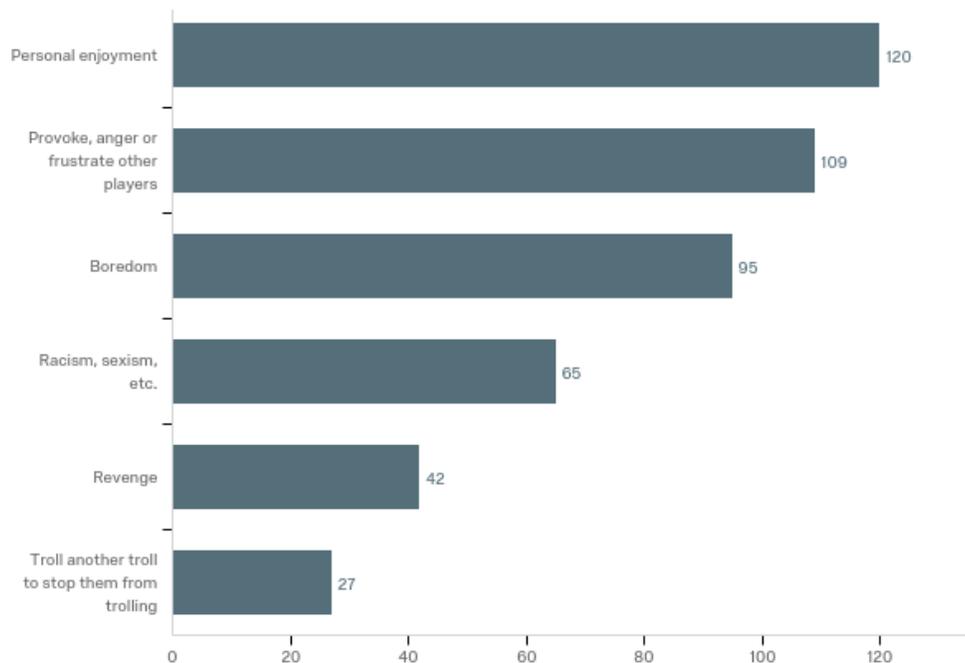


Figure 15: Participants' perceptions of motivations for trolling (N = 129)

RQ3: What are the previous trolling experiences?

RQ3a: How many people have trolled previously? (N = 79)

The participants who play multi-player online games (N = 79) were asked if they have any previous trolling experience. The participants who said they have trolled someone before was 41 and 7 of them stated trolling often. The remaining 38 participants said they have never trolled another player.

RQ3b: What disruptive behaviors did they perform to troll? (N = 41)

Among the participants who said they had trolled before (N = 41), the most common answers for behaviors they had performed were griefing (18), trash-talking (17), insulting, offensive language or hate speech (15), faking/intentional fallacy (14), misdirection (13), inappropriate roleplaying (13), followed by spamming (10), flaming (10) and feeding (6). The corresponding visualization is shown in Figure 16.

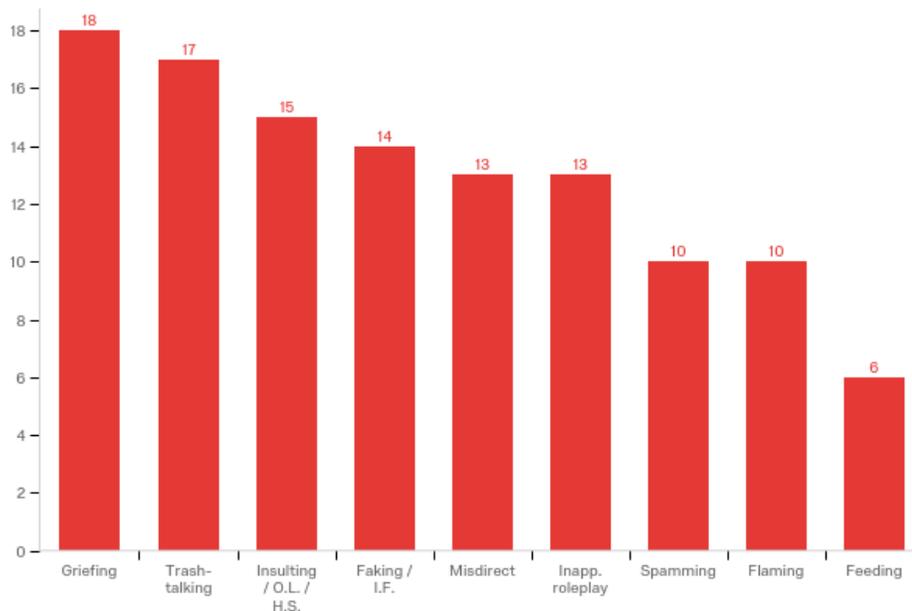


Figure 16: Disruptive behaviors performed to troll (N = 41)

RQ3c: What was their motivation for trolling? (N = 41)

When asked for their reason for trolling to the participants who said they had trolled before (N = 41), most of the answers were selected between 21 and 18 times. Those answers were personal enjoyment (21), trolling another troll to stop them from trolling (19), boredom (19) and revenge (18). There were 7 participants who reported that they provoke, anger or frustrate other players and 1 participant said their motivation is racism, sexism, etc.

RQ3d: Do they define themselves as a troll? (N = 41)

When asked of the participants who have trolled before (N = 41) whether they define themselves as a troll, 7 of them stated that they did. The remaining 34 participants answered the question 'no'. Considering the people who stated trolling often (N = 7), only 4 of them defined themselves as a troll.

RQ3e: Who are the trolls? (N = 7)

The people who define themselves as trolls (N = 7) are aged between 19 and 30 (M = 24.43; SD = 3.42) and all of them are male. Out of the 7 people who self-define as trolls, 6 participants reported playing multi-player online games with random other players they do not know and all 6 of them meet trolls either often (5) or every time (1). There are 5 participants whose highest completed level of education is bachelor's or equivalent and 1 each for master's or equivalent and primary or secondary education. Out of 7, only 1 has been playing multi-player online games for at least 4 years and the rest for at least 7 years.

