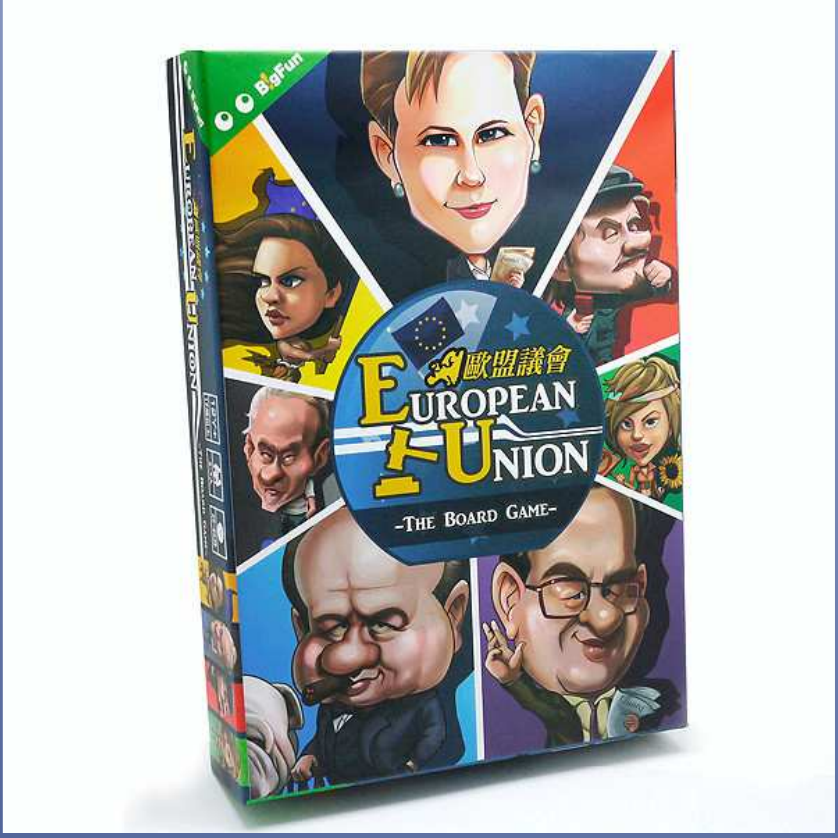

Learning by Playing!

A Study about the Potential of Board Games about the European Union as a Tool for Political Education

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Table of Content

1.Introduction

"What is the EU?" This query's popularity rose by over 350% in Google Trends for the United Kingdom after the day of the country's EU referendum (Google Trends 2016). It is also a question which many citizens of the European Union could not answer adequately. Only 52% of EU citizens think they know how the political system of the European Union, the one they live in, actually works (Eurobarometer 2015). Moreover, seven out of ten citizens would like to know more about their rights and what it means to be a citizen of the EU (Eurobarometer 2015). However, the lack of objective knowledge is even worse than the already low perceived knowledge about the EU. An alarming number of only 36% of the participants of the Eurobarometer 2015 could give correct answers to simple questions like the amount of member states of the EU, the way members of the European Parliament get elected or if Switzerland is a member of the EU (Eurobarometer 2015).

Why should a lack of knowledge about the EU and how the EU works be a problem for European society and a concern for the European Union itself? First of all, even different fields of democracy and political education theory agree with the point that "citizens who continually take part in the political process need a significant amount of political knowledge in order to develop a rationally founded political judgement which accords with their true interests and values, and in order to participate effectively in political decision-making" (Oberle 2012a p. 90). Democratic systems need political educated citizens to work (Dahl, Robert 1998). This holds true not only for national states but also for the European Union. Political education and political knowledge increase political participation and the acceptance of a political system like the EU (Galston 2001) and is therefore essential for our society and for the European community.

There is a need for new ways and strategies to educate the citizens of the European Union about the system they are living in. Here political and educational scientists can test and research about methods and means to increase the knowledge about the EU and European politics and find ways to interest the people about the EU. The sub-discipline of political science called didactics of politics deals with the issue of political education in a scientific way and analyze methods of teaching and knowledge transfer for politics. But the focus of many researchers is to educate about the national political system and when they do focus on the EU they concentrate on conventional education methods or on enhancing school education about the EU (Oberle 2012a, Oberle 2012b, Watermann 2003, Weisseno 2008, Weisseno & Eck 2013, Weisseno & Landwehr 2015).

In order to find a new creative way to enhance European political education and knowledge it is time to enlarge the research focus from the classroom to where people's interest lies in their everyday live. To bring the attention of the citizens towards the system, politics, and work of the EU, one has to combine the interests and hobbies of the people with the topic EU.

One way to achieve this could be the use of popular culture to transfer, promote, and spread knowledge and interest about the system and politics of the EU to its citizens. As popular culture is defined as all kinds of movies, TV shows, games, music, and books, among other types of media, which are enjoyed by ordinary people where the main purpose is entertainment (Cambridge Dictionaries 2016). In this study I test the possibility to use "European Union: The Board Game" (Tseng 2015), a commercial board game about the European Union and its politics, to increase knowledge about the EU and its political system as well as its law and decision making process. Therefore, I first propose a theoretical model which illustrates the mechanisms in regard to why and how playing a board game should have an effect on learning and gaining knowledge. This model is explained in the second chapter and is based on two major theoretical streams of the corresponding literature: the educational experiential learning theory from David A. Kolb (1984) and the theoretical concept of intrinsic motivation from Richard M. Ryan and Edward L. Deci (2000a). Additionally, evidence about the educational usage of board games from other scientific fields like medicine or economics are used to corroborate the theories. Furthermore, two highly detailed studies about board games and political education are presented as examples are similar to the idea of this study.

With the help of the model, theory, and literature, I worked out four hypotheses. The first and main hypothesis is about the effect of playing the board game on knowledge. Next, the second and the third hypotheses are about the effect of intrinsic motivation during playing the game on increasing knowledge. Finally, a fourth and last hypothesis is about the effect of the board game on the attitude of the participants towards the EU.

The hypotheses were tested with an experimental design, more specifically the untreated control group design with dependent pretest and posttest samples (Shadish, Cook & Campbell 2002). The treatment will be a new Taiwanese board game about the law and decision making process of the EU called "European Union: The Board Game" (Tseng 2015). In the study, 60 participants were tested as the treatment group, meaning they played the board game between the pretest and the posttest survey, and 30 participants were tested for the control group who played another non politics related game. Furthermore, I set up three different settings. Two

applied experiments in Sweden and Greece with 15 participants in the treatment group and another 10 for the control group in each country. The other 30 participants were tested in Germany in a laboratory experiment. The data from the tests were analyzed with several methods, mostly with different in means tests and correlations between the variables.

My results suggest that the board game has a strong significant effect on subjective knowledge, the participants liked the game and perceived it as helpful to learn more about the EU and its law and decision making process. Furthermore, there was overall no significant effect on objective knowledge gain in the treatment group. However, there were significant positive effects for gaining knowledge about the EU through playing the game for several subgroups such as participants who did not take part in the last European parliamentary election, participants who do not have a university degree and who do not support a political party as well as participants with no subjective or objective knowledge about the EU and its law- and decision making process. Subsequently, this indicates that the board game is helpful to educate people who are not interested in politics or the EU and who do not have previous knowledge about it. Additionally, the effect for the German subsample had a significant positive effect on knowledge gain for German participants playing the game which might be due to the specific experimental setting.

For the hypotheses about motivational effects on increased learning the results indicate that enjoying playing board games and regularly playing board games did not have a positive effect on learning and increasing knowledge. It seems to be that contextual factors while playing the game might have more influence on motivation and learning as the liking of the board game and recommendation rate of the board game are standing in a moderate positive correlation to better subjective learning results. For the last hypothesis there is no significant change of attitude towards the EU by the participants of the treatment group after playing the EU board game.

The study ends with critical reflections about the design and the operationalization which leads to recommendations for enhancing the experimental design. For example, the usage of a larger sample with repeated game sessions as only one two hour game session as treatment might not have a strong effect on objective education and learning. Through the rejection of the motivational hypotheses I conclude a possible alteration of my theoretical model as there are no indicators that intrinsic motivation helps to increase objective knowledge gain. However, I recommend changing the focus from out game motivational factors like preferences for playing board games to in game motivational factors like the behavior of

players during the game and the position of the players at the end of the game. As policy advice I endorse the usage of the “European Union: The Board Game” as an educational tool, after further applied studies in schools or other settings. The board game could help to get people interested in the EU since a large majority of participants really enjoyed the game. Therefore, I recommend to subsidies a multilingual version for teachers and educators throughout Europe. Additionally, a benefit of the board game would be that the education can spread not only in the classroom but also in the living rooms of the citizens of the European Union and reach people who are usually not interested in the EU and politics. Of course I also recommend further research for the use of popular culture items to promote knowledge about the EU and its political system in a more interesting, educational and popular way and to find ways to educate people outside the classroom.

1.1.Research objectives and research questions

The aim of this study is to show a creative, out of the box way to educate citizens about their political system and to find a positive effect of playing a commercial board game about the European Union on political knowledge about the EU. The study should be a forerunner to encourage more studies about the possibilities of using popular culture items to transfer and increase political knowledge. One objective is to illustrate that one can present the rather difficult system of the European Union in a simpler, entertaining and interesting manner like a board game which people might actually enjoy. The goal is to find evidence that an increase in subjective and objective knowledge about politics through a board game is possible.

As a red line for the study I propose following research question: Does playing a political board game about the European Union has an influence on political education and knowledge about the system and the decision making process of the European Union? Since the mechanisms behind the effect could also be of interest for the study, I propose the following sub question: Why could playing a political board game be a supportive factor in political education and how does increased learning through a board game work?

To ensure that education through a board game is a neutral and entertaining way to transfer knowledge and does not get perceived as reeducation or propaganda, I additionally propose the additional sub question: Does playing European Union: The Board Game has any influence on the attitude of the players towards the European Union?

2.Model, Theory, Literature and Hypothesis

In this chapter the basic assumptions and the model for this study will be presented. Next, it will explain the use of board games for education in political science and other disciplines with the help of two major theories and further examples from the relevant literature. The use of board games as teaching and educational devices has a long tradition in military history (Bochennek et al 2007) and they are increasingly used in other disciplines as well, such as medical education (Bochennek et al 2007), computing and informatics (Berland & Lee 2011), engineering (Bodnar et al 2016), economics (Hergeth & Jones 2003) and marginally even in political science (Livingston 1970 & Eisenack 2012). There are two major theories from which I draw assumptions for this study: the first is the experiential learning theory by David A. Kolb (1984) which shows the possibility of learning through experience. From the theory I will explain why the participants in this study should be able to learn about the political system of the European Union through playing a board game about the EU. The second is the concept of intrinsic motivation (Ryan, R.M. & Deci E.L. 1975, 1985) which will explain why people who like board games learn more from playing an educational board game than others. Therefore, I assume that these participants have a higher intrinsic motivation compared to participants who do not like board games. An additional part of this chapter will be about political efficacy and the possibility of attitude change by playing a game or gaining more knowledge about a political system. The chapter ends by carving out hypotheses through the use of the model, theory, and examples. The following chapter will then develop this further to carry out the operationalization and methodological part of the study.

2.1.The Model

The basis of this study is the assumption that people can get knowledge about a political system, in this case the European Union, by playing an interesting board game about it, in this case "European Union: The Board Game". To underline the causality of this assumption I propose following model:

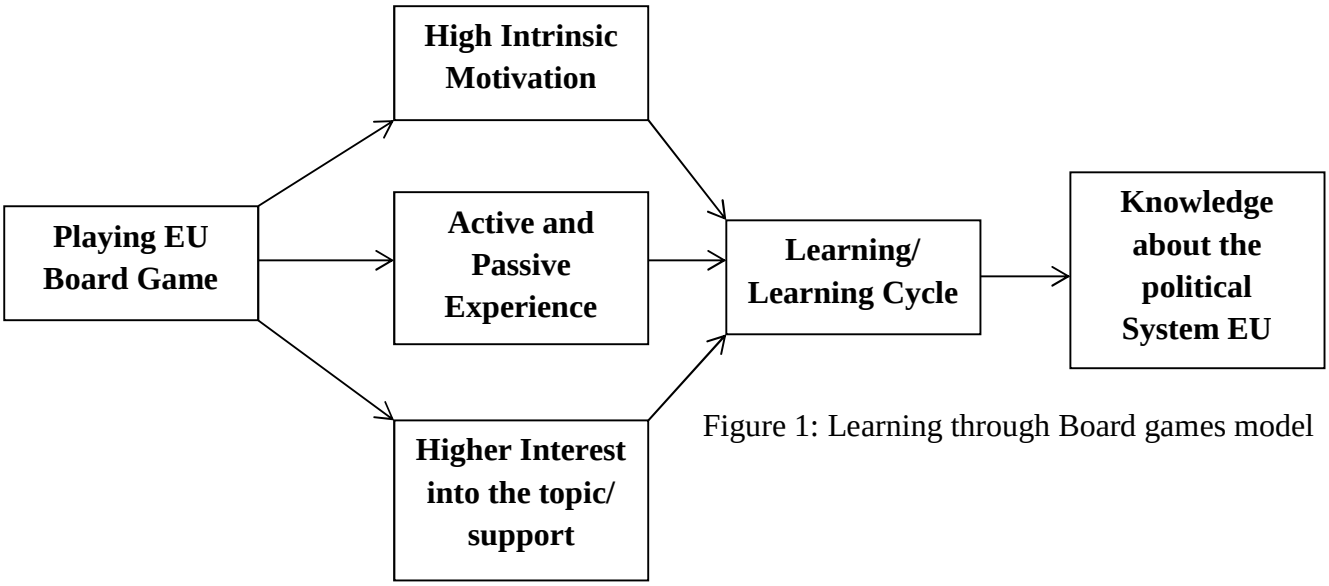


Figure 1: Learning through Board games model

The model in Figure 1 includes different assumptions supported by the experimental learning theory (Kolb 1984) and the concept of intrinsic motivation (Ryan & Deci 1975, 1985) as well as support of many examples.

2.2.The Experiential Learning Theory (ELT)

One of the main assumption of the model is, that playing a board game is as an active and passive experience which enhance learning and creating of more knowledge over the EU for the player. Thus, the player actively takes part in the game and observes other players and can reflect over their actions in the game and through triggering a learning effect. This is a mechanism from David A. Kolb's experiential learning theory (ELT). The ELT is "one of the best known educational theories in higher education" (Healy M. & Jenkins A. 2000 p.1) and from the moment it was introduced in the scientific discourse it has a strong influence on the work of teachers, trainers and the field of adult higher education (Fielding 1994, Robotham 1995). The ELT defines learning as a "process whereby knowledge is created through the

transformation of experience" (Kolb 1984 p.38) and knowledge as a "result from the combination of grasping and transforming experience" (Kolb 1984 p. 41).

2.2.1.Six Propositions and the Difference between ELT and Traditional Transmission Learning

The theory itself is based on and developed due to the models and theories from three educational scientists, the Lewinian model of action research and laboratory training, Dewey's model of learning, and Piaget's model of learning and cognitive development (Kolb 1984 p. 22-24). It also contains aspects of therapeutic psychology, psychoanalysis, humanistic psychology, radical educationalist theory and philosophy (Miettinen 2000). Out of these different theories and disciplines Kolb built a holistic theory on six propositions which were shared by these scholars (Kolb A.Y. & Kolb D.A. 2005):

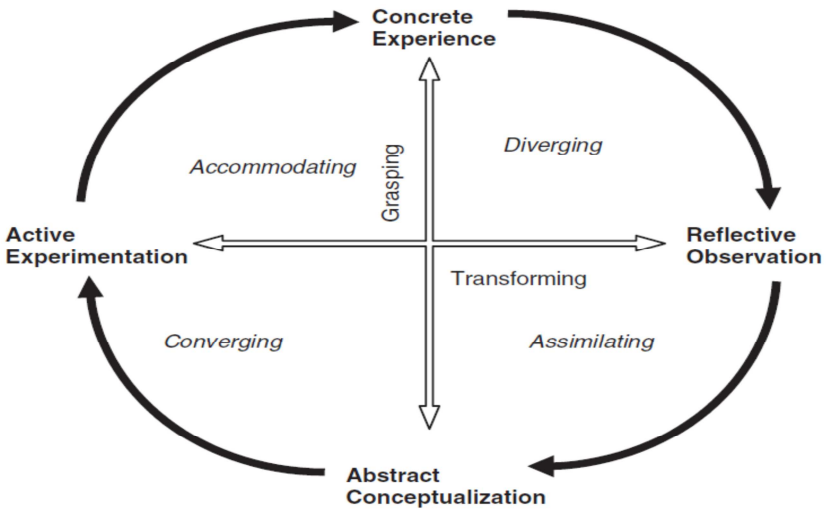
First, learning should be conceived as a process and not in terms of outcomes. This means that teachers in higher education should focus "on engaging students in a process that best enhances their learning" (Kolb A.Y. & Kolb D.A. 2005 p. 194) instead of just presenting them input they should learn. Students can prefer different ways of learning, from practical experiences to abstract thinking process and teachers have to take that into account. Second, learning in general is relearning, so students should get into a process in which their ideas and beliefs about a topic are made clear, so they can work and discussed this ideas and beliefs to integrate them into new models and concepts (Kolb. & Kolb 2005). In practis, students can better learn and process new information and knowledge if they can connect their own ideas, believes and previous knowledge to the new information. The third proposition takes conflicts, difference and disputes as key elements of the learning process as they see the reflecting, arguing, feeling and thinking about a conflict between different views and adaptation of the world or a topic as a drive for the learning process (Kolb & Kolb 2008). Learning is a holistic process based on fours proposition. As David and Alice Kolb (2005) argue, learning is not only a cognitive process, rather it is an integrative process of "thinking, feeling, perceiving and behaving" (Kolb & Kolb 2005 p. 194). Therefore, students should get stimulated in different ways to learn and not only through thinking about a topic. The fifth proposition is the most important one for this study as it perceives that leaning results in "synergetic transactions between the person and the environment" (Kolb & Kolb 2008 p. 44). This indicates a process where new experience gets linked with already known concepts or vice versa and new concepts gets connected with previous experience. Therefore, in this study the game about the European Union is a new experience connecting with the concepts the

participants learnt before in school, at university, or by watching television and thus enriches their knowledge. Alternatively it might show the participant's conception of the European Union's democratic system and links it with previews democratic experience.

This and the last proposition, that "learning is the process of creating knowledge" (Kolb A.Y./Kolb D.A. 2008 p. 44), differs a lot from common transmission of education, where ideas are already developed and just transmitted through a teacher or other person to the learner, indicates that learning is just the transmission of existing knowledge. The ELT on the other side shows learning as holistic, connecting process in which the learner develops his or her ideas by themselves. Therefore, incentives and stimulations come through active or passive experience and not only through a teaching person. This experience can be for example brainstorming session, group discussions, simulations, role plays or a board game like the one of this study.

2.2.2.Experimental Learning Cycle

In the ELT there are two ways to get experience, through *Concrete Experience* as feeling, sensing and actively experience something or *Abstract Conceptualization* as planning, analyzing and thinking about a topic. There are also two ways to transform experience into knowledge: *Reflective Observation* as watching and observing others in an activity, in order to reflect on actions/behaviors, and *Active Experimentation* which involves actively doing things, using trial and error to process experience into knowledge (Kolb, Boyatzis & Mainemelis 1999). Together these four ways of receiving and transforming information build the Experiential Learning Cycle (Kolb 1984) illustrated in Figure 2.



(Figure 2: Experiential Learning Cycle, Kolb A.Y./Kolb D.A. 2008 p.44)

The learning cycle in one way presents an ideal type of learning in which the learner touches all four learning styles in the same way and begins a spiral of learning by repeating the process also described as “a spiral of action and research consisting of four major moments: plan, act, observe and reflect” (Zuber-Skerritt 1992 p. 11; Healy & Jenkins 2000, Kolb & Kolb 2008). In this way, a board game (like the European Union Board Game in our study) gives the learner the chance to plan a move, make the move, observe the reactions the other players and reflect about that before planning their next move.

