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# How does the digitalization of a table top game affect gameplay?

How the technical aspects of the  
implementation can affect the game and the  
gameplay

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## **Abstract**

The goal of this study is to research how the digitalization of a table top game affects the game and its gameplay. We are researching this by first having participants play chess, and online chess, and the interviewing them about their experiences with the both games. The main effects of digitalization are input controls. When digitalizing a table top game, there is one thing that the designer cannot control at all, which is, the necessity of input controls. However, the design for these controls is up to the designer. When digitalizing a game, the rules tend to get enforced by the programming. Mistakes that could be committed in the table top version are no longer possible due to the rule enforcement caused by the programming. It is also possible to use the digital realm to your benefit by adding features such as highlighting in chess, which is only possible in the digital version. Immersion is also affected by the digitalization; the possible lack of a visible and present opponent can alter how the players experience the gameplay.

## **Keywords**

Chess, Digitalization, Interviews, Rules, Immersion

## **Sammanfattning**

Målet med den här studien är att forska kring hur digitaliseringen av ett brädspel påverkar spelet och dess spelande. Vi utför vår forskning genom att först låta deltagare spela schack, och onlineschack, för att sedan intervjua dem angående deras upplevelser med de båda spelen. De huvudsakliga effekterna av digitaliseringen är inmatningskontrollerna. När man digitaliserar ett brädspel så finns det en sak som designers inte alls kan kontrollera. Detta är nödvändigheten av inmatningskontroller. Designen för dessa kontroller däremot, kan designers påverka. När man digitaliserar ett spel så brukar ofta reglerna bli förstärkta av programmeringen. Misstag som spelare kunde begå i brädspelsversionen, kan inte längre begås tack vare regelförstärkningen som programmeringen bidrar till. Det är även möjligt att använda den digitala världen till ens fördel genom att lägga till vissa saker, så som markeringen i onlineschack, vilket bara är möjligt i den digitala versionen. Digitaliseringen påverkar även inlevelsen som spelarna upplever. Den möjliga saknaden av en synlig och närvarande motspelare kan ändra hur spelarna upplever spelandet.

### **Nyckelord**

Schack, Digitalisering, Intervjuer, Regler, inlevelse

## **Svensk Titel**

### **Hur påverkar digitaliseringen av ett brädspel spelandet?**

Hur den tekniska implementeringen kan påverka spelet och spelandet

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# 1 Introduction

With each passing year, the world becomes more and more digitalized. Even though there are a lot of computer games being published on a daily basis, the expansion of the Internet has also given place for a new forum for the old board games. By digitalizing the old board games, one is given the opportunity to play against friends or family that might not live in ones vicinity. One is also given the chance to play against complete strangers who are also looking for someone to play with. The question is though, is it still the same game after the platform for the game has been changed? How is the game affected by the digitalization? En example would be chess. Chess has a rule that not everyone knows about. This rule is called *En Passant*. This rule allows a player to capture ones opponents pawn when it moves two squares as if it only had moved one square. However, since many people are unaware of this rule, there are a lot of online versions of chess which lacks this rule. This means that, when playing a version of online chess that does not include the programming for the En Passant rule; one cannot perform this certain move, which is a legal move according to the original rules. Is it still the same game even though one cannot do the same things one can on the actual physical board?

## 1.1 Background

Even though both the digital version of chess and the board game version of chess are both considered the same game, they have a few differences. The input controls, for example, are different. When playing the board game one moves the chess pieces by using ones hands to choose the piece, lift it, and place it at its destination. This is something that is nearly impossible to recreate in the digital version, since one cannot use ones hands to physically lift and move a chess piece from the computers monitor. This difference is a direct, and unavoidable, consequence caused by the digitalization of chess. Another big difference between the two games is the rule enforcement which the digital versions have the option of having. While this difference is not unavoidable like the necessity of an input device, it is an optional enhancement which will dictate how the game

will be played. By using programming to enforce these rules, the rules become hard fact. It becomes impossible for the players to commit an illegal move. And lastly, the final big difference is the highlighting system that many online versions of chess use. The highlighting is the system that, in many cases, cooperates with the rule enforcement system, and shows the player where the certain chess pieces can be moved to. The highlighting is an enhancement that has become an option for chess thanks to the digitalization. However, unlike the input device and the rule enforcement that alters part of the game, the highlighting is solely an enhancement to the pre-existing game. But similarly to the input device and the rule enforcement, it is something that can only exist within the digital realm.

### **1.1.1 The Highlighting**

The highlighting system works by allowing the player to see each chess piece's available moves. If one were to select a pawn that has yet to move. The highlighting system would give the player an indication that the selected pawn can move two steps forward. The way the highlighting looks varies depending on which version of chess is used. For this field study, the webpage [sparkchess.com](http://sparkchess.com) (Media Division, 2002) was used. In that version, a green light appears as one selects a chess piece, which marks all available squares that piece can move to. In the case of the pawn previously mentioned, the light would stretch across the two squares in front of that specific pawn. In the case of a knight piece, only the destination squares would be lit up by the green light for example.