Moreover, out of the 41 people who had trolled previously, 37 of them play multi-player online games with random players they do not know and 36 of them meet trolls either sometimes (17) or more frequently (19). The ages range from 19 to 36 ($M = 26.46$; $SD = 3.85$), and there are 38 males and 3 females. The highest completed level of education for most (28) is bachelor's or equivalent. There are 7 participants that completed master's or equivalent and 6 completed primary or secondary education. All of the 41 participants who had trolled before are playing multi-player online games for at least 4 years and 36 are playing at least 7 years.

4.4. Comments

There was a comments field at the end of the questionnaire as an optional field. Some participants filled it in. Some participants chose to contact the author personally to comment on the study. The comments gathered from the field in the questionnaire and personal conversations are grouped together by their themes and contents and presented below.

Seven participants reported that trolling someone was a distressing experience. Some of them noted that even with acknowledging it is in a virtual environment and they are not communicating with real people, it is still unpleasant:

Even if I know that I wasn't playing with real players, I was very uncomfortable while trolling. I very tried hard to be a real troll but I couldn't be an exact troll.

I was too hesitant to try some of the harsher/heavier choices, even though I knew that was the point of the game.

Some of the seven participants who found trolling experience distressing also noted specifically the thing that distressed them the most, which was trolling others and bullying a minor. Some of them also noted they sympathized with the trolling victims:

It was tough to play. I dislike being mean to players as I know how crap it feels when you are being trolled.

I made that kid cry for hours yesterday. This was a painful experience. cuz I felt like I bullied a kid without doing so. If I did that in the game in my playthrough, fine. but facing such consequences without doing it felt bad personally.

It made me feel bad to make a child cry, because that kid used to be me.

Some participants noted that the game failed to be realistic and it felt unnatural playing it. Also, they often disagreed with the trolling taxonomy of this study:

I have been playing online multiplayer games for a long time. I have rarely encountered these types of "trolling". Swearing, insulting and other similar behaviors are not trolling. Trolling in online games is more about using the

mechanics to deceive people, wasting their time, stopping them from something they want to do. Trolling in chat is more about giving wrong information to them. [...] The dialogues [in Troll Simulator] were unnatural.

no troll starts trolling without anything happen. if troll starts the conversation or trolling its just a joke. the other can offend because of joke like the game, but troll in the game is truly not realistic.

[The representation of trolls in] the questionnaire and the game resembled foreign trolls and their behaviors rather than the trolls in [the Turkish] culture.

I think the definition of “flaming” is wrong. [Flaming] is often used as unnecessarily and/or exaggeratedly scolding players because of a mistake they made or caused. Trolls also do [flaming] but flamers are a different group, they are a more dangerous and harmful group than trolls.

Similarly, game design was found to be basic by some of the commenters:

At the risk of sounding like a troll myself, the game was too basic, lacked direction and had too many troll-answer options. 3/4 answers I saw were antagonistic, which feels like it's funneling the player into a pre-determined direction.

when there is no punishment for swearing or trolling the game became pick the answer with more censored words

Moreover, some comments demonstrated that trolling is not always considered as disruptive behavior or the commenters are not always bothered when they encounter trolls:

Trolling I've come across is not verbal. I play Battlefield 4 and trolling I witnessed was performed in game not in game chat. For ex. if a player is really bad at aiming, you mock their aim by jumping around them. I think this is not a disruptive behavior.

Trolling isn't really an issue, people need to be more proactive with using the mute button.

I enjoy trolling and playing with trolls in casual games/matches whereas I do not enjoy doing so in competitive games/matches.

As of being a troll myself, I did not feel any discomfort [by playing Troll Simulator and filling in the pre-test questionnaire]. Also, there is this thing, a high majority of trolls are reckless and apathetic people. If somebody trolls the game, I wouldn't feel stressed at all. I also do not get disturbed in foreign servers, especially the ones where North Europeans and Americans are [and trolling is racism-based on

a mild level], as being a troll myself. [...] I think [finding trolling disruptive] is related to [being easily offended] by everything.

Conversely, some others related the content of the game to their personal experiences with trolls and found the game realistic. Some noted that this game was useful for them realizing about trolling types they often encountered:

I was also exposed to trolls [in the game I play] but honestly, I didn't know such terms existed.

I know that it is impossible to reach a real-life trolling experience with a game like this. However, in a lobby level, it was realistically close and was better than my expectations.

I think every online game should include a troll simulator in their mandatory tutorial phase before players can start playing the game.

The Troll Simulator taught me a lot regarding trolling behavior and also changed my perspective regarding this behavior.

Thanks for giving awareness about online trolling

It is a well-constructed [...] game

The game was very fun. I picked some options to see what would happen and enjoyed the experience. I hope it gets released at some point

Some participants noted the importance of community and game developers in eliminating trolling and other undesired behaviors:

F2P games that allow children to play will always have [trolling] problem, a solid solution is to either sell your game for money, or add progress based status barriers that set people up to lose something of value if their accounts get terminated as a result of anti-social behaviour. Naturally, it is a requirement for game developers to watch their communities and implement systems for dealing with such players.

I tried not to troll at first [in Troll Simulator]. But I got trolled and then started trolling. I guess in a toxic kind of gaming community it is not easy to respond anyone without looking like/being a troll.

CHAPTER 5

DISCUSSION AND CONCLUSION

This chapter contains the discussion of findings in pursuit of answering three research questions and their sub-questions. The research questions were about the influence of a persuasive game about trolling behavior in raising awareness, perception of trolling in the gaming context and demographics of trolling behavior perpetrators. The limitations of this study are broken down and implications for future research are reported all-together with a conclusion.