As highlighted previously, this cycle is an ideal type because gaining experience and then transforming it are essential dialectic opposites, as one can see in Figure 2. The ELT argues in this case that learners have, through life experience and the environment they developed in, different skills, abilities and ways which makes it easier to use one or the other way of getting and transforming experience (Kolb, Boyatzis & Mainemelis 1999, Healy & Jenkins 2000, Kolb & Kolb 2008). Consequently, people are influenced in the methods they choose to gain and transform knowledge. As an example, a very handy person would rather prefer to have active experience and transform knowledge by actively using it, instead of watching someone else doing something and transform knowledge by observing another person and reflecting about it. Therefore, learners have different preferences in one or the other grasping and transformation of knowledge direction which leads to the four different learning styles. The learning styles come from the stronger use or preference in grasping and transforming knowledge as one can see in Figure 2. A clear explanation of the learning styles and their differences follows in the next chapter.

2.2.3.Learning Styles

The four learning styles stand for different approaches of learning and show that depending on the learning style of a person, he or she needs different ways of teaching. The diverging learning style has a strong preference for Concrete Experience and Reflective Observation which means these persons learn better by studying and observing situations out of different perspectives. They are also more interested to work with people, to gather information and to create new ideas. They are usually open minded, creative and reflective and therefore prefer group work, brainstorming and feedback situations. People who are diverging learners tend to study social science like politics or history, languages and creative studies like arts (Kolb, Boyatzis & Mainemelis 1999). For people with this learning type board games could be an asset for learning as playing a game is a group activity and most games give direct feedback through winning points or similar that reward playing the game well. Many games also need

people who are open minded and can adapt to a new situation very quickly to come up with ideas to win the game.

Assimilators are learners who combine Abstract Conceptualization and Reflective Observation and are very good in abstract thinking and creating theoretical models (Healy & Jenkins 2000). In contrast to the diverging learning style, the assimilators are not focused on people and observation. Their strength is the ability to process a lot of information and put this information in a logical, theoretical framework. By doing so they rather look for logical correctness of their theory than the actual practical use of that theoretical construct. Therefore assimilators are better in science and fit into the traditional education system as they favor lectures, readings, and conceptual thinking for their education. They usually study subjects like mathematics, economics or chemistry (Kolb, Boyatzis & Mainemelis 1999). Following the ELT this kind of learners would profit less from learning through board games as they usually do not like to work with other people and one could assume that they are not fond of board games.

The combination of Abstract Conceptualization and Active Experimentation is the converging learning style, which focuses on problem solving and the practical use of ideas and theory. Convergers are more interested in technical issues and direct task than in social or interpersonal struggles. That is why they tend to take specialist or technical careers and usually study physics or engineering. They are more open to simulations, practical applications and experiments as a form of teaching (Kolb, Boyatzis & Mainemelis 1999, Kolb & Kolb 2008). This group could on one hand be open for education through board games if the game is a very systematic, rule based game as they like practical applications of knowledge, yet on the other hand most board games live from social and interpersonal exchange and communication which could mean that they are less motivated to take part in a game.

The last learning type is accommodating which is the combination of Concrete Experience and Active Experimentation leading to a “hand-on experience” (Kolb, Boyatzis & Mainemelis 1999 p.6 learner which means they learn by actively doing things and through trial and error approach. Therefore, accommodators are better in carrying out plans and they are strong in adapting to changing situations but they rely more on other people’s information and knowledge than on their own. Subsequently, they are action-orientated learners and like new challenging experience, they like to work on tasks with other people, enjoy fieldwork and are always open to test new ways to complete projects and to solve problems. People with this

learning style often study management or business and later work in sales, marketing or management (Kolb & Kolb 2008). These learners could appreciate board games as teaching device as they can actively do something, play with other people and do not necessary need a lot of background knowledge to play a game. They would especially be good in board games with game mechanisms that include negotiations and bargaining.

Of course all four learning styles are ideal types, not every political science student is a diverging learner and not all converging learners study engineering and there are also people who balance their ways of grasping and transforming information or people who use all four ways equally (Kolb & Kolb 2005). But there is a strong tendency of these learning groups to lean towards one subject of study than to others and also towards different learning methods which is further elaborated by an empirical study of David and Alice Kolb (2005) over the distribution of learning styles by students of management and art . They found out that the division by subjects is more a trend of what some people do than a full grouping of people but it could have an influence on how good students are in their subjects, depending on the teaching style of the subject (Kolb & Kolb 2005).

2.2.4.Critique on and Representativeness of the Theory

There are also critical voices against the ELT theory from Kolb. General critic on the model are that the assumptions the model is built on, mostly the work of John Dewey and Kurt Lewin, are misused and wrongly interpreted for the ELT (Miettinen 2000). Reijo Miettinen (2000) critiques that Kolb's ELT puts people into learn types and that Kolb's learning cycle is a strong generalization of a process against his view of learning which is something that "cannot be generalized as a way in which people learn and gain understanding of the world and of their own possibilities in it" (2000 p.70). On the other side, Kolb's learning cycle and his learning types, which are both important for this study, its model and hypotheses, was tested in many studies. Between 1984 and 1999 more than a thousand studies about the ELT were published and 61.7% support the ELT and only 22,2% find opposing results (Kolb & Kolb 2005).

A good illustration to back the ELT theory and the assumption drawn from the ELT for my model in Figure 1 is the use of board games in economics to trigger the active experiential learning types. Economics are not only an often used background for board games, there are more than 500.000 board games listed under the rubric 'Economics' on the board game

platform BoardGameGeek (2016), economic board games are also used to teach economic students.

Very good practical examples are the studies of Helmut H. Hergeth and Michelle R. Jones (2003). In their studies they incorporate the Income/Outcome™ financial board game into the course curriculum of junior and senior economic and marketing classes and let the students play several rounds of the game. The argumentation for including the game was that traditional course learning could teach students basic economic concepts but it "can never replace actual experiences" (Hergeth & Jones 2003 p.126). The conclusion of the study was "that experiences during the business simulation have a much stronger effect on the participants than a description in a case study or the evaluation of a business situation through calculations on a computer" (Hergeth & Jones 2003 p. 127). The visualization and experience of the learning content in a board game helped the students to better understand and internalize this content through experiential learning and an emotional involvement which connects with the ELT assumption and the motivational assumption model in Figure 1. The students were emotional involvement in the game and wanted their companies to succeed and were therefore highly motivated to learn more about economics to boost their companies. The effect of an increase of intrinsic motivation on learning will be further explained in the next chapter.

Further examples from medical education support the assumptions of the model and the ELT, in Bochennek et al.'s (2007) review over the existing card and board games for medical education they discovered that there is a positive effects of games as educational tools for medical students. They describe the "enjoyable physical or mental training, including narrative and simulative aspects" (Bochennek et al 2007 p. 2), additionally games have the "potential to motivate students and include an element of competition" (Bochennek et al 2007 p. 2). Therefore games can trigger intrinsic motivation and experiential learning. They conclude that board games, if used for education, have to be interesting and fun to play, it should give the player motivation to replay the game and the game mechanism is central for the effectiveness of the game as an educational tool. This brings us to the other assumptions of the model, specifically with regards to motivation.

2.3.Intrinsic Motivation

The other assumption is that playing a board game has a motivational effect on students/learners who like board games or who want to have a practical way to experience a topic, which helps and motivates them to learn more about the topic. For once a political system is a system based on rules and mechanisms which can be translated into rules and mechanisms for board games as was done in “European Union: The Board Game” which shows the normal, basic EU law and decision making process without more complicated processes like the trilogues. Thus, by learning the rules and mechanisms of the game the player also learns the mechanisms and rules of the EU law and decision making process and to win the game you have to understand the rules and mechanisms well. In this sense, the player is motivated to learn the rules in order to win the game.

2.3.1.The Nature of Intrinsic Motivation

This assumption comes from the view on motivation from Richard M. Ryan and Edward L. Deci (2000a p. 54) who specify “to be motivated means to be moved to do something” and they distinguish between intrinsic and extrinsic motivation (Ryan & Deci 1975). This study is focused on the intrinsic motivation as extrinsic motivation is defined as being motivated to do something for an external separate outcome or benefit, like motivation to work for money or the motivation of children to receive good grades in order to satisfy their parents (Ryan & Deci 2000b). Playing a board game under normal circumstances provides no real external benefit except for the enjoyment of the activity itself, as is the case in my study because the participants do not get paid for taking part in the experiments. It would be a different case for gambling, i.e. playing a game to win money or to earn other rewards.

Therefore, playing a board game and learning through it should trigger intrinsic motivation, which is motivation obtained from “the doing of an activity for its inherent satisfactions rather than for some separable consequences” (Ryan & Deci 2000a p.56). The concept of intrinsic motivation comes from the assumption that humans engage freely in activities without getting a reward for it, driven by curiosity, interest, and willingness to learn and through playful and exploratory behavior (Ryan & Deci 2000a, 2000b). To activate intrinsic motivation and the learning process tied to intrinsic motivation one has to create an activity which is fun, challenging and fits to the person who should participate. Therefore the use of popular culture and board games could be a strong factor to trigger intrinsic motivation. But even Ryan and Deci (2000a) already made clear that an activity alone cannot be intrinsically motivational for

every student as there is a tension between activities and people so there is no particular task that triggers everybody's intrinsic motivation. In combination with ELT theory of David A. Kolb (1971) one can assume that for some learning types a practical act like playing a board game can enhance intrinsic motivation as well as for people who already like board games.

This concept will also appear at the end of the chapter in the second hypothesis, that participants who likes board games will learn better with the game and have a higher acceptance of the game as teaching tools as people who normally do not like board games or do not play board games. For this hypothesis the fact that learners or students with a high intrinsic motivation are often better and have a better performance than students with no or low intrinsic motivation (Martens, Gulikers & Bastiaens 2004) is very important. This would mean that highly intrinsically motivated participants will outperform the other participants and will learn the rules and mechanisms faster and better, and therefore will be happier to play the game, and learn more from the game.

In educational science the concept of intrinsic motivation is often used as an argument to present difficult, abstract or complicated topics in an interesting, playful and meaningful way to enhance intrinsic motivation (Cordova & Lepper 1996). An example is embedding abstract mathematical problems for schoolchildren into fantasy contexts with interesting themes or characters to keep the motivation up. Other examples are transforming the classroom into a newspaper office to teach students' grammar and newspaper writing style, or bringing the concepts of measurement and analysis into the class by playing a weather station (Cordova & Lepper 1996). For Lepper and Malone (1987) the best way to achieve higher learning outcome through higher motivation is by matching the actions for students to enjoy an activity with the actions which are required for students to learn the material being presented in the activity. Which is, for people who like board games, exactly what is suggested in this study by using board games for educational purpose. But this could not only apply for participants who like board games but also for participants who do not like board games in general but nevertheless like European Union the board game. This is why the later presented third hypothesis will also cover this part of a possible source of intrinsic motivation by assuming a correlation between liking the EU board game itself and a better learning outcome.

A good example for the motivational effect of game-based learning is the use of games in engineering. Through learning with games engineering students get skills which their usually studies neglect such as communication, teamwork and creativity (Bodnar et al 2016). In the review study of Bodnar et al. (2016), the authors conduct a broad literature review based on

the development of game-based-learning in engineering which includes 191 papers between 2000 to 2014 dealing with the topic and especially 62 papers dealing with learning outcomes. For the motivational assumption an important finding was that the "papers nearly unanimously agree that students enjoy game-based learning" (Bodnar et al 2016 p. 160) and that it "shows a general trend that both student learning and attitudes are improved by game-based activities" (Bodnar et al 2016 p. 147).

2.4.Literature Example "Democracy"

By presenting the studies over the game "Democracy" and the game "Keep Cool" in the following chapter, the third assumption from Figure 1, that learners get more interested in a topic through playing a game and that board games can support an interesting start in a topic, will be illustrated. The studies are also two of the very few examples of political topics teached through board games and the studies about the game "Democracy" conduct very similar experiments as the experiments devised in this study. Therefore, I will come back to the studies in the chapter concerning operationalization and methods as well. The studies about the game "Democracy" also make strong points regarding the assumption build on the ELT which I will point out to additionally support the model in Figure 1.

The simulation game 'Democracy' was made by the Academics Game Program from the center for organization of Schools in the USA in the 1970's (Boocock 1966, Coleman 1969, Clarke 1970, Livingston 1970, Livingston 1971, Livingston/Kidder 1973, Vogel 1973).

The studies about the game 'Democracy' had a similar purpose: to find out if a game is an effective way to educate people, in their cases high school students, in a specific topic (Livingston 1970). In the game one plays a congressman and has serve his or her constituencies, therefore one encounters the principal of "log-rolling" which means that you support another groups bill and they vote for your bill (Livingston & Kidder 1972). The game was developed to show, explain and improve the understanding of the log-rolling mechanism in the American democratic system and also gives students a starting point to get interested in the political system. In different studies of Boocock (1966), Livingston (1971) and Livingston and Kidder (1972) with the game, it is shown that the understanding and the acceptance of the log-rolling process is significantly higher by the test groups than the control groups. These findings directly support the overall assumption that playing a political board game enhances understanding and knowledge about a political system. Another example is Boocock's study

from 1966, in which 70% of the boys and 84% of the girls who participated learned through the game that exchanging support or cooperation with other legislators is the most effective way to make politics in congress. Consequently, the board game is an effective tool to teach students political mechanisms.

The finding's about the influence of the game on political efficacy and the intention to participate in the political process differs between the studies. Where Livingston and Kidder (1972) results point out that the game has no effect on the intentions of the students to participate in the political process and even shows a slightly decrease of political efficacy, the results of Boocock (1966), Clarke (1970) and Vogel (1973) indicate a positive effect on political efficacy and the intentions to participate in the political process. But all the studies mentioned before about the topic have problems to show a clear direction when it comes to that. This has to be taken into account for formulating a hypothesis to answer the research question about the possibilities to an attitude change through playing a political board game.

One reason for the mixed results is that "learning or changes in attitude could hardly be expected from such a brief game experience" (Boocock 1966 p.16). In the previously explained studies the participants played the game once and the effect is measured only after a one time experience. Also, with the exception of the study of Boocock (1966), the other studies of Livingston (1971), Livingston and Kidder (1972) as well as Vogel (1973) have with around a hundred participants only a small number of participants.

Therefore it is difficult to say if the game has an additional benefit of bringing people closer to the political system or not. Yet it clearly educates them about the system which is important for the later hypotheses of this study.

2.5.Literature Example 'Keep Cool'

A strong example for education and enhancing interest in a political topic through a commercial successful board game is 'Keep Cool', which was published in 2004 (PIK 2005). It was developed for "closing the gap between scientific research, education, and public action" (Eisenack 2012 p. 18) for the topic of climate change in Germany. It was later also translated into English. Compared to the over 50 educational simulation games about the topic of climate change in Germany (Reckien & Eisenack 2012) the board game was not only very successful in its educational purpose, it was also a commercial success. The game got

published by a private company, was sold over 6000 times and is used by the German ministry of environment as well as many non-governmental organizations to educate and make people aware about climate change in an interesting and entertaining way (Eisenack 2012). This game, as an example, supports two previous assumptions: games can be an ice-breaker to get people interested into a topic through an interesting game and that games can trigger intrinsic motivation to learn about a topic, as people buy the game for entertainment and are motivated to play it.

In the studies about the 'Keep Cool' board game Eisenack (2012) and Reckien (2010, 2012) point out that with the help of board games it is easier to introduce the language and important terminologies necessary to understand the topic, in their case climate change and in the case of this paper the political system of the European Union (Reckien & Eisenack 2010). To bring a subject into an educational board game one has to simplify it and by doing it the central issues of the subject get pointed out, also games can give a topic a positive setting and can open up a difficult topic like climate change or the European Union system (Eisenack 2012). Important is the conclusion of Eisenack's (2012) study that games can effectively be used to open up communication about a topic and connect knowledge about the topic in an interesting way. It also increases the motivation of the player to learn and triggers experiential learning which are the two key concepts behind this study.

2.6.Hypotheses

Out of the model in figure 1, the assumptions behind it, the theories and concepts as well as out of the examples presented before I propose three hypotheses that will be tested in this study.

Deduced from the empirical studies that playing a board game activates learning and produces knowledge about something, in this case the political system of the EU, (Kolb 1971) I propose the hypothesis H1:

H1: *When participants play the EU board game, they obtain a better understanding of the political system of the EU.*

This hypothesis implicates that the participants have a better understanding of the law and decision making process of the EU which is in the focus of the EU board game (Tseng 2015). Secondary, they also should improve their knowledge about the EU institutions such as the

European Parliament and the council, as they should learn the voting mechanisms in both during the game. According to the experiential learning theory (Kolb 1984) not all of the participants will learn better from playing the game but as I showed before participants with the diverging, converging and accommodating learning style should learn very well through the game. Therefore the majority of participants should have a positive learning experience.

The second hypothesis is derived from the assumptions that board games can motivate people to learn. The concept of intrinsic motivation (Ryan & Deci 1975, 1985), as I elaborated previously, would argue that intrinsically motivated people learn better. This means that people who like board games should be motivated to play a board game and learn the rules and mechanisms of it, in this case a game that specifies how the political system of the EU works. That leads to the second hypothesis H2:

H2: *The more the participants like to play board games, the stronger is the learning effect through the game.*

As I explained with the literature examples before, the game itself also has to be fun and attractive to play (Eisenack 2012) to trigger high motivation to play and learn through the game. That is why additionally to H2, the third hypothesis is also covering the field of motivation but this time the motivation derived directly from the EU board game itself.

H3: *The more the participants like the EU board game, the stronger is the learning effect through the game.*

This and the second hypothesis are quite similar but the third hypothesis is as safety hypothesis as there could be participants who do not regular play board games or who do not explicitly like board games but may like politics or the mechanisms of the EU game and are also intrinsically motivated and learn more than the other unmotivated participants.

The fourths and last hypothesis is about the effect of a political board game on efficacy and attitude towards the political system. As the studies about the game “Democracy” made clear there are different results on the effect of board games when it comes to efficacy and it is unclear if playing a political board game changes the attitude of the players (Boocock 1966, Coleman 1969, Clarke 1970, Livingston 1970, Livingston 1971, Livingston/Kidder 1972, Vogel 1973). That’s why the last hypothesis H4 is:

H4: *When participants play the EU board game, it will not have a significant effect on their attitude towards the European Union.*

These hypotheses will be tested in this study through an experiment in which the treatment group plays the EU board game. The operationalization and measurement will explain in the next chapter.

3.Method and Operationalization

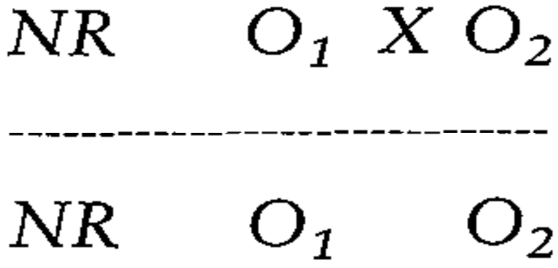
To test the hypotheses in this study I choose an experimental design, specifically the untreated control group design with dependent pretest and posttest samples (Shadish, Cook & Campbell 2002) which is the most commonly used experimental design for social science. Thus, this chapter outlines the treatment, the surveys and the operationalization for the study. Moreover, I will present my data collection and analysis, why and where I collected my data, and discuss the study's internal and external validity.

3.1.The Experiment

Why choose an experimental setting to proof my model and hypotheses?

Although "[e]xperimentation is not a major methodology used by political scientists" (McDermott 2002 p. 330) it is appropriated for this study. As displayed in the previous theory part before, there are hardly any studies utilizing a board game with a political setting and consequently teaching political systems through it. Therefore, it is important to first evaluate if the model and its relating theory actually work and whether there is an effect of playing political board games on political education. Only afterwards can generalizable studies for the real world context become feasible (Mook 1983). I will thoroughly discuss this point later in the subchapter on internal and external validity.

For the untreated control group design with dependent pretest and posttest samples, as presented in figure 3, both treatment and control group receive a pretest, facilitating the finding of validity-threats through selection bias (Sadish, Cook & Campbell 2002). In many game related meta-studies, like the meta-analysis of Bodnar et al. (2016), it is pointed out that quite a lot of experiments about learning through board games do not have control groups, for example 39% of the studies that Bodnar et al. (2016) looked into.



(Figure 3: Shadish/ Cook/ Campbell 2002 p. 137)

Both the pretest and the posttest surveys are in English to establish the same conditions for participants from the three different countries, Sweden, Greece and Germany, in which this study is conducted. Importantly, the language level is simple and does not use overly complicated words. In order to reach the appropriate language level, I piloted three control runs, one in Germany and two in Sweden, subsequently revising the survey according to the feedback. Both surveys can be found in the appendix (Appendix I & II). The majority of questions are multiple choice or on a Likert scale with five answer opportunities. However, there are a few open questions like for nationality and age in addition to a question with a Likert scale with eight and one with six options. Furthermore the surveys are run anonymously to avoid biases through social pressure or social acceptability.