### **1.1.2 The Rule Enforcement**

What we mean with rule enforcement is the programming of the game, and how it does not allow a player to commit an illegal move, for example, moving a rook diagonally, or moving the king five steps forward, or placing ones king in check. In most, if not all, digital versions of chess, the rule enforcement goes hand in hand with the highlighting system. If the selected chess piece does not have any highlighted squares (possible moves), it cannot move.

## 1.2 Related Research

A similar study called “The effects of digitization and automation on board games for digital tabletops” (Pape, 2012) was conducted and written by Joseph, A. Pape in 2012. This study researches the effects that the digitization and automation has on digitally implemented board games. One of the effects of the digitalization is the automated in-game activities, rule enforcement and game progression. Instead of having the people, playing the physical version, keep track of all this information, by digitalizing a board game, all of this information is instead handled by the computer in the digital realm (Pape, 2012). Pape also concludes that the digitization and automation of the games, tested in his study, did not reduce social interaction. This study also talks about the pros and cons that the digitalization brings.

The biggest difference in Pape’s study and our study is that Pape used a digital tabletop for his experiment. This allows the participants to play the digital version of the game while still sitting together around the game. The participants were never split apart, having to play with or against each other without seeing the other player. In our study however, the participants were split up during their digital playing, and were unable to socially interact with their opponents.

Another relevant paper is “Improving the Social Gaming Experience by Comparing Physical and Digital Tabletop Board Games” (Chang et al., 2012). As the name implies, the goal with this paper was to study and research differences between the physical and digital game versions that impacted the players’ social experience. For this study, similarly to Pape, they used the game pandemic. Their approach was to collect and analyse both quantitative and qualitative data using statistical and video analyses. But unlike Papes’ study and our study, this paper focuses more heavily on the social aspect of the digitization and how the participants’ social experience is affected.

“Does body movement engage you more in a digital game play? And Why?” (Bianchi-Berthouze et al., 2007) is another paper related to this topic. In this paper they research the connection between body movement and engagement. This paper, compared to the previous two, is not discussing aspects of the actual digitalization of board games, but focuses instead of the body movement in

digital game play. When comparing physical and digital games, one of the differences is the input. When playing the physical versions one uses their body more.

So where does our research come in? The biggest difference is that, in all of these studies, the participants were never put in different rooms, in order to see how the lack of visible opponents and allies would affect the players. And according to us, this is one of the bigger differences between a physical game and a digital version of that game. While the lack of a visible opponent is not a necessity for digital games, it is a feature that only becomes possible with the help of the digitalization. So while this study will cover topics that have already been researched, it will also cover parts of the digitalization that has not.

### **1.3 Research Questions & Goals**

This study aims to find out different pros and cons of the digitalization, and through a field study with complementary qualitative interviews see what people think and how they feel that the different versions of the games affected their gameplay and gaming experience. The goal for this study is not to produce a definite answer that can be generalized to the whole population, but rather to offer a look at the different effects that a digitalization can have on the actual game, and how the technical aspects of the implementation can affect the game and the gameplay.

#### **1.3.1 The Goal for the study**

So what is the goal with the study? What kind of data could be gathered by having the participants play a physical board game version of chess and digital online chess and then having them answer some questions?

The reasons for having the participants play chess was, as mentioned above, to refresh their memory about how it felt to play chess and how they experienced the gameplay. By having them play against the same opponent, but in a digital environment, data regarding the lack of a visible opponent, and if that somehow changed their way of playing or how they experienced the game, could be collected.

As can be seen in the appendix 2 most of the questions focus on the technical implementation. The goal was to see what these participants felt about the technical aspect of the digitalization. As mentioned in the introduction, the digital version is enforcing the rules by programming. One cannot do what is not programmed. This means that if players want to do something in their own way, which differs from the programs programming, they cannot. By observing the participants as they were playing the game, and asking them about it, data regarding the players experience with this could be gathered.

In order to gather data to see the pros and the cons with each version, we wanted the participants view on the highlighting, which similarly to the rule enforcement, is something only applicable in a digital environment. Is the highlighting something that is experienced as positive? Or is it instead experienced as negative? By observing how they used the highlighting system during their playing, and then in more detail ask them about their thoughts and opinions on that system, the necessary data could be collected.

The participants were also asked what they thought about the controls. For example, what were their thoughts regarding moving the pieces by using the mouse instead of using their hands? And what did they think about the way the controls were designed?

#### **1.4 Essay structure**

This essay will be divided into four big sections. They are Method, Results, Discussion and Conclusions. The essay starts with the Methods section, where the methodological approaches is clarified and explained. Why have we chosen this method over another method? Why did we choose a qualitative approach rather than a quantitative approach?

After clarifying and providing an explanation for the methodology behind this essay, we will move on to the results section. Under the results section one can read about the results from the field study and the interviews are described. The interview analysis will be split up in smaller parts, each covering different aspects, or segments, of the interviews in order to make the text easier to read and understand.