5.1. General Discussion of the Findings

The discussion of the findings is presented in this section in light of the research questions. This study aimed to find answers to these questions in a descriptive manner:

RQ1: Can a persuasive game raise awareness or knowledge about disruptive behaviors that trolls perform in online games?

RQ2: What do people consider trolling in multi-player online games?

RQ3: What are the previous trolling experiences?

The sections from 5.1.1 to 5.1.4 demonstrate the discussion regarding RQ1, separated into themes such as awareness and knowledge, immersion and perceived realism, perception of trolling, trolling behavior observed in Troll Simulator. The research questions RQ2 and RQ3 each are discussed in a single section, respectively 5.1.5 and 5.1.6.

5.1.1 The Influence of the Game on Awareness and Knowledge

Studies demonstrate the measurement of the effectiveness of persuasive games on many different topics (Lavender, 2008; Soekarjo & van Oostendorp, 2015). Persuasive games often aim for a change in knowledge or a raise in awareness. In this study, the influence of the game on both knowledge and awareness was observed. The participants were found to be indecisive about whether they have learned something new about trolling by playing Troll Simulator. This might be due to the finding that participants already considered themselves fairly knowledgeable about trolling behaviors in online spaces and gaming context. That would mean their perception of their knowledge about trolling behavior is realistic and they indeed have not learned something new. Even though participants mostly agreed that video games are effective in raising awareness, they weakly agreed on Troll Simulator's effectiveness in doing this. They were also indecisive about themselves

being more aware after playing the game. This could also be explained by the participants considering themselves already knowledgeable enough. Therefore, it results in the game not initiating any raise in awareness. Moreover, as previously noted, an ambiguity of trolling definition and taxonomy was observed in the literature. It could be similar to how participants see trolling. In fact, in this study, participants were observed to have different views on what constitutes trolling. Another explanation could be brought to this question by taking a look at Troll Simulator. The game design only included a few types of trolling and lacked other types of trolling. The participants might see trolling in the game as not a good representation of trolling in real life. Similarly, how trolling is performed or perceived might differ from one game to another.

5.1.2 The Influence of Immersion and Perceived Realism on Persuasion

The importance of immersion in persuasion and the influence of perceived realism on immersion was demonstrated by literature (Hafner & Jansz, 2018). In this current study, the gameplay experience was found neither to be immersive nor non-immersive. This could also be another reason for this game to be not very successful in persuasion: Level of awareness was not recorded to be high because gameplay experience failed to be highly immersive. Another confusing finding was, even though trolling and victim behaviors in the game were found to be realistic, gameplay immersion was considered to be neutral. This could be explained by considering the complex and layered nature of this phenomenon (Calleja, 2011). This study accounts the immersion that influences gameplay experience while other kinds of immersion are out of the scope. Similarly, immersion may not have been understood or interpreted in a correct way by the participants due to its complex structure.

Moreover, Hafner and Jansz's study (2018) found that along with perceived realism, narrative depth and identification contributed to the immersive experience. Out of the three components, only realism was one of the concerns of this study. Narrative depth and identification could not be implemented due to some restrictions (See 3.4.5 *Implementation & Distribution*). Having these elements excluded from the study could support the reason why there was not a strong immersion.

5.1.3 The Influence of the Game on Perception of Trolling Behavior

Trolling was seen as more of a problem after playing the game. Apart from this, more people disagreed with the statements "*Trolling is just for fun and trolls should not be taken seriously*" and "*Trolls should be free to play around unless the situation puts the victim in a life-threatening danger*". These changes could be interpreted to have happened as a result of the persuasive influence of Troll Simulator. However, Troll Simulator did not have an influence on the statement "*Trolling is a harmful behavior*". This might be due to the fact that the participants were already agreeing that trolling is harmful before playing the game. Another reason for this could be the game not being very influential on this statement. There was an unexpected change in the level of agreement with the statement "*When a player is being trolled, it is their own fault*", as it rises after playing

the game. This unexpected effect may be ignored since the change in the mean value is low (0.07). When we examine all of the results about these statements, the overall picture denotes the slight influence of Troll Simulator on participants.

5.1.4 Trolling Behaviors Observed in the Game

The trolling types presented in Troll Simulator were (1) insulting, using offensive language or hate speech, (2) spamming, (3) misdirection, (4) flaming and (5) trash-talking. All of these types were observed by at least 2/3 of the participants. This might be due to the finding that types that are commonly encountered, like trash-talking (Cook et al., 2018), are easier to spot. The message that the game aimed to convey was delivered successfully for some types of trolling (trash-talking, misdirection, offensive language or hate speech, spamming) and slightly successfully for one type (flaming).

5.1.5 Trolling in Gaming Context: Taxonomy and Motivations

Trolling taxonomy and trolling motivations were determined in this study based on what previous literature suggests. Trolling taxonomy in this study involved (1) insulting, using offensive language or hate speech, (2) spamming, (3) feeding, (4) faking/intentional fallacy, (5) misdirection, (6) inappropriate roleplaying, (7) grieving, (8) flaming and (9) trash-talking. Trolling motivations were listed as (1) provoke, anger or frustrate other players, (2) troll another troll to stop them from trolling, (3) personal enjoyment, (4) revenge, (5) boredom, (6) racism, sexism, etc.

Every item in trolling types list was considered as behaviors that trolls perform in games by a certain number of participants. Similarly, each of the trolling motivations proposed by this study was considered as reason for trolling by participants to an extent. In brief, the participants had different perspectives on trolling. The most selected types of trolling behavior (i.e., trash-talking, insulting, using offensive language or hate speech, feeding and grieving) could be actually occurring more than other types in a real setting (Cook et al., 2018; Kwak et al., 2015). As for considering trolling motivations, the most selected types (i.e., personal enjoyment, provoke, anger or frustrate other player and boredom) also appear often as trolling motivations (Buckels et al., 2014; Cook et al., 2018; Thacker & Griffiths, 2012).