3.1.1.The Pretest

The pretest itself includes a survey with ten questions (Appendix I), in which questions 6-8 establish the level of knowledge of the participants in regards to the system of the European Union. Specifically, in question six the participant self-asses his or her knowledge, while questions seven and eight are proxy questions to validate the self-assessment (Appendix 1). Consequently, having evaluated the pretest level of knowledge of the EU system, the difference in the level of knowledge to the posttest survey can be analyzed, depending on whether treatment was received. This can also show whether the treatment has a stronger effect on people with little or extended knowledge on the EU system. Furthermore it helps to find out if there is a selection bias in the results. For example it can be assumed that a treatment group of a high number of people with already strong knowledge about the EU portrays a different result from a group with little previous knowledge.

Subsequently, questions nine and ten present the participant's motivation to play board games, firstly through self-assessment in question nine and secondly via the amount of time the participant spent playing board games, as an indicator how motivated he or she is to play board games in their private life (Appendix I). These questions help assessing the second hypothesis on motivation and learning effect.

Question two to five should establish the participants' origin, as I test participants in Germany, Greece and Sweden, as well as the participants' opinion on the level of democracy in their home state and the EU and what their attitude towards the European Union itself is (Appendix I). Crucially, I put the question about the level of democracy of the home state before the question of the level of democracy in the European Union so that the participant

thinks first about his or her own state and should then reflect about the EU which could lead to interesting results in the three different states. Moreover, it could display cultural differences which possibly influence the results as the populations of Sweden, Greece and Germany have different opinions on the EU and on their own state (Eurobarometer 2015). Finally, the position towards the EU may influence the willingness to learn about the EU, participants who oppose the EU could reject learning about its system and even see the board game about the EU as propaganda.

3.1.2.The Treatment

As treatment the participants of the treatment group played one round of "European Union: The Board Game" (Tseng 2015). This game was developed in Taiwan by Big Fun Games together with the European Economic and Trade Office in Taiwan as a commercial board game which presents the EU system to people in Taiwan (Tseng 2015). Around 2000 games of the first edition were already sold, many of them to social science teachers. However the game is not yet available in Europe.

The participants were first introduced to the English rules. The introduction takes around 20 minutes. Furthermore, in all three countries a native speaker was present to answer specific questions for the rules in the native language if required. Depending on the number of participants, the game takes around 90 minutes. While it can be played by three to seven players, for the tests I created groups with at least 4 players, usually five to seven players. The game is played in three rounds, tracing the development of the EU beginning with only the six founding members in the council. Subsequently, in the second round there are fifteen council members portraying the EU before its east-enlargement in 2004 and finally, in the last round all 28 states are represented on the council.

Each player plays a faction of the European Parliament (conservatives, liberals, social democrats, greens, Eurosceptics, communists and anti-Europeans) and has to gain influence points by letting proposals pass or not pass depending on their political goals (Tseng 2015). At this point I altered the rules of the original game to direct the game closer towards the reality of the EU legislative system. While in the original game the proposals move from the commission to the council and after that to the parliament. In the version participants play the proposals come from the commission, subsequently move to the parliament and finally to the council. That is not only beneficial for the gameplay, as now the proposals pass first the lower threshold of the parliament and after that the higher, more difficult to pass threshold of the

council, but it is also closer to reality after the Lisbon treaty. Most proposals are real, having (not) passed the law-making process of the EU, such as a joint European Army or the introduction of the Euro.

There are two different kinds of proposals. Although all proposals have to pass the parliament with a 50% +1 majority vote, in the council the majority of the proposals need a qualified majority. But important proposals like the Euro or the European Economic Area need a unanimous decision in the council. Therefore in the case of the game all players have to agree (Tseng 2015). This represents the difficulty for 28 states in the EU to agree on one policy proposal in the council.

For accepted proposals the player gets influence points, the currency of the game. The amount of influence points differs on the kind of proposals which pass. In the game there are five policy fields: European Integration, Free Economy, Social Security, Environmental Protection and Open Society. For example, the Green fraction receives more influence points if a proposal with a major Environmental Protection component was passed (Tseng 2015).

As the players can bribe others with influence points or a vote for another proposal to get his or her favorite proposal through the legislative process, this could elevate the understanding of a log rolling process. The player with the most influence points at the end of the game wins the game. Moreover, the game offers the player additional information on the EU: Descriptions of the discussed proposals are on the back of the proposals and further information about the member states, like when they joined the EU etc. are given as well.

3.1.3.The Posttest

For the posttest the participants fill in a second survey with twenty questions (see Appendix II). In the second survey the first nine questions test for possible confounders such as level of education of the participants and their parents, age, or gender that could have an additional influence on the dependent variable. Furthermore, the field of study could also have an influence. For example, it could be possible that students of social sciences such as political science can understand a political system faster than students of natural sciences.

The questions six to nine evaluate if the participant is generally informed and takes part in society and the democratic process. The participation in civil society and the general level of knowledge could influence the participant’s willingness and motivation to learn more about the democratic process of the EU (Appendix II).

In addition to the questions about motivation in the first survey (Appendix I) question ten establishes the motivation to play the game, asking whether the player enjoyed the game or not. As this is a self-assessment question, there is the danger of social bias to answer more positively. Thus, question nineteen is an additional indicator, as it asked for how much one would pay for the game. The willingness to pay a higher price for the game indicates whether the player enjoyed the game.

With questions eleven and thirteen the learning effect is operationalized in self-assessment, once for learning about the institutions, for example the voting mechanisms in the parliament and the council and the amount of member states in the council over time (Tseng 2015). The other question reveals learning results for the understanding of the law- and decision making process in the European Union. The participants answered how much the game helped their understanding. Questions fourteen, fifteen and sixteen are proxy questions to additionally test the participants' knowledge about the Council and the law- and decision making process which they could have gained through the game, in order to control for influences like inappropriate self-assessment or social-acceptability in questions eleven and thirteen (Appendix II).

To operationalize attitude change for hypothesis four, question twelve askes for an attitude change through the game (Appendix II). Of course, self-assessment is not ideal could be improved through tests such as an implicit association test (IAT; Greenwald, McGhee, Schwartz 1998). However, this would have lengthened and complicated the process, requiring additional equipment and higher rewards to motivate participation. This shortcoming will be further outlined in the limitations chapter.

Additionally, question seventeen about whether the game should be used in schools and universities to teach students about the European Union could be a measurement for hypothesis H 3 as it can be assumed that participants would only recommend a game if they enjoyed playing it (Appendix II).

As outlined in the introduction, seven out of ten European citizens do not feel themselves informed well enough about the European Union and its politics. Therefore, question eighteen is addressing these statistics and additionally emphasizes the importance of this study to reveal new ways of educating European citizens on their system.

3.1.4.Control Group

The control groups receive the same surveys as the treatment group, but instead of playing "European Union: The Board Game", participants play games that take a similar amount of time with a similar game logic and mechanism, however without any political background. In the games participants have to negotiate with the other players to succeed in the game and they can trade favors and currencies of the game but without connecting this to a political system. For this, the board games Sheriff of Nottingham (Halaban & Zatz 2014) and Settlers of Catan (Teuber, K. 1995) were employed.

3.2.Operationalization of the Hypotheses

For hypothesis one the independent variable and treatment is playing the game whilst the level of knowledge on the EU system and decision making process is the dependent variable. The dependent variable is operationalized and measured in the pretest through questions six to eight for previous knowledge and questions eleven as well as thirteen to sixteen in the posttest for the level of knowledge after the game (Appendix I & II). By measuring and comparing pre- and post-treatment as well as utilizing a control group, it is possible to directly assess the effect on the treatment group that should display an enhanced level of knowledge afterwards. The average level of knowledge between treatment and control group before and after can be compared to show the effect of the treatment. To do this I will use a difference in means test with the assumptions for H1: mean treatment – mean control > 0 and for H0: mean treatment – mean control ≤ 0.

For hypothesis two, the motivation to play board games reflects the independent variable and the level of knowledge about the EU system after treatment is the dependent variable. The fondness of the participants towards board games is operationalized in question nine and ten in the pretest (Appendix I). In this regard, a correlation between enjoying board games in general and gaining knowledge on the EU trough the game should confirm the hypothesis.

The third hypothesis resembles the second one as the enjoyment of "European Union: The Board Game" is the independent variable and the level of knowledge the dependent variable. The independent variable is operationalized in questions ten, seventeen and nineteen of the posttest (Appendix II). Congruent to hypothesis two a correlation between the liking of the

game itself and an increased level of knowledge on the decision making process of the EU should test the hypothesis.

Finally, for the fourth hypothesis, the independent variable and treatment is again the European Union board game and the dependent variable is the participant's position towards the EU as operationalized in questions four and five of the pretest and question twelve of the posttest (Appendix I & II). The mean of question twelve indicates if there is an average change in the participants' attitudes. Additionally, a comparison between the average changes of position by control and treatment tests the hypothesis that also will be analyzed in a difference in means test with the assumption that for H4: mean treatment – mean control = 0 and for H0: mean treatment – mean control $\neq 0$.

3.3.Data Collection

As previously mentioned, for this study participants from Sweden, Germany and Greece were tested in their respective countries. As the game addresses European politics I chose to undertake the experimental tests in three different member states to control for possible cultural biases. With these three states the study includes participants from different regions of the EU, one from Scandinavia, a middle European member state and a southern European member state. Moreover, the states differ in economic strength, religion, education systems and public opinion towards the European Union (Eurobarometer 2015). Although the study would benefit from the inclusion of a younger member state with an eastern European background, this was prevented by the study's scope

Therefore, the experiments have three different settings. In Greece and Sweden I chose applied experimental settings (Mook 1983). In Sweden I made the treatment and control group tests during the GothCon in Goteborg (GothCon 2016), the biggest board game convention in Sweden, where new games are presented, tested and sold. During the convention day I tested fifteen Swedish participants for the treatment group and ten for the control group. In contrast to a laboratory experiment, the applied experiment in Sweden followed random selection, as everybody on the convention could play but it did not follow random assignment of treatment as all participants found the game interesting and were willing to play it. Consequently, it was not possible to assign them randomly to control and treatment group.

The experiments in Greece were similar to those in Sweden. Fifteen Greek participants for the treatment group and ten for the control group were tested in a board game café in Athens where people come to play, borrow or buy board games. Again, all visitors of the café were given the chance to participate, ensuring random selection. However, random assignment was not possible as the participants were asked to play a game and not to take part in a laboratory experiment.

In Germany, I tested thirty participants for the treatment group and another ten for the control group in a laboratory setting as the participants got invited to take part in an experiment and were then randomly assigned to treatment or control group. Therefore, random assignment was established with the German participants. However, it lacks random selection as a large amount of participants were political science students and their partners or friends.

Overall, most participants of the experiments were younger, highly educated people. Nevertheless, as Douglas G. Mook (1983) points out, the composition of the sample of participants is more important if one wants to draw conclusions about a population and since I want to strengthen my model and hypotheses to first establish an effect, the shortcomings in randomization are legitimate. Subsequently, in follow-up studies, for example in classrooms or political education seminars, the effect could be scrutinized under real life conditions.

3.4.External and internal Validity

The first priority of this study is to establish high internal validity to explore the model and its underlying theory as well as to portray that there is an effect. Moreover, “without internal validity, there can be no external validity” (McDermott 2002 p. 334). Thus, this study focusses on reaching conclusions about the possibility of an effect rather than generalizing findings to a population. As outlined, to enhance internal validity the experiments included a control group. In addition to this, the experiments in Germany were conducted under laboratory settings and randomly assigned to eliminate other possible influences.

Nevertheless, the real-world utility of board games in education and its possible counter-effect to the lack of knowledge on the EU by European citizens is a relevant initial finding of the study. In this regard, the two applied experimental settings in Sweden and Greece present a trend on real-life application. Thus, both settings enhance the study’s external validity.

Finally, the discrepancy of validity-focus in these three settings facilitates their results' joint and singular assessment, which will be the focus of the next chapter.

4.Results

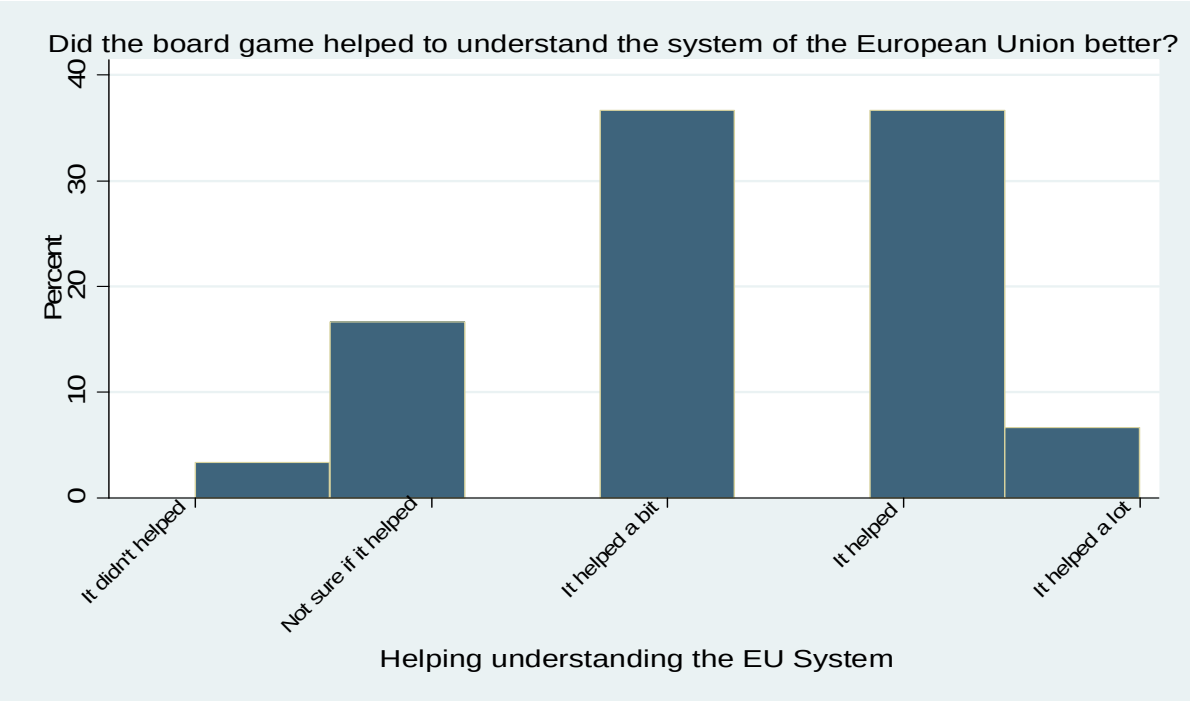
In this chapter I present the results in order of the four hypotheses and the additional information the experiment brought to light (for the uncoded and coded version of the database of the treatment group and the control group see Appendix III-VI).

4.1.Hypothesis 1

The aim of Hypothesis 1, about when participants play “European Union: The Board Game”, then they gain knowledge about the EU system and its law and decision making process, was to answer the research question about the effect of playing a political board game on political knowledge and political education. Additionally, sub question one indicates that there could be a difference between objective and subjective knowledge gain. Therefore, the focus is firstly on self-assessing if the participants thought playing the game is helping them to understand the EU system and its law and decision making process. This indicates a perceived, subjective knowledge gain.

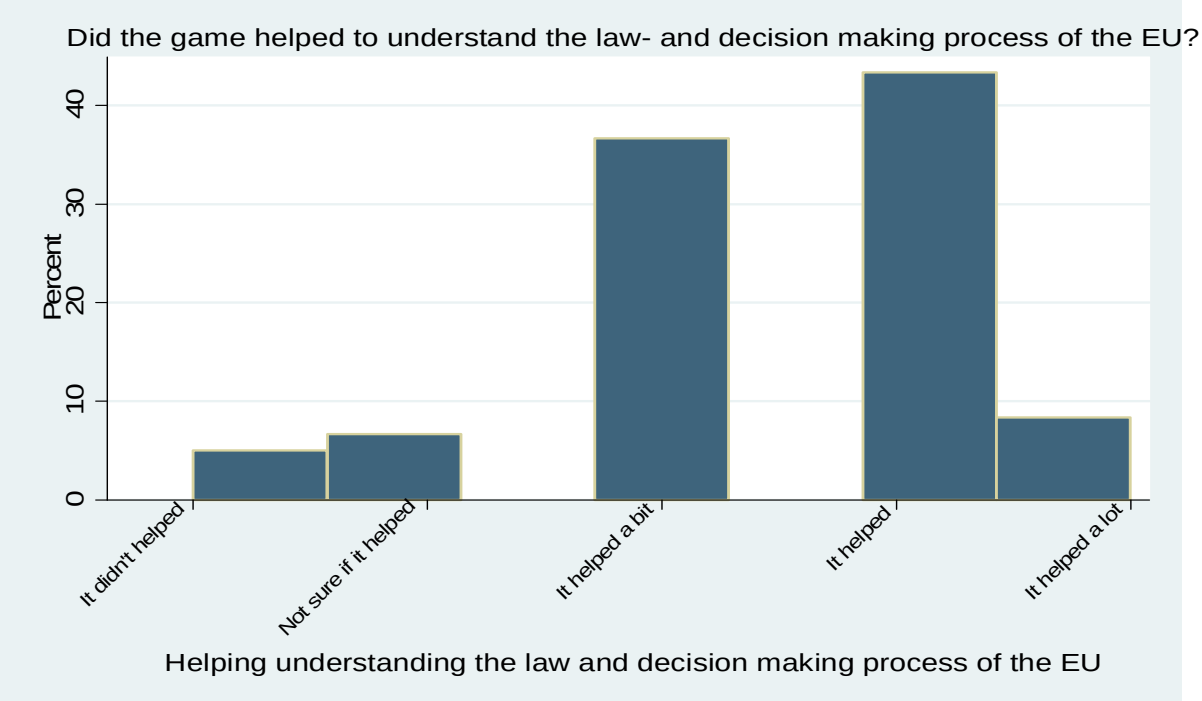
4.1.1.Subjective Knowledge

A strong majority of the participants thought that the game is helping them as Figure 4 shows. Only 20% of the treatment group expressed that playing the European Union board game did not help them in learning more about the system of the European Union. Therefore, 80% of the participants in the treatment group felt that playing the game was helping. The majority thought “It helped a bit” and “It helped” to understand the system of the EU, both options were chosen each by 36,7% of the treatment group. Consequently, this strongly indicates that the board game had an influence on the perceived, subjective knowledge of the participants which is important for my first sub question.



(Figure 4: Data from Appendix III-IV)

Similar results came up for the question on better understanding of the law- and decision making process of the EU after playing the game. Here an even bigger majority of participants declared that the game did help them as figure 5 is showing.



(Figure 5: Data from Appendix III-IV)

88,3% of the participants thought that playing European Union the board game helped them to understand the process of law and decision making of the EU. The “It helped” option is with 43,3 % the most picked answer for this question, “It didn’t help” is with 5%, as well as in the previews question with 3,3%, the answer the least participants went for. Subsequently, both results from the questions about the helpfulness of the game to understand the EU and its law and decision making process indicated a gain of subjective or perceived knowledge.

But to not only rely on the results of the treatment group as these results could also be biased from social pressure or social acceptable answering, I additionally compared the mean answer of both questions in the treatment group with the mean answer of both questions in the control group with a difference in means test. The mean answer for the question if the game helps to understand the system of the EU better is 1.267 in a scale from -1 for the answer “it didn’t helped me” to 3 for “it helped a lot”. That means the average answer of the participants were closes to “it helped a bit” and between “it helped a bit” and “it helped”. The mean answer for the question if the game help to understand the law- and decision making process of the EU is even better with 1.433 bringing it close to the middle of “it helped a bit” and “it helped” (Appendix III & IV).

In opposite to the treatment group the mean answer to question eleven about the helpfulness to understand the system and question thirteen about the helpfulness of the EU law and decision making process in the control group is strongly negative with -0.83 for question eleven and -0.767 for question thirteen in survey B (Appendix II & III). Therefore, the average answer in the control group was “it didn’t help” which was also chosen as answer for question eleven from 83% of the control group and from 76,7% as answer for question thirteen (Appendix II & IV). Also no one of the control group perceived playing another, non-politics related game as helpful to learn more about the EU.