And before concluding the essay with the Conclusions chapter, we will discuss the results. The Discussion chapter will be discussing the different results and also discussing aspects that might or might not have come up during the interviews, such as the rule enforcement. While we already have established that the rule enforcement is one of the things that distinguish the online version from the physical board game, we further discuss the pros and cons of this in terms of play experience.

Lastly, we write about our conclusions in the Conclusion chapter. This chapter concludes what we have studied, for example, the enforced rules. While they do make playing the game easier, since you cannot commit illegal moves by now having enough knowledge for example, sometimes it may not be the best solution to enforce the rules that heavily, because if you do, you disable the players from adding their own set of house rules.

## 2 Method

### 2.1 Approach

Why did we choose a qualitative approach rather than a quantitative one? We thought that this research topic would be better analysed and researched by using a qualitative approach to see what a few individuals thought about the differences and the effects of the digitalization rather than focusing on a more quantitative approach which we could generalize from a sample to a population. We chose to approach this topic by using a combination of a few different methods. The first method we used was the Field Study where we had participants play two different versions of chess against each other and observed them while they were doing so, and we also had the participants answer a shorter questionnaire about their background and earlier experiences with games, and chess in particular. Similar study set-up is used in “playing a violent television game affects heart rate variability” written by Ivarsson et al. (2008), where they conducted an experiment where they had children play violent games and then answer questionnaires and diaries. For the interview part of our methodological approach was the Semi-structured interview, where we interviewed the participants individually and asked them questions about their experiences from the field study, while also adding complementary questions depending on what topics they brought up. Similarly to our approach, Ashley Brown also used a qualitative approach using interviews in “‘No one-handed typing’: An exploration of gameness, rules and spoilsports in an erotic role play community in *World of Warcraft*” (Brown, 2012).

By using semi-structured interviews there is room for complementary questions. If a participant goes a bit off topic, but still talk about things that are relevant for the study, an improvised follow up question can be used to collect more, unplanned but useful, data (Cote and Raz, n.d., p.108). Another big pro that semi-structured interviews have is the presence of the interviewer. By having the interviewer there, the interviewer can easily clarify any questions that the participant may not have understood clearly. However, one thing that must be

taken into consideration is that the presence of an interviewer is not only something positive. By interviewing someone, you put them in a more vulnerable position, than filling out a questionnaire at home would. This can cause the participant to hold back information if the questions asked are sensitive and the participant may also answer the question in order to please the interviewer (Roxell and Tiby, 2012 p.154-155). After considering what pros and cons each data gathering method would bring, we concluded that we could safely use the semi-structured interview in regards to this because the participants would not be put in such a situation where they would have to choose their words in order not to be judged. The questions asked are heavily focused on the games of chess that the participants have played during the field study, and what they think of different aspects of the games. Thus, the aim was not to put the participants in uncomfortable situations.

## **2.2 Study Set-up**

The Study was conducted over the course of a week, where we had two participants a day. The reason we chose to do it like this, instead of having all the participants playing the game simultaneously was because we wanted to observe them while they were playing the games as well. The study as a whole was divided into a smaller parts. First the participants would play the physical board game version of chess, against an opponent. And then they would play against the same opponent but in a digital environment when sitting in different rooms. After the games, one of the participants was taken into a different room and was interviewed, while the other participant filled in a questionnaire. When the interview was done, the roles were switched and the other participant was interviewed.

### **2.2.1 Observation**

We started the field studies by letting two participants play the physical board game version of chess. When they were done, they were each taken to a different room and were put in front of a computer where they would play against the same opponent. For the online version of chess we had the participants play on a site called "*sparkchess.com*" (Media Division, 2002), which is a site for playing

chess online, both against friends but also against random opponents. The actual playing of the games was both a means to give the participants a more vivid and recent image of the game, but was also used for observations. We were interested in seeing if the lack of a visible opponent affected how they experienced the game, and if it would change the immersion felt by the players. It was also for this reason we put the participants in separate rooms when they were playing the digital version of chess. Another aspect that was observed during the participants playing was if the way they played the actual game differed depending on the version they were playing.

### **2.2.2 The Interviews**

After the participants finished playing against each other, they were individually interviewed. The time each interview took to perform varied quite a bit depending on how the participants decided to answer and how much details they chose to include. The shortest interview was seven minutes, and the longest was fifteen minutes. In some of the interviews both interviewers were present, and for others, only one. The interviews followed a plan as can be seen in the appendix 2, but depending on their answers questions were added if their answers were lacking and in some cases questions were removed if their earlier answers were sufficient enough. In some cases the wording of the questions were changed or adjusted in order to clarify, or to make it easier for the participant to understand and answer the questions (cf. Bryman, 2008. p. 413).

