

Communicating Democracy

A qualitative study into the Demos game's effectiveness as a tool to communicate democracy in Dutch education.

Master's thesis

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Daniele Todaro

Foreword by Marin Terpstra

Democracy is based on a revolutionary idea: people are capable to take responsibility for matters that affect them jointly. This idea is rejected in most of history and still in a large part of the world. As the conservative eighteenth-century thinker and politician Edmund Burke wrote: the people are entitled to good government, not to rule themselves. Anyone who disputes this must be able to prove that citizens are capable of taking public matters into their own hands. They can do this directly in a people's meeting, or by way of people's representatives. But those representatives are citizens too.

Citizens cannot do this 'naturally'. They are not born with a predisposition to politics and government. Democratic citizenship must be learned. Here, modern democracies often still fall short. And as Alexis de Tocqueville already foresaw in the middle of the nineteenth century: where citizens withdraw from public affairs, professional politicians and bureaucrats take over. A living democracy therefore requires practice in speaking, negotiating and making decisions. This must first be done at schools. Young citizens must be prepared for a role in democracy. The game Demos is also meant to contribute to this learning process. And it is therefore gratifying that Daniele Todaro has tried this game and wrote a thesis about it. Hopefully, this initiative will be followed and further elaborated.

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Abstract

Dutch secondary education lacks an effective way of communicating democracy to students. Demos is a “serious game” designed to address this problem. However, it is not clear whether Demos is effective or how it could be improved. That is why the focus of this study is to analyze to what extent Demos is effective at communicating democracy to students and how Demos can be further developed in the future. Demos is a card game that aims to communicate high school students how democracies function. Analyzing Demos will help improve the game, increasing its effectiveness as an alternative tool to textbooks to communicate democracy in Dutch high schools. This is one of the key objectives of the Dutch education system. A qualitative study was conducted with 35 students from two high schools/secondary schools. Students first played the game and then participated in debriefings in which they were asked to provide feedback about Demos. The analysis of the results showed that Demos is partially effective at communicating democracy. This is mostly due to its ability to distinguish itself as a “serious game”, being able to convey most of the core objectives of a democracy and of the Dutch educational system, an adequate design and the potential to increase the knowledge acquisition of the participant as well as change the participant’s attitude (both positively and negatively). However, there are some aspects of Demos that can be improved to better communicate democracy. The findings of this study indicate that Demos can be a valuable method to help communicate democracy to high school students. By focusing on the shortcomings and further optimize the aspects that are already effective at communicating Democracy, Demos can be improved for further use. Therefore, this study identifies some recommendations to enhance Demos’ effectiveness and adequateness as a tool for communicating democracy to high school students.

Keywords

democracy, communication, complex systems, serious games, persuasive communication

“To make democracy work, we must be a nation of participants, not simply observers.”

- Louis L'Amour

Introduction

There is widespread consensus in the Netherlands that the principles of democracy are not taught effectively at school (SLO, 2018). If Dutch high school students are asked what democracy means, they find it difficult to give a clear answer (Pauw, 2018). “Children are not born with a democratic gene”, states Arie Slob, Dutch Minister for Primary and Secondary Education and Media (Hagen, 2018). That is why he wants schools to be more efficient at educating aspects of Dutch citizenship (Rijksoverheid, 2018), such as democracy as a pillar of society. Demos is a “serious game” designed to address the problem of ineffective communication of democracy in Dutch high schools. However, it is not clear whether Demos is effective or how it could be improved. That is why the focus of this study is to analyze to what extent Demos is effective at communicating democracy to high school students and how Demos can be improved for future use.

Democracy is a complex system because it consists of a variety of actors that interact with each other in different ways, but especially because it is an unpredictable system (Goldman, 2015; Bak, Tang & Wiesenfeld, 1987). To make democracy work, people must participate (Shakaia, 2016). It is therefore essential that students gain experience in how democracy really functions. The traditional educational tools like textbooks are not sufficient, because textbooks contain static information that is not particularly effective at letting students gain experience in complex systems such as a democracy.

“Serious games” are an innovative new tool that provide entertainment, increase participants’ experience in a subject because they stimulate them to do something (rather than read about something) and they consist of different kinds of media such as text and graphics that complement each other (Laamarti et al., 2014). Past research showed that serious games indeed have the educational ability to effectively communicate complex systems (Guillén-Nieto & Aleson-Carbonell, 2012; Eisenack, 2012), provided they meet some essential requirements for well-designed games (Meya & Eisenack, 2017). “Serious games” also stimulate the acquisition of knowledge of a complex system because students gain experience by actively engaging with these systems (Livingston & Stoll, 1973; Meya & Eisenack, 2017). Moreover, “serious games” have the potential to change participants’ attitudes towards complex systems, enabling players to transfer what they learn about the rules guiding systems (like democracies) to the real world (Coombs et al., 2015). These results indicate that to determine whether a serious game is effective, it is important to take into account the following aspects: what defines

a “serious game”, what is required for them to be well-designed and what is their ability to activate participants’ acquisition of knowledge and change of attitude.

Based on these aspects, the purpose of this study is to analyze to what extent Demos is effective at communicating democracy to students ranging from 14-18 years old. Students in this age range generally follow Civics classes in the Netherlands. This means that they are currently involved with the subject of democracy, making them a relevant group to play Demos. Demos is a card game that aims to teach students how democracies work and is developed by the Democracy Lab of the Faculty of Philosophy, Theology and Religious Studies at Radboud University.

The Dutch National Center of Educational Development put together a document consisting of the core objectives of the Dutch educational system regarding the subject of democracy (SLO, 2016). Since this study focuses on communicating democracy in Dutch high schools, this means there is another aspect that determines to what extent Demos as a “serious game” is effective: its ability to meet the requirements of the Dutch educational system regarding what aspects of a democracy should be communicated to students.

In short, Demos’ effectiveness was analyzed with a topic list consisting of the elements that define a serious game, the three core values of a democracy in light of the objectives of the Dutch educational system, the requirements for well-designed serious games and Demos’ effectiveness in terms of knowledge acquisition and attitude change. Based on this analysis recommendations have been made for the developers of Demos as well, to improve the game for future use.

The following theoretical framework is organized as follows. First, the concept of democracy and complex systems are discussed. This is important because using and maintaining a clear definition for both concepts and finding out how Dutch education focuses on democracy, helps establishing the necessary guidelines needed to effectively evaluate Demos. Moreover, arguing that democracy is a complex system implies that static information written in textbooks is not enough to communicate a dynamic form of government consisting of a variety of actors influencing each other. Second, the theoretical framework focuses on the field of serious games and relevant previous research. The elements of the theoretical framework served as a foundation for the topic list used for this research.

Democracy

This paper focuses on communicating democracy in Dutch high schools. This means that defining what democracy is and how it should be communicated (based on educational guidelines) can help understand whether Demos communicates democracy according to the Dutch national educational guidelines.

There are many definitions of democracy, but the literature points out three values of a democracy that apply to most of the definitions: **freedom, equality and control** (Bühlmann, Merkel & Wessels, 2008; Sodaro, 2004; Campbell, 2008). A well-functioning democracy guarantees freedom to its citizens and promotes equality between people. The notion of control implies that the government controls its citizens (e.g., a criminal must be punished) but that its citizens can control their government as well (a government must be hold accountable and people should be able to be politically active) (Bühlmann et al., 2008; Campbell, 2008).

In terms of how democracy should be communicated in education, the National Center of Educational Development put together a document consisting of the core objectives of the Dutch educational system (SLO, 2016). Regarding democracy, there are three excerpts that explain what the Dutch education system should focus on.

- (1) “The final objective is to stimulate students to make **decisions based on information and argumentation**. Then, students would be behaving like citizens living in a culturally diverse, democratic society in which the **mutual independencies** are high” (SLO, 2016, p.12)¹
- (2) “...within democratic frameworks, they learn to **respect and appreciate the similarities and differences** between people and to express that with **commitment to themselves, each other and the environment**.” (SLO, 2016, p.12)²
- (3) “The student learns in general terms how the **Dutch political system** functions as a democracy and how people can be involved in political processes in different ways.” (SLO, 2016, p.13)³

¹ “Het uiteindelijke doel is dat leerlingen gestimuleerd worden op informatie gebaseerde, beargumenteerde beslissingen te leren nemen als burgers van een cultureel diverse, democratische samenleving waarin de onderlinge afhankelijkheden groot zijn.” (SLO, 2016, p.12)

² “Ze leren om binnen democratische kaders de overeenkomsten en verschillen tussen mensen te waarderen en te respecteren, en dat te uiten in betrokkenheid op zichzelf, elkaar en de omgeving.” (SLO, 2016, p.12)

³ “De leerling leert op hoofdlijnen hoe het Nederlandse politieke bestel als democratie functioneert en leert zien hoe mensen op verschillende manieren bij politieke processen betrokken kunnen zijn.” (SLO, 2016, p.13)

There are different types of democracies, which is why its definition is said to be diffuse and difficult to understand (The Economist, 2007). However, this cannot be the cause of ineffective communication of democracy at schools because the objectives of the Dutch educational system are each connected to one of the values of democracy mentioned previously (Bühlmann, Merkel & Wessels, 2008; Sodaro, 2004; Campbell, 2008). That means there *is* a clear idea of what Dutch education should communicate regarding democracy. In fact, the problem of ineffective communication of democracy is not *what*, but *how* democracy should be communicated. Indeed, teachers are not sure which methods effectively communicate democracy (SLO, 2018). The following section discusses democracy as a complex system and how this explains the current difficulties regarding *how* to communicate democracy.