To find statistical significant evidence for hypothesis 1 and the subjective gain of knowledge I applied a difference in means test with following results for the effect on helping to understand the EU system:

Results: Difference in means tests for perceived helpfulness to understand the system of the EU better				
Tested Group	Mean Treatment Group	Mean Control Group	Difference in Means	t-Value
Overall Results	1.267	-0.83	2.1	11.783***
Swedish Nationality	1.6	-0.7	2.3	7.899***
German Nationality	1.133	-0.9	2.033	6.445***
Greece Nationality	1.2	-0.9	2.1	6.745***
Male	1.441	-0.8	2.241	8.405***
Female	1.038	-0.866	1.905	8.487***
Parents without University Degree	1.211	-0.9	2.111	6.606***
Parents with University Degree	1.293	-0.8	2.093	9.6***
Participants without University Degree	1.471	-0.857	2.327	5.88***
Participants with University Degree	1.186	-0.826	2.012	10.133***
Political Science Students	1.438	-1	2.438	6.6***
Non Political Science Students	1.205	-0.782	1.987	9.716***
No Support EU	1.176	-1	2.176	8.121***
Support EU	1.4	-0.75	2.15	9.12***

(*** p<0,01; Table 1: Database Appendix III & IV)

The results for the whole experiment show a positive difference of 2.1 and the t-test indicates that this difference significant under a 0.001 significance level. Hence, the null hypothesis, that the difference between the perceived helpfulness of the game is zero or negative, can be rejected. Additionally, t-tests with all relevant subgroups (Nationality, Gender, Education, Education of parents, Political science students or not political science students, and support of EU, I did not test for age as nearly all participants are in the age group between 20 and 30) point out that the positive effect of the game of perceived helpfulness to understand the EU system is significant over all subgroups. There are only small differences in the subgroups: The subjective knowledge gain seems to be higher under participants who are male, from

Sweden, support the EU, have no university degree and studies or studied political science. Below average helpful to learn more about the EU system was the game for female participants as well as for German participants and participants who do not support the EU.

Similar results were revealed by the difference in means test for the question about the helpfulness of the EU board game to understand the EU law and decision making process. Here the difference in means for the whole experiment is 2.2. Subsequently, the null hypothesis, that the difference of perceived helpfulness of the game to understand the law and decision making process of the EU is zero or negative, can be rejected as well. As you can see in table 2 the positive result is significant in all tested subgroups. Again participants from Sweden perceived the game in average more helpful than participants from other nations. EU supporter also perceive the game more helpful than the average participants and participants who do not support the EU perceive the game less helpful. But there are some small differences between the results from table 1 and 2, male and female participants have nearly no difference in the average answer for the helpfulness to understand the EU law and decision making process in opposite to the first table where man perceived it more helpful than women.

Results: Difference in means tests for perceived helpfulness to understand the EU law- and decision making process				
Tested Group	Mean Treatment Group	Mean Control Group	Difference in Means	t-Value
Overall Results	1.433	-0.767	2.2	12.323***
Swedish Nationality	1.533	-0.7	2.233	8.367***
German Nationality	1.367	-0.8	2.167	5.89***
Greece Nationality	1.467	-0.8	2.267	9.833***
Male	1.412	-0.867	2.279	8.913***
Female	1.462	-0.667	2.128	8.403***
Parents without University Degree	1.526	-0.6	2.126	8.474***
Parents with University Degree	1.395	-0.85	2.245	9.677***
Participants without University Degree	1.471	-0.714	2.185	5.43***
Participants with University Degree	1.419	-0.783	2.201	11.004***
Political Science Students	1.375	-1	2.375	6.052***
Non Political Science Students	1.455	-0.696	2.15	10.682***
No Support EU	1.235	-0.909	2.144	8.168***
Support EU	1.6	-0.688	2.289	9.404***

(*** p<0,01; Table 2: Database Appendix III & IV)

Consequently, the overall results for the difference in means tests give statistical significant evidence that there is a positive effect on perceived helpfulness and subjective knowledge through playing “European Union: The Board Game”. Meaning, participants who played the game think that it helped them to understand the system of the European Union and the law and decision making process of the EU better and therefore they gain subjective knowledge about the EU.

4.1.2.Objective Knowledge

Hypothesis 1 is not answered by a gain of subjective knowledge, a gain of objective knowledge is also needed to claim that playing “European Union: The Board Game” increases knowledge about the EU and its law and decision making process. In contrast to the clear, significant positive results for subjective knowledge, the results for objective knowledge are mixed. Focusing on the objective knowledge the difference in the answer between treatment and control group to question fourteen in survey B (Appendix II) about how the law and decision making process in the EU works is of major importance. Consequently, a right answer indicates that the participants have objective knowledge about the law and decision making process and a significant more positive result for the treatment group in this question would give good evidence for the rightfulness of the first hypothesis and can help to answer the main research question.

Unfortunately, the overall result of a difference in means test between the average answers of the treatment and the control group for question fourteen does only show a small difference in the means which is not significant. Meaning, there is no clear difference between the objective knowledge about the law and decision making process of the European Union. After playing “European Union: The Board Game” the participants of the treatment group could not answer the question about the law and decision making process better than the participants of the control group who played another game.

Looking into the difference of treatment and control group in more detail (see Table 3), the findings indicate a significant positive difference for several subgroups of the sample. As mentioned before, I used different setting while testing in Sweden, Germany and Greece and the results of the t-tests with subgroups divided by nationality also show different results for each of them. For Sweden and Greece, the difference in means is not only not significant, the difference in means of Greece is zero and the difference for Swedish participants is negative. So if the results were significant there would be no difference for participants of the control and treatment group in gaining knowledge after playing the game in Greece and even a negative effect on knowledge in Sweden. But on the other side the German subgroup has a strong difference between the means of 0.3 which is significant for 0.1 significance level. Meaning, every second German participant who played “European Union: The Board Game” could answer the knowledge question about the EU law and decision making process right in opposite to participant of the control group in which less than a third of the participants could

answer the question right. Therefore, there is a significant higher gain of knowledge for Germans that played the EU board games in opposite to Germans who did not play it.

Moreover, I found significant positive differences for the subgroups of participants without university degrees, participants who did not vote in the last election of the European Parliament and who do not actively support a political party. Furthermore, there is a positive, highly significant difference in means for participants who declared in the pretest that they do not how the EU law and decision making process works and who did not have objective knowledge about the EU in the pretest as well. Meaning, participants who did not have any knowledge, subjective or objective, gain objective knowledge about the law and decision making process of the European Union though playing a political board game about the EU. Looking at the subgroups which had a significant gain of objective knowledge through playing the board game one can see a pattern, except of the German subgroup the other subgroups indicate that participants who are less educated, have no interest in politics or taking part in politics and who are not informed about the European Union and its system are gaining knowledge through the board game. I will discuss that pattern and the importance of the mixed finding further in the following discussion chapter.

Results: Difference in means tests for objective knowledge gain about the EU law- and decision making process				
Tested Group	Mean Treatment Group	Mean Control Group	Difference in Means	t-Value
Overall Results	0.417	0.3	0.117	1.071
Swedish Nationality	0.267	0.3	-0.033	-0.175
German Nationality	0.5	0.2	0.3	1.679*
Greece Nationality	0.4	0.4	0	0
Male	0.441	0.267	0.175	1.147
Female	0.385	0.333	0.052	0.321
Parents without University Degree	0.316	0.2	0.116	0.645
Parents with University Degree	0.463	0.35	0.113	0.832
Participants without University Degree	0.235	0	0.235	1.405*
Participants with University Degree	0.488	0.391	0.097	0.746
Political Science Students	0.688	0.571	0.116	0.517
Non Political Science Students	0.318	0.217	0.101	0.861
Support EU	0.571	0.438	0.134	0.878
No Support EU	0.176	0.091	0.086	0.613
Voted for EP	0.476	0.375	0.101	0.788
Didn't vote for EP	0.294	0	0.294	1.511*
Supporter of a political party	0.545	0.667	-0.121	-0.604
Doesn't support a political party	0.351	0.143	0.208	1.722**
Subjective knowledge about EU law- and decision making process before experiment	0.533	0.714	-0.181	-0.778
No Subjective knowledge about EU law- and decision making process before experiment	0.378	0.174	0.204	1.734**
Objective knowledge about EU law- and decision making process before experiment	0.696	0.9	-0.204	-1.251
No objective knowledge about EU law- and decision making process before experiment	0.243	0	0.243	2.491***

(*** p<0,01 ** p<0,05 * p<0,1; Table 3: Database Appendix III & IV)

4.2.Hypotheses 2 & 3

To find out more about why people could learn through playing a board game I elaborated, with the help of the concept of intrinsic motivation (Ryan & Deci 1975), the hypothesis 2 and 3. Both hypotheses theorize about the effect of motivation on learning in this experiment. The second hypothesis indicates a positive effect of liking board games on learning more through playing a board game, as the player has a higher intrinsic motivation. Therefore the hypothesis is as more participants like board games as stronger the learning effect should be.

Hypothesis 3 is similar to hypothesis 2 as it focuses on the effect of liking "European Union: The Board Game" itself on learning, as participants could also have a higher motivation to learn more about the game and its rules if they really like the game. Consequently, the hypothesis searches for a stronger effect on learning as more the participant like the board game itself.

Evidence for positive connections of liking board games and liking the EU board game with better learning results can be indicated by correlations between factors that show that participants like the game or board gaming and factors that indicate subjective and objective knowledge gain. As factors that indicate enjoyment of playing board games I took the answers to the questions about how often a participant plays board games and how much a participant support the sentence "I like board games" from the pretest (Appendix I). For liking "European Union: The Board Game" I took the recommendation rate of the game to be used for education, the price participants would pay for the game and how much participants like the EU board games which are all questions from the posttest (Appendix II). Factors for gaining knowledge are the perceived helpfulness to understand the system and the law- and decision making process of the EU for subjective knowledge and factors for objective knowledge are the results of the knowledge question about the EU law- and decision making process and the questions about the amount current members states and founding member states in the posttest (Appendix II). For the interpretation of the results from Table 4 I orient myself on the method recommendations of Andreas Diekmann (2014) who advice that in social science correlations under 0,3 are too small to be relevant, correlation between 0,3 and 0,5 are moderate, between 0,5 and 0,7 the correlations are strong and all correlations over 0,7 express a very strong connections between both items.

	1	2	3	4	5	6	7	8	9	10
1.Helpfulness to understand the system of the EU	1									
2.Helpfulness to understand the EU law- decision making process	0.606	1								
3.Postest knowledge about EU law- and decision making process	0.231	0.3	1							
4. Posttest knowledge about amount of EC founding members	0.165	0.141	0.167	1						
5. Posttest knowledge about amount of EU member states	0.124	0.146	0.098	0.163	1					
6. Enjoyment of board games in general	0.071	0.067	0.046	0.103	0.036	1				
7. Frequency of playing board games	-0.079	-0.023	0.145	-0.055	-0.09	0.535	1			
8. Enjoyment of "European Union: The Board Game"	0.369	0.167	0.102	0.142	0.218	0.294	0.12	1		
9. Price participants are willing to pay for the EU board game	0.257	0.249	0.182	0	0.138	0.325	0.047	0.492	1	
10. Recommendation rate of the EU board game	0.361	0.385	0.113	0.158	0.086	0.023	-0.153	0.348	0.2	1

(Table 4: Database Appendix III & IV)

The results illustrate that there is no applicable correlation between liking board games and any variables that indicates knowledge about the EU after playing the game (ass you can see in Table 4). The highest correlation between liking board games and a factor of gained knowledge is the correlation with knowledge about the founding member states of the European Community. But even this correlation is only 0.1034 which is an irrelevant correlation in social science (Diekmann 2014). The frequency of playing board games has even a negative correlation with most of the knowledge factors, except with knowledge about the EU law- and decision making process. Here the correlation is 0.1452 which also means that there is no connection between frequently playing board games and a better understanding of the EU law- and decision making process through playing the board game. Therefore, there is no indication for hypothesis 2 being true: liking board games does not have any influence on learning through board games in this experiment.

Furthermore, the results in Table 4 for hypothesis 3 indicate moderate correlations between factors for liking "European Union: The Board Game" and gaining subjective knowledge through playing the game. There is a moderate correlation of 0.369 between liking the board game and the helpfulness of the board game to understand the political system of the European Union. All other correlations between the question of a participant liking the board

game itself and factors that indicate a gain of knowledge are positive but under 0.3, so they are too small to be relevant for social science (Diekmann 2014).

Moreover, results for the connection between the price participants would be willing to pay for the game, as an indicator of how much they appreciate the game, and knowledge gain exhibit only small positive correlation. With subjective knowledge gain, so the perceived helpfulness to understand the EU system and its law- and decision making process, the price level participants would pay for the game has the highest correlation with 0.257 and 0.249 which are both under the threshold of 0.3 (Diekmann 2014). Therefore I found no connection between appreciating the board game and learning more from it.

Finally, for the factor of recommending the EU board game for educational use in schools and universities I found moderate correlations of 0.361 and 0.385 with perceived helpfulness to understand the system and the law- decision making process of the EU. However, there is not even a moderate correlation with factors that illustrate objective knowledge gain with the recommendation rate of the board game or any other factors which indicates the participant liked “European Union: The Board Game”. Therefore, hypothesis three, as well as hypothesis two, have to be rejected in most parts as there is no positive effect of enjoying board games or liking the played board game on objective knowledge gain and only very moderate effect on perceived knowledge gain. In summary, participants who like board games, do not objectively learn more from playing a political board game and participants who like “European Union: The Board Game” only perceive the game more helpful the more they like it but do not actually gain more objective knowledge through playing it.

4.3.Hypothesis 4

Derived from the literature examples hypothesis 4 predict that playing “European Union: The Board Game” will not influence the attitude of the player towards the European Union. Therefore, the board game should be a neutral educational tool. Consequently, to ensure the neutrality of the game I asked the participants about their perceived attitude change after playing the board game in question twelve in the posttest (Appendix IV). Illustrating the non-changing attitude, the first indicator is the mean answer to the question of a perceived attitude change which one can see in Table 5.

Mean Estimation	Mean	Standard Error	[95% Confidence Interval]	
Attitude change towards the EU	-0.067	0.078	-0.223	0.09

(Table 5: Database Appendix IV)

The question about the attitude change was answered in a scale from -2 for "A lot more negative" attitude towards the EU to 2 for "A lot more positive" attitude. The mean is -0,067, representing a minimal negative attitude change towards the European Union. Additionally, the standard error and the 95% confidence interval indicate that statistically the average perceived effect of the board game on attitude towards the EU minimal, close to zero or zero. Therefore, looking only on the estimated mean playing "European Union: The Board Game" has no substantial influence on the opinion of the player on the European Union.

Furthermore, I conducted a t-test for the mean of "Attitude Change towards the EU" with the null hypothesis that the mean equals zero. The t-test discovered that there is no statistical evidence that the mean is not zero, therefore the null hypothesis could not be rejected. In other words the average effect of playing "European Union: The Board Game" is so marginal that it does not differ from zero.

Additionally, by comparing the means of treatment and control group with a difference in means test, there is also no statistical significant difference between means of both groups. Therefore, a difference between the effect of playing "European Union: The Board Game" and playing another non-political board game on the opinion of the player towards the European Union could not be found. Meaning, the attitude change of players who played "European Union: The Board Game" and players who played another board game do not differ from each other. The effect of playing the board game on political attitude is in both cases minimal, close to zero and statically not relevant.

Therefore, there is a marginal, statistically irrelevant change in the attitude through playing the game but, as the results illustrate, it differs not from the attitude change caused by playing another, non EU related game. Consequently, the hypothesis four, that "European Union: The Board Game" has no influence on the attitude of the player towards the European Union, stays valid.

4.4.Additional Observations

In addition to the statistical results for my hypothesis I have further findings and observation. As this experimental design with a pretest and a posttest was focused on a before and after testing it is not considering the game dynamics and the behavior of the participants during they playing the game. But as I administered all games with “European Union: The Board Game” myself I made several observations which are not statistical relevant for the study itself but can be helpful for further research and can be taken into consideration for the further discussion.

Firstly, I observe that games with a majority of women were more concentrated, quiet and involved less conflict as the female participants were mostly working for a good compromise to which most players could agree, they were also more successful in passing proposals that requires an unanimous decision, so proposals where every player has to agree. Men on the other hand were playing more aggressively and were more temped to use pressure and blackmail to get other players to agree with their favored proposals. Subsequently, men were more revengeful and played in some cases very irrational to get back on other players who did not support them or even betrayed them during the game. In some games men even gave up the chance to win just to get back on another player by blocking proposals which would have been beneficial for both players.

Secondly, in some game rounds one or two very aggressive and very vocal players try to overrule the game which, in my observation and opinion, lowers the fund and motivation of other players during the game. Consequently, less extroverted players stopped taking active part in the game as they might be annoyed or even cowed by the verbal aggressive behavior of other players. In one case a very verbal and aggressive player caused even a real quarrel between participants of the game round and I was close to break up this round of the experiment.

Another interesting point is which party the player was assigned to, as the parties were distributed randomly sometimes the participants were unhappy with the political party they played or could not really find a good strategy to win with the party. Not only the party the participant played but also if they are successful during the game seems to have an influence on how happy the participants were during the game. Some participants who performed not very successfully in the first two rounds of the game had the tendency to concentrate less on the game and got very easily distracted through conversation or their mobile phones.

Finally, my last remark is the choosing of member states for the European Council. As previously outlined during “European Union: The Board Game”, the player plays three rounds and in each round the European council grows to illustrate the growth of the EU. First one plays with the six founding members of the European Community, than with fifteen member states before the Eastern enlargement and last with all 28 member states. In each round in the Council the participants start choosing member states from the council in the order they make out through using influence points. Interesting in this procedure is that in the majority of the games in Sweden and Greece as well as in a lot of games in Germany the participants tend to choose their home country first if possible, even if it is not a good strategic decision. Participants in Sweden and Germany tend to choose Greece as last member states overall and I could observe that participants from Sweden and Germany tend to pick Northern or middle European states first and eastern and southern states last. This observation may not be in any way important for this study and for my research but it could be an interesting way to find tendencies for subconscious discrimination or prejudices against other member states through letting participants play board games like this or risk for example and observe their behavior and which countries they want to have or choose and which they reject.

5.Discussion and Conclusion

In the last chapter I presented the results of my analysis but what do these results actually imply. I will discuss them in the light of the theory and literature used for this study and embeds them into the scientific discussion. Moreover, the meaning of the results for political education and real life usage will be made clear in this chapter and possible usage of the gain of knowledge about this topic. Finally, the study itself will be critical reflected and the limitations and weaknesses of the study will be illuminated in contrast to the results.

5.1.Combination and Confrontation of the Empirical Results with the Theory

In the last chapter I presented the results of my analysis but what do these results actually imply. I will discuss them in the light of the theory and literature used for this study and embed them into the scientific discussion. Moreover, the meaning of the results for political education and real life usage will be made clear in this chapter and possible usage of the gain of knowledge about this topic. Finally, the study itself will be critically reflected and the limitations and weaknesses of the study will be illuminated in contrast to the results.

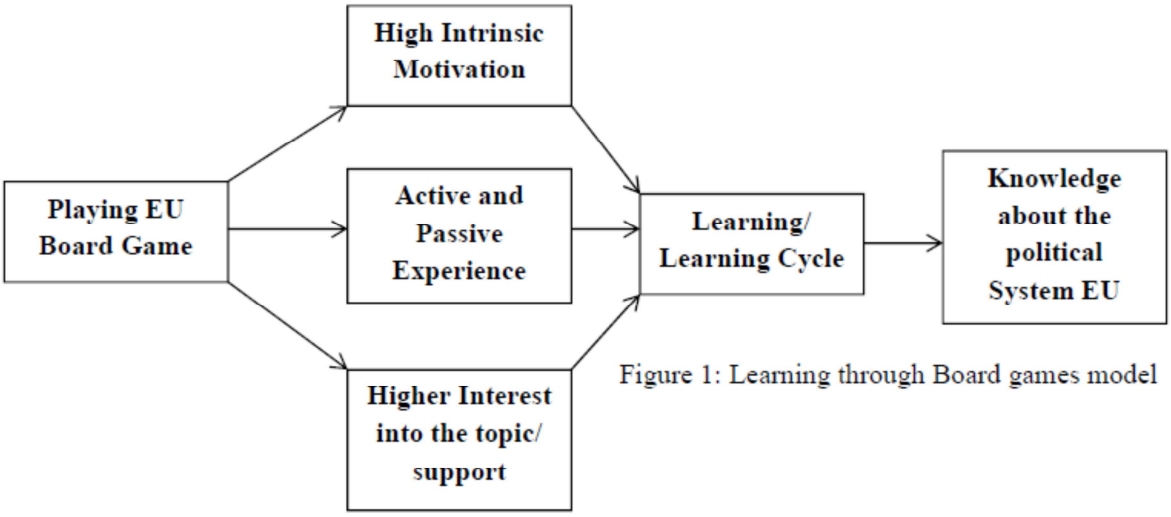


Figure 1: Learning through Board games model

5.1.2.The Intrinsic Motivation Assumption

As one can see in the model, playing European Union the board game was hypothesized to enhance learning and knowledge on the EU through three mechanisms which were extracted from the theory and literature. The first (upper) mechanism illustrate that playing the EU board game is triggering learning through high intrinsic motivation (Ryan & Deci 1975, 1985). Consequently, the assumption was that the more motivated the participants are as better they would perform in learning. The hypotheses two and three were built on this assumption, as it was hypothesized that people who like board games are more motivated to play the EU board game for hypothesis two and for hypothesis three that people who like the "European Union: The Board Game" itself are motivated during the game.