5.1.6 Previous Trolling Experiences

Previous trolling experiences revealed some interesting findings. Approximately half of the participants who play multi-player online games (41 out of 79) said they had trolled another player in a game. The participants who define themselves as a troll are 8.86% (7 out of 79) of all participants that play multi-player online games. Approximately all of the participants who play multi-player online games with random other players reported encountering online trolls in their games: 67 out of 70 participants meet trolls. These findings together possibly lead to this conclusion: Trolling behavior is self-perpetuating and trolling can cause more trolls (Cook et al., 2018).

Another contribution of the literature was that frequent trolls are found to be younger and male (Thacker & Griffiths, 2012). The same study found that average age of participating in trolling behaviors was 21.7 years old (Thacker & Griffiths, 2012). Similarly, the average age of trolls was found to be 23.6 years old (Cook et al., 2018). The literature supports the finding of this current study regarding age: The average age of self-defined trolls is 24.43 years old. Considering males in this current study, 38 out of 90 participants admitted trolling another player. The ratio for females is much less than for males: 3 out of 39 female participants trolled. However, the discussion regarding gender seems to be more complex. The inequity in the number of participants of different genders could potentially lead to a misdirecting judgment.

Furthermore, a finding about using hate speech is noteworthy: Although literature found a strong association of racism and sexism with trolling behaviors (Thacker & Griffiths, 2012), only 1 participant reported being triggered by racism and sexism while performing trolling. The reason why this number is found to be very low in this current study might be due to the fact that trolls may not be admitting or realizing that they are racist or sexist (Augoustinos & Every, 2010; Benton-Greig, Gamage, & Gavey, 2017).

5.2. Limitations

This study had limitations that would interfere with the reliability, internal validity, external validity and credibility of the results. These threats include limitations regarding the participants, or limitations about the research design of this study, and other limitations.

5.2.1 Limitations Regarding the Participants

The limitations that were concerning the participants could be group together and listed as follows:

- The language of the questionnaires is English, which is not the mother tongue of most of the participants. Only 10.85% reported they are native or bilingual in English. Although a vast majority of the participants reported having an advanced level of English, linguistic barriers might have caused misunderstandings in both the questionnaires and the experiment. In particular, the experiment involved multiple cases where internet jargon was used. Someone who is not familiar with such language might have missed the context. Although no participant had explicitly reported having an issue with the language of the questionnaire nor of the experiment, it could still be the case.
- There was a poor level of variability among participants considering the place of residence. Even though 3 continents were represented, most of the participants reporting living in Turkey restricts the variability.

- Before agreeing to participate in the study, the participants were informed that the data collected from them was anonymous and no data was collected that could directly lead to the identification of an individual (e.g., name). However, some questions involved sensitive matters, like previous trolling experience. Some participants might have refrained from giving honest answers even though they knew they would remain anonymous. Their answers might lack quality in the sense of being either incomplete, exaggerated, misdirecting or biased.

5.2.2 Limitations Regarding the Research Design

Research design limitations were determined as follows:

- As mentioned before, no suitable scales were found for this study. The questionnaire and experiment had to be built from scratch. Some of the previous studies had measurement methods which were either adapted to this study or this study got inspired from them. Although because of having a newly designed instrument and experiment, this study is likely to demonstrate issues related to internal validity.
- The threat regarding the native language of the participants being different than the language of the questionnaire and experiment was stated in the previous section. Besides that, the native language of the researcher of this study is not English. Therefore, it might have had effects on meanings.
- Both of the pilot tests had a limited number of participants. This appears to weaken the validity and reliability of the questionnaires.
- The questionnaire and experiment were standardized except for branching questions. However, the study was conducted online. This means that the participants did not have any restrictions for location, duration and time of the day to participate in the study. The researcher had no control over external factors like lighting, temperature, mood, distractions, etc.
- The pre-test and post-test included questions about trolling behavior. The post-test questions about trolling behavior explicitly stated that participants are being asked about the influence of the game. For instance, there was a question about the influence of the game on their level of awareness. However, the process of becoming more aware of trolling behavior could have initiated by the questions in the pre-test, rather than the game itself. This means that the pre-test questions could also have an influence on the answers of participants in post-test questions.
- There is no evidence pointing to the success or failure of external validity of this study. No tests were designed to assess whether external validity is high or low. Therefore, this remains an unknown matter.
- The wording and meaning of each question were checked to not include any bias. However, further methods may be required to ensure credibility of the study.

- Convenience sampling was a sampling method used for this study. It is a general concern regarding this method: The participant that is easily reached might not represent the population.
- In order to make a more detailed reading of the data and to have more generalizable results, statistical tests need to be conducted.

5.2.3 Other Limitations

Besides limitations regarding participants and research design, there were some other limitations as follows:

- The online tool used for data collection, Qualtrics, did not allow the participants to go back to a previous page. If a participant had changed their mind about a previously answered question at a later stage of the questionnaire, they were not able to go back to a previous page and change their answers.

5.3. Conclusion and Implications for Further Work

This thesis was about using a persuasive game as a tool to raise awareness. I designed a game about trolling behavior to be used in this study. Then, I observed the influence of the game on awareness and knowledge acquisition about trolling behavior, together with how trolling behavior is perceived in the gaming context, without a genre or platform limitation. I held the study in a descriptive fashion and dealt with quantitative data in my observations. The findings revealed that playing the game had slight influences in the participants' perception of trolling: it was perceived to be a more negative phenomenon after playing the game. It was also found that insulting, trash-talking, feeding and griefing are behaviors that are most commonly classified as trolling. Considering the findings about previous trolling experiences, about half of the people who play multi-player online games had engaged in a trolling activity, most commonly being griefing or trash-talking.