Democracy as a complex system

A system is complex when it consists of multiple components that can all interact with each other (Bodenschatz, 2009; Upton, Janeka, & Ferraro, 2014). Moreover, it is a system that can be understood by simple mechanisms but shows surprising behavior (Waterloo Institute for Complexity & Innovation, 2018). The sand pile model (Bak et al., 1987) illustrates how complex systems work: when grains of sand are added, the process of building a sand pile is predictable. However, at a critical point, avalanches start to happen and with every subsequent input of a single grain, the impact of the avalanche can be small or large. Even though the creation of a sand pile is at first sight a simple process (i.e., grains of sand are added on top of each other), every single component (i.e., every single grain of sand) could interact with another component but that behavior is not predictable (i.e., every grain may or may not cause an avalanche). Complex systems can be “small” like the sand pile model, but they can also be social and economic organizations (e.g., the monetary system) or global climate (e.g., climate change). The study of complex systems is important, because it helps understand how all the processes in the social universes work (Complex Systems Society, 2018). In other words, understanding how democracy really works can offer insight in how to better communicate it.

This study argues that a democracy is a complex system as well. Just as all other complex systems, a democracy consists of a network of actors, individuals (e.g., citizens), groups (e.g., interest groups, political parties) and institutions (e.g., NGO’s) that may all affect each other and therefore have an impact on how a democracy functions (Goldman, 2015). For example, institutions can put pressure on certain political parties, which causes them to change the way they function in the political sphere. This unpredictability makes it difficult to put on paper how a democracy functions in practice.

In short, it is relevant to acknowledge a democracy as a complex system, because that implies that it is more difficult to communicate democracy to students with textbooks alone. Textbooks contain static information that is not particularly effective at communicating complex systems, because complex systems function differently every time based on the actions and relations of a variety of actors. The following section discusses how serious games can address this restriction.

Serious games

Serious games stimulate learning by participating and experiencing how complex systems really work (Guillén-Nieto & Aleson-Carbonell, 2012). In this study, learning is defined as the “activity of obtaining knowledge” (Cambridge Dictionary, 2019), or knowledge acquisition. By representing democracy as a complex system, serious games gain credibility as a valid alternative (to textbooks) to effectively communicate democracy, because gaining experiencing in how democracy works by actively participating is more effective than reading static information in textbooks.

Serious games were primarily used as learning experiences for the military (Wilkinson, 2016). Examples are AIR DEFENSE SIMULATION, CARMONETTE (Combined Arms Computer Model) (Smith, 2009) and America’s Army (Laamarti et al., 2014). A first definition of “serious games” was formulated by Abt in 1970 as games that have been created to educate people as the primary objective and not necessarily entertain them (Abt, 1970; Abt, 1987), but the serious games market has been rapidly growing and developing (Rohan, 2018). Thus, the definition of a “serious game” needs to be modernized. Laamarti et al. (2014) attempted to do this by reviewing the development of serious games. They noticed that defining them solely as games with an educational purpose is insufficient. If that would be the case, “serious games can be distinguished from video games...in that serious games have a primary design objective other than entertainment” (Laamarti et al., 2014, p. 3). However, it is not always clear whether games indeed have the primary objective to entertain. Instead, Laamarti et al. (2014) state that serious games consist of three components:

- **Entertainment:** they can entertain players;
- **Experience:** they enable players to enhance their experience because of the presence of interactive elements. In this study, experience is defined as “the acquisition of knowledge, understanding or a skill by doing something rather than by having read about it” (Cambridge Dictionary, 2019);

- **Multimedia:** they consist of different kinds of media that complement each other (e.g., a combination of text and graphics).

This study utilizes the definition of Laamarti et al., (2014), because it is broad enough to encompass different kinds of games, but specific enough to make a distinction whether a certain game is indeed “serious” to be considered as an educational tool.

Serious games’ design

Alongside a clear definition, the design of a serious game is important as well. This study analyzed Demos’ effectiveness in terms of communicating democracy, which means that the design of the game has been put to the test. It is relevant for developers to know what constitutes a well-designed serious game about a complex system, because they can use that information to optimize it for public use.

To communicate complex systems, a well-designed serious game should be able to dissect it into its key components and make clear how they influence each other (Meya & Eisenack, 2017). Based on experiments discussed in the literature, Meya & Eisenack (2017) put forward four prerequisites for a well-designed serious game.

First, they should enable players to actively participate in the game, because this lets them gain experience in how something works, which stimulates the acquisition of knowledge. The following sections provide more information regarding learning by experience.

Second, serious games should make players aware that their decisions have no negative consequences in-game and in real life. Lin and colleagues (2006) show why the presence of negative consequences should be avoided. They analyzed the effectiveness of the game *Fish’n’Steps*, in which a virtual pet fish changes its emotions based on the players’ real-life performance of their physical exercise. If the player did not exercise enough, their pet would be sad. Consequently, players refused to play the game to avoid seeing their sad pet.

Third, after playing serious games, players should be aware of whether they understand how complex systems work; the serious game should contain enough instructional content (Guillen-Nieto & Aleson-Carbonell, 2012).

Fourth, when serious games involve a complex system, a well-designed serious game should make that complex system easily accessible to players and therefore stimulate discussion and the exchange of feedback between players and others involved in the subject matter.

This study emphasizes the importance of debriefings, because they can help meet the aforementioned requirements for a well-designed game. Debriefing is “the occasion and activity for the reflection on and the sharing of the game experience” (Crookall, 2010, p.907). They are a combination of interviews and focus groups and can be carried out orally or with paper-prompted means (Crookall, 2010). During these sessions, participants can provide feedback, answer questions, share written thoughts and feelings and discuss what they learned after playing the game. Debriefing is essential because this phase activates the deep, long-lasting learning from students (Crookall, 2010). Accordingly, Kolb & Kolb (2009) state that debriefing helps players in turning their experiences from playing the game into learning. Despite their importance, debriefings are an undervalued tool (Crookall, 2010). That is why they were used as a method for this study. This is further discussed in the method section.

Serious games and knowledge acquisition

Several researchers point out the potential of serious games in terms of knowledge acquisition. According to Ricci, Salas & Cannon-Bowers (1996), involving game features while teaching increases the motivation of students, which leads to more learning benefits (such as knowledge acquisition) in contrast to using conventional educational tools.

Serious games’ effectiveness regarding knowledge acquisition was further evidenced in the virtual serious game River City (Dede et al., 2005). In this multi-user virtual environment, students are tasked to solve the problems a city has with illness. Two groups of students played the game whereas one control group received a paper-based treatment. The results showed that the two groups that played the game and gained practical experience in coping with the issues in the game, showed more positive results regarding knowledge acquisition (i.e., they gained more knowledge about the subject, in this case biology) in contrast to those exposed to a paper-based treatment (Dede, et al., 2005; Wouters, Van der Spek, & Van Oostendorp, 2009).

Finally, Sterman et al. (2014) carried out a study with the game WORLD CLIMATE, a role-playing game about climate change. They analyzed its potential to communicate climate change effectively in terms of knowledge acquisition. Their sample consisted of more than 170 participants who had to fill in a questionnaire before and after playing the game. The results showed that participants better understood how climate dynamics worked as a complex system after playing the game.

Serious games and attitude change

Serious games can also change the attitudes of players because they facilitate learning (Livingston & Stoll, 1973). Meya and Eisenack (2017) confirm this; they studied KEEP COOL's effectiveness in communicating and teaching about climate change and international climate politics. A quantitative study was carried out in which 200 students from Germany were tasked to play the game and participate in pre- and postgame surveys. Results showed that after playing KEEP COOL, players were more optimistic about the importance of climate politics and felt a higher sense of responsibility to do something about climate change.

The Food Resilience Game (Jarzabek, 2016) is a board game aimed at understanding the complex process of community flood resilience (PreventionWeb, 2018). Players are different members of a community prone to floods; they can be influenced by each other and the consequences of floods. The feedback provided after the game shows that people carried their experience gained to real life, by being more willing to invest in risk reduction (PreventionWeb, 2018). This result is in accordance with Coombs et al. (2015), who argue that people who play serious games can change their attitudes in the real world according to experience they gained in-game.

Pierfy (1977) studied the influence of serious games on attitude change as well. He reviewed eleven studies that compared the attitudinal change between serious games and conventional educational tools. The results indicated that most of the serious games used in these studies (eight out of eleven) led to a more positive change of attitudes in contrast to the conventional tools that were tested in these studies.