However, the previous presented results point out that there is no connection between enjoying board games and factors that indicate knowledge gain through the game. All correlation between factors for liking to play board games and factors for subjective and objective knowledge gain were below the threshold of 0.3, meaning that there is no positive, linear causal relationship between the factors (Diekmann 2014). Consequently, hypothesis two has to be rejected; enjoying board games do not increase the learning effect of playing a political board game.

Additionally, the results point out that there is no strong linear causal connection between liking "European Union: The Board Game" itself and gaining objective knowledge. For subjective knowledge, measured in perceived helpfulness of the board game to understand the EU system and its law- and decision making process, the correlations are very moderate. Moreover, on gaining objective knowledge the enjoyment of playing "European Union: The Board Game" has no influence. Therefore, hypothesis three has to be rejected in most parts.

Both, hypotheses two and three, were dedicated to the assumption that a higher motivation through a playful way to learn could lead to higher knowledge and increased learning. But the hypothesis was rejected in every part and hypothesis three has only a very moderate relation to increased gain of subjective knowledge.

What does that mean for the model and for this study? Firstly, the results for hypothesis two and three do not help to answer the research sub question about how playing a political board game can increase learning more about politics and political systems. Therefore, the only indications of how learning through playing a board game actually works will remain with the theoretical arguments from the experimental learning theory (Kolb 1984), the literature

examples and parts of the intrinsic motivation literature. Consequently, it would need further studies to find out how the mechanisms of learning through a board game really work and not only evidence from other studies and theories.

Secondly, the model in Figure 1, which is the foundation of this study, may need a remodeling as I could not find evidence in my experiment that support the mechanism of increased learning through intrinsic motivation. With no evidence that the factors that I operationalized as motivating have any positive effect on learning and actually gaining knowledge it is likely that the assumption is wrong and the concept of intrinsic motivation might not work with political board games.

However, other options could be that the constructs, enjoying board gaming and liking the EU board game, I used to operationalize and detect motivation were not precise enough and did not measure motivation right. The assumption that people who enjoy board games are more motivated playing the EU game could be wrong as people who regularly play board games could be more critical towards new games and have higher expectation of new games which could lead to disappointment about the game and even less motivation playing it. Therefore, hypothesis two might not measure motivation in the right way which could be a reason why I couldn't find any indication that higher motivation increase learning.

Other factors could have a negative influence on the "inherent satisfaction" (Ryan & Deci 2000a p.56) of playing the game for the players. The observation I made advert that who won or lost the game, negative behavior of other players during the game, dissatisfaction with the party the participant got or bad luck during the game could affect the enjoyment of playing a board game. For example, as I monitored and watched all games played for the study, I observed in a few games that it seems that very loud and aggressive players made other players feel uncomfortable playing the game or it led to verbal fights between players. Thus attacked through the game other players withdraw themselves more and more from the game which may have lower their motivation to play. I did not anticipate these constellations and that it could have an effect on the motivation of the participants as my two pretest games were quite peaceful.

Before totally dropping the assumption that playing the board game can enhance an intrinsic motivation effect on learning and gaining knowledge about a topic, I would recommend further research in the aspect of motivation in board games. Many broad studies support the motivational effects of game based learning, for example the previous presented study of

Bodnar et al. (2016) about positive effects of game based learning for engineering students. Therefore, I would rather suggest conducting more studies about motivation during the game play itself for a better measurement of the motivation effect. Taking the observation I made into account there could be several factors during the game which could have an influence on motivation and increased learning which one needs more information about to fully decide about the effect of intrinsic motivation on learning about politics through a political board game. But given the results of this study I would put the motivational assumption in Figure 1 on hold and I have to conclude that the intrinsic motivation factor, as I tested it in this study, does not increase learning and gaining objective knowledge about the EU through a board game.

5.1.2.The Experiential Learning Assumption

The middle assumption in the model, coming from the experiential learning theory of David A. Kolb (1984), indicates that participants should learn though active and passive experiences during the game and through the observation of the other player throughout the game. Compared with the actual results of the experiments the participants perceive that playing the game helps them to understand the system of the EU and the law- and decision making process better. This reaction is supported by the experiential learning theory and the model of the learning cycle of Kolb (Kolb & Kolb 2008). As the participants of who play the EU board game fulfil the learning cycle "of four major moments: plan, act, observe and reflect" (Zuber-Skerritt 1992 p. 11; Healy & Jenkins 2000, Kolb & Kolb 2008) during the game they have a new, different access to knowledge about the European Union

However, the results for gaining objective knowledge are mixed. Overall there is no significant difference between the answers of the knowledge questions after playing the EU board game and playing a normal game. Nevertheless, a closer look into the results of the experiment point out that there is a significant effect of playing "European Union: The Board Game" on objective knowledge gain in several subgroups of the experiment. I will divide the subgroups with positive significant results to discuss them better. On one side we have positive results for the subgroup of German participants which also had a different experimental setting. On the other side we have the subgroups of participants, who did not vote in the last election of the European Parliament, who do not support a political party, have no university degree and have no subjective or objective knowledge about the EU.

What does the significant result for the German subgroup indicate? For once the positive effect on knowledge could come from the different setting of a laboratory experiment with the German participants in opposite to the more applied settings for Swedish and Greece participants. The German participants were well aware that they take part in an experiment, they had a quiet environment and could focus strongly on the game. In opposite to that the participants in Sweden were on a board game convention where a lot of people were present, there was more noise, the participants could have played some other board games before and therefore their concentration and focus on the game could have been less strong than that of the participants in Germany. The same applies to the Greek participants in a game cafe where it is also not a quiet environment and a lot of distractions are around the players of the game. So using strictly laboratory experiment with more participants it could be assumed that one could measure a significant effect of playing the board game and getting more knowledge about the EU. Why should an effect in a laboratory experiment be interesting for political and educational science and what use one could have from them? Well for once it is necessary to establish valid evidence that the effect of learning about politics and political systems through playing a political board game really exists and that the model and assumptions about the knowledge gain through playing a board game actually works. With the knowledge and with evidence that this effect exists and board games can in fact educate people, one can use this evidence to elaborate under which conditions this effect works in real live situations. Conducting applied experiments under real world condictions without that knowledge one can never be sure if the effect just not exist or that under applied conditions other confounders and influences work against the effect and the effect is not significant. Consequently, with an established valid effect under laboratory conditions one can test different real life scenarios, like using the game in school classes or in universities and can find out more about possible confounders and under what conditions the effect works in real life situations.

There are several possible reasons why the subgroups of participants who did not vote, do not support a party, do not have a university degree and who do not have subjective or objective knowledge about the EU have a significant gain of knowledge through playing “European Union: The Board Game”. The first and obvious reason for this is that they can gain objective knowledge. The board game might not help participants, who already had a high amount of objective knowledge about the EU before they played the game, to gain more objective knowledge as the game presents basic EU facts and the basic version of the law and decision making process of the EU. Participants who already demonstrated knowledge about the EU and the law and decision making process in the pretest could also answered the knowledge

questions in the posttest right which leads to insignificant results for the overall group as their pretest and posttest do not differ from each other. So the game significantly helps participants who are less educated, as they do not have a university degree, and participants who are not taking part in the political process, they do not vote or do not support a political party, and finally participants who do not have a clue about the EU. It is assumable that people who support a political party usually know how a political system works and that highly educated participants have a better knowledge about the political system as well. Concluding, the results indicate that the learning effect of playing a political board game may not enhance objective knowledge of participants who already have a moderate or higher knowledge about the topic but it significantly increases the objective knowledge of participants who are not interested in the political system of the EU and who are not informed about the EU. To combine that result with the numbers I presented in the introduction, that only 52% of the EU population thinks they know how the EU works and only 36% have objective knowledge about the EU, the part of population for which the game could be helpful is quite large.

The significant results for these subgroups can also be seen in the light the experiential learning theory, as one could assume that people without university degrees have a learning style which is more orientated on practical experiences and actively doing things to learn about a topic instead of preferring an abstract and theoretical learning style which according to the ELT many scientists prefer.

As a conclusion of the results for hypothesis 1, when participants play the EU board game they learn more about the EU, and the assumptions in Figure 1 of the learning effect through active and passive experience I would keep the assumptions and say the results support the model but hypothesis 1 cannot be fully accepted as the results only indicates significant learning effect for certain subgroups of the sample. The perceived helpfulness of the board game as well as a significant objective knowledge gain for people who were not informed and interested about the EU before they played the EU board game, strongly supports the experiential learning assumption.

Additionally, 75% of the participants support the suggestion to use the board game for educational purpose in schools and universities which indicates that the participants at least think and feel that playing the game is good for their own and the education of others. Overall 86,67% of the participants liked the game and 50% of the participants liked the game very much which indicates that the board game is nice and fun to play. Therefore, under consideration of the results of objective knowledge gain through the game, “European Union:

The Board Game" could be a good way to start classes or education about the EU for people who didn't have an interest in or education about the EU and its politics before. It also could be a useful tool to reach people with lower education or people who are usually opposed to deal with politics and help to educate these people so that they may have an incentive to take part in the political system.

In summary, "European Union: The Board Game" seems to be an overall fun and well-liked game which also does not have a significant influence on the attitude of the players towards the EU as the results for hypothesis four, about the effect of playing the game on attitude towards the EU, indicate. These results fit the result from the similar experiment with the "Democracy" game in the USA which also found mostly no significant results on an attitude change through playing a political board game (Boocock 1966, Coleman 1969, Clarke 1970, Livingston 1970, Livingston 1971, Livingston & Kidder 1972, Vogel 1973).

5.2.Critical Reflection over the Study and Limitations

To make reflections about this study one should first take under consideration that there are nearly no other studies which look into the possibilities to use a commercial board game for political education. As the literature review showed the last comparable, published studies are about the game "Democracy" in the 1970s (Boocock 1966, Coleman 1969, Clarke 1970, Livingston 1970, Livingston 1971, Livingston & Kidder 1972, Vogel 1973). Therefore, this study relied on literature examples from other scientific fields as well as theoretical concepts from educational science and psychology. Even the aim of the study is to show new ways of political education which can not only be used for general education but also for education of students of the field of politics. In many ways, this study is can be seen as a pioneer study which shows directions, possibilities and give ideas to open up this field for more research.

Throughout conducting the study and the experiments as well as working with the results, some weaknesses and problems with the design and operationalization appeared and became clearer. One weakness could be the operationalization of motivation for the second and third hypothesis. The assumption that higher motivation could lead to a better learning outcome and the theoretical background of intrinsic motivation might not have been translated well enough into questions and variables to measure motivation. A pilot study to test the constructs of the surveys and their internal validity for the fact that they are good measurement constructs for motivation could produce more valid constructs. Because of the limited amount

of time and resources for this thesis the study did not include a pilot study to test the operationalization of the hypotheses.

Another weakness is the design of the study, choosing an experimental untreated control group design with dependent pretest and posttest samples (Shadish, Cook & Campbell 2002) was a valid choice but as previous studies suggested, “learning or changes in attitude could hardly be expected from such a brief game experience” (Boocock 1966 p.16). Therefore, a one-time treatment situation may not be enough to get a strong learning effect. Another design with replication of the experiment over time could bring more significant results as the effect of playing an educational board game on education may not appear after one game. Here again the limitation in time and resources led to the chosen experimental design as it would be difficult to find an adequate number of participants who are willing to take part in the experiments several times over several weeks. But even with the used experiment significant results of a positive influence of playing the EU board game and perceived learning effects could be found which could be even stronger by playing it a couple of times.

Additionally, a design factor why the knowledge gain effect for hypothesis three was not overall significant could be the operationalization of knowledge of the EU system and law- and decision making process in the study. Instead of multiple choice questions one could also use more open questions, interviews or more, better formulated multiple choice questions. An argument from the theory of the experiential learning theory for not overall significant results could be that a major part of the participants are not the learning type that would be responsive towards an active experience like playing a board game and therefore they did not learn from it (Kolb, Boyatzis & Mainemelis 1999). For similar experiments it would be helpful to check the results for the learning type and establish the learning types through purposeful questions about learning behavior.

Furthermore, the three different ways the experiment was conducted could be a weakness, as the different results for the three subgroups show. The focus on internal validity in the experiments in Germany with a laboratory experimental setting seems to be better to get significant results in opposite to the applied experiments in a board game environment in Sweden and Greece. A stronger focus on internal validity to first proof that the effect I was searching for exists would have been better than a mix between experiments with a focus on internal and external validity. Without first establishing internal valid results for an assumption one should not seek external validity as “without internal validity, there can be no external validity” (McDermott 2002 p. 334).

The sample size is with 60 participants in the treatment group and 30 in the control group is a smaller average sample size compared to similar studies from other disciplines as the meta studies from Bodnar et al. (2016) or Bochennek et al. (2007) which usually have a sample size between 50 to 100 participants depending on the experiment. A bigger sample size may have brought better and clearer results but as I only have one copy of European Union the board game which means that I can only host one game at the time, had to schedule appointments with the players which took a lot of time instead of playing a couple of games simultaneously. As the board game is so far only released in Taiwan, it was not possible for me to buy another one which resulted in a very slow testing rate. That and the limited time frame for testing as before the testing could start the survey had to be constructed and the theoretical and methodical background of the thesis had to be done and as I needed time to code and work with the test results gave me only a small window for conducting the experiments.

5.3.Contribution to Science and Practical Meaning of the Results

The study contributes to the field of educational and political science by combining both fields and stepping forward in the research about political education. As the first study which uses a commercial board game for education about the European Union and its political system it gives a new lead for political education through popular culture. It can engage researcher to look for new educational methods instead of focusing on conventional education methods like frontal school teaching or political simulations. With the creative combining of a fun, interesting activity like board gaming and political education the study picks up a concept which political and educational scientist did not pay enough attention to. Furthermore, the perceived helpfulness, the knowledge gain for less educated und non-political interested participants, the likeability of the board game and the high recommendation rate set incentives to make deeper research in this form of political education and to find new, exciting ways to transfer knowledge about political systems to citizens.

The experiment can help other scientists who research in the field of motivation in gaming to better focus their operationalization and contribute therefore to the research of intrinsic motivation. The field of political efficacy and attitude change profits from the study as well as it gives a good indication that political board games should not be used as a treatment to manipulate political efficacy. The observations during the board game sessions are interesting for behavioristic research and can give ideas for further research for game dynamics and their

effect on motivation. Concluding, one can say, even though not all results were significant and the motivational assumption was wrong, the study served as a pioneer experiment in the field of political education in connection with popular culture and usage of popular culture for political education.

But why even do research in this area and what does it help the society to know more about the possibilities to use board games or more general popular culture for political education? As already pointed out in the introduction, a large part of the citizens of the European Union are not and feel not educated and informed about the European Union (Eurobarometer 2015). A lack of knowledge about the EU and its political system can also be seen in this study as 70% of the participants think the EU does not inform them well enough about its politics, only 25% think they know how the EU law- and decision making process works and 81% do not know who the president of the European council is.

A lack of knowledge about the political system in which one is living in can lead, as I already illustrated in the introduction, to a decrease of support of this political system, to irrational political decision making and less political participation of citizens. Moreover, only with a minimum level of political education can citizens take part in a democratic political system and can make rational decision for them in this system, like voting for a political party which supports there needs and interest.

Without political education about the European Union, populist and demagogues all over Europe can take advantage of the lack of knowledge of the citizens to attack the European Union, to use lies, exaggerations and slender against the political system of the Union and to increase the already existing prejudices against the EU. To spread education and knowledge about the EU, the Commission and the representatives of the EU should expand and use all ways of knowledge and information transfer including the use of popular culture and board games about the EU. Furthermore, this study illustrate that the participants actually enjoy a board game about the "boring" political system of the EU, they perceive it as helpful and people who are not informed about the EU can gain knowledge through playing the game. In average participants are willing to pay a price of 20€ for the game. As a policy recommendation out of the study I would support the launch of the game in Europe after further applied studies with the board game in classroom situation and with uninformed citizens. The board game should have similar rules like I used for the experiment and one would need a multilingual version with at least English, German and French versions as it is

assumable that less educated citizens could struggle more with playing and enjoying a game which is not in their native language

Additionally, the European Commission should promote and subsidies the sale to political and social science teachers so they can use the game as a practical example in addition to their lessons about the EU. Moreover, the results give evidence that playing “European Union: The Board Game” does not have an effect on attitude of the player towards the EU. That it is especially important for the usage of the board game in schools as some states, like Germany, have strict neutrality policies for teaching in schools. Therefore, a board game which presents the political system of the European Union very positively or very negatively and by doing that directly influencing the political opinion or attitude of the students could generate resistance against the use of the game as an educational tool.

Another recommendation is to strengthen research on education through popular culture. Here studies about the influence of TV shows, computer and browser games, apps, youtube shows or movies about the EU and politics in general on political education can find ways to interest people in politics and the EU again and could find ways to combine the private interests and hobbies of the citizens with education and the EU. This study should only be a starting point in an indepth research about the usage of popular culture for education about and promotion of the political System of the European Union so we can better educate the citizens of Europe. The European Union, its institutions and representatives and the governments of the member state should make use of all possible ways to educate their citizens about the political system which they are living in so if citizens of a member state will face difficult decisions, like the decision to stay or leave the Union, they should be educated enough to know what they are voting about.

5.4.Conclusion

Comparing the results and discussion about the results with the research question and the aim of the study, it is clear that only parts of the research question and sub questions are answered but the study took a large step for the research aim to find evidence for unconventional, creative ways for political education. For the main research question, if playing a political board game about the European Union has an influence on political education and knowledge about the system and the decision making process of the European Union or not, the findings of the study indicates that playing a political board game has an influence but only for people

who did not have any knowledge about the EU and its law and decision making process before and who are not interested in politics and the EU. Therefore “European Union: The Board Game” can be a helpful tool to educate parts of the population which usually do not show high interest for politics or the EU and it can also help to bring the system of the EU closer to less educated parts of the population. That these parts of the population are not small I already presented in the introduction, only 36% of the citizens of the European Union have objective knowledge about the Union (Eurobarometer 2015).

For the sub question about why could playing a political board game be a supportive factor in political education and how does increased learning through a board game work, I could only give a theoretical argumentation with the experiential learning theory (Kolb 1984), the concept of intrinsic motivation (Ryan & Deci 1975) and examples from the literature. The results of the experiment do not help to answer the question as I did not find a remarkable connection between factors which should indicate higher motivation and factors which indicates objective knowledge gain.

Strong evidence could be found that “European Union: The Board Game” is a neutral educational tool and does not have an influence on the attitude of the players towards the EU. Therefore I can answer the last sub question about if playing the board game has an influence on the opinion of the players towards the EU with a no, there were no indications or evidence that show a change of attitude after playing “European Union: The Board Game”.

So overall I found evidence that using popular culture items to educate people, just those who are usually not interested in politics and are less educated about the EU and its political system, is possible and can support political education. “European Union: The Board Game” is a likable, fun political board game which can help to gain knowledge about the EU without influencing peoples opinion on the EU. Consequently, the study illustrates a new opportunity and a new research field for political education and a way to get political education in the everyday lives and living rooms of the citizens of the European Union.

6.Bibliography

Berland, M., & Lee, V. R. (2011) Collaborative Strategic Board Games as a Site for Distributed Computational Thinking. *International Journal of Game-Based Learning 1* (2), S. 65–81.