### **2.2.3 The Questionnaire**

While one of the participants was being interviewed, the other one answered a short questionnaire. The questions on the questionnaire were focused on their earlier experience with gaming in general, but also about chess in particular. They were asked whether or not they knew about the moves called castling and En Passant, and also how much experience they have with playing chess. The questionnaire also served as a means to get the participants background information such as age, gender, occupation, education, and time they spend on playing games each week. The questionnaire can be found in appendix 1.

### **2.3 The Participants**

For this study we needed a few participants that, at the very least, knew the basic rules of chess and had played the game before. How good each player was at chess was of no importance to us. The only important thing was that they were all able to play the game. Ten participants took part in the study. The participants' ages varied from 20 to 36 and they consisted of eight men and two women. Eight of the participants were still students pursuing different career courses and the remaining two are currently employed.

The participants gaming background varied from person to person. Some plays less than 10 hours a week, and some plays over 25 hours a week. This aspect could prove interesting when comparing which version of chess they prefer, and if they prefer the mouse input over moving the chess pieces manually with the use on ones hands, to see if their answers will be biased by the amount of hours they each spend on playing video and computer games.

### **2.4 The Interview Plan**

The interview plan which was used when interviewing the participants can be found in appendix 2. The original interview consists of the first seven questions, and the subtitles such as the Highlighting and the Input are themed follow up questions which we asked if the participants started talking about those specific themes. In most of the interviews the participants naturally started talking about the different subtitles, but in others the participants did not mention all of them.

### **2.5 Analysis Method**

The results have been analysed following a thematic analytic approach. By transcribing all the interviews and then carefully analyzing the participants' answers, naturally created topics and themes could be noticed data (Cote and Raz, n.d., p.114). The results section of this essay will be following these themes.

## **3 Results**

### **3.1 Participants Earlier Experiences**

All of the participants have been playing game since an early age, but their preferences in genres is varied, some of them prefer playing RPGs (Role Playing Games) on a console, while others prefer playing strategy games on the computer.

All of the participants knew the rules of chess, the majority had played chess before and played it occasionally, it was only two of the participants who have played chess from an early age and frequently play it till today.

The participants normally prefer to use either keyboard and mouse, or a hand controller for games when they usually play.

A few participants said that it was not actually the input device that was of importance, but rather the platform that made them prefer a certain controller.

It's not the controller that makes the decision; it is rather the platform that I prefer. If I am playing RPGs, I prefer playing them with High Quality on my PC where I also have the possibilities to mod and download DLCs for the game (Female 1, 26)

### **3.2 The Physical Board Game of Chess**

The physical board game was the preferred version of chess amongst the participants. The reason for the table top version of chess being better than the digital version is that one could read their opponent when they were sitting in the same room, but was unable to read their opponent when they were playing online.

I preferred the board game rather than the digital version. I do not have that much experience with strategy games, but I am pretty good at playing the player, I mean read the opponent and see how he behaves, which gives me an advantage compared to the digital version (Male 1, 22)

However, to better read their opponent was not the only reason as to why the table top version of chess was the preferred version. According to the participants, moving the physical pieces felt better than using an input device to move a chess piece that only existed on the monitor. One of the participants' opinions was that it was easier to focus on the game while playing the physical version rather than the digital version through the computer.

It is a more satisfying experience moving pieces on a board, especially well designed, well crafted ones with weight and smoothness (Female 2, 36)

### **3.3 Board Overview**

You are able to see physical chess pieces, and you can move your head to see the board from different angles. When you sit in a digital version the angle is locked (Male 2, 22)

The physical table top version of chess was preferred because unlike the digital version, it was more difficult to miss their opponents move. In the digital version, the participants were staring at the screen while waiting for their opponent to make their move, and then suddenly one of the opponents' pieces had moved and it was their turn. In the physical version however, a person has to move their hands to the game board in order to move the pieces, and this action draws the attention of the other player. But the opinions of the participants differed. One opinion was that it was easier to lock ones attention to one part of the board when playing the physical version because one could not get a good view over the game board

You can't see the board from a third person perspective when playing the board game version. I mean, it is easier to play chess when you are able to see it from a third person perspective, and when you play the physical version you just see your side (Male 3, 21)

### **3.4 The Digital Implementation**

Even though the preferred version amongst the participants was the physical table top version, the digital implementation of chess was also considered to have a lot of pros which the physical version did not.

#### **3.4.1 Highlighting**

The highlighting system is one of the things that the participants thought contributed to making the game easier, for participants who were relatively new to chess they saw it more as a helpful tool which they could use as a consultation of sorts. At times they would select different pieces just to see which moves were available for just that piece.

The highlighting was useful when I was feeling confused over which possible moves I could make (Female 1, 26)

However, the more experienced players saw the highlighting system as something to be used in order to gain an advantage over your opponent.

The digital version gives you an advantage since you can click on a piece to see which legal moves you can make, which can help you plan your next move. For example, you can select a piece, observe the board and find a new destination. Is this a good position? And this, you can decide without having the opponent see what you are doing (Male 4, 27)

Some of the more experienced players praised it, because they felt that it was a system which would increase their chances of winning, while others saw it as a threat to be reckoned with, and that it could give the opponent an unfair advantage.