An interesting result was found by Sterman et al. (2015) with the game WORLD CLIMATE. After having participated players reported a decreased optimism about the successfulness of a global climate agreement, but this is not proof of the game's ineffectiveness. In fact, WORLD CLIMATE was able to explain the complex dynamics of the climate system, resulting in participants becoming more aware of the difficulties regarding climate change. This could have made them more critical and less optimistic regarding global climate agreements (Sterman et al., 2015; Meya & Eisenack, 2017). In this case, a negative attitude can turn out to be "positive". This finding should be kept in mind when assessing Demos' effectiveness. Similarly, students may have a negative attitude towards democracy after playing the game, but this could lead to them being more critical about democracy because Demos enabled them to better understand democracy as a complex system.

In short, serious games not only affect people's knowledge acquisition and change of attitudes towards complex systems but are also capable to do so more effectively than conventional educational tools.

Serious games and democracy

As stated in the introduction, studies and serious games about democracy are surprisingly scarce. One of the only serious games regarding democracy is Democracy 3 by Positech Games (Alhadeff, 2013). Democracy 3 is an online computer game. It aims to provide a simulation of how democracy works by offering insight into how voters, political parties and policies influence each other (Schulze, 2015). No academic literature exists that analyzes the effectiveness of Democracy 3, but after having played the game assumptions can be made about its way of communicating democracy based on the mechanisms of the game and the previously mentioned requirements by Meya & Eisenack (2017). Democracy 3 offers the possibility for learning by experience because it enables the player to acquire knowledge by doing something and not only read about it. The player is a Prime Minister or President of a real country and the goal is to be re-elected. To achieve this, the player can influence (e.g., by changing policies) the way its country works and how people perceive its actions. Every action can have several reactions, ultimately changing the population's attitude towards you. While the player's actions do not have real-life negative consequences, they may have negative consequences in-game. There are no limitations as to how extreme the player's actions can be. In theory, they can become dictators and deviate from the principles of democracy. This may have negative consequences of how democracy is perceived in real-life. Even though the game has instructional content like tutorials (Alhadeff, 2013), this is mostly information about how the game works and does not offer information on the complex dynamics surrounding a democracy. Finally, although the game is openly accessible to everyone willing to purchase the game, it does not necessarily seem to stimulate discussion about some of the core aspects of the game (e.g. how a Democracy functions). Hence, even though Democracy 3 is one of the only serious games about democracy, the mechanisms that exist in the game alone do not comply with all the basic requirements that make this serious game effective at communicating democracy (Meya & Eisenack, 2017). This makes the existence of a well-designed serious game that can effectively communicate democracy the more a necessity.

In contrast to some of the related literature, this research does not consist of a longitudinal study because of a lack of time and resources. Therefore, with "communicating democracy", this

study implies the **short-term** understanding of the aspects of democracy discussed in the theoretical framework. As stated before, Demos was analyzed in an educational setting by focusing on high school students ranging from 14-18 years old. Students in this age range generally follow Civics classes in the Netherlands and are therefore currently involved with the subject of democracy, making them a suitable and relevant segment that can play and discuss the game.

Based on the theoretical framework, this study analyzed Demos based on the following research question and sub-questions:

RQ: To what extent is Demos effective at communicating democracy to high school students?

SB1: What aspects of Demos are effective at communicating democracy?

SB2: How can Demos be improved to better communicate democracy?

This study makes several contributions to the literature. This is the first study to analyze a “serious game” about democracy. More specifically, this is the first study that analyzed the effectiveness of Demos. Studying a new game can offer new insights into how to effectively communicate democracy, but also into how to improve the study (and practice) of serious games (about democracy). This research offers these insights by providing a first format regarding the analysis of serious games about democracy. This format, or topic list, is based on the key concepts, variables and requirements discussed in the theoretical framework and can be used by researchers as a foundation for future research regarding serious games about democracy.

The value of serious games in general has been proven in previous research, but there is still no clear understanding on the exact elements that make serious games more effective than conventional tools like textbooks (Guillén-Nieto & Aleson-Carbonell, 2012). Even though this is not a quantitative research, meaning that this study cannot exactly pinpoint what the effect is of certain variables used in this research, the analysis of the results still provides important implications and possible explanations regarding the specific characteristics of serious games that are related to, for instance, the acquisition of knowledge.

Most of the literature on serious games consists of quantitative research. Research points out that students tend to discuss a game after playing it (Eisenack, 2012), which means that the debriefing process is important because it incentivizes discussion. In fact, debriefing can activate the deep-learning process that benefits the long-term process of knowledge and change of attitudes (Crookall, 2010; Kolb & Kolb, 2009). For these reasons, this study carried out a qualitative study in the form of debriefing sessions with participants.

This study contributes to society as well. This is not only the first study to actively focus on Demos, but also the first one to focus on the Dutch education system by incorporating its national educational development goals regarding democracy. Thus, this study may contribute to the improvement of the communication of democracy in Dutch schools, which is one of the key objectives in education today in the Netherlands. If proven to be effective, teachers in Dutch secondary education have a new tool to communicate democracy to students.

Moreover, by focusing on the abilities and shortcomings of Demos with regard to communicating democracy, Demos can be improved for further (public) use. Debriefings allow for detailed feedback and input from players, pointing out what aspects of Demos are effective or ineffective at communicating democracy. Based on these results, this study identifies some recommendations for the developers of Demos to enhance Demos' effectiveness and adequateness as a tool for teaching and communicating democracy.

Method

The effectiveness of the Demos game was assessed by using qualitative data acquired through debriefing sessions with participants. A qualitative research was carried out because this study focused on how users interact with and react to Demos in different ways, meaning observations of and discussions with participants are essential. Debriefings as a qualitative method were used because despite their importance, they are an undervalued tool (Crookall, 2010). The debriefing sessions were semi-structured, and the researcher played the role of participant-observer (Oak, 2005). A theme analysis was used to analyze the data (Oak, 2005). These elements, the Demos game, the instrumentation, the participants and the procedure are discussed in this section.

Demos, the card game

Based on Demos' manual, the following information provides an explanation of the game (see appendix for a full translation of the manual).

Demos is a game that enables players to practice how they can influence the decision-making process in the Netherlands. Every round, there is a proposal on the table. Depending on the background of each character, the player decides what is important: security, health care, the environment or the economy. A point is earned for every individual preference symbol of the same color that is present on both one's Character card and on the accepted proposal. The more proposals that a player finds important are accepted, the closer he/she is to winning the game.

The game consists of different cards. The Prime Minister (PM) card is appointed to a different player each round and is the one who picks up the proposal cards and reads them out loud. The PM eventually decides when voting starts. The yellow cards are the character cards. Every player receives one character card showing who the player is and what his/her preferences are. These preferences are illustrated by symbols. The more symbols from a specific type someone owns, the more important that theme is. The blue cards are the proposal cards. Players vote on a new proposal each round. The proposal cards contain information about the proposal and its corresponding preference symbols. The game starts with three random proposal cards on the table. There can only be three proposals on the national budget. Once a new proposal has been accepted, the PM decides which one of the three proposals already on the table must be discarded.

Before playing the game, a timer is set at 20-30 minutes. The game begins when the PM draws a new proposal and reads it out loud. The other players discuss why they support or oppose the proposal, after which a vote starts. If most of the votes support the proposal it is

accepted in the national budget. If the proposal is refused the card is discarded. The PM decides which proposal on the national budget must make place for the newly accepted proposal. Then, the PM passes along his PM card to the next player and another card will be drawn by him/her from the pile. This process is repeated until the timer ends, after which the points are counted to establish who is the winner of the game. Figure 1 shows how the points are calculated.

Figure 1. An example of how to count the number of points, combining the three proposals (left) in the national budget and the Character card (right).



In the example in Figure 1 the player with the ‘teacher’ card earns 8 points: two for health care (the red symbols), two for economy (the yellow symbols), two for the environment (the green symbols) and two for security (the blue symbols).

Instrumentation

This study used debriefing sessions as a method for qualitative research. The importance of debriefings was discussed in the theoretical framework. Debriefing is “the occasion and activity for the reflection on and the sharing of the game experience” (Crookall, 2010, p.907). Because there is a lack of research on serious games and democracy, this research aims to provide a first format regarding serious games about democracy based on the concepts, variables and requirements discussed in the theoretical framework. The topic list can be found in Table 1. How these topics were used in the debriefings is clarified after having described the topics.

Table 1. A topic list, offering an overview of what the debriefings were based on.