The research process has fulfilled the research goals of this study. However, as stated before, what we scientifically know about trolling behavior in the gaming context is still very little. Likewise, persuasive games is yet a growing, broadening and maturing discipline and untangling the influences of them are still on an appraisal. This current study remains preliminary in decrypting the influence of persuasive games about trolling behavior in the gaming context. Further research is necessary to have a wider view of the picture.

A way to approach this fuzziness could be involving what the past research has taught us: measuring effectiveness of persuasive games (Lavender, 2008; Ruggiero, 2014; Soekarjo & van Oostendorp, 2015). These studies used various methodologies, but the most common ones could be summarized as follows:

- Having two or more groups in data collection; one with an informative control condition and one experimental group involving a persuasive game
- Making media comparison (e.g., persuasion through the game content vs. persuasion through another content) to determine if the game is more effective in persuading
- Designing the research to have another questionnaire at least a week after post-test questionnaire as a follow-up questionnaire to observe the long-term effects of persuasion
- Using statistical tests

Another solution could be mined from looking at the role of the community in multi-player online games. These studies mention the importance of the community while reading the trolling behavior in the context of games (Cook et al., 2018). In pursuit of educating the community, the game design can focus on how trolls perform trolling behavior and what others can do about it. For instance, a game could be tailored based on the design of Troll Simulator but has an emphasis on characters cooperating to eliminate the troll.

Furthermore, multidisciplinary perspectives in game design could provide different ways to monitor how players interact with one another. There are studies that utilize natural language processing (NLP) and machine learning algorithms for identifying trolling behavior (De La Vega & Ng, 2018; Murnion, Buchanan, Smales, & Russell, 2018; Tsantarliotis, Pitoura, & Tsaparas, 2016). In a game design approach that reflects Troll Simulator but where text entry is permitted rather than multiple-choice dialogues, NLP could be used to provide a smoother, more sophisticated and intelligent conversation, giving more freedom to the player.

In addition to these, it would be interesting to observe the persuasive value of a more comprehensive game. To be specific, some enhancements could be experimented with Troll Simulator in order to explore trolling behavior in a game with much broader content. These changes could be exemplified as follows:

- The story has a branching/non-linear story instead of linear
- The game has a re-play value with different consequences, since the current design of the game does not allow a second time to experience it
- The gameplay is longer or included exposure to toxic behaviors for a longer period of time
- The game has richer content, more actions, includes other types of trolling behavior

Another game design approach could involve solutions to avoid distractions since previous research argues extra content in the game to be distracting (Soekarjo & van Oostendorp, 2015). This could be achieved by still aiming for extensive gameplay but incorporating simplicity:

- An abstraction of concepts is implemented in the game to an extent
- The message is introduced to the player without allowing them to trip over distractions
- The entities and their interactions are represented in the game as simplified and modest versions of themselves

So far, I proposed some improvements in research design and game design to be considered while replicating this study. As previously noted, this thesis is preliminary in this young domain and aims to take the role as the precursor to further contributions in game studies by not only addressing the influence of persuasive games, but also delivering more insight about trolling behavior in gaming context.

Besides researchers, game developers can also benefit from the study. I hope my work can strengthen the communication between game developers and gamers, and act as a guideline in helping the developers learn about gamers' concerns regarding the disruptive behaviors, whether they are called trolling, toxic behavior or cyber-bullying. Like with the game developers, it is also important to educate the players so they can stay alert for toxic playing. It is essential to build a safer gaming community for all members, and everyone involved in these eco-systems shares the responsibility of housekeeping.

As the never-ending debate about whether video games are a form of art or not continues, video games, like other works of art, are proven multiple times to communicate ideas through their content. As scholars, scientists, game designers and artists, it is our duty to establish means of communication to express ideas, explore social and political issues and encourage critical thinking. We can do this by utilizing video games.

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APPENDICES

A: INFORMED CONSENT FORM

Thank you for your interest in our study!

This study is conducted by METU, Department of Modelling and Simulation M.Sc. student Gökçe Komaç and supervised by Prof. Dr. Kürşat Çağiltay, to evaluate the effectiveness of a persuasive game about online trolls. The aim of this study is to observe if there is a change in knowledge or level of awareness about trolling behavior in online multi-player video games.

Your participation will take approximately 10 – 15 minutes. The first part of the survey will be about your gaming habits, how you perceive trolling behavior and your knowledge about disruptive trolling. Then, you will play a game where you will play the role of an online troll. The second part of the survey has questions about the game and trolling.

Participating in this study is completely voluntary. During your participation, if you feel uncomfortable for any reason and at any time, you are free to stop your participation.

The data provided by the participants will remain anonymous and no data regarding the identification of an individual will be collected. The data is only accessible by the researchers of this study and will only be used for research purposes.

If you have any questions regarding this study, feel free to contact the researchers:
Gökçe Komaç (E-mail: metu.game.research@gmail.com)
Prof. Dr. Kürşat Çağiltay, Supervisor (E-mail: kursat@metu.edu.tr)

By clicking "I accept":

- You are 18 years old or older
 - You confirm that you have read the conditions
 - You consent to participating in the study
- I accept

B: PRE-TEST QUESTIONNAIRE

Q1 What is your age? _____

Q2 What is your gender? Male Female Other

Q3 Which country do you live in? Turkey Other: _____

Q4 What is your highest **completed** level of education?

Primary or Secondary education (e.g., High School, etc.)

Associate's or equivalent level

Bachelor's or equivalent level

Master's or equivalent level

PhD or equivalent level

Q5 What is your level of English?

Beginner

Intermediate

Advanced

Native/Bi-lingual

Q6 Do you play any **online multi-player** games? Online multi-player games: Games that can be played online with more than one player, including all platforms/devices (computers, smart phones, etc.) and all game genres.

Yes

I have played in the past but I do not play any longer.