If you do not notice a game changing move, there is a chance your opponent won't either. But if get that move highlighted without noticing it by himself, it could win him the game (Male 2, 22)

The highlighting system is a great tool for beginners and less experienced players. By using the highlighting system, a complete beginner can start to learn

the precise moves each piece can legally take and by using that, learn to play the game. And less experienced players can get a better overview of the board by using the highlighting system. One thing we observed was that many players who were not that experienced with chess locked their attention on one specific part of the board, thus resulting in them missing many alternative moves that would have benefitted them more. But by effectively using the highlighting system, they can notice moves that they otherwise would have missed.

### **3.4.2 Rule Enforcement**

When playing the digital version of chess, the rules are programmed rather than upheld by the players that would sit around the physical board in the table top version of chess. While this works as a rule set, it also stops players from committing illegal moves.

The digital version did not always play the moves I wanted to. Which is something positive, cause then you can see which mistakes you would've committed if you were playing the physical version (Male 1, 22)

In this case, the participant was trying to move his knight but, as he selected it, no available destinations appeared on the digital board. The reason for this is as follows: If he had moved the knight, his king would have been put in direct danger, and putting your king in direct danger is not legal in chess. Had this been the physical version, it would have been up to the players to notice this mistake. Had they not noticed it, it would have gone unnoticed.

Similarly to how the participants thought the highlighting system was able to help beginners and newer players, they thought the rule enforcement was something positive as well.

I probably would have used the digital version to learn the game rather than play it. For playing, I would have used the physical version instead (Female 1, 26)

This is also shown in Changs et al (2012) study, where they observe that a digital version with a high automation reduces the effort, at the cost of the player's enjoyment. In our study, the participant said that she would use the

digital version to learn the game. The reason for this can be that the player does not have to memorize all the rules in order to play the game, due to the automation (Chang et al., 2012), but she would prefer to use the physical version when playing the game. This can be due to her enjoying the physical version more, since the automation reduces the player's enjoyment according to Chang et al (2012).

### **3.4.3 Input**

The preferred controllers amongst the participants were either keyboard and mouse, or console hand controllers. However the mouse is the best input device when it comes to the digital version of chess. Some of the participants mentioned that they could also imagine the game being played with solely a keyboard, but that the mouse was still the better option.

Using a keyboard would make the game more exciting, like writing H7 for example. But it would also make the game a lot more complicated (Male 3, 21)

One opinion amongst the participants was that they would have preferred if the controls had worked differently. Instead of clicking on the chess piece one wants to move, and then clicking on a destination, they would have preferred it if they could just click on the piece and then drag it to its destination. Because, even though the participants feel that nothing can beat the feeling of actually moving the pieces yourself using one's hand, by doing it like this, it would more closely resemble the real action of picking the piece up with your hands and releasing it when it is placed at its destination.

### **3.5 Impact of the digital version**

The participants felt that the digital version felt more isolated.

I have less of a presence in the game if I can't see who I'm up against. If I make a wrong move, it is easier to forfeit the match and find a new opponent to play because I have less at stake than when playing a real opponent (Male 1, 22)

The participant here was talking about playing online against random strangers, but he definitely felt less immersed when playing the digital version.

By playing the online version of the game, one loses the social aspect that can be found in the physical board game. During the field study, the participants engaged in social conversations between another as they were playing the board game. The topics could be about the game they were playing, to completely unrelated topics. One of the participants phrased it like this:

The online version of the game is very sterile. There's no social interaction. There can be a poker face element in chess when you can tell your opponent has got a plan in motion if they don't hide in their facial expression. All you have with the online version is the timer, and if they take extra long to choose their next move (Female 2, 36)

An additional difference between the two versions of chess is that the digital version of chess was played faster than the physical version. One opinion on why this could be the case, was that you no longer had to analyse the opponent. Instead one had to just focus on ones move on the screen.

### **3.5.1 Lack of a visible opponent**

The biggest noticeable difference that the two versions have is the digital versions lack of a visible opponent. In most cases, the lack of a visible opponent was something that was experienced as negative, not only because of the lack of social interaction, but also because the participants had no longer a person to read and analyse.

I have an easier time to understand how my opponent thinks when he is sitting in front of me. It is similar to how it is in poker, when you can see if the opponent is bluffing or not (Male 5, 27)

Even though the lack of a possibility to read ones opponent was something that was experienced as something negative amongst the participants, the participants opinions did differ. One opinion was that the lack of a visible opponent and possibility to read ones opponent was something positive instead.

You felt less pressured, and since you cannot see your opponent, you know that he or she can't read you as well (Male 4, 27)

The digital environment was experienced as cold due to the lack of social interaction and the lack of a visible human element. One participant phrased it like this:

Without that social interaction, it didn't really matter that there was a real person controlling the pieces, it might as well have been an AI (Female 2, 36).