Topic	Components of debriefings	References
Democracy	Core values of democracy	Bühlmann, Merkel & Wessels, 2008; Sodaro, 2004; Campbell, 2008
Democracy in education	Core objectives of the Dutch educational system	SLO, 2016
Serious games	Three components that compose a serious game	Laamarti et al. 2014
Serious games' design	Requirements for a well-designed game	Meya & Eisenack 2017; Crookall, 2010; Kolb & Kolb (2009)
Serious games' effectiveness	Knowledge acquisition, Attitude change	See sections: 'Serious games and knowledge acquisition', 'Serious games and attitude change'

In terms of the **serious game in general**, participants were asked to discuss whether Demos consisted of the elements that define a serious game, based on the definition of Laamarti et al. (2014):

- they were entertained to play the game (entertainment);
- the interactive elements in the game enhanced their experience and therefore their understanding of how a democracy functions in practice (experience);
- they were satisfied the game consisted of two kinds of media: text and graphics (multimedia). In other words, the different kinds of media used in the game complemented each other.

In terms of the **core values of a democracy and the objectives of the Dutch educational system** regarding this subject, it was analyzed whether the participants understand and are able to elaborate on the three values of democracy in light of the objectives of the Dutch educational system (Bühlmann et al, 2008; Sodaro, 2004; Campbell, 2008; SLO, 2016):

- Freedom: the student was stimulated to make his own decisions independently, based on trustworthy information and sound argumentation.

- Equality: the student learned to respect and appreciate the similarities and differences between all characters.
- Control: the student learned how, in general terms, the Dutch political system functions as a democracy and how people can be involved in this system in different ways.

In terms of the **design of Demos**, participants were asked to discuss the following questions, originated from the four requirements for well-designed games by Meya & Eisenack (2017):

- Were all participants able to actively participate in the game
- Were players aware of the fact that their decisions in-game had no consequences in-game and in real-life?
- Were players aware of how complex systems work? Was Demos instructional enough?
- Were players more comfortable – or did players felt more “qualified” – to talk about the subject of democracy after playing Demos? In other words, was Demos able to make a democracy as a complex system accessible enough to be able to incentivize discussion?

In terms of **Demos’ overall effectiveness as a serious game** (see the sections regarding knowledge acquisition and attitude change), the following questions were analyzed by the researcher afterwards:

- Was Demos able to increase the players acquisition of knowledge about democracy?
- In what way was Demos able to change the players’ attitudes towards democracy?

To make sure the game was played as intended and questions were answered, the researcher was personally present while participants were playing. This means the researcher was part of the research instrument as well. To safeguard the trustworthiness of the research, the role of the researcher was that of a participant-observer. This means that during the game sessions, the researcher observed how the game was being played and only answered questions in case of misunderstandings. During the debriefings, the participant-observer shadowed the participants by observing the interactions and only played a leading role in deciding who speaks and what questions should be discussed (Oates, 2005, p. 209).

The debriefing sessions were semi-structured. During semi-structured debriefings there is “a list of themes that are covered, but the order of questions and the type of questions are changed depending on the flow of the discussion or conversation” (Oak, 2005, p. 188). For instance, when discussing the core values of a democracy students were not directly asked what

they thought about the concept of “Equality”. This would be difficult for students to explain but could also steer students towards the “right” answers (for this research) they were not necessarily thinking of in the first place (known as “cherry picking”). To avoid this, the questions and incentives for discussions were as neutral, open and indirect as possible, while still being on-topic. This means that in the case of “Equality”, this resulted in questions about the different character cards in the game and what they thought the importance was of the presence of these character cards in the game. By using semi-structured debriefings, the researcher not only had control over the situation, but the participants were more empowered to provide a wider variety of relevant feedback.

Participants

Roughly 70 students (between 14-18 years old) participated by playing the game and 35 of them participated in the debriefings. To raise this number of participants, two high schools were approached with the help of an acquaintance of the researcher. The two schools that accepted the request to play Demos with students are Beekdal Lyceum (two classes) and Montessori college (one class), both located in Arnhem, the Netherlands) These high schools provided participants from two HAVO classes and one VWO class, constituting a diverse sample of participants. Participants consisted of students that are in fourth grade of secondary education. These are students that follow Civics. Presenting Demos to students in the Civics class was appropriate, because the game suited the learning objectives taught in the class they were in. The sessions always consisted of an equal amount of men and women. Teachers did participate in the game indirectly; they did not play the game but were present during the game sessions with students. To make replication of this study easier, all ethical consent and information forms needed have been included in the appendix.

Procedure

The gaming sessions and debriefings took place at the schools the participants are studying. Before meeting the players, the researcher visited the participating schools and presented the game to the Civics teachers. Afterwards, an appointment was made to play the game with students during their Civics class. The game was introduced to students by means of a presentation with information about the researcher, the developers of the game and a short introduction of Demos. The students were told about a study that was being carried out for the researcher’s master’s thesis, but no detailed information was shared about its content and objectives. Participation from students was somewhat required, because the gaming and

debriefing session took part during the lessons and were a part of the Civics class (the necessary forms needed for permission can be found in the appendix). After having played the game, a part of the participants (randomly chosen students and students who wanted to voluntarily participate) engaged in the debriefings. Participants were asked if the debriefings could be recorded. They were explicitly told that the recordings would be deleted after transcribing the relevant data. During the debriefings, students received some sheets of paper. This gave students the opportunity to write down anything they thought was important or necessary to share. This was only intended to facilitate the discussions for students and prompt reactions, as advised by Crookall (2010). After having transcribed and translated the relevant information, a theme analysis (created with Microsoft Excel) was used to analyze the data. A theme analysis is a “categorization of segments or units of data based on the theme presented by that unit of data” (Oates, 2005, p. 268). In this case, the sentences and excerpts represented the units of data and the topics (See table 1) represented the themes of these the units of data. The theme analysis facilitated the analysis of the results because it illustrates which sentences and excerpts belong to which topic discussed during the debriefings.

Results

The effectiveness of Demos is illustrated by presenting and discussing the feedback offered by students, based on the topic list discussed in the method section. The most striking and common statements of the students who both participated in the game and offered feedback are presented. The sequence of the topics discussed was different depending on each debriefing, but to provide a clear overview the statements presented in this results section are categorized based on the structure of the topic list (see method section). The topics are briefly described before their corresponding statements.

Demos in general

Participants were asked whether Demos consisted of the elements that define a serious game (Laamarti et al., 2014). Table 2 offers an overview of the most striking citations, representing the general opinion of the majority of the participants.

Table 2. Citations representing the general opinion of the participants regarding the elements of a serious game (Laamarti et al. 2014): degree of entertainment, interactivity and the use of multimedia of/in Demos.

Elements	Citations representing the general opinion of the participants
Entertainment	“The game is fun to play, it is nice to have something different to do during class instead of working with our books. I think the game could enhance activity by taking into account our own, personal opinions.”
Interactivity	<p>“The interactivity in the game was good and it is also creative. It gives you a sense of how voting works and what the interests are of different parties.”</p> <p>“Interactivity of the game helped in understanding democracy, because each time the majority disagreed with a proposal, the proposal was declined.”</p>
Multimedia	<p>“The combination between the text and images is good, because the information and the topics are in line with the problems we are facing today.”</p> <p>“However, it wasn’t really logical because, for example, if you are a general practitioner you only have one preference symbol for health care. It was right for the police officer, but there were others where it didn’t really make sense.”</p>

Most participants stated that the game was entertaining to play. It something they did not expected to be that fun and they generally agreed that it was nice to have an alternative method

to use in a classroom. Nonetheless, most students who found the game entertaining – and even the small numbers of students who did not find the game entertaining – made clear that they wanted to express their personal opinions more during the game. The fact that participants had to impersonate someone they were not was not always desirable and sometimes even difficult for students to do.

“The game is fun to play, it is nice to have something different to do during class instead of working with our books. I think the game could enhance activity by taking into account our own, personal opinions.”

Participants found the game very interactive. It seems that this degree of interactivity caused students to participate more in the game (see Design of Demos). The aspects that enhance this participation and interactivity – such as working and discussing together – likely enhanced their knowledge about certain aspects in democracy that suit the aspects of working and discussing together to get things done. In other words, by playing the game and cooperating, students were better able to understand how voting in a democracy works, the importance of a majority rule, and how to take different interests into account.

“The interactivity in the game was good and it is also creative. It gives you a sense of how voting works and what the interests are of different parties.”

Participants liked the combination between the text on the cards and the images and art used. It was not only creative, but it also made understanding the game easier because both the symbols and the cards matched each other. The complementary relation of the text on the cards and the images and art used could be linked to the degree of entertainment. This relation is further discussed in the discussion section.

“The combination between the text and images is good, because the information and the topics are in line with the problems we are facing today.”

However, participants pointed out regularly that there were some aspects in the combination of text and images that were not consistent and caused the game to become unrealistic. One of the more frequently mentioned inconsistencies was the fact that some (or the amount of some) symbols did not correspond to the importance a character usually attaches to a certain symbol.

“However, it wasn't really logical because, for example, if you are a general practitioner you only have one preference symbol for health care. It was right for the police officer, but there were others where it didn't really make sense.”