No

Skip to Q13 , if " <i>I have played in the past but I do not play any longer</i> " or " <i>No</i> " is selected on Q6

Q7 On what platforms do you play **online multi-player** games? (You can select multiple answers)

Computer (Desktop, Laptop, etc.)

Mobile

Console (Xbox, Playstation, Nintendo, etc.)

Other

Q8 What kinds of online multi-player games do you play? (You can select multiple answers)

- MOBA (e.g. Dota 2, League of Legends, Heroes of the Storm, etc.)
- Battle royale (e.g. PUBG, Fortnite, Apex Legends, etc.)
- FPS (e.g. Counter Strike: Global Offensive, Overwatch, Left 4 Dead 2, etc.)
- MMORPG and other role-playing games (e.g. World of Warcraft, The Elder Scrolls Online, Fallout 76, etc.)
- Strategy (e.g. Starcraft II, Age of Empires II, Clash of Clans, etc.)
- Sandbox/Survival/Crafting (e.g. Minecraft, Don't Starve Together, etc.)
- Action-adventure (e.g. GTA Online, Red Dead Online, etc.)
- Sports (e.g. Rocket League, FIFA, etc.)
- Racing
- Board and Card games (e.g. Tabletop Simulator, Hearthstone, Magic the Gathering, etc.)
- Conversation-based games (e.g. Town of Salem, etc.)
- Word games (e.g. Wordfeud)
- Other (Please specify name or genre of the game(s)) : _____

Q9 Who do you play online multi-player video games with? (You can select multiple answers)

People I know in real life (friends, family, etc.)

Random players that I do not know

Display Q10 if “ <i>Random players I do not know</i> ” is selected on Q9
--

Q10 How often do you meet with an online troll when you are playing with random players? Every time Often Sometimes Rarely Never

Q11 In an average week, how many hours do you spend playing **online multi-player video games** (considering your playtime in the past 6 months)?

Never Less than 5 hours per week 5 to 10 hours per week
10 to 20 hours per week More than 20 hours per week

Q12 How many years have you been playing **online multi-player** games?

< 1 year 1 - 4 years 4 - 7 years > 7 years

Q13 How **knowledgeable** do you consider yourself about the following topics?

	Not knowledgeable at all	Slightly knowledgeable	Moderately knowledgeable	Very knowledgeable	Extremely knowledgeable
Online trolls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trolling behaviour in online games	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 According to you, which of the following behavior(s) do the trolls perform in games? (You can select multiple answers)

- Insulting, using offensive language or hate speech
- Spamming
- Feeding (Intentionally disadvantaging your own team and advantaging the opponent)
- Faking/intentional fallacy (e.g. pretending not to know how the game is played, etc.)
- Misdirection (spread false information among targeted or general players)
- Inappropriate roleplaying (pretending you are a different person (non-game related) to obtain some kind of specific reaction)
- Griefing (deliberately irritating and harassing other players within the game, using aspects of the game in unintended ways)
- Flaming (Presenting emotionally fuelled or contrary statements with an instrumental purpose)
- Trash-talking (Putting down or making fun of others)
- None of the above

Q15 According to you, what is the motivation of a troll to perform these behaviors in games? (You can select multiple answers)

- Provoke, anger or frustrate other players
- Troll another troll to stop them from trolling
- Personal enjoyment
- Revenge
- Boredom
- Racism, sexism, etc.
- None of the above

Display **Q16** if “*Random players I do not know*” is selected on **Q9**

Q16 Which of the following behavior(s) have you witnessed while you were playing online multiplayer games with random players? (You can select multiple answers)

- Insulting, using offensive language or hate speech
- Spamming
- Feeding (Intentionally disadvantaging your own team and advantaging the opponent)
- Faking/intentional fallacy (e.g. pretending not to know how the game is played, etc.)
- Misdirection (spread false information among targeted or general players)
- Inappropriate roleplaying (pretending you are a different person (non-game related) to obtain some kind of specific reaction)
- Griefing (deliberately irritating and harassing other players within the game, using aspects of the game in unintended ways)
- Flaming (Presenting emotionally fuelled or contrary statements with an instrumental purpose)
- Trash-talking (Putting down or making fun of others)
- None of the above

Display **Q17** if “*Yes*” is selected on **Q6**

Q17 Have you ever trolled someone in an online game?

Yes, often

Yes, but not often

No, never

Display **Q18, Q19** and **Q20** if “*Yes, often*” or “*Yes, but not often*” is selected on **Q17**

Q18 Do you define yourself as a troll?

Yes

No

Q19 Which of the following behavior(s) have you performed? (You can select multiple answers)

- Insulting, using offensive language or hate speech
- Spamming
- Feeding (Intentionally disadvantaging your own team and advantaging the opponent)
- Faking/intentional fallacy (e.g. pretending not to know how the game is played, etc.)
- Misdirection (spread false information among targeted or general players)
- Inappropriate roleplaying (pretending you are a different person (non-game related) to obtain some kind of specific reaction)
- Griefing (deliberately irritating and harassing other players within the game, using aspects of the game in unintended ways)
- Flaming (Presenting emotionally fuelled or contrary statements with an instrumental purpose)
- Trash-talking (Putting down or making fun of others)
- None of the above

Q20 What was your reason for trolling? (You can select multiple answers)

- Provoke, anger or frustrate other players
- Troll another troll to stop them from trolling
- Personal enjoyment
- Revenge
- Boredom
- Racism, sexism, etc.
- None of the above

Q21 Please indicate your level of agreement for the following statements about trolling:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Trolling is a serious problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trolling is a harmful behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trolling is just for fun and trolls should not be taken seriously.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trolls should be free to play around unless the situation puts the victim in a life-threatening danger.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When a player is being trolled, it is their own fault.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22 Please indicate your level of agreement for the following statement:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Video games could be effective in raising awareness about disruptive behaviors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The first part of the survey is over. Now, please play a short game about trolling, called 'Troll Simulator'. The game simulates the pre-game lobby (a chatroom where players chat before the game starts) of an online multi-player video game, where you will play the role of an online troll. You will be trolling your victims through selecting your choice from the dialogue options. Note that everything in the game is scripted and you are **NOT** communicating with real people. There will be no data collected from your gameplay. It might take a few seconds for the game to load. When you have completed the game, please continue with the next page.