BoardGameGeek (2016) *Category Economics.* Retrieved from: https://boardgamegeek.com/boardgamecategory/1021/economic

Bochennek, K., Wittekindt, B., Zimmermann, S., Klingebiel, T. (2007) More than mere games: a review of card and board games for medical education. *Medical teacher 29* (9), S. 941–948.

Bodnar, C. A., Anastasio, D., Enszer, J. A., Burkey, D. D. (2016) Engineers at Play. Games as Teaching Tools for Undergraduate Engineering Students. *Journal of Engineering Education 105* (1), S. 147–200.

Boocock, S. S. (1966) An experimental study of the learning effects of two games with simulated environments. *American Behavioral Scientist* (10.2).

Cambridge Dictionary (2016) *Pop Culture.* Retrieved from: http://dictionary.cambridge.org/de/worterbuch/englisch/pop-culture

Clarke, W. (1970) A Research Note on Simulation in the Social Studies. *Simulation and Games.*1 (2).

Coleman, J. S. (1969) Games as Vehicles for Social Theory. *The American Behavioral Scientist* (12(6)).

Cordova, D. I., & Lepper, M. R. (1996) Intrinsic motivation and the process of learning: Beneficial effects of contextualization, personalization, and choice. *Journal of educational psychology*, *88*(4), 715.

Dahl, R. (1998) On Democracy. *New Haven, CT: Yale University Press*.

Eisenack, K. (2012) A Climate Change Board Game for Interdisciplinary Communication and Education. *Simulation & Gaming* 44 (2-3), S. 328–348.

European Commission (2015) *Standard Eurobarometer 83-Spring 2015- "Public opinion in the European Union*". Brussels: European Commission

Diekmann, A. (2014). Empirische Sozialforschung. Grundlagen, Methoden, Anwendungen. *Edition 8, Rowohlt Taschenbuch Verlag*

Fielding, M. (1994) Valuing difference in teachers and learners: building on Kolb's learning styles to develop a language of teaching and learning. *The Curriculum Journal 5*(3):393-417.

Galston, W. A. (2001). Political knowledge, political engagement, and civic education. *Annual review of political science, 4*(1), 217-234.

GothCon (2016) *GothCon.* Retrieved from: http://www.gothcon.se/cms/

Google Trends (2016) *"What is the EU"* Retrieved from: https://www.google.de/trends/explore#q=What%20is%20the%20EU&geo=GB&date=today%201-m&cmpt=q&tz=Etc%2FGMT-2

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998) Measuring individual differences in implicit cognition: the implicit association test. *Journal of personality and social psychology, 74*(6), 1464.

Halaban, S., & Zatz, A. (2014) Sheriff of Nottingham. *PublisherArcane Wonders, Asmodee, Asterion Press, Broadway Toys LTD*

Healey, M., & Jenkins, A. (2000) Kolb's Experiential Learning Theory and Its Application in Geography in Higher Education. *Journal of Geography 99* (5), S. 185–195.

Hergeth, H. H., & Jones, M. R. (2003) Board games and teaching textile marketing and finance. *Developments in Business Simulation and Experiential Learning, 30.*

Kolb, D. A. (1981) Experiential Learning Theory and the Learning Style Inventory: A Reply to Freedman and Stumpf. *The Academy of Management Review* Vol. 6, No. 2.

Kolb, D. A. (1984) Experiential learning: experience as the source of learning and development. *Case Western Reserve University* (Prentice Hall).

Kolb, D. A., Boyatzis, R., Mainemelis, C. (1999) Learning Styles and Adaptive Flexibility: Testing Experiential Learning Theory. *Case Western Reserve University*.

Kolb, D. A., & Kolb, A. Y. (2005) Learning Styles and Learning Spaces: Enhancing Experiential Learning. *Academy of Management Learning & Education* Vol. 4, No. 2.

Kolb, A. Y., & Kolb, D. A. (2008) Experiential Learning Theory: A Dynamic, Holistic Approach to Management Learning, Education and Development. In: Armstrong S. J. & Fukami C. (Eds) *Handbook of Management Learning, Education and Development* (pp. 42-68). London: Sage Publication 2008

Lepper, M. R., & Malone, Th. W. (1987) Intrinsic motivation and instructional effectiveness in computer-based education. In R. E. Snow & M. J. Farr (Eds.), *Aptitude, learning, and instruction: Vol. 3. Conative and affective process analyses* (pp. 255-286). Hillsdale, NJ: Lawrence Erlbaum.

Livingston, S. A. (1970) Simulation games as advance organizers in the learning of social science materials: *Experiments 1-3 (Report No. 64). Baltimore: Johns Hopkins University*

Livingston, S. A. (1971) Effects of a Legislative Simulation Game on the Political Attitudes of Junior High School. *Johns Hopkins Univ., Center for Social Organization of Schools, Baltimore*.

Livingston, S. A., & Kidder, S. J. (1973) Role Identification and Game Structure Effects on Political Attitudes. *Simulation & gaming*, *4*(2), 131-144.

Martens, R., Gulikers, J., & Bastiaens, T. (2004) The impact of intrinsic motivation on e-learning in authentic computer tasks. *Journal of computer assisted learning, 20*(5), 368-376.

McDermott, R. (2002) Experimental methodology in political science. *Political Analysis, 10*(4), 325-342.

Miettinen, R. (2000) The concept of experiential learning and John Dewey's theory of reflective thought and action. *International Journal of Lifelong Education, 19*(1), 54-72.

Mook, D. G. (1983) In defense of external invalidity. *American psychologist,38*(4), 379.

Oberle, M. (2012a) Pupils' Political Knowledge regarding the European Union. *Citizenship, Social and Economics Education, 11*(2), 89-104.

Oberle, M. (2012b) Politisches Wissen über die Europäische Union: subjektive und objektive Politikkenntnisse von Jugendlichen. *Wiesbaden: Springer VS.*

Potsdam Institut für Klimafolgenforschung (2004) Success of climate change board game leads to second edition. Potsdam Institut für Klimafolgenforschung. Potsdam. Retrieved from

https://www.pik-potsdam.de/news/press-releases/archive/2005/success-of-climate-change-board-game-leads-to-second-edition?set_language=en.

Reckien, D., & Eisenack, K. (2010) Urban sprawl: Using a game to sensitize stakeholders to the interdependencies among actors' preferences. *Simulation & Gaming*, 41, 260-277.

Reckien, D., & Eisenack, K. (2012) Climate Change Gaming on Board and Screen. A Review. *Simulation & Gaming* 44 (2-3), S. 253–271.

Robotham, D. (1995) Self-directed learning: the ultimate learning style? *Journal of European Industrial training 19* (7):3-7.

Ryan, R. M., & Deci, E. L. (1975) Intrinsic motivation. *John Wiley & Sons, Inc.*.

Ryan, R. M. & Deci, E. L. (1985) The general causality orientations scale: Self-determination in personality. *Journal of research in personality*, *19*(2), 109-134.

Ryan, R. M., & Deci, E. L. (2000a) Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, *25*(1), 54-67.

Ryan, R. M., & Deci, E. L. (2000b) Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, *55*(1), 68.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002) Experimental and quasi-experimental designs for generalized causal inference. *Houghton, Mifflin and Company.*

Teuber, K. (1995) Settlers of Catan. *Publisher: KOSMOS*

Tseng, A. (2015) "European Union: The Board Game" Taiwan: Publisher: Big Fun Games

Vogel, Rex (1973) The effect of a simulation game on the attitude of political efficacy. *York School (Edmund, Alberta)*

Watermann, R. (2003) Diskursive Unterrichtsgestaltung und multiple Zielerreichung im politisch bildenden Unterricht. *ZSE: Zeitschrift für Soziologie der Erziehung und Sozialisation*, *23*(4), 356-370.

Weißeno, G. (Ed.) (2008) Politikkompetenz: was Unterricht zu leisten hat. *Wiesbaden: VS Verlag.* Weißeno, G.,Detjen, J., Juchler, I., Massing, P. & Richter, D. (Eds) (2010) *Konzepte der Politik: ein Kompetenzmodell.* Bonn: Bundeszentrale für politische Bildung.

Weißeno, G., & Eck, V. (2013) Wissen, Selbstkonzept und Fachinteresse: Ergebnisse einer Interventionsstudie zur Politikkompetenz. *Waxmann Verlag*.

Weißeno, G., & Landwehr, B. (2015). Effektiver Unterricht über die Europäische Union– Ergebnisse einer Studie zur Schülerperzeption von Politikunterricht. In*: Die Europäische Union erfolgreich vermitteln (pp. 99-109). Springer Fachmedien Wiesbaden.*

Yardley, S., Teunissen, P. W., Dornan, T. (2012) Experiential learning: transforming theory into practice. *Medical teacher 34* (2), S. 161–164.

Zuber-Skerritt, O. (1992) Action Research in Higher Education: Examples and Reflections. *Kogan Page Limited*, 120 Pentonville Road, London N1 9JN England, United Kingdom.

7.Appendix

Appendix I

Games Survey A Pretest

1. What was the first thing you thought after hearing the name of the Board Game?

2. Which nationality do you have?

3. Are you satisfied with the level of democracy in the country of your nationality (in case you have two nationalities, please answer the question for the country in which you have lived the most)?

Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
☐	☐	☐	☐	☐

4. Are you satisfied with the level of democracy in the European Union?

Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
☐	☐	☐	☐	☐

5. To what extend do you agree or disagree with the following statement: I support the Europen Union!

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

6. Do you know how the Law- and Decision making Process in the European Union works?

- ☐ Yes
- ☐ I'm not sure
- ☐ No

7. Who is the current President of the European Council?

- ☐ Martin Schulz
- ☐ Donald Tusk
- ☐ Jean-Claude Juncker
- ☐ Herman van Rompuy
- ☐ I don't know the answer

8. Which Institution is proposes new Laws and Regulations in the System of the European Union?

- ☐ The European Commission
- ☐ The European Council
- ☐ The Council of Europe
- ☐ The European Parliament
- ☐ I don't know the answer

9. To what extend do you agree or disagree with the following statement: I like board games!

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

10. How often do you play board games in the last two years?

- ☐ More than twice per week
- ☐ Once or twice per week
- ☐ Once or twice a month
- ☐ Less than once a month

Appendix II

Games Survey Part B Posttest

1. What is your gender?

- [ ] Male
- [ ] Female
- [ ] Other

2. How old are you?

3. Whats the highest level of education of your parents?

- [ ] Primary education
- [ ] Lower secondary Education
- [ ] Upper secondary education
- [ ] Bachelor or equivalent
- [ ] Master or equivalent
- [ ] Other (please specify):

4. What is your highest level of education?

- [ ] Primary education
- [ ] Lower secondary education
- [ ] Upper secondary education
- [ ] Bachelor or equivalent
- [ ] Master or equivalent
- [ ] Other (please specify):

5. If applicable, what is/was your field of study?

6. How much do you follow the news e.g. newspapers, online, TV etc. ?

Daily	Several times a week	weekly	Several times a month	once a month	less than once a month
☐	☐	☐	☐	☐	☐

7. Are you active in the civil society for example in a social activity group or organization?

- [ ] Yes
- [ ] No

8. Are you a member or a supporter of a political party?

- [ ] Yes
- [ ] No

9. Did you vote in the last election for the European Parliament in 2014?

- [ ] Yes
- [ ] No
- [ ] I don't want to say

10. How much did you like the board game you played before?

I disliked it a lot	I disliked it a bit	I neither liked nor disliked it	I liked it a bit	I liked it very much
☐	☐	☐	☐	☐

11. Do you think the board game helped you to understand the Institutions of the European Union better?

It didn't helped me	I'm not sure	It helped me a bit	It helped me	It helped me a lot
☐	☐	☐	☐	☐

12. Did your attiutde towards the European Union changed through playing the board game?

A lot more negative	A bit more negative	My attitude didn't change	A bit more positive	A lot more positive
☐	☐	☐	☐	☐

13. Did the board game helped you to understand the law- and decision making process in the European Union?

It didn't helped me	I'm not sure	It helped a bit	It helped me	It helped a lot
☐	☐	☐	☐	☐

14. In which order are the institutions of the European Union involved in the law and decision making process of the European Union?

- ☐ European Commission - European Council - European Parliament
- ☐ European Council - European Parliament - European Commission
- ☐ European Commission - European Court of Justice - European Parliament
- ☐ European Commission - European Parliament - European Council
- ☐ I don't know the answer

15. How many founding members does the European Union (former European Economic Community) at the beginning?

- ☐ 4
- ☐ 8
- ☐ 6
- ☐ 9
- ☐ I don't know the answer

16. How many member states does the European Union have today?

- [ ] 12
- [ ] 24
- [ ] 27
- [ ] 28

17. Would you agree, that board games like the one you played before, should be used in schools and universities to teach people about politics and the European Union?

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

18. To what extend do you agree or disagree with the following statement: I do not feel that the European Union informes me good enough about its politics and decisions!

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

19. How much would you pay for the board game you played before?

Up to 5 €	Up to 10 €	Up to 15€	Up to 20 €	Up to 25 €	Up to 30€	Up to 40€	More than 40€
☐	☐	☐	☐	☐	☐	☐	☐

20. Do you have any suggestions how the European Union could inform its citizens better about the system of the European Union?

For your participation in the survey you can choose if you want to take part in a lottery for 3 x 15€ Amazon Vouchers or if you want us to spend 50 Cents to UNICEF.

- [ ] I choose to take part in the lottery
- [ ] I choose the donation of 50 Cent to UNICEF

If you chose to take part in the lottery, please leave your E-mail adress so we can inform you if you win the lottery.

Appendix III

Data Treatment Group Uncoded

Participant Number	Nationalit	Gender	Age	Education Parents	Education Participant
1	Sweden	Male	29	Master	Master
2	Sweden	Male	24	Bachelor	Upper secondary education
6	Sweden	Male	63	Master	Upper secondary education
7	Sweden	Male	29	Bachelor	Upper secondary education
8	Sweden	Male	34	Upper secondary education	Bachelor
10	Sweden	Male	27	Master	Bachelor
12	Sweden	Male	29	Bachelor	Bachelor
15	Sweden	Male	30	Upper secondary education	Master
16	Germany	Male	26	Bachelor	Bachelor
18	Germany	Male	26	Master	Bachelor
19	Germany	Male	27	Phd	Upper secondary education
20	Germany	Male	29	Master	Master
21	Germany	Male	24	Lower secondary education	Bachelor
27	Germany	Male	26	Master	Bachelor
31	Germany	Male	22	Phd	Bachelor
34	Germany	Male	19	Master	Upper secondary education
35	Germany	Male	23	Master	Upper secondary education
36	Germany	Male	24	Master	Upper secondary education
37	Germany	Male	23	Upper secondary education	Upper secondary education
39	Germany	Male	28	Lower secondary education	Bachelor
41	Germany	Male	26	Phd	Bachelor
42	Germany	Male	28	Upper secondary education	Upper secondary education
44	Germany	Male	29	Upper secondary education	Upper secondary education
45	Germany	Male	25	Master	Bachelor
46	Greece	Male	23	Bachelor	Bachelor
48	Greece	Male	23	Upper secondary education	Bachelor
49	Greece	Male	24	Bachelor	Bachelor
50	Greece	Male	25	Upper secondary education	Bachelor
51	Greece	Male	24	Master	Bachelor
53	Greece	Male	24	Primary Education	Bachelor
57	Greece	Male	26	Lower secondary education	Bachelor
58	Greece	Male	25	Master	Bachelor
59	Greece	Male	26	Upper secondary education	Bachelor
60	Greece	Male	20	Primary Education	Bachelor

Participant Number	Field of Study	Level of Democracy	Level of Democra	Support EU
1	Linguistics/Languages	Very Satisfied	Very Dissatisfied	Disagree
2	(Education)	Neutral	Neutral	Agree
6	none	Satisfied	Very Dissatisfied	Disagree
7	Programming/ History	Neutral	Neutral	Agree
8	Business Managment	Satisfied	Neutral	Neutral
10	Political Science	Dissatisfied	Dissatisfied	Disagree
12	Journalism	Neutral	Dissatisfied	Strongly Disagree
15	Ingeneering	Satisfied	Dissatisfied	Disagree
16	Political Science	Satisfied	Neutral	Agree
18	Political Science	Very Satisfied	Satisfied	Strongly Agree
19	Political Science	Very Satisfied	Satisfied	Strongly Agree
20	History	Dissatisfied	Very Dissatisfied	Neutral
21	Political Science	Very Satisfied	Neutral	Strongly Agree
27	Political Science	Satisfied	Dissatisfied	Strongly Agree
31	Political Science	Very Satisfied	Dissatisfied	Strongly Agree
34	Economics	Neutral	Neutral	Strongly Agree
35	Law	Satisfied	Satisfied	Disagree
36	Political Science	Satisfied	Satisfied	Agree
37	Political Science	Satisfied	Satisfied	Strongly Agree
39	History/Slawistic	Satisfied	Neutral	Agree
41	Physic	Satisfied	Neutral	Agree
42	Sociology	Neutral	Dissatisfied	Neutral
44	none	Neutral	Dissatisfied	Disagree
45	Ingeneering	Satisfied	Very Dissatisfied	Agree
46	Computer Science	Very Dissatisfied	Very Dissatisfied	Strongly Disagree
48	Economics	Neutral	Satisfied	Strongly Agree
49	Economics	Neutral	Neutral	Strongly Agree
50	Arts	Dissatisfied	Dissatisfied	Agree
51	Statistics	Very Dissatisfied	Dissatisfied	Neutral
53	Engineering	Satisfied	Dissatisfied	Strongly Disagree
57	Psychology	Dissatisfied	Very Dissatisfied	Strongly Disagree
58	Political Science	Dissatisfied	Neutral	Agree
59	Engineering	Very Dissatisfied	Very Dissatisfied	Disagree
60	Economics	Neutral	Neutral	Neutral

Participant Number	Knowledge EU Decisio	Knowledge 1	Knowledge 2	Like Board Games	Frequency of board game
1	Not Sure	Don't know the Answe	Right	Strongly Agree	Once or twice a month
2	Not Sure	Don't know the Answe	Don't know the Ansv	Agree	Less than once a month
6	Not Sure	Right	Wrong	Strongly Agree	Less than once a month
7	Yes	Wrong	Wrong	Strongly Agree	Once or twice a week
8	Not Sure	Don't know the Answe	Wrong	Strongly Agree	Once or twice a week
10	Not Sure	Don't know the Answe	Right	Neutral	Less than once a month
12	Not Sure	Don't know the Answe	Wrong	Strongly Agree	Once or twice a month
15	Not Sure	Don't know the Answe	Wrong	Strongly Agree	Once or twice a month
16	Yes	Right	Right	Agree	Once or twice a month
18	Yes	Right	Right	Strongly Agree	Once or twice a week
19	Yes	Right	Right	Agree	Less than once a month
20	Not Sure	Wrong	Right	Neutral	Less than once a month
21	Yes	Right	Right	Agree	Less than once a month
27	Not Sure	Right	Right	Strongly Agree	Once or twice a month
31	Yes	Right	Right	Neutral	Less than once a month
34	Not Sure	Wrong	Right	Strongly Agree	Once or twice a month
35	Yes	Right	Right	Agree	Less than once a month
36	Yes	Wrong	Wrong	Agree	Once or twice a week
37	Yes	Right	Right	Agree	Once or twice a month
39	Not Sure	Wrong	Don't know the Ansv	Agree	Less than once a month
41	No	Wrong	Don't know the Ansv	Agree	Once or twice a month
42	No	Don't know the Answe	Wrong	Neutral	Less than once a month
44	No	Wrong	Don't know the Ansv	Agree	Less than once a month
45	No	Don't know the Answe	Right	Strongly Agree	Once or twice a week
46	Not Sure	Don't know the Answe	Don't know the Ansv	Strongly Agree	More than twice a week
48	Yes	Don't know the Answe	Wrong	Neutral	Less than once a month
49	Yes	Right	Right	Neutral	Less than once a month
50	Not Sure	Wrong	Wrong	Neutral	Less than once a month
51	Not Sure	Wrong	Wrong	Agree	Less than once a month
53	Not Sure	Wrong	Don't know the Ansv	Agree	Once or twice a month
57	Not Sure	Don't know the Answe	Wrong	Agree	Less than once a month
58	Yes	Right	Right	Agree	Once or twice a month
59	Not Sure	Don't know the Answe	Don't know the Ansv	Strongly Agree	Once or twice a week
60	Not Sure	Don't know the Answe	Don't know the Ansv	Strongly Agree	Once or twice a week