Core values of a democracy and the objectives of the Dutch educational system

Participants were asked to analyze whether they understood and were able to elaborate on the three values of a democracy in light of the objectives of the Dutch educational system (Bühlmann et al, 2008; Sodaro, 2004; Campbell, 2008; SLO, 2016). Table 3 offers an overview of the most striking citations, representing the general opinion of the majority of the participants.

Table 3. Citations representing the general opinion of the participants regarding the core values of a democracy and the objectives of the Dutch educational system (Bühlmann et al, 2008; Sodaro, 2004; Campbell, 2008; SLO, 2016): freedom, equality and control.

Elements	Citations representing the general opinion of the participants
Freedom	“I tried to win, since you can’t really form your own opinion because it has to fit your character card. ...All the character cards have different norms and values that fit their profession, behavior, education and so on. Not everyone agrees with each other and this all depends on norms and values.”
Equality	<p>“I did think a bit about the proposals that passed by, but you play it more because you want to win. The proposals made clear that there are many different opinions in the Netherlands, from old to young, to well-educated and low educated and to rich and old. Everyone can vote and express their opinion.”</p> <p>“The game makes clear that democracy is complex because everyone has different interests but that you still have to come to an agreement together, even though people have very different ideas and interests.”</p>
Control	<p>“Of course, it is all about the interests that are on your character card, you want to win at the same time. There are different parties and people, and all have other interests and visions about society. I learned how voting and adopting a proposal works in general.”</p> <p>“I mainly tried to win by playing with other players, because in a society there are many different jobs and social classes and a proposal only gets through when you are in the majority.”</p>

Participants were not well able to grasp the meaning of freedom. In other words, students were not stimulated to make their own decisions independently, based on trustworthy information

and sound argumentation. Most of the students linked this with the fact that they were not able to express their own opinion, because they were tied to a character whose opinions sometimes varied from those of the participant.

“I tried to win, since you can't really form your own opinion because it has to fit your character card”

Other participants stated that they not only lacked the option to have an opinion, but that they were too focused on looking at the symbols on each proposal card. Consequently, no attention was being paid to the actual information. In other words, a considerable part of the participants was not able to make decisions based on a thorough argumentation because they were too attentive to the importance of the symbols.

“It felt like you were playing a different person. That is why I personally didn't really get to focus on the game. Moreover, I was not really concerned with democracy and how it works, but more with the symbols on each card.”

After playing Demos, a significant majority of the participants emphasized and acknowledged the fact that every individual can have different interests, norms and values based on their profession and character. These participants often followed up by stating that everyone is able to express these interests by way of voting and that these differences must be considered when making decisions and when voting for certain proposals.

“I did think a bit about the proposals that passed by, but you play it more because you want to win. The proposals made clear that there are many different opinions in the Netherlands, from old to young, to well-educated and low educated and to rich and old. Everyone can vote and express their opinion.”

“The game makes clear that democracy is complex because everyone has different interests but that you still have to come to an agreement together, even though people have very different ideas and interests.”

In terms of how the Dutch political system functions, participants were able to explain and talk about some key aspects of how a democracy in the Netherlands works. These key aspects came down to the same ones: voting and the adoption of proposals. Most participants made clear that voting is important because this lets you gain a majority, and that this majority rule is essential to adopt certain proposals people believe are valid.

“Of course, it is all about the interests that are on your character card, you want to

win at the same time. There are different parties and people, and all have other interests and visions about society. I learned how voting and adopting a proposal works in general.”

“I mainly tried to win by playing with other players, because in a society there are many different jobs and social classes and a proposal only gets through when you are in the majority.”

Design of Demos

Participants were asked to analyze whether the design of the game was effective, based on the four requirements for well-designed games by Meya & Eisenack (2017). Table 4 offers an overview of the most striking citations, representing the general opinion of the majority of the participants.

Table 4. Citations representing the general opinion of the participants regarding aspects of the design of Demos (Meya & Eisenack, 2017): participation, in-game/real-life consequences, instructional about complex systems, incentivize discussion.

Elements	Citations representing the general opinion of the participants
Participation	<p>“Participation was good, everyone had something to tell and together we discussed about what we told each other. Maybe I will start thinking more about the differences between people.”</p> <p>“Yes. You always get to act as Prime-Minister and you want to win as well. The game is complex because people have different interests, sometimes they get advantaged and other times they get disadvantaged.”</p>
In-game/real-life consequences	<p>“The game explains what important matters in a country are, but the game is not real, so it will not have much effect on my behavior.”</p> <p>“I still don’t really know what a democracy is and what I can change about my behavior, you only get to know a little about the problems that can arise in a democracy.”</p>
Instructional about complex systems	<p>“Democracy is complex because a lot of times, when voting, the percentages get close to 50%-50%. It did make me able to better talk to others about democracy, because in this way you have a better view of how it works and what democracy is about. In the Netherlands you can co-decide on many matters and we are very free, but there are occasions in which fundamental rights collide with each other. This</p>

shows that the game makes you understand democracy better, but mostly our Dutch democracy.”

“...that it is difficult to accept proposals that are generally considered good, since everyone has different norms and values.”

“I played it with the intention to win. I tried to vote on what was best for me, but I did think about the proposals. However, in the end, it is difficult to make the right choice and that is partially because it is not always fair because people often only look at their own self-interest.”

Incentivize discussion “...it would be if you had a personal opinion, but you don’t really have a personal opinion with this game.”

Most participants were satisfied with the degree of participation in the game. These participants emphasized that everyone was able to say at least something, partially because the role of Prime Minister was switched during the game.

“Participation was good, everyone had something to tell and together we discussed about what we told each other. Maybe I will start thinking more about the differences between people.”

“Yes. You always get to act as Prime-Minister and you want to win as well. The game is complex because people have different interests, sometimes they get advantaged and other times they get disadvantaged.”

Participants also stated that playing the game did not have consequences for their behavior in real life. In other words, participants made clear that they would not be changing their behavior because of having played the game. Most participants pointed out to the fact that the game was not real, whereas other participants thought the game to be somewhat too short or lacking in detail (not elaborate enough). Whether these results are related to the study not being a longitudinal study, is further discussed in the discussion section.

“The game explains what important matters in a country are, but the game is not real, so it will not have much effect on my behavior.”

“I still don’t really know what a democracy is and what I can change about my behavior, you only get to know a little about the problems that can arise in a democracy.”

A significant portion of the participants expressed the difficulty they had with voting and taking into account the interests and opinions of others. Most students tried to play by winning the game and found out that voting can be unpredictable and unfair. According to the participants, this makes it difficult to vote on and accept proposals they consider as rightful and good.

“Democracy is complex because a lot of times, when voting, the percentages get close to 50%-50%. It did make me able to better talk to others about democracy, because in this way you have a better view of how it works and what democracy is about. In the Netherlands you can co-decide on many matters and we are very free, but there are occasions in which fundamental rights collide with each other. This shows that the game makes you understand democracy better, but mostly our Dutch democracy.”

“...that it is difficult to accept proposals that are generally considered good, since everyone has different norms and values.”

“I played it with the intention to win. I tried to vote on what was best for me, but I did think about the proposals. However, in the end, it is difficult to make the right choice and that is partially because it is not always fair because people often only look at their own self-interest.”

Almost all students made clear that Demos did not stimulate discussion about democracy with others. A significant part of the participants stated that because they were not able to express their opinions, they were not really interested in discussing about the decisions they made or about other aspects regarding democracy.

“...it would be if you had a personal opinion, but you don't really have a personal opinion with this game.”

Demos' overall effectiveness as a serious game

Participants were asked whether they learned something (and if yes, what) and what their attitude is towards our democracy and if this changed after playing the game (based on sections regarding knowledge acquisition and attitude change). Table 5 offers an overview of the most striking citations, representing the general opinion of the majority of the participants.

Table 5. Citations representing the general opinion of the participants regarding Demos' overall effectiveness as a serious game in terms of learning and their attitudes towards democracy

Elements	Citations representing the general opinion of participants
Learning	<p>“The game made clear that you have to pay attention to different things when you vote. Democracy is not always fair. It is the best (form of government), but it is not perfect because of that unfairness.”</p> <p>“I learned that you have to look closely to your own interests and those of others, it is difficult to take everything into account. I do understand better how complex it is. I think that Dutch democracy is fair now, but some people get carried away too quickly or do not think well and logically.”</p>
Attitude towards democracy	<p>“That democracy is a fun subject. Our democracy is fine, because everyone can co-decide about how things go in the Netherlands.”</p> <p>“That politics can be fun as well and that politics here is well balanced.”</p>

Asked about what students learned about democracy and their attitude towards democracy, most participants stated that they now better understood how important it is to look at other's interests and take these into account when voting. A significant part of the answers included the notion of fairness; students think that Democracy is generally fair, but that is not always the case.

“The game made clear that you have to pay attention to different things when you vote. Democracy is not always fair. It is the best (form of government), but it is not perfect because of that unfairness.”

Participants generally had a positive attitude towards democracy. Most students expressed that after playing the game they became aware that democracy can be a fun subject to talk about. Moreover, they were satisfied with the current state of Dutch democracy. However, students regularly contradicted these attitudes by stating that Dutch democracy is far from perfect.