### **3.5.2 Concentration**

Participants also mentioned that they had a harder time concentrating depending on which version of chess they were playing. One opinion was that the concentration was improved when playing the digital online version.

I found it easier to concentrate when playing online, because there was only one place to look at which was the screen. When playing it in real life there is also the social aspect and I have to focus my attention on my opponent as well (Male 6, 22)

However, amongst the participants there was also an opinion which was the exact opposite. The reason for this was that the computer could serve as a distraction which could, by distracting the player, cause the player to have a more difficult time concentrating. While waiting for your opponent to make a move, when using the physical version, one can observe the opponent, but when playing in a digital environment everything stands still until the opponent have made their move. This participant said that, when he was playing the digital version, he ended up browsing different web pages while waiting for his opponent to make his move.

When I'm playing the physical version, I'm only focusing on the board game, nothing else. I don't visit other web pages and do something else for example (Male 3, 21)

## 4 Discussion

### 4.1 Rules

When thinking about the digitalization of a board game, the first thing that comes to mind is how the technical aspect will affect the gameplay. And that effect is different for each game. How does one transfer the limitless possibilities and options of playing the game with one's own design over to the digital realm? For example, what if our friends and we play chess by giving each chess piece additional move patterns just to make it more fun and interesting for us when we play the game? Or what if we want to play Knightmare Chess (Steve Jackson Games, 1996) -which is an alternative version of chess where cards are added to the game that can affect and break the original rules of chess- by using a digital version rather than the table top version? If we then decide to play a digital version of chess, we can no longer play with these rules that we, ourselves, have created.

We had not really thought about how the house rules would be affected by the digitalization, until we one day accidentally played a game called Zombicide (Guillotine Games, 2012) wrong. When reading the rules, we misunderstood some of the key elements in the game. At the time, we did not know about this and we continued playing the game like we thought you were supposed to. However, at a later date, when we played the game with some other people who knew the real rules, we realized our mistake. So, what this means is, if the game had been digital from the start, our misunderstanding of the rules would have been impossible, because the programmed rules would have enforced the game, thus disabling us from committing these mistakes. Just like it happened for some of the participants in the field study. When they were trying to commit an illegal move, the game stopped them from doing so. While this is not really a bad thing, as it can be used to learn the rules of the game, it is not necessarily a good thing either, because we had fun when we were playing the game, even though we played it using our own rules which we had accidentally made up.

#### 4.1.1 Is there an easy solution?

So what can one do about this? When creating a digital version of a board game, should the creators make it so that the game is fully customizable? Or perhaps try to recreate the game in a way so that the programming does not enforce the rules? In chess for example, a fully customizable digital version would look like this: There would be a chess board where the players uses their mice to manually move each chess piece and place them wherever they want, without having the programming stopping them. While there are benefits to this method, there are also downsides. If one were to create chess like this, where the digital version is practically a digital copy of chess without rules, how would it affect the immersion? And how easy would the game be to play if one had to click on a piece, drag it to its destination, release the mouse button, click on the opponents piece that was occupying that square, remove it from the game by dragging it away from the board, and then again clicking on ones piece to place it in the centre of the square. During the interviews we asked some of the participants if such a version would be preferred over the rule enforcing digital version they played for the field study. The participants thought that a version like this, without rules, would be way too unintuitive and complicated to play by using a mouse.

Chang et al (2012) tested something similar in their study. They used different digital versions, and physical versions of the same game, to see how the automation, caused by digitalization, affected the social gaming experience. The different digital versions each had a different level of automation. They concluded that, while the versions with high automation required less effort from the players, due to the players not needing to keep track of scores etc. it increased the chance for the players to get confused by playing it. And the version with low automation required too much effort, from the players, to be played. But one potential advantage that the versions with high automation had was that it relieved the players from memorizing all the rules. Chess might be a game that does not require a lot of memorization to learn the rules, but other, more advanced games, do.

Perhaps it depends a lot on what the designers of the game have in mind. If they want their game to be played without having players accidentally, or intentionally, misunderstand the rules and create their own rules, they should enforce the rules with programming. If they on the other hand want to give the players the freedom to interpret the rules in their own way, or create new rules, they should create a customizable version of the game, and give those players the chance to do so. If they add the customizable version in addition to the normal version, they can reach out to more potential customers and players who will prefer the digital version over the board game.

It is important to note, however, that it is not necessary to create an exact copy of a board game if one wants to digitalize an existing board game. Take chess for example. The highlighting system and the rule enforcing is something that is only possible in the digital version. These systems can be a tool, or a feature, which makes the game a lot easier and beginner friendly. This is of course something that would be impossible to recreate on the table top version. So perhaps the way to go about digitalizing games is to enhance them, rather than trying to create an exact copy of the game. As can be seen in the results section, the participants of this study thought that both versions had their pros and cons. While all the participants preferred the board game, they all liked the enhancements made possible by the digital realm such as the highlighting and the rule enforcing.