C: GAME DIALOGUES

Troll has entered the lobby.

feazzt has entered the lobby.

Troll:

heeeey noob	+ 5
heeeey noob you're a ***** idiot	+ 15
hi	
heeeeeeeey stupid noob	+ 10

feazzt: ?

Troll:

u deaf or something? i said heeeey	+ 5
u deaf or something? im talking to you loser	+ 10
i'm talking to u ***** loser	+ 15
nothing	

feazzt: hi.

Troll:

i remember you from an earlier round	
you're the worst player. my little bro can play better, loser!	+ 15
you are not a good player	+ 5
brave of you to keep playing this game after that disaster.	+ 10

feazzt: ...uh.

Troll:

go back to minecraft, you golddigging *****! i know you're a girl.	+ 15
delete this game	+ 5
i'm going to win this round	
delete this game cause it's too hard for you cutie pie	+ 10

feazzt: cool story.

lunatic_potato has entered the lobby.

feazzt: but i know you are a troll and i do not feed trolls.

Troll:

lol ok	
spam slightly	+ 5
spam moderately	+ 10
spam intensely	+ 15

*[If *spam slightly* is selected]*

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

*[If *spam moderately* is selected]*

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

*[If *spam intensely* is selected]*

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

Troll: would you feed me if i wasnt a troll? cause i want a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll: lol go make me a sandwich

Troll:

why is everyone silent?	
spam slightly	+ 5
spam moderately	+ 10
spam intensely	+ 15

*[If *spam slightly* is selected]*

Troll: wheres my sandwich

Troll: wheres my sandwich

*[If *spam moderately* is selected]*

Troll: wheres my sandwich

Troll: wheres my sandwich

Troll: wheres my sandwich

Troll: wheres my sandwich

*[If *spam intensely* is selected]*

Troll: wheres my sandwich

Troll: wheres my sandwich

Troll: wheres my sandwich

Troll: wheres my sandwich
 Troll: wheres my sandwich
 Troll: wheres my sandwich
 Troll: why r u so moody? is it that time of the month?
 Troll: why r u so moody? is it that time of the month?

lunatic_potato: hi friends! sorry for my english. i dont understand game :(what is red apple do? i eat apple but nothing change. plz help!!!!

Troll:

what?	
misdirect	+ 15
avoid	
tell the truth	

*[If *misdirect* is selected]*

Troll: they increase your health. keep saving them until you have at least 10 and eat consecutively to get a bonus increase.

feazzt: dont listen to the troll

feazzt: red apples increase your health a little but you also get poison damage

feazzt: never eat them in large amounts at the same time

feazzt: that could kill you

*[If *avoid* is selected]*

feazzt: red apples increase your health a little but you also get poison damage

feazzt: never eat them in large amounts at the same time

feazzt: that could kill you

*[If *tell the truth* is selected]*

Troll: they eventually kill you

feazzt: red apples increase your health a little but you also get poison damage

feazzt: never eat them in large amounts at the same time

feazzt: that could kill you

k0ngking93 has entered the lobby.

lunatic_potato: friendz plz help me!!! where to collect frog?

Troll:

huh?	
misdirect	+ 15
avoid	
tell the truth	

*[If *misdirect* is selected]*

Troll: you'll find them on trees

feazzt: shut up troll.

feazzt: look at big rocks nearby lakes for frogs

[If *avoid* is selected]

feazzt: look at big rocks nearby lakes for frogs

[If *tell the truth* is selected]

Troll: look at big rocks nearby lakes for frogs

Troll:

feazzt you are worse than the plague	+ 15
feazzt you're so boring	+ 5
feazzt if your iq dropped any lower i'd have to water you twice a week	+ 15
i'm bored	

feazzt has left the lobby.

k0ngking93: hey

k0ngking93: arent ya da horrible troll from the other day?

k0ngking93: the kid you insulted

k0ngking93: didn't stop crying for hours

k0ngking93: its all because of you

k0ngking93: well imma give you a taste of yer own medicine

ilovejustin has entered the lobby.

DUCK has entered the lobby.

k0ngking93: you want a pissing contest, you get a pissing contest *****

DUCK: OMG *grabs popcorn*

ilovejustin has left the lobby.

k0ngking93: so tell me

k0ngking93: how does it feel like in your parent's basement, neckbeard?

Troll:

lol triggered?	+ 10
nobody appreciates constructive criticism these days	+ 5
everybody makes mistakes	
looks like another triggered sissy to me	+ 15

k0ngking93: shut up incel

Troll:

you shut up ***** sjw, i was smarter than that when i was a kid	+15
i was smarter than that when i was a kid	+ 10
when i was a kid, world was a better place	
when i was a kid, i also liked to use new words without understanding them	+ 5

k0ngking93: when you were a kid you didn't get hugged enough

DUCK: lol good one k0ngking93

snek4lyf has entered the lobby.

snek4lyf: eyyy

lunatic_potato: hi one more question. are green appel become red appel?

Troll:

you again?	
dude speak english or GTFO	+ 10
tell the truth	
insult with a racist slur	+ 15

*[If * tell the truth* is selected]*

Troll: no red apples stay red and green apples stay green

*[If * insult with a racist slur* is selected]*

Troll: learn english or GTFO, you ***** ***** *****

ironmaiden has entered the lobby.