“That democracy is a fun subject. Our democracy is fine, because everyone can co-decide about how things go in the Netherlands.”

“That politics can be fun as well and that politics here is well balanced.”

Conclusion

The purpose of this study was to analyze to what extent Demos is effective at communicating democracy to high school students in the age range of 14-18 years old. To answer this research question, this study analyzed what aspects of Demos are indeed effective at communicating democracy and how Demos can be improved to better communicate democracy. These analyses were made based on the elements that define a serious game, the three core values of a democracy in light of the objectives of the Dutch educational system, the requirements for well-designed serious games and Demos' effectiveness in terms of knowledge acquisition and attitude change.

In terms of elements that have proven to be effective, the results showed that Demos successfully establishes itself as a serious game; it entertains players, it makes use of interactive elements that let students better experience a democracy and actively makes use of different kinds of media. Demos is also able to convey most of the core values of a democracy in light of the objectives of the Dutch educational system. After playing Demos, students are able to emphasize and acknowledge the diversity of interests, norms, values and opinions between individuals. Students are also better able to understand how a democracy works in general, specifically in the Netherlands. This understanding essentially comes down to the functioning and importance of voting and the adoption of proposals. Regarding its design, results suggest that Demos partially meets the requirements for a well-designed game by providing enough participation, being able to indirectly convey to students why and how democracy is a complex system by emphasizing elements that define its complexity, and by being able to in a certain degree incentivize discussion among students about democracy on the short term. Debriefings, by being part of Demos, arguably helped meet this last requirement. Demos also provides proof for its effectiveness in terms of knowledge acquisition. Some of the results above already confirm this, but more specifically students learn how important it is to consider several important factors that influence someone's voting behavior. Demos is also able to somewhat change students' attitudes towards democracy. On one hand, students acknowledge that democracy can be fun when presented in this format. On the other hand, results suggest that students think democracy is far from perfect, possibly implying a negative change of attitude towards democracy.

However, there are some aspects of Demos that can be improved to better communicate democracy. Results showed that Demos does not stimulate students to make their own-decisions independently, based on sound argumentation and a thorough reflection on the proposals presented. Moreover, the results suggest that playing the game does not seem to have

consequences for students' real-life behavior, meaning that they are not stimulated to or informed about how to be politically involved. Lastly, Demos does not seem to sufficiently stimulate discussion about democracy among students in the long term.

In short, Demos is partially effective at communicating democracy. This is mostly due to its ability to distinguish itself as a serious game, being able to convey most of the core objectives of a democracy and of the Dutch educational system, an adequate design and the potential to increase the knowledge acquisition of the participant as well as change his/her attitude (both positively and negatively). However, Demos should stimulate students more to make their own reasoned opinions, better inform them how to be politically active and incentivize discussion about democracy (in the longer term).

By focusing on the inabilities and further optimize the aspects that are already effective at communicating democracy, Demos can be improved for further use. The discussion section contains recommendations for the developers of Demos. The results of this study are further examined in the discussion section.

Discussion

The results show that Demos entertains players, it makes use of interactive elements that let students experience a democracy and actively makes use of different kinds of media (such as text and symbols) that complement each other. Therefore, Demos is consistent with all the requirements that define a serious game (Laamarti et al., 2014). This is important because by confirming that Demos is not only entertaining but also includes interactive elements that let students experience how something works, it legitimizes its use as an educational tool.

Demos scored positively about its interactivity and this is likely connected to the high degree of participation in the game. Students made clear that they were all able to participate in the game and had the opportunity to in some way affect the course of the game. This was mostly due to the presence of the Prime Minister card as an interactive element. It is presumable that this interactive aspect of Demos helped them better experience the game because it incentivized participation.

The fact that students were not stimulated to make their own decisions, based on their opinions and a thorough reflection on arguments (Freedom) can be explained by several reasons. The most obvious reason, and one frequently given by students, is that participants were not able to express their own personal opinions. When playing, participants often receive a character card with preferences that contradict their own opinions. This means that when having to vote on a

proposal, and even during the reflection phase (the phase in which students can decide whether they support or oppose the proposal), participants are simply not stimulated to reflect on their opinion because it is not required for them to play and win the game. This may explain why participants were hampered in their freedom to make their own decisions. This is reinforced by the fact that participants only have to look at the value of the proposal cards in terms of the preference symbol. That makes focusing on the actual information (the text) of the proposal purposeless, further decreasing the motivation for participants to think about the proposal and reflect on whether they agree with it or not.

Students were able to elaborate on the two other values of a democracy in light of the objectives of the Dutch educational system, equality and control. The fact that students emphasized and acknowledged the existence of a wide variety of professions, interests, norms and values (Equality) can be explained by the fact that the game focuses on the character cards. These cards strongly differ from each other in terms of profession, characteristics (e.g. young, rich, well-educated) and interests. This in turn may have helped students understand several key aspects of how a democracy works (Control), such as voting and the benefits of having a majority. The fact that these two elements were frequently mentioned by students, also seems to stem from the strong focus of Demos on voting and on the importance of having a majority. Voting occurs every round and only a majority of the votes in favor causes a proposal to get accepted into the national budget.

The fact that participation by students was one of the strong points of Demos, is mostly due to the nature of the game. Demos is a “serious game”, but most of all a game that stimulates participation by actively involving all players. For instance, everyone plays the role of Prime Minister at least once, making sure everyone has not only something to say but also the power to influence the course of the game.

Students stated that playing the game would not have consequences for their behavior in real life in the longer term. This is probably due to the fact that students emphasized the game was not real and therefore not a reflection of reality. Other students stated the game was not elaborate enough, which may have caused a decrease in motivation or importance given to the objective of the game. Another explanation can derive from the fact that the participants had an age of below 18 years old and where therefore not allowed to vote. The idea that students are not allowed to vote for the next few years, could be a demotivating factor for them to be politically involved. From an academic perspective, the absence of consequences for one’s behavior after playing a serious game can be a good thing. Lin et al. (2006) showed that the

presence of (negative) consequences, depending on how the game was played, caused players to refuse to play the game. Moreover, it is questionable whether it is ethical to try to change the behavior of students below 18 years old; it could be that parents do not fully understand in what way a “serious game” not created by schools is trying to change their children’s behavior, leading to opposition towards this tool. However, from an educational perspective Demos should stimulate a change of behavior, as this is part of one of the objectives of the Dutch educational system (SLO, 2016), Control, stating that people should learn how to be involved in political processes in different ways. Therefore, it is still important for developers of Demos to explain to students how they can be politically active.

Students generally emphasized the difficulties they had during the game in terms of taking into account the different opinions of others, but also in terms of how unpredictable voting could be. This may implicate that Demos is able to convey the complexity of democracy as a system to students. Complex systems are systems that are defined by the unpredictability of seemingly simple mechanisms (Waterloo Institute for Complexity & Innovation, 2018). In this case, voting is essentially a simple mechanism (the party with the most votes has a majority), but at a certain point (when the amount of different characters increases) every action can strongly influence the consequences of a vote (Bak et al., 1987). This is clearly showed in the game, where the number of votes opposing and supporting a proposal often resulted in close results and an additional vote could be the defining one in accepting or declining a proposal. Moreover, the complexity of the game is likely enhanced by the presence of many different characters in the game; an increase of characters means more variety in interests and opinions, which in turn increases the unpredictability of democracy as a complex system (Bak et al., 1987)

Even though this study is not longitudinal, results suggest that Demos did not seem to be able to incentivize students to discuss the subject of democracy in the long term. This result can be associated with the fact that a significant part of the students saw Demos as “just a game” that would not influence their behavior in the future. This implies that Demos was not always considered important enough, causing the students to not be stimulated to talk about democracy with others in the long term. However, during the debriefings students actively shared their thoughts about democracy and what they learned from playing the game. This shows that discussion was incentivized on the short-term, meaning that debriefings have the potential to help meet the requirements for a well-designed serious game at least in the short-term. Therefore, this research recommends incorporating debriefings by making them a part of Demos. This is further discussed in the recommendations section.

Demos provides proof for its ability to activate participants' knowledge acquisition. This not only confirmed after analyzing students' answers to specific questions regarding learning but is also implied by the responses given by them when discussing other questions and topics. For instance, and as discussed before, Demos was able to make students better understand how democracy works as a complex system. This finding is in line with those found by Sterman et al. (2014), who carried out a study with a game about climate change and concluded that participants better understood how complex climate dynamics worked after playing the game.