## **4.2 En Passant**

As mentioned in the introduction. In chess, there is a rule called En Passant, which allows a player to, under specific, circumstances, capture an enemy pawn without actually placing his pawn on that same square (Chess Corner, 1997-2014). This rule is not known by a lot of casual chess players. Even in our study, where we asked if they knew about this rule, only two people out of ten knew about it.

Earlier we discussed the possibilities of players adding their own rules to different games, thus changing the way the game was played. However in this case it is the opposite. The digital version can, if created incorrectly, disable

players from following the rules of the table top version. An example of such a game is *Flash Chess* (Media Division, 2002) that can be found on yahoos website. The move known as castling is included, En passant however is not. The interesting thing to note here is the creator. It is the same company that made *Spark Chess* (Media Division, 2002) which have both En Passant and Castling. Was this a design choice or was this purely a mistake caused by the programmers or the designers due to them not knowing about this rule? If it was a mistake, it shows the importance of having the knowledge required about the game when creating a digital copy of it, because if one does not, one can miss certain rules. It also clearly shows how the technical aspect can affect the gameplay in a critical way. If a rule is not programmed, it cannot be done, but if a rule in a rulebook is simply no written, it can still be performed in the actual game.

In this example, the majority of the players playing the game might not even realize that this version of chess lacks a rule, due to them being unaware of this rule. But what if more people knew about this rule? What if the game had lacked the Castling move rather than the En Passant move, as a design choice? Would it still be the same game? Or would this be a version of the game? Similar to how some people play other games in custom ways.

While the choice of whether to design the digital game as an exact copy of the table top version, or instead try to focus on enhancing the table top is up to the designer, one very important thing must be taken into consideration. If one wants to create a digital version of a game, one must include all the rules.

It is important to implement the rules carefully, as players will not tolerate incorrectly implemented rules (Pape, 2002, p. 80)

### **4.3 The Magic Circle**

Aside from the rule enforcement, a digital online version of a game also causes the players to no longer be visible to each other. And neither are they sitting in the same room. What effect can this have on the game?

If a player chooses to sit down and play monopoly, for example, he cannot simply quit playing in the middle without disrupting

the game and upsetting the other players (Salen and Zimmerman, 2004, p. 97).

Does the following also hold true when the opponent(s) are anonymous over the internet? When playing online games with other anonymous people, it is not uncommon to see players leave as soon as something does not work out in their favour. As can be seen under the results section, even in this study one participant mentioned this when he was talking about online games in general. He said that he felt that it was easier to forfeit the game if he had a rough start rather than stay and try to repair the game in order to win.

I have less of a presence in the game if I can't see who I'm up against. If I make a wrong move, it is easier to forfeit the match and find a new opponent to play because I have less at stake than when playing a real opponent (Male 1, 22)

If we take a game such as the newly released *Destiny* (Bungie, 2014) as an example, one can play with five other players on one's team and together fight against another six person team. If a person enters the battlefield and thinks that the team he/she has been placed in have low, to no, chances of success, one can easily just abandon the battlefield and join another one. Even though the other players will be upset, and possible being cost the game due to a person abandoning the battlefield, leaving the team with a disadvantage in numbers. The remaining team members cannot do anything to this player. They do not know who this player is and what his name is, or where he lives. And the player leaving knows this as well. For that player, there are no repercussions. When playing a board game however, one cannot just stop playing, because the players who are put in a disadvantage and gets upset are people actually sitting together with the player in the real world.

This is also called "The Magic Circle"

Within the magic circle, special meanings accrue and cluster around objects and behaviours. In effect, a new reality is created, defined by the rules of the game and inhabited by its players (Salen and Zimmerman, 2004, p. 96).

What this means is, that once one enters a game, one also enters a magic circle surrounding the game. And it is this that makes the game possible.

If the game of a boxing match is to make the other fighter stay down for a count of 10, the easiest way to accomplish this goal would be to take a gun and shoot the other boxer in the head (Salen and Zimmerman, 2004, p. 97).

But people do not do that. They follow the disadvantageous rules because they are immersed in the game. And they temporarily leave the rules existing in the real world, to follow the rules existing in the game. And the feeling of the magic circle is further enforced by the surroundings, in the case of boxing, the referee, the opponent, the coaches, and the crowd etcetera. In the case of chess, it is the opponent and, if any, the crowd.

Bianchi-Berthouze et al (2007) concludes, in their study that body movement increases the players level of engagement. And this can be seen even if the body movement consists of only moving a chess piece manually across a physical board.

However, when it comes to playing online, it is the game that enforces the rules, and the players are anonymous, thus lessening the effect the magic circle has on the players.

While we did not have our participants play against anonymous players online to further test this, the lack of a visible opponent sufficed to affect them as can be shown in the results section. Where one participant said, while talking about the lack of a visible opponent:

Without that social interaction, it didn't really matter that there was a real person controlling the pieces, it might as well have been an AI (Female 2, 36).