Troll:

k0ngking93 u suck	+ 15
k0ngking93 you played like a 3 year older	+ 5
k0ngking93 didn't the last two weeks teach you a lesson loser?	+ 10
k0ngking93 you play almost as bad as that kid i trolled the other day	+ 10

k0ngking93: you dont make any sense

k0ngking93: and, i reported you

k0ngking93: everybody plz report the troll

Troll:

buncha noobz	+ 10
he is the one who is harrassing me, report him	+ 5
no plz :(
who cares **** you noobz	+ 15

Troll is kicked out of the lobby.

D: POST-TEST QUESTIONNAIRE

Q1 Did you play Troll Simulator?

- Yes, I finished the game
- Yes, but I left the game at some point before finishing it
- No, I did not play the game

Display **Q2** if “*No, I did not play the game*” is selected on **Q1**

Q2 Why didn't you play the game?

Couldn't get it to work

Couldn't figure out how to play

Other: _____

End the questionnaire if **Q2** was displayed

Display **Q3** and **Q4** if “*Yes, but I left the game at some point before finishing it*” is selected on **Q1**

Q3 Below, there is a list of all of the dialogue options from the game. There are numbers written from 1 to 14 next to each dialogue option block.

Please find the dialogue option block that you have last seen before leaving the game. Then, select the corresponding number in the dropdown list below.

1. heeeey noob
 heeeey noob you're a ***** idiot
 hi
 heeeeeeeeee stupid noob

2. u deaf or something? i said heeeey
 u deaf or something? im talking to you loser
 i'm talking to u ***** loser
 nothing

3. i remember you from an earlier round
 you're the worst player. my little bro can play better, loser!
 you are not a good player
 brave of you to keep playing this game after that disaster.

4. go back to minecraft, you golddigging *****! i know you're a girl.
 delete this game
 i'm going to win this round
 delete this game cause it's too hard for you cutie pie

5. lol ok
 spam slightly
 spam moderately
 spam intensely

6. why is everyone silent?
 spam slightly
 spam moderately
 spam intensely

7. what?
 misdirect
 avoid
 tell the truth

8. huh?
 misdirect
 avoid
 tell the truth

9. feazzt you are worse than the plague
 feazzt you're so boring
 feazzt if your iq dropped any lower i'd have to water you twice a week
 i'm bored

10. lol triggered?
 nobody appreciates constructive criticism these days
 everybody makes mistakes
 looks like another triggered sissy to me

11. you shut up ***** sjw, i was smarter than that when i was a kid
 i was smarter than that when i was a kid
 when i was a kid, world was a better place
 when i was a kid, i also liked to use new words without understanding them

12. you again?
 dude speak english or GTFO
 tell the truth
 insult with a racist slur

13. k0ngking93 u suck
 k0ngking93 you played like a 3 year older
 k0ngking93 didn't the last two weeks teach you a lesson loser?
 k0ngking93 you play almost as bad as that kid i trolled the other day

14. buncha noobz
 he is the one who is harrassing me, report him
 no plz :(
 who cares **** you noobz

▼ 1 ... 14

Q4 What is your reason for quitting the game earlier? (You can select multiple answers)

- Boredom
- Offensive language
- Other: _____

Q5 Which of the following behavior(s) did you observe in Troll Simulator? (You can select multiple answers)

- Spamming (Repeating game-unrelated chat)
- Flaming (presenting emotionally fuelled or contrary statements with an instrumental purpose)
- Trash-talking (Putting down or making fun of other players)
- Misdirection (Spread false information among targeted or general players)
- Offensive language or hate speech (e.g. sexism, racism)
- None of the above

Q6 Please indicate your level of agreement for the following statements about Troll Simulator:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
The game was easy to play.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The game was entertaining.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The gameplay experience was immersive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trolling behavior was realistic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The behavior of other players who were trolled was realistic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have learned something new about trolling by playing this game.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more aware about trolling after playing this game.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This game is effective in raising awareness about disruptive behaviors that trolls perform.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 Please indicate your level of agreement for the following statements about trolling, **having played Troll Simulator:**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Trolling is a serious problem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trolling is a harmful behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trolling is just for fun and trolls should not be taken seriously.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trolls should be free to play around unless the situation puts the victim in a life-threatening danger.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When a player is being trolled, it is their own fault.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 Please enter any other comments you have about the game, trolls and/or this study. (Optional)

E: DEBRIEFING TEXT

Thank you for your participation!

This study, as stated previously, evaluates the effectiveness of a persuasive game about trolling.

If any part of this experiment gave you discomfort, and/or you feel the need of a counseling or support program, you might like to check the following:

Ayna Klinik Psikoloji Destek Ünitesi:

<https://ayna.metu.edu.tr/>

ODTÜ Psikolojik Danışma ve Rehberlik Merkezi (For METU students):

<http://srm.metu.edu.tr/tr/pdrm>

Bilkent Üniversitesi Psikolojik Danışma ve Gelişim Merkezi (For Bilkent University students):

<http://www.pdgm.bilkent.edu.tr/>

Çankaya Üniversitesi Psikolojik Danışma ve Rehberlik Merkezi (For Çankaya University students):

http://www.cankaya.edu.tr/kampuste_yasam/saglik.php

TED Üniversitesi Öğrenci Danışma Merkezi (For TED University students):

<https://csc.tedu.edu.tr/tr/csc/bireysel-psikolojik-danisma>

If you have any questions, concerns or comments, feel free to contact the researchers.

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G: APPROVAL OF METU HUMAN SUBJECTS ETHICS COMMITTEE

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Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (IAEK)

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Sayın Prof.Dr. Kürşat ÇAĞILTAY

Danışmanlığını yaptığınız Gökçe KOMAÇ'ın "Can a Persuasive gamet hat forces the participant to troll increase awareness and knowledge about cyber bullying?" başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülmüş ve 191-ODTÜ-2019 protokol numarası ile onaylanmıştır.

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