Demos was able to partially change the attitudes of players as well. On one hand, students acknowledge that democracy can be fun when presented in this format, suggesting a positive change of attitude towards democracy. This result is consistent with the research of Meya and Eisenack (2017), in which a study regarding the serious game KEEP COOL (about climate change) resulted in positive attitudes towards the importance of climate change and international climate politics. Even though the research carried out by Meya and Eisenack (2017) consisted of a quantitative study with pre- and postgame surveys, most of the feedback provided by the students in this research suggest that a positive attitude was indeed activated by presenting democracy in the context of a "serious game". This positive attitude does not automatically lead to a change of behavior, which is implied in previous research by Jarzabek (2016), PreventionWeb (2018) and Coombs et al. (2015). Contrary to those studies, participants in this study made clear that the game had no consequences for their behavior in real-life. However, these results apply to a change of behavior in the short term. Therefore, a longitudinal study is recommended to better measure whether Demos is capable of changing students' behavior. The importance of a longitudinal study is further discussed in the following section.

Not everyone was positive towards democracy after playing the game. A significant part of participants also underlines the imperfections of democracy after playing Demos, which may imply a negative attitude towards the subject. This does not necessarily point out a disadvantage of Demos' ability to communicate democracy. As stated before in the theoretical framework, a negative effect can turn out to be "positive". This was the case with the study of Sterman et al. (2015), when participants reported a decreased optimism about the successfulness of a global climate agreement. This decreased optimism likely resulted from participants becoming more aware of the difficulties regarding global climate agreements (Sterman et al., 2015; Meya & Eisenack, 2017). For the same reason, the "imperfections" stressed by the participants about democracy in this research, could imply that Demos is effective in communicating about democracy in such a way that it eventually increases students' awareness of the difficulties regarding this complex system. In other words, it is plausible that students' negative attitude

towards democracy led to them becoming more critical about democracy because Demos enabled them to better understand democracy as a complex system.

The change of attitudes (whether positive or negative) and the acquisition of knowledge can be tied to Demos' ability to let students experience how a democracy works. The results of this study show that Demos is effective in creating a considerable degree of interactivity and participation. This implies that students were engaged with Demos' democratic elements in a hands-on way; they gained experience because they did something in a practical way rather than just reading about it or seeing it being done (Cambridge Dictionary, 2019). According to Livingston & Stoll (1973) and Meya & Eisenack (2017), it is this kind of hands-on engagement (experience) with a tool that facilitates the acquisition of knowledge – or learning – and the change of attitudes. Following their reasoning, it is presumable that students were better able to experience democracy in practice because of the hands-on engagement with Demos. In this case, the hands-on engagement (or experience) was confirmed by the degree of participation and interactivity showed in the results. This hands-on experience then stimulated learning (by gaining knowledge about how democracy works) and a change of attitude towards the subject.

Another element that should be taken into account is the debriefing part of this research. After playing the game, students were asked to provide feedback during debriefing sessions by answering questions and discussing certain topics (based on the topic list). Essentially, a debriefing session is a participatory and interactive activity; students are engaged to do something instead of reading information in a textbook. This could mean that students not only gained experience by playing Demos, but that this was influenced by the debriefing sessions as well. This could in turn have increased the learning abilities – the acquisition of knowledge - of students. This would be in line with previous conclusions made by Crookall (2010) and Kolb & Kolb (2009), stating that debriefings helps in activating the learning abilities of participants. Nonetheless, the effect of debriefings was not measured directly. Whether they really affect the acquisition of knowledge and the change of attitudes is a question for future research.

Limitations and future research

This study has some limitations. As stated before, this research focused on short-term effects of Demos (i.e., the short-term understanding of the aspects of democracy discussed in the theoretical framework). Because of a lack of time and resources, it was not possible to carry out a longitudinal study. Even though this study offers valuable information on Demos' effectiveness, a longitudinal study is essential to analyze whether Demos is effective on the longer term. For instance, the results of this research indicate that students generally tend to

have a positive attitude towards democracy, but future research could make use of repeated measures to assess a change of attitudes towards democracy over time or to better assess students' knowledge about and attitude towards democracy prior to playing the game. That way it could be better understood whether students really feel that they learned or experienced something that they didn't know before, or if Demos served as a tool that merely reviewed or activated things that they already knew or thought.

For the same reason, it was not possible to pre-test the game. Although best practices were discussed with one of the developers of Demos, a pre-test in the future is still advised to assess in what conditions the game can be played best. For instance, it could be that the game is more effective when played with 5 participants, instead of with 10 participants.

This research did not compare the effectiveness of Demos with a paper-based treatment (such as textbooks), like Dede and colleagues (2005) and Wouters et al., (2009) did. These studies all concluded that serious games were more effective regarding the knowledge acquisition of participants compared to the use of paper methods like textbooks. The results of this study indicate that Demos has the same potential as well. Nonetheless, future research is still advised to make a specific comparison between Demos and Civics textbooks used in classrooms in terms of their ability to communicate democracy. This may serve as concrete evidence that Demos can be used as an additional tool to communicate democracy to high school students.

Lastly, future research should delve deeper into possible moderators and/or mediators that may exist between elements of the topics used in this study and the results. Several implications have been made in this discussion section. For instance, it is likely that the degree of entertainment mediates the relation between playing Demos on one hand and knowledge acquisition about democracy and/or a positive change of attitude towards democracy on the other hand. Even though this research showed the value of qualitative research into the effectiveness of serious games, quantitative research specifically focused on the presence of these processes further helps in understanding what elements of serious games are effective at communicating about complex systems.

Despite these limitations, this paper stresses the importance to push to get Demos adopted by schools. The main barrier that seems to limit a public release of Demos is the fact that, except for this study, there is no research carried out to analyze and prove its effectiveness. However, just as playing the game in this research provided valuable insights in how to improve the game

and what future research should focus on, using the game more frequently in schools can provide the same valuable information.

Recommendations for the developers of Demos

Based on the results and the discussion section of this thesis, recommendations can be made for the developers of Demos to improve the game for future use and enhance its effectiveness. These include subtle changes in the game, changes that are more drastic and changes that may require a second game used alongside Demos.

1. *Enable set-up of personal preferences.* Results showed that students were not stimulated to make decisions based on information and argumentation, failing to convey one of the core objectives of the Dutch educational system. It is recommended to create an alternative game mode in which participants can set up their preferences based on their personal character, instead of receiving a character card with pre-fixed preferences. This way students are incentivized to develop and express their own reasoned opinion, something they were not able to do in this case because they did not always agree with the preferences of their character.
2. *Cover preference symbols on proposal cards.* Another way to stimulate students to make their own decisions based on their own opinions and a reflection on arguments, is by changing the way the proposal cards are used in the game. Now, the Prime Minister reads the proposal card out loud and lays it down on the table. At this moment, participants do not make their decision based on what has been said, but rather on the preference symbols that are directly visible on the table. By requiring the Prime Minister to read out the card, giving participants the time to reflect on the information, issue the vote first and show the preference symbols afterwards, participants are forced to primarily focus on the actual text of the proposal and the possible consequences of that card for their character. This would force players to make decisions based on a reflection of the information provided.
3. *Include more types of actors.* A complex system is not only defined by its unpredictability, but also by a wide variety of actors all influencing each other (Goldman, 2015). Demos only consists of distinct individuals or characters. By including groups (e.g., political parties), institutions (e.g., NGO's) and other actors that have an impact on the functioning of a democracy in the game, democracy as a complex system is more realistically illustrated. These actors do not necessarily have to form an own character but can also be used as extra elements in proposals that influence the course of the game.

4. *Stimulate teamwork.* A frequently given answer regarding the strategy of participants was that they tried to win the game. When the only focus of Demos is to win the game, students are being stimulated to compete. However, democracy is not only a competition between parties and other actors trying to win as much votes as possible. Democracy is also working together to get proposals accepted. Thus, it is important to include elements in the game that stimulate teamwork. For instance, developers of Demos could create a separate second game, or a new game mode included in the current game in which characters are divided into several different parties or organizations. The members of these parties must work together to convince the others that a certain proposal is worth being accepted into the national budget. This way, both competitiveness and teamwork would become an important part of the game. This increases the complexity of democracy in the game; the presence of more groups increases the variety of actors interacting with each other and the unpredictability of the course of the game.
5. *Incorporate debriefings to Demos.* Even though the effect of debriefings was not measured exactly, this research showed the value and potential of debriefings to assist Demos in helping meet the requirements for a well-designed “serious game” but also to stimulate participation and interactivity. Therefore, it is strongly recommended to implement debriefings as a part of Demos in the future as well. Developers could change the game manual by making clear that students should participate in a discussion session after playing the game. To stimulate these discussions, developers of Demos can create a topic list similar to the one used in this research or a list of questions that can serve as stimuli to think about the different elements of the game. These discussion sessions can be led by teachers.

As a final closing note, it is important to emphasize that research on democracy and “serious games” is in its infancy. This is mostly due to the lack of “serious games” about this subject. To date, this paper is the only research that studied Demos as a “serious game” to communicate democracy. To really kickstart research on serious games about democracy and to enhance Demos’ effectiveness in high schools, the academic and public society should be more aware of its potential. The findings of this study confirm this potential, by showing that Demos can be a valuable method to help communicate democracy to high school students.