And no one would feel bad about leaving a game where one is playing against artificial opponents. The weakened effect of the magic circle could also be noticed in the interviews when talking about the immersion and how some people found it harder to concentrate and instead went to other web sites while they were waiting for their opponent to make their move. Another noticeable

effect is that some of the digital games were played faster. A reason for that could be that each move was not considered as important as a move would in the physical version.

## 5 Conclusions

First and foremost, the results and conclusions in this study cannot be generalized to a population. The goal for this study was to research and see how the technical implementation affects a digital version of a table top game by performing a field study and then interviewing the participants about their experiences. This paper can however be of use if one is planning on creating a digital version of a game and would like to see what different people think about different features that can or cannot be included, or if the readers simply want to read about how the digitalization affects the gameplay and find out pros and cons with the different versions of chess.

What parts of the digitalization process is outside the creators' control? No matter what game you digitalize, the one thing they all have in common is the input controls. Most, if not all, table top games uses ones' hands manual movement to move pieces, or cards in order to play the game. When this same game become digital, the option of moving everything directly by touch, is removed. Instead, the input controls come into play. While the design of the controls is up to the designers creating the game, the input controls as a whole is necessary.

But not everything about digitalization is outside the creators' control. Some things can be changed, or even enhanced, and some things can be worsened. Highlighting in chess is a good example of this. This is a feature that is not possible to recreate on the table top version. But this feature can improve the gameplay experience, especially if the players are rather new to the game. By adding a highlighting feature, one enhances what already exists by using the digital environment to ones advantage.

The digital environment also provides the designers with the opportunity of strengthening the rules of the game by the help of the programming. Moves in chess, for example, that would be illegal, according to the rules, could still be performed on the table top version of the game. For example, if both players are not paying enough attention to the board, one of the players could put his own king in a position what would cause him to lose the game next turn, which is

illegal according to the rules. However, if no one notices this mistake, the game can go on. In the digital version, where the programming defines the rules, this mistake becomes impossible to commit, because the game will not allow you to perform such a move. This causes the digital version to be a great tool when it comes to learning the game, since mistakes cannot be committed.

However, it is not always a good idea to enforce the rules. In some cases, people like to create their own set of rules for an existing table top game. If that game later becomes digital, where all the rules are pre-programmed without having the option of disabling or enabling certain rules, the so called house rules will disappear. This must also be taken into consideration when digitalizing a game. Does the creator want to give the players the option of playing the game with their own rules? Or should they instead only be allowed to play by the rules set by the creator? Whichever choice the creator chooses, it will undoubtedly have an effect on the digitalized game.

Even though the digital version was considered to be easier to play, and a great tool for beginners, the preferred version amongst the participants was the physical board game version. The reason for this was not only the human element, and how they could use their visible opponent to their advantage by reading them thus getting an upper hand, but also because of the feeling of the actual board game. By using one's own body to make the moves on the board, the pieces feel more real thus feeling more important than what a chess piece in a digital monitor does.

The immersion is also something that gets affected by the digitalization of a table top game. When one plays something online as opposed to something offline. One loses the visible player sitting in front of them, which can lessen the effect of the magic circle which surrounds the gaming experience. If the effect of that is something positive or negative is another question, which the answer to varies a lot depending on who you ask. Some people prefer the more solitary experience that online games provide, and some prefer the more social aspect where they can see, talk to and read their opponent. But from the interviews we can see that the participants felt a change in immersion when comparing the two versions of chess.

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## Appendixes

### Questionnaire Questions

Age:

Gender:

How familiar are you with chess?

How often do you play chess?

Have you ever played chess online?

If yes, was it with friends or random people over the internet?

Do you know about the move called "En Passant"?

Do you know about the move called "Castling"?

What sort of games do you usually play?

How much time do you spend each week on gaming?

Occupation:

Education:

## **Interview Plan**

1. What are your earlier experiences with playing in a digital environment?
  - What experience do you have with games revolving around the mouse input?
  - What do you usually use as an input device when playing? Is it keyboard and/or mouse, controller or other?
  - Which input device do you prefer and why?
2. What did you think about the board game version of chess?
3. What did you think about the digital online version?
4. Which version did you prefer and why?
5. How do you feel that the two versions differ?
6. How did your experience differ, when comparing the two different versions?
7. Did you feel a difference in the rule set when playing the two different versions?

## **Highlighting**

1. What did you think of the highlighting?
2. Is the highlighting something positive or negative? Explain.
3. How did the highlighting affect your gameplay?

## **Input Controls**

1. What did you think of the online versions of the input?
  - Would you have preferred some other type of input device?
  - Would you have preferred some other type of movement controls?
2. How did the controls affect your gameplay?

## **Immersion**

1. Did playing online ever change your way of playing?
  - How did it feel not being able to see and interact with your opponent?
  - Would the lack of a visible opponent be mended by having a form of chat communication?
  - How did it feel not being able to touch or move your chess pieces with your hands?