Participant Number	Follow News	Involved in social ac	Member/Support	Voted EP 2014	Liking of the board game
1	Several times a week	Yes	Yes	Yes	Liked it very much
2	Leth than once a month	No	No	No	Liked it very much
6	Daily	Yes	Yes	Yes	Liked it very much
7	Several times a month	Yes	No	Yes	Liked it a bit
8	Daily	Yes	No	Yes	Liked it a bit
10	Daily	Yes	No	Yes	Neither liked nor disliked it
12	Daily	No	No	Yes	Liked it very much
15	Several times a month	No	Yes	No	Liked it very much
16	Daily	Yes	No	Yes	Liked it very much
18	Daily	No	Yes	Yes	Liked it very much
19	Daily	Yes	Yes	Yes	Liked it very much
20	Daily	Yes	No	Yes	Liked it very much
21	Daily	Yes	Yes	Yes	Disliked it a bit
27	Daily	Yes	No	Yes	Liked it very much
31	Daily	Yes	Yes	Yes	Liked it very much
34	Several times a week	Yes	Yes	No	Liked it a bit
35	Daily	Yes	Yes	Yes	Liked it very much
36	Several times a week	Yes	Yes	Yes	Liked it very much
37	Daily	Yes	No	Yes	Liked it very much
39	Weekly	Yes	Yes	Yes	Liked it a bit
41	Weekly	Yes	No	No	Liked it a bit
42	Several times a week	No	No	Yes	Neither liked nor disliked it
44	Several times a week	No	No	No	Liked it a bit
45	Weekly	Yes	Yes	Yes	Liked it very much
46	Several times a week	Yes	Yes	Yes	Liked it a bit
48	Daily	Yes	No	Yes	Liked it very much
49	Daily	No	No	Yes	Liked it very much
50	Daily	No	No	Yes	Liked it a bit
51	Weekly	Yes	No	Yes	Liked it very much
53	Daily	No	No	No	Liked it very much
57	Daily	Yes	No	No	Neither liked nor disliked it
58	Daily	Yes	Yes	Yes	Liked it very much
59	Several times a week	Yes	Yes	No	Liked it a bit
60	Daily	No	No	Yes	Liked it very much

Participant Number	Helping understanding the EU System	Attitude Change towards EU	Helping understanding the law and decision making process of the EU
1	It helped me	No	It helped me
2	It helped me a lot	A bit more negative	It helped me a lot
3	It helped me	No	It helped me
4	It helped me a bit	A bit more positive	It helped me
5	It helped me a bit	No	It helped me a bit
6	It helped me a lot	No	It helped me
7	It helped me	No	It helped me a bit
8	It helped me	No	It helped me
9	It helped me a bit	No	Not sure
10	It helped me a bit	A bit more negative	It helped a bit
11	It helped me	No	It helped me
12	It helped me a bit	No	It helped me a bit
13	Not Sure	No	It helped me a bit
14	It helped me a bit	A bit more positive	It helped me a bit
15	It helped me	No	It helped me
16	It helped me a bit	No	It helped me a bit
17	It helped me	A bit more negative	It helped me
18	Not Sure	No	It didn't helped me
19	It helped me a bit	No	It helped me a bit
20	It helped me	No	Not sure
21	Not Sure	A bit more negative	It helped me a bit
22	It helped me a bit	No	It helped me a bit
23	It helped me a bit	A bit more positive	It helped me a bit
24	It helped me a bit	No	It helped me
25	Not Sure	A bit more positive	Not sure
26	It didn't helped me	No	It didn't helped me
27	It helped me a lot	No	It helped me a lot
28	It helped me a bit	No	It helped me
29	Not Sure	No	It helped me
30	It helped me a bit	A bit more negative	It helped me a bit
31	It helped me	A bit more positive	It helped me
32	It helped me	No	It helped me a bit
33	It helped me a bit	A bit more positive	It helped me a lot
34	It helped me	No	It helped me
35	Not Sure	No	It didn't helped me
36	It helped me	A bit more positive	It helped me
37	It helped me a lot	No	It helped me a lot
38	It helped me	No	It helped me
39	It helped me a bit	A bit more negative	It helped me a bit
40	Not Sure	No	It helped me
41	It helped me a bit	No	It helped me
42	Not Sure	No	It helped me a bit
43	It helped me	No	It helped me a lot
44	It helped me a bit	A bit more negative	It helped me a bit
45	It helped me	No	It helped me
46	It helped me a bit	A lot more negative	It helped me a bit
47	It helped me a bit	No	It helped me a bit
48	It helped me	A bit more positive	It helped me
49	It helped me	No	It helped me a bit
50	It helped me a bit	A bit more negative	Not sure
51	It helped me	No	It helped me
52	Not Sure	A bit more negative	It helped me a bit
53	It helped me a bit	No	It helped me a bit
54	It helped me a bit	No	It helped me
55	It helped me	A bit more negative	It helped me
56	It helped me	A bit more negative	It helped me
57	It helped me	No	It helped me
58	It helped me	A bit more positive	It helped me
59	It didn't helped me	A bit more negative	It helped me a bit
60	Not Sure	No	It helped me

Participant Number	Working of the law and decicion making p	Knowledge EC Founding Mem	Knowledge EU Members
1	Right	Right	Right
2	Right	Don't know the answer	Right
3	Wrong	Don't know the answer	Right
4	Don't know the answer	Don't know the answer	Right
5	Don't know the answer	Don't know the answer	Don't know the answer
6	Don't know the answer	Right	Right
7	Wrong	Don't know the answer	Wrong
8	Wrong	Right	Right
9	Don't know the answer	Wrong	Wrong
10	Don't know the answer	Wrong	Right
11	Right	Right	Wrong
12	Wrong	Wrong	Right
13	Don't know the answer	Don't know the answer	Wrong
14	Right	Don't know the answer	Right
15	Wrong	Right	Right
16	Right	Right	Right
17	Right	Right	Right
18	Wrong	Right	Right
19	Right	Right	Right
20	Wrong	Right	Right
21	Right	Right	Right
22	Don't know the answer	Wrong	Right
23	Wrong	Right	Wrong
24	Wrong	Right	Wrong
25	Right	Right	Right
26	Don't know the answer	Right	Wrong
27	Right	Right	Right
28	Wrong	Right	Right
29	Don't know the answer	Right	Right
30	Right	Wrong	Right
31	Right	Right	Right
32	Wrong	Right	Right
33	Wrong	Right	Right
34	Right	Right	Wrong
35	Wrong	Right	Right
36	Wrong	Right	Right
37	Right	Right	Right
38	Right	Right	Right
39	Don't know the answer	Right	Right
40	Right	Wrong	Right
41	Right	Right	Wrong
42	Wrong	Right	Right
43	Right	Right	Right
44	Wrong	Right	Wrong
45	Right	Wrong	Right
46	Right	Right	Right
47	Right	Wrong	Wrong
48	Wrong	Right	Right
49	Right	Right	Right
50	Wrong	Wrong	Right
51	Wrong	Right	Right
52	Don't know the answer	Don't know the answer	Wrong
53	Don't know the answer	Don't know the answer	Right
54	Wrong	Right	Right
55	Don't know the answer	Wrong	Wrong
56	Right	Right	Wrong
57	Wrong	Right	Right
58	Right	Right	Right
59	Don't know the answer	Don't know the answer	Right
60	Right	Right	Right

Participant Number	Using board game for education	EU informs not good enough	Price Game	Lottery or Donation
1	Strongly Agree	Strongly Agree	30 €	Donation
2	Agree	Agree	40 €	Donation
3	Agree	Neutral	20 €	Donation
4	Agree	Neutral	20 €	Donation
5	Agree	Agree	20 €	Donation
6	Neutral	Neutral	30 €	Donation
7	Agree	Disagree	20 €	Donation
8	Strongly Agree	Agree	25 €	Donation
9	Strongly Agree	Strongly Agree	15 €	Donation
10	Neutral	Agree	25 €	Donation
11	Strongly Agree	Strongly Agree	25 €	Donation
12	Agree	Strongly Agree	25 €	Donation
13	Agree	Neutral	40 €	Donation
14	Agree	Agree	30 €	Donation
15	Strongly Agree	Strongly Agree	35 €	Donation
16	Agree	Disagree	20 €	Donation
17	Strongly Agree	Disagree	20 €	Donation
18	Agree	Agree	20 €	Donation
19	Strongly Agree	Neutral	25 €	Lottery
20	Neutral	Strongly Agree	20 €	Donation
21	Agree	Agree	5 €	Lottery
22	Agree	Agree	25 €	Donation
23	Neutral	Agree	25 €	Donation
24	Strongly Agree	Agree	10 €	Donation
25	Neutral	Disagree	15 €	Donation
26	Agree	Agree	15 €	Donation
27	Agree	Agree	20 €	Lottery
28	Agree	Agree	10 €	Lottery
29	Strongly Agree	Agree	15 €	Lottery
30	Strongly Agree	Strongly Agree	15 €	Donation
31	Strongly Agree	Agree	20 €	Donation
32	Strongly Agree	Disagree	15 €	Donation
33	Strongly Agree	Agree	25 €	Donation
34	Agree	Neutral	25 €	Lottery
35	Disagree	Neutral	15 €	Donation
36	Agree	Disagree	30 €	Donation
37	Strongly Agree	Agree	20 €	Donation
38	Strongly Agree	Neutral	25 €	Donation
39	Agree	Agree	20 €	Donation
40	Neutral	Strongly Agree	15 €	Donation
41	Agree	Agree	25 €	Lottery
42	Neutral	Strongly Agree	15 €	Donation
43	Strongly Agree	Neutral	30 €	Donation
44	Neutral	Strongly Agree	20 €	Lottery
45	Agree	Strongly Agree	25 €	Donation
46	Strongly Disagree	Strongly Agree	20 €	Donation
47	Neutral	Agree	15 €	Donation
48	Strongly Agree	Agree	30 €	Donation
49	Agree	Agree	20 €	Donation
50	Agree	Agree	5 €	Donation
51	Strongly Agree	Agree	10 €	Donation
52	Neutral	Agree	5 €	Donation
53	Agree	Neutral	15 €	Donation
54	Agree	Agree	5 €	Lottery
55	Agree	Agree	5 €	Donation
56	Neutral	Neutral	5 €	Donation
57	Neutral	Agree	5 €	Donation
58	Strongly Agree	Strongly Agree	25 €	Donation
59	Disagree	Strongly Agree	20 €	Donation
60	Agree	Neutral	30 €	Donation

Appendix IV

Data Control Group Uncoded

Participant Number	Nationality	Gender	Age	Education Parents	Education Participant
1	Sweden	Female	19	Master	Upper secondary education
2	Sweden	Male	27	Master	Master
3	Sweden	Female	23	Bachelor	Bachelor
4	Sweden	Female	26	Upper secondary education	Bachelor
5	Sweden	Male	29	Bachelor	Master
6	Sweden	Female	22	Upper secondary education	Bachelor
7	Sweden	Male	25	Phd	Master
8	Sweden	Male	25	Master	Bachelor
9	Sweden	Female	23	Master	Upper secondary education
10	Sweden	Female	24	Upper secondary education	Bachelor
11	Germany	Male	30	Upper secondary education	Master
12	Germany	Male	28	Master	Master
13	Germany	Male	21	Master	Upper secondary education
14	Germany	Female	21	Master	Upper secondary education
15	Germany	Male	24	Phd	Bachelor
16	Germany	Female	26	Upper secondary education	Master
17	Germany	Female	24	Master	Bachelor
18	Germany	Male	25	Master	Bachelor
19	Germany	Female	23	Lower secondary education	Bachelor
20	Germany	Male	22	Master	Upper secondary education
21	Greece	Female	18	Lower secondary education	Upper secondary education
22	Greece	Female	25	Upper secondary education	Master
23	Greece	Male	24	Bachelor	Bachelor
24	Greece	Male	28	Bachelor	Master
25	Greece	Female	31	Master	Master
26	Greece	Male	25	Upper secondary education	Bachelor
27	Greece	Male	24	Master	Upper secondary education
28	Greece	Female	26	Bachelor	Master
29	Greece	Female	28	Master	Master
30	Greece	Male	24	Upper secondary education	Bachelor

Participant Number	Field of Study	Level of Democracy home state	Level of Democracy EU	Support EU
1	Education	Satisied	Dissatisfied	Disagree
2	Computer science	Neutral	Dissatisfied	Disagree
3	Political science	Very satidfied	Satisfied	Strongly Agree
4	Economics	Satisied	Neutral	Agree
5	History	Satisied	Dissatisfied	Disagree
6	Engeeniring	Dissatisfied	Very Dissatisfied	Strongly Disagree
7	Engeeniring	Neutral	Neutral	Neutral
8	Literature	Very satidfied	Satisfied	Agree
9	none	Dissatisfied	Very Dissatisfied	Disagree
10	Sociology	Satisied	Neutral	Disagree
11	Education	Satisied	Satisfied	Agree
12	Political science	Very satidfied	Satisfied	Strongly Agree
13	Law	Satisied	Neutral	Agree
14	Law	Very satidfied	Satisfied	Agree
15	Engeeniring	Neutral	Dissatisfied	Neutral
16	Political science	Satisied	Satisfied	Strongly Agree
17	Political science	Satisied	Neutral	Agree
18	Political science	Neutral	Dissatisfied	Agree
19	Chemistry	Satisied	Satisfied	Agree
20	Philosophy	Neutral	Neutral	Disagree
21	none	Very dissatisfied	Dissatisfied	Neutral
22	Economics	Dissatisfied	Neutral	Strongly Agree
23	Engeeniring	Very dissatisfied	Very Dissatisfied	Strongly Disagree
24	Engeeniring	Dissatisfied	Neutral	Agree
25	Literature	Satisied	Satisfied	Agree
26	Political science	Dissatisfied	Satisfied	Agree
27	none	Satisied	Very Dissatisfied	Strongly Disagree
28	Sport	Neutral	Dissatisfied	Disagree
29	Biology	Neutral	Neutral	Agree
30	Political science	Very dissatisfied	Dissatisfied	Disagree

Participant Number	Knowledge EU Decision making process	Knowledge Commission	Knowledge EuUCouncil
1	No	Wrong	Wrong
2	Not sure	Don't know the answer	Don't know the answer
3	Yes	Right	Right
4	Not sure	Don't know the answer	Don't know the answer
5	No	Wrong	Don't know the answer
6	No	Wrong	Wrong
7	Not sure	Don't know the answer	Right
8	Yes	Wrong	Right
9	No	Don't know the answer	Don't know the answer
10	Not sure	Don't know the answer	Wrong
11	Not sure	Don't know the answer	Wrong
12	Yes	Right	Right
13	Not sure	Don't know the answer	Wrong
14	No	Don't know the answer	Don't know the answer
15	No	Wrong	Wrong
16	Yes	Right	Wrong
17	Not sure	Wrong	Right
18	Not sure	Wrong	Don't know the answer
19	No	Don't know the answer	Don't know the answer
20	No	Wrong	Wrong
21	No	Don't know the answer	Don't know the answer
22	Not sure	Wrong	Right
23	No	Wrong	Wrong
24	Not sure	Don't know the answer	Wrong
25	Not sure	Don't know the answer	Right
26	Yes	Right	Right
27	No	Wrong	Don't know the answer
28	Yes	Wrong	Right
29	No	Don't know the answer	Wrong
30	Yes	Wrong	Right

Participant Number	Like Board Games	Frequency of board games	Follow News
1	Agree	Once or twice a month	Weekly
2	Strongly agree	Once or twice a week	Weekly
3	Agree	Less than once a month	Daily
4	Strongly agree	Once or twice a week	Several times a week
5	Neutral	Less than once a month	Weekly
6	Strongly agree	Once or twice a month	Several times a week
7	Strongly agree	Once or twice a week	Daily
8	Agree	Less than once a month	Daily
9	Neutral	Less than once a month	Several times a week
10	Agree	Once or twice a week	Several times a week
11	Strongly agree	Once or twice a month	Several times a week
12	Agree	Less than once a month	Daily
13	Neutral	Less than once a month	Daily
14	Agree	Once or twice a month	Several times a week
15	Strongly agree	Once or twice a week	Weekly
16	Agree	Less than once a month	Daily
17	Neutral	Less than once a month	Daily
18	Agree	Less than once a month	Daily
19	Strongly agree	Once or twice a week	Several times a week
20	Neutral	Less than once a month	Daily
21	Agree	Less than once a month	Weekly
22	Strongly agree	Once or twice a month	Several times a week
23	Agree	Once or twice a week	Several times a week
24	Strongly agree	Once or twice a month	Weekly
25	Agree	Less than once a month	Daily
26	Agree	Less than once a month	Daily
27	Strongly agree	Once or twice a week	Several times a week
28	Agree	Less than once a month	Daily
29	Strongly agree	Once or twice a month	Weekly
30	Agree	Less than once a month	Daily

Participant Number	Involved in social activity group	Member/Supporter of political party	Voted EP 2014	Liking of the board game
1	Yes	No	No	Liked it a bit
2	No	No	Yes	Liked it a bit
3	Yes	Yes	Yes	Liked it very much
4	No	No	Yes	Neither liekd it nor disliked it
5	No	Yes	Yes	Disliked t a bit
6	Yes	No	No	Liked it a lot
7	Yes	No	Yes	Liked it a lot
8	Yes	Yes	Yes	Liked it a bit
9	No	No	No	Neither liekd it nor disliked it
10	Yes	No	Yes	Liked it a bit
11	No	No	Yes	Liked it a lot
12	Yes	Yes	Yes	Neither liekd it nor disliked it
13	Yes	No	Yes	Liked it a bit
14	No	No	Yes	Liked it a bit
15	No	No	No	Liked it a lot
16	Yes	Yes	Yes	Neither liekd it nor disliked it
17	Yes	No	Yes	Liked it a bit
18	No	No	Yes	Neither liekd it nor disliked it
19	Yes	No	Yes	Liked it a lot
20	Yes	No	Yes	Neither liekd it nor disliked it
21	No	No	No	Liked it a bit
22	Yes	No	Yes	Liked it a lot
23	No	No	No	Liked it a bit
24	Yes	No	Yes	Liked it a lot
25	Yes	Yes	Yes	Liked it a bit
26	Yes	Yes	Yes	Neither liekd it nor disliked it
27	No	No	Yes	Liked it a lot
28	Yes	Yes	Yes	Liked it a bit
29	Yes	No	Yes	Liked it a bit
30	Yes	Yes	Yes	Neither liekd it nor disliked it

Participant Number	Helping understanding the EU System	Attitude Change towards EU	Helping understanding the law and decision making process
1	It didn't helped me	No	It didn't helped me
2	It didn't helped me	No	It didn't helped me
3	It didn't helped me	No	It didn't helped me
4	Not sure	No	Not sure
5	It didn't helped me	No	It didn't helped me
6	It didn't helped me	No	It didn't helped me
7	Not sure	No	It didn't helped me
8	Not sure	No	Not sure
9	It didn't helped me	No	It didn't helped me
10	It didn't helped me	No	Not sure
11	It didn't helped me	No	It didn't helped me
12	It didn't helped me	No	It didn't helped me
13	Not sure	No	Not sure
14	It didn't helped me	No	It didn't helped me
15	It didn't helped me	No	It didn't helped me
16	It didn't helped me	No	It didn't helped me
17	It didn't helped me	No	It didn't helped me
18	It didn't helped me	No	It didn't helped me
19	It didn't helped me	No	Not sure
20	It didn't helped me	No	It didn't helped me
21	It didn't helped me	No	Not sure
22	It didn't helped me	No	It didn't helped me
23	It didn't helped me	No	It didn't helped me
24	It didn't helped me	No	It didn't helped me
25	Not sure	No	Not sure
26	It didn't helped me	No	It didn't helped me
27	It didn't helped me	A bit more negative	It didn't helped me
28	It didn't helped me	No	It didn't helped me
29	It didn't helped me	No	It didn't helped me
30	It didn't helped me	No	It didn't helped me