References

- Abt, C. C. (1987). *Serious Games*. Lanham, Maryland: University Press of America.
- Abt, C. C. (1970). *Serious Games*. New York: The Viking Press.
- Alhadeff, E. (2013, 26 August). Democracy 3: Serious Games To Play Off Real Events. *Serious Game Market*. Consulted from <https://www.seriousgamemarket.com/2013/08/democracy-3-serious-games-to-play-off.html>
- Bak, P., Tang, C., & Wiesenfeld K. (1987). Self-organized criticality: An explanation of the $1/f$ noise. *Physical Review Journals*, 59, 381-384. doi: 10.1103/PhysRevLett.59.381
- Bodenschatz, E. (2009, 16 November). Complex Systems. *Max-Planck-Gesellschaft*. Consulted from https://www.mpg.de/36885/cpt08_ComplexSystems-basetext.pdf
- Bühlmann, M., Merkel, W., & Wessels, B. (2008). The Quality of Democracy: Democracy Barometer for Established Democracies. *Hertie School of Governance*, 22, 3-47.
- Campbell, D. F. J. (2008). *The Basic Concept for the Democracy Ranking of the Quality of Democracy*. Vienna: Democracy Ranking.
- Coombs, W.T., Falkheimer, J., Heide, M., & Young, P. (2015). *Strategic Communication, Social Media and Democracy: The challenge of the digital naturals*. London: Routledge. doi: 10.4324/9781315732411
- Crookall, D. (2010). Serious Games, Debriefing, and Simulation/Gaming as a Discipline. *Simulation & Gaming*, 41, 898-920. doi: 10.1177/1046878110390784
- Dede, C., Clarke, J., Ketelhut, D. J., Nelson, B., & Bowman, C. (2005). “Students’ Motivation and Learning of Science in a Multi-User Virtual Environment”, *Harvard Graduate School of Education*, 1-8.
- Eisenack, K. (2012). A Climate Change Board Game for Interdisciplinary Communication and Education. *Simulation & Gaming*, 21, 1-21. doi: 10.1177/1046878112452639
- Goldman, J. (2015, 10 August). Approaching Democracy as a Complex System. *Democracy Fund*. Consulted from https://www.democracyfund.org/blog/entry/systems_introduction
- Guillén-Nieto, V., & Aleson-Carbonell, M. (2012). Serious Games and Learning Effectiveness: The Case of “It’s a Deal!”. *Computers & Education*, 58, 435-448.
- Hagen, K. (2018, 5 June). Minister Slob verduidelijkt wet voor vak burgerschap. *Algemene Onderwijsbond*. Consulted from <https://www.aob.nl/nieuws/minister-slob-verduidelijkt-wet-voor-vak-burgerschap/>

- Jarzabek, L. (2016, 18 August). How game can help flood-prone communities. *Games 4 Sustainability*. Consulted from <https://games4sustainability.org/2016/08/18/flood-resilience-game-for-flood-prone-communities/>
- Jarzabek, L. (2016, 5 October). Games for sustainability. How serious games can be used in research and education. *Polish-Studies.Interdisciplinary (Pol-Int)*. Consulted from <https://www.pol-int.org/en/salon/games-sustainability-how-serious-games-can-be-used-research-and>
- Kolb, A. Y., & Kolb, D. A. (2009). The learning way: Meta-cognitive aspects of experiential learning. *Simulation & Games*, 40, 297-327. doi: 10.1177/1046878108325713
- Laamarti, F., Eid, M., & El Saddik, A. (2014). An Overview of Serious Games. *International Journal of Computer Games Technology*, 2014, 1-15.
- Livingston, S. A., & Stoll, C. S. (1973). *Simulation games, an introduction for the social studies teacher*. New York: Free Press.
- Mendler de Suarez, J., Suarez, P., Bachofen, C., Fortugno, N., Goentzel, J., Gonçalves, P., Grist, N., Macklin, C., Pfeifer, K., Schweizer, K., Van Aalst, M., & Virji, H. (2012). *Games for a New Climate: Inhabiting the Complexity of Future Risks*. Boston: The Frederick S. Pardee Center for the Study of the Longer-Range Future, Boston University.
- Meya, J. N., & Eisenack, K. (2017). Effectiveness of gaming for communicating and teaching climate change. *THESys Discussion Paper Humboldt, Universität, Berlin, Germany*, 3, 1-31.
- Nationaal expertisecentrum leerplanontwikkeling. (2018). Burgerschap. *Nationaal expertisecentrum leerplanontwikkeling*. Consulted from <http://www.slo.nl/primair/themas/burgerschap/>
- Oates, B. J. (2005). *Researching Information Systems and Computing*. Thousand Oaks, CO: Sage Publications Ltd.
- Pauw, R. (2018, 5 June). Meer les in burgerschap: deze school in Breda doet dat al. *NOS*. Consulted from <https://nos.nl/artikel/2235119-meer-les-in-burgerschap-deze-school-in-breda-doet-dat-al.html>
- Pierfy, D. A. (1977). Comparative Simulation Game Research. Stumbling Blocks and Steppingstones. *Simulation & Games*, 8, 255-268. doi: 10.1177/003755007782006
- PreventionWeb (2018). Flood Resilience Game. *PreventionWeb*. Consulted from https://www.preventionweb.net/files/52034_floodresiliencgamebrief.pdf
- Ricci, K. E., Salas, E., & Cannon-Bowers, J. (1996). Do Computer-based Games Facilitate

- Knowledge Acquisition and Retention? *Military Psychology*, 8, 295-307.
- Rijksoverheid. (2018, 5 June). Nieuwe wet als kompas voor burgerschapsonderwijs. *Rijksoverheid*. Consulted from <https://www.rijksoverheid.nl/actueel/nieuws/2018/06/05/nieuwe-wet-als-kompas-voor-burgerschapsonderwijs>
- Rohan (2015, 26 May). Serious Game Market Worth \$5,448.82 Million by 2020. *MarketsandMarkets*. Consulted from <https://www.marketsandmarkets.com/PressReleases/serious-game.asp>
- Schulze, M. (2015, 7 January). What I learned playing Democracy 3 or why the world will not change.... *Percepticon*. Consulted from <https://percepticon.wordpress.com/2015/01/07/what-i-learned-playing-democracy-3-or-why-the-world-will-not-change/>
- Shakaia, N. (2016, 25 October). The importance of citizen's participant. *Ladder. Local authorities as drivers for development education and raising awareness*. Consulted from <http://www.ladder-project.eu/?p=16008>
- SLO (2018). Burgerschap. *SLO. Nationaal expertisecentrum leerplanontwikkeling*. Consulted from <http://www.slo.nl/primair/themas/burgerschap/>
- SLO. Nationaal expertisecentrum leerplanontwikkeling (2016, May). Karakteristieken en kerndoelen. Onderbouw voortgezet onderwijs. *SLO. Nationaal expertisecentrum leerplanontwikkeling*. Consulted from <http://downloads.slo.nl/Documenten/karakteristieken-en-kerndoelen-onderbouw-vo.pdf>
- Smith, R. (2009). The long history of gaming in military training. *Simulation & Gaming*, 41, 6-19.
- Sodaro, M. J. (2004). *Comparative Politics. A Global Introduction*. New York: Mc Graw Hill.
- Sterman, J., Franck, T., Fiddaman, T., Jones, A., McCauley, S., Rice, P., Sawin, E., Siegel, L., & Rooney-Varga, J. N. (2014). WORLD CLIMATE. A Role-Play Simulation of Climate Negotiations. *Simulation & Gaming*, 46, 348-382. doi: 10.1177/1046878113514935
- The Economist. (2007, 22 August). Liberty and justice for some. *The Economist*. Consulted from <https://www.economist.com/news/2007/08/22/liberty-and-justice-for-some>
- Upton, J., Janeka, I, & Ferraro, N. (2014). The whole is more than the sum of its parts: Aristotle, metaphysical. *Journal of Craniofacial Surgery*, 25, 59-63. doi: 10.1097/SCS.0000000000000369

- Waterloo Institute for Complexity & Innovation. (2018). What are complex systems? *University of Waterloo*. Consulted from <https://uwaterloo.ca/complexity-innovation/about/what-are-complex-systems>
- Waterson, J. (2018, 27 July). Democracy at risk due to fake news and data misuse, MPs conclude. *The Guardian*. Consulted from <https://www.theguardian.com/technology/2018/jul/27/fake-news-inquiry-data-misuse-democracy-at-risk-mps-conclude>
- Wilkinson, P. (2016). A Brief History of Serious Games. *Entertainment Computing and Serious Games, 9970*, 17-41. doi: 10.1007/978-3-319-46152-6_2
- Wouters, P.J.M., van der Spek, E.D., & Oostendorp, H. (2009). Current practices in serious game research: A review from a learning outcome perspective. *Games-Based Learning Advancements for Multi-Sensory Human Computer Interfaces: Techniques and Effective Practices. Institute of Information and Computing Sciences*, 1-22. doi: 10.4018/978-1-60566-360-9.ch014