Participant Number	Working of the law and decicion making process	Knowledge EC Founding Members	Knowledge EU Members
1	Wrong	Right	Right
2	Don't know the answer	Don't know the answer	Don't know the answer
3	Right	Right	Right
4	Don't know the answer	Wrong	Wrong
5	Wrong	Wrong	Wrong
6	Wrong	Wrong	Don't know the answer
7	Right	Right	Wrong
8	Right	Right	Right
9	Don't know the answer	Don't know the answer	Don't know the answer
10	Wrong	Don't know the answer	Wrong
11	Don't know the answer	Don't know the answer	Right
12	Right	Right	Right
13	Wrong	Right	Right
14	Don't know the answer	Wrong	Right
15	Don't know the answer	Right	Wrong
16	Wrong	Right	Right
17	Right	Right	Right
18	Wrong	Right	Right
19	Don't know the answer	Right	Wrong
20	Wrong	Wrong	Right
21	Don't know the answer	Wrong	Right
22	Right	Wrong	Right
23	Wrong	Right	Right
24	Don't know the answer	Right	Right
25	Right	Wrong	Right
26	Right	Right	Right
27	Wrong	Wrong	Right
28	Right	Wrong	Right
29	Don't know the answer	Right	Right
30	Wrong	Right	Right

Participant Number	Using board game for education	EU informs not good enough	Price Game	Lottery or Donation
1	Disagree	Agree	35 €	Donation
2	Strongly Disagree	Strongly agree	20 €	Donation
3	Strongly Disagree	Neutral	35 €	Donation
4	Disagree	Agree	15 €	Donation
5	Disagree	Strongly agree	5 €	Donation
6	Neutral	Strongly agree	30 €	Donation
7	Disagree	Agree	25 €	Donation
8	Strongly Disagree	Disagree	20 €	Donation
9	Disagree	Agree	10 €	Donation
10	Disagree	Agree	25 €	Donation
11	Disagree	Neutral	20 €	Donation
12	Strongly Disagree	Disagree	15 €	Lottery
13	Disagree	Agree	20 €	Donation
14	Strongly Disagree	Strongly agree	15 €	Donation
15	Disagree	Strongly agree	25 €	Lottery
16	Disagree	Disagree	10 €	Donation
17	Disagree	Neutral	15 €	Donation
18	Strongly Disagree	Strongly agree	10 €	Lottery
19	Neutral	Neutral	25 €	Donation
20	Disagree	Strongly agree	5 €	Donation
21	Neutral	Neutral	15 €	Lottery
22	Disagree	Agree	20 €	Donation
23	Disagree	Strongly agree	10 €	Lottery
24	Disagree	Agree	20 €	Donation
25	Disagree	Agree	15 €	Donation
26	Disagree	Disagree	10 €	Donation
27	Strongly Disagree	Strongly agree	25 €	Lottery
28	Strongly Disagree	Agree	20 €	Donation
29	Disagree	Agree	15 €	Donation
30	Disagree	Strongly agree	10 €	Lottery

Appendix V

Data Treatment Group Coded

Participant Number	Nationality	Gender	Age	Education Parents	Education Participant	Field of Study
1	1	0	29	4	4	11
2	1	0	24	3	2	16
3	1	1	25	4	2	0
4	1	1	19	4	1	0
5	1	1	18	4	1	0
6	1	0	63	4	2	0
7	1	0	29	3	2	2
8	1	0	34	2	3	5
9	1	1	34	3	2	0
10	1	0	27	4	3	1
11	1	1	27	3	3	14
12	1	0	29	3	3	15
13	1	1	28	3	2	0
14	1	1	25	4	4	9
15	1	0	30	2	4	8
16	2	0	26	3	3	1
17	2	1	25	5	3	1
18	2	0	26	4	3	1
19	2	0	27	5	2	1
20	2	0	29	4	4	2
21	2	0	24	1	3	1
22	2	1	24	2	3	11
23	2	1	23	4	3	1
24	2	1	25	4	3	2
25	2	1	25	4	3	1
26	2	1	28	4	4	9
27	2	0	26	4	3	1
28	2	1	22	4	2	4
29	2	1	25	4	4	18
30	2	1	25	4	3	1
31	2	0	22	5	3	1
32	2	1	24	4	3	1
33	2	1	25	5	4	3
34	2	0	19	4	2	5
35	2	0	23	4	2	3
36	2	0	24	4	2	1
37	2	0	23	2	2	1
38	2	1	26	2	3	1
39	2	0	28	1	3	2
40	2	1	24	4	3	9
41	2	0	26	5	3	12
42	2	0	28	2	2	13
43	2	1	27	4	3	12
44	2	0	29	2	2	0
45	2	0	25	4	3	8
46	3	0	23	3	3	7
47	3	1	26	1	3	8
48	3	0	23	2	3	5
49	3	0	24	3	3	5
50	3	0	25	2	3	10
51	3	0	24	4	3	6
52	3	1	19	4	3	17
53	3	0	24	0	3	8
54	3	1	25	2	3	4
55	3	1	25	1	1	0
56	3	1	25	2	3	6
57	3	0	26	1	3	4
58	3	0	25	4	3	1
59	3	0	26	2	3	8
60	3	0	20	0	3	5

Participant Number	Level of Democracy home state	Level of Democracy EU	Support EU	Knowledge EU Decision making process
1	2	-2	-1	0
2	0	0	1	0
3	1	0	-1	0
4	1	0	-1	0
5	2	0	-1	0
6	1	-2	-1	0
7	0	0	1	1
8	1	0	0	0
9	1	-1	-1	1
10	-1	-1	-1	0
11	1	1	1	0
12	0	-1	-2	0
13	1	0	1	0
14	1	0	1	0
15	1	-1	-1	0
16	1	0	1	1
17	2	1	1	1
18	2	1	2	1
19	2	1	2	1
20	-1	-2	0	0
21	2	0	2	1
22	1	0	2	0
23	1	0	1	0
24	1	1	1	0
25	1	1	2	0
26	1	0	0	0
27	1	-1	2	0
28	1	-1	1	0
29	1	-1	1	0
30	1	0	1	0
31	2	-1	2	1
32	1	1	2	0
33	-1	0	2	1
34	0	0	2	0
35	1	1	-1	1
36	1	1	1	1
37	1	1	2	1
38	2	1	2	0
39	1	0	1	0
40	1	1	2	0
41	1	0	1	0
42	0	-1	0	0
43	1	1	2	0
44	0	-1	-1	0
45	1	-2	1	0
46	-2	-2	-2	0
47	0	-1	-1	0
48	0	1	2	1
49	0	0	2	1
50	-1	-1	1	0
51	-2	-1	0	0
52	-1	-1	0	0
53	1	-1	-2	0
54	0	-1	-1	0
55	-1	-1	1	0
56	-2	0	0	0
57	-1	-2	-2	0
58	-1	0	1	1
59	-2	-2	-1	0
60	0	0	0	0

Participant Number	Knowledge Commission	Knowledge EU Council	Like Board Games	Frequency of board games playing
1	0	1	2	2
2	0	0	1	1
3	0	0	1	1
4	0	0	2	1
5	0	0	1	1
6	1	0	2	1
7	0	0	2	3
8	0	0	2	3
9	0	0	2	3
10	0	1	0	1
11	0	1	1	1
12	0	0	2	2
13	0	0	1	2
14	0	0	1	1
15	0	0	2	2
16	1	1	1	2
17	0	1	2	2
18	1	1	2	3
19	1	1	1	1
20	0	1	0	1
21	1	1	1	1
22	0	0	1	1
23	1	1	2	1
24	0	0	0	1
25	0	1	1	2
26	0	0	1	1
27	1	1	2	2
28	0	0	-1	1
29	0	0	1	2
30	0	1	0	1
31	1	1	0	1
32	0	0	2	2
33	1	1	2	1
34	0	1	2	2
35	1	1	1	1
36	0	0	1	3
37	1	1	1	2
38	0	1	2	2
39	0	0	1	1
40	0	0	0	1
41	0	0	1	2
42	0	0	0	1
43	0	0	1	2
44	0	0	1	1
45	0	1	2	3
46	0	0	2	4
47	0	0	1	4
48	0	0	0	1
49	1	1	0	1
50	0	0	0	1
51	0	0	1	1
52	0	0	1	3
53	0	0	1	2
54	0	0	2	3
55	0	1	-1	1
56	0	0	1	2
57	0	0	1	1
58	1	1	1	2
59	0	0	2	3
60	0	0	2	3

Participant Number	Follow News	Involved in social activity group	Member/Supporter of political party	Voted EP 2014
1	5	1	1	1
2	1	0	0	0
3	3	0	1	1
4	3	0	9	0
5	2	1	0	0
6	6	1	1	1
7	3	1	0	1
8	6	1	0	1
9	4	1	0	1
10	6	1	0	1
11	6	1	0	0
12	6	0	0	1
13	6	0	1	0
14	4	1	0	1
15	3	0	1	0
16	6	1	0	1
17	6	1	1	1
18	6	0	1	1
19	6	1	1	1
20	6	1	0	1
21	6	1	1	1
22	5	1	0	1
23	6	1	0	1
24	6	0	0	1
25	5	1	1	1
26	4	0	0	0
27	6	1	0	1
28	4	1	0	9
29	6	1	0	1
30	6	1	1	1
31	6	1	1	1
32	6	1	1	1
33	6	1	0	0
34	5	1	1	0
35	6	1	1	1
36	5	1	1	1
37	6	1	0	1
38	6	1	0	1
39	4	1	1	1
40	6	1	1	1
41	4	1	0	0
42	5	0	0	1
43	4	1	0	1
44	5	0	0	0
45	4	1	1	1
46	5	1	1	1
47	5	0	0	1
48	6	1	0	1
49	6	0	0	1
50	6	0	0	1
51	4	1	0	1
52	5	0	0	0
53	6	0	0	0
54	3	0	0	1
55	6	0	0	0
56	1	0	0	0
57	6	1	0	0
58	6	1	1	1
59	5	1	1	0
60	6	0	0	1

Participant Number	Liking of the board game	Helping understanding the EU System	Attitude Change t	Helping understanding the law and decision making process
1	2	2	0	2
2	2	3	-1	3
3	2	2	0	2
4	2	1	1	2
5	1	1	0	1
6	2	3	0	2
7	1	2	0	1
8	1	2	0	2
9	1	1	0	0
10	0	1	-1	1
11	1	2	0	2
12	2	1	0	1
13	2	0	0	1
14	1	1	1	1
15	2	2	0	2
16	2	1	0	1
17	2	2	-1	2
18	2	0	0	-1
19	2	1	0	1
20	2	2	0	0
21	-1	0	-1	1
22	0	1	0	1
23	1	1	1	1
24	1	1	0	2
25	1	0	1	0
26	1	-1	0	-1
27	2	3	0	3
28	0	1	0	2
29	2	0	0	2
30	1	1	-1	1
31	2	2	1	2
32	2	2	0	1
33	2	1	1	3
34	1	2	0	2
35	2	0	0	-1
36	2	2	1	2
37	2	3	0	3
38	2	2	0	2
39	1	1	-1	1
40	0	0	0	2
41	1	1	0	2
42	0	0	0	1
43	2	2	0	3
44	1	1	-1	1
45	2	2	0	2
46	1	1	-1	1
47	1	1	0	1
48	2	2	1	2
49	2	2	0	1
50	1	1	-1	0
51	2	2	0	2
52	1	0	-1	1
53	2	1	0	1
54	0	1	0	2
55	1	2	-1	2
56	1	2	-1	2
57	0	2	0	2
58	2	2	1	2
59	1	-1	-1	1
60	2	0	0	2

Participant Number	Working of the law and decicion making process	Knowledge EC Founding Members	Knowledge Eu members
1	1	1	1
2	1	0	1
3	0	0	1
4	0	0	1
5	0	0	0
6	0	1	1
7	0	0	0
8	0	1	1
9	0	0	0
10	0	0	1
11	1	1	0
12	0	0	1
13	0	0	0
14	1	0	1
15	0	1	1
16	1	1	1
17	1	1	1
18	0	1	1
19	1	1	1
20	0	1	1
21	1	1	1
22	0	0	1
23	0	1	0
24	0	1	0
25	1	1	1
26	0	1	0
27	1	1	1
28	0	1	1
29	0	1	1
30	1	0	1
31	1	1	1
32	0	1	1
33	0	1	1
34	1	1	0
35	0	1	1
36	0	1	1
37	1	1	1
38	1	1	1
39	0	1	1
40	1	0	1
41	1	1	0
42	0	1	1
43	1	1	1
44	0	1	0
45	1	0	1
46	1	1	1
47	1	0	0
48	0	1	1
49	1	1	1
50	0	0	1
51	0	1	1
52	0	0	0
53	0	0	1
54	0	1	1
55	0	0	0
56	1	1	0
57	0	1	1
58	1	1	1
59	0	0	1
60	1	1	1

Participant Number	Using board game for education	EU informs not good enough	Price Game	Lottery or Do
1	2	2	30 €	1
2	1	1	40 €	1
3	1	0	20 €	1
4	1	0	20 €	1
5	1	1	20 €	1
6	0	0	30 €	1
7	1	-1	20 €	1
8	2	1	25 €	1
9	2	2	15 €	1
10	0	1	25 €	1
11	2	2	25 €	1
12	1	2	25 €	1
13	1	0	40 €	1
14	1	1	30 €	1
15	2	2	35 €	1
16	1	-1	20 €	1
17	2	-1	20 €	1
18	1	1	20 €	1
19	2	0	25 €	0
20	0	2	20 €	1
21	1	1	5 €	0
22	1	1	25 €	1
23	0	1	25 €	1
24	2	1	10 €	1
25	0	-1	15 €	1
26	1	1	15 €	1
27	1	1	20 €	0
28	1	1	10 €	0
29	2	1	15 €	0
30	2	2	15 €	1
31	2	1	20 €	1
32	2	-1	15 €	1
33	2	1	25 €	1
34	1	0	25 €	0
35	-1	0	15 €	1
36	1	-1	30 €	1
37	2	1	20 €	1
38	2	0	25 €	1
39	1	1	20 €	1
40	0	2	15 €	1
41	1	1	25 €	0
42	0	2	15 €	1
43	2	0	30 €	1
44	0	2	20 €	0
45	1	2	25 €	1
46	-2	2	20 €	1
47	0	1	15 €	1
48	2	1	30 €	1
49	1	1	20 €	1
50	1	1	5 €	1
51	2	1	10 €	1
52	0	1	5 €	1
53	1	0	15 €	1
54	1	1	5 €	0
55	1	1	5 €	1
56	0	0	5 €	1
57	0	1	5 €	1
58	2	2	25 €	1
59	-1	2	20 €	1
60	1	0	30 €	1

Appendix VI

Data Control Group Coded

Participant Number	Nationality	Gender	Age	Education Parents	Education Participant	Field of Study	Level of Democracy home state
1	1	1	19	4	2	16	1
2	1	0	27	4	4	7	0
3	1	1	23	3	3	1	2
4	1	1	26	2	3	5	1
5	1	0	29	3	4	2	1
6	1	1	22	2	3	8	-1
7	1	0	25	5	4	8	0
8	1	0	25	4	3	9	2
9	1	1	23	4	2	0	-1
10	1	1	24	2	3	13	1
11	2	0	30	2	4	16	1
12	2	0	28	4	4	1	2
13	2	0	21	4	2	3	1
14	2	1	21	4	2	3	2
15	2	0	24	5	3	8	0
16	2	1	26	2	4	1	1
17	2	1	24	4	3	1	1
18	2	0	25	4	3	1	0
19	2	1	23	1	3	21	1
20	2	0	22	4	2	22	0
21	3	1	18	1	2	0	-2
22	3	1	25	2	4	5	-1
23	3	0	24	3	3	8	-2
24	3	0	28	3	4	8	-1
25	3	1	31	4	4	9	1
26	3	0	25	2	3	1	-1
27	3	0	24	4	2	0	1
28	3	1	26	3	4	19	0
29	3	1	28	4	4	20	0
30	3	0	24	2	3	1	-2

Participant Number	Level of Democracy EU	Support EU	Knowledge EU Decision making process	Knowledge Commission	Knowledge EU Council
1	-1	-1	0	0	0
2	-1	-1	0	0	0
3	1	2	1	1	1
4	0	1	0	0	0
5	-1	-1	0	0	0
6	-2	-2	0	0	0
7	0	0	0	0	1
8	1	1	1	0	1
9	-2	-1	0	0	0
10	0	-1	0	0	0
11	1	1	0	0	0
12	1	2	1	1	1
13	0	1	0	0	0
14	1	1	0	0	0
15	-1	0	0	0	0
16	1	2	1	1	0
17	0	1	0	0	1
18	-1	1	0	0	0
19	1	1	0	0	0
20	0	-1	0	0	0
21	-1	0	0	0	0
22	0	2	0	0	1
23	-2	-2	0	0	0
24	0	1	0	0	0
25	1	1	0	0	1
26	1	1	1	1	1
27	-2	-2	0	0	0
28	-1	-1	1	0	1
29	0	1	0	0	0
30	-1	-1	1	0	1

Participant Number	Like Board Games	Frequency of board games	Follow News	Involved in social activity group	Member/Supporter of political party
1	1	1	4	1	0
2	2	3	4	0	0
3	1	1	6	1	1
4	2	3	5	0	0
5	0	1	4	0	1
6	2	1	5	1	0
7	2	3	6	1	0
8	1	1	6	1	1
9	0	1	5	0	0
10	1	3	5	1	0
11	2	1	5	0	0
12	1	1	6	1	1
13	0	1	6	1	0
14	1	1	5	0	0
15	2	3	4	0	0
16	1	1	6	1	1
17	0	1	6	1	0
18	1	1	6	0	0
19	2	3	5	1	0
20	0	1	6	1	0
21	1	1	4	0	0
22	2	1	5	1	0
23	1	3	5	0	0
24	2	1	4	1	0
25	1	1	6	1	1
26	1	1	6	1	1
27	2	3	5	0	0
28	1	1	6	1	1
29	2	1	4	1	0
30	1	1	6	1	1

Participant Number	Voted EP 2014	Liking of the board game	Helping und	Attitude Change towards EU	Helping understanding the law and decision making process
1	0	1	-1	0	-1
2	1	1	-1	0	-1
3	1	2	-1	0	-1
4	1	0	0	0	0
5	1	-1	-1	0	-1
6	0	2	-1	0	-1
7	1	2	0	0	-1
8	1	1	0	0	0
9	0	0	-1	0	-1
10	1	1	-1	0	0
11	1	2	-1	0	-1
12	1	0	-1	0	-1
13	1	1	0	0	0
14	1	1	-1	0	-1
15	0	2	-1	0	-1
16	1	0	-1	0	-1
17	1	1	-1	0	-1
18	1	0	-1	0	-1
19	1	2	-1	0	0
20	1	0	-1	0	-1
21	0	1	-1	0	0
22	1	2	-1	0	-1
23	0	1	-1	0	-1
24	1	2	-1	0	-1
25	1	1	0	0	0
26	1	0	-1	0	-1
27	1	2	-1	-1	-1
28	1	1	-1	0	-1
29	1	1	-1	0	-1
30	1	0	-1	0	-1

Participant Number	Working of the law and decicion making process	Knowledge EC Founding Members	Knowledge Eu Members
1	0	1	1
2	0	0	0
3	1	1	1
4	0	0	0
5	0	0	0
6	0	0	0
7	1	1	0
8	1	1	1
9	0	0	0
10	0	0	0
11	0	0	1
12	1	1	1
13	0	1	1
14	0	0	1
15	0	1	0
16	0	1	1
17	1	1	1
18	0	1	1
19	0	1	0
20	0	0	1
21	0	0	1
22	1	0	1
23	0	1	1
24	0	1	1
25	1	0	1
26	1	1	1
27	0	0	1
28	1	0	1
29	0	1	1
30	0	1	1

Participant Number	Using board game for education	EU informs not good enough	Price Game	Lottery or Donation
1	-1	1	35 €	1
2	-2	2	20 €	1
3	-2	0	35 €	1
4	-1	1	15 €	1
5	-1	2	5 €	1
6	0	2	30 €	1
7	-1	1	25 €	1
8	-2	-1	20 €	1
9	-1	1	10 €	1
10	-1	1	25 €	1
11	-1	0	20 €	1
12	-2	-1	15 €	0
13	-1	1	20 €	1
14	-2	2	15 €	1
15	-1	2	25 €	0
16	-1	-1	10 €	1
17	-1	0	15 €	1
18	-2	2	10 €	0
19	0	0	25 €	1
20	-1	2	5 €	1
21	0	0	15 €	0
22	-1	1	20 €	1
23	-1	2	10 €	0
24	-1	1	20 €	1
25	-1	1	15 €	1
26	-1	-1	10 €	1
27	-2	2	25 €	0
28	-2	1	20 €	1
29	-1	1	15 €	1
30	-1	2	10 €	0