

A Comparative UX Analysis between Tabletop Games and their Digital Counterparts

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ABSTRACT

As tabletop games are ported to digital versions to increase their accessibility, the expected User Experience (UX) might be degraded in the transition. This paper aims to understand how and why playing tabletop games differentiates depending on the platform. Seven tabletop games have been chosen from different genres with an official digital adaptation. Our approach has been to do a comparative analysis of both versions followed by a user study to analyze and measure the UX differences, measuring five key factors, Usability, Engagement, Social Connectivity, Aesthetics, and Enjoyment. Our results indicate that games that rely on imperfect information offer a much higher social connectivity and engagement when played around a table. Meanwhile, games relying on tile-placement offers higher usability and engagement when played digitally due to the assistance provided by the game. However, the physical versions got, in general, a higher rating than the digital versions in all key factors except slightly in the usability. Physical versions are the preferred options, but the digital versions' benefits, such as accessibility and in-game assistance, makes them relevant for further analysis.

CCS CONCEPTS

• **Applied computing** → **Computer games**; • **Software and its engineering** → **Interactive games**.

KEYWORDS

Tabletop games, Digital tabletop games, User Experience

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1 INTRODUCTION

Tabletop games have been around for thousands of years [4], and its popularity and production has had a steady increase ever since the 1950s [12]. One of the earlier spikes occurred around 1979 when Spiel des Jahres ("Game of the Year") was introduced, awarding the best Card and Tabletop game of the year. It was during the introduction of the class Eurogame, also known as German-style board game that the production of games made the most significant spike [9]. These are games that generally require the player to put in more thought and planning into their decision than party games. The most noticeable Eurogame was Settlers of Catan that was introduced 1995 [21]. Sales of hobby board games in the U.S. and Canada increased from an estimated \$75 million to \$305 million between 2013 and 2016 [22].

Some of the most popular tabletop games get ported into digital versions as computer or mobile games, making them more accessible and, in some cases, playable online. However, while more accessible, playing tabletop games digitally might affect the user experience (UX). Chief Marketing Officer of Asmodee Digital, Phillippe Dao states, "You can't really recreate the exact transposition of a physical board game to a digital platform; it's not possible.". He further adds, "You can't replace the fact that you're playing with friends or family around the table and all the social interactions that you can have." [20].

Researching the effect of porting these games have in UX, would let future developers or researchers make a better estimate of success concerning transitioning their tabletop game to digital, as well as what to expect concerning what users want in digital versions. This study aims to fill this gap by first analysing seven tabletop games and their digital versions to determine how they differ in gameplay mechanics. We also carried out a user study where several playtesters played both versions of the selected games while being monitored for reactions, conversations, and mood. After finishing a set amount of sessions, the participants were given a questionnaire. The presented comparative results show how different the user experience was perceived by means of an adapted Game User Experience Satisfaction Scale (GUESS) [17].

2 MEASURING THE USER EXPERIENCE IN TABLETOP GAMES

UX measurement revolves around three characteristics [1]: (1) a user is involved, (2) that user is interacting with a product, system, or really anything with an interface, and (3) the users' experience is of interest, and observable or measurable. With UX's use in the

development of complex products, there's a possibility for them to remain efficient, user friendly, and engaging.

In this study, the focus is comparing the UX between tabletop games with their digital counterparts by using the following steps; *Task Success, Efficiency, Self-reported Metrics* and *Combined and Comparative Metrics* [5]. The comparisons will mostly focus on physical and digital versions of each game, but it can also be used to compare all physical and digital games as a whole.

3 GAME SELECTION AND COMPARATIVE ANALYSIS

For the aims of this study, we have first selected a set of seven tabletop games with the following criteria:

- Has an official digital implementation with the core mechanics intact and nearly identical artwork. The focus of the study requires a digital implementation that accurately represents the physical version.
- The physical version was released before the digital version.
- Is a representative example of a particular genre. Focusing on one specific genre would threaten the validity of this study; thus, we avoid selecting two games that are similar gameplay- and mechanic-wise.
- Has overall good reviews. Both versions of each game should have reviews available that give insight into the type of game it is, and the probability of it being fun and informative.

Given this, the selected games are presented below, together with brief comparative analyses between their physical and digital versions. Though the focus is on the differences in UX between both versions, game analyses have been carried out following the process described in [6]. Game descriptions are omitted for space optimization.

Carcassonne [23, 24]. The digital version of Carcassonne offers the possibility to play Pass N' Play, against bots, and online with a matchmaking rating to add competitiveness. Furthermore, this version offers many player commodities, such as highlighting possible tile placement and unfinished projects that can't be finished due to the necessary tiles being unavailable. Incorrect tile rotations are not visualized, and players can see how many turns are there left.

Love Letter [7, 8]. The digital version offers the possibility to play against bots, online, and against friends in private multiplayer. The biggest difference between the versions is the face-to-face interaction. In a game of deception and deduction, the players can gather a lot of information about the players from their "physical tells," which renders impossible in the digital version.

Mysterium [15, 16]. The digital version offers the possibility to play Pass N' Play and online. In the online version, there is a chat only accessible and usable by the medium players. In the Pass N' Play a warning is given when the medium player's turn ends to prevent them from accidentally peeking. Further, in this mode, the social interaction remains unchanged since the medium players are still capable of interacting with one another like in the physical version, and the ghost role is to don't speak. Some game tokens in the digital version are taken from their original placement in

the physical game, presented on the player HUD for visualization purposes.

Small World [10, 11]. The digital version offers the possibility to play Pass N' Play, against bots, online, local games over WiFi, and online with a matchmaking rating to offer competitiveness. The digital version saves players most of the token management, as well as highlight active effects during gameplay.

Ticket to Ride [13, 14]. The digital version offers the possibility to play Pass N' Play, against bots, Local games over WiFi and online. Similar to others, this version handles all token management and scoring, as well as hinting players what routes they can fulfill with their available cards. However, Pass N' Play limits the social aspect as each player has to take care not to look as the turn skips from one player to the next.

Twilight Struggle [2, 3]. Twilight Struggle's digital version features online, local, against an AI, and hotseat play. This version handles token and card management, as well as some game progress indicators (DEFCON, space race, military operations). It also gives suggestions to players about what to do with event cards, such as play event or place influence. Hotseat mode faces the potential issue of players attaining information about the other player when turns change. Social conversations between the two players are limited during hotseat, since players cannot see each other playing without peeking.

UNO [18, 19]. UNO With Friends (UNO digital) features offline play against bots and online against friends and matchmaking. Cards are handled by the computer, and The game prevents illegal use of cards, such as using the draw four card when another card can be played. This version does not feature voice communication between players in the online mode but has a chat limited to prewritten phrases and emojis.

4 USER STUDY

Thirty individuals were invited to participate in the user study but, due to the current Covid-19 situation, only 19 were able to attend (five women and fourteen men). Two participants were between 58 and 60 years old, and the rest between 23 and 37 years old. Sixteen of the participants self-reported as experienced players (play at least 10 hours/week), and three played games on rare occasions.

The participants were first introduced to the digital games as it allowed them to learn the rules quickly without focusing on token or card. Only the participants took part in the gameplay, and no AI bots were involved in the digital games. Every involved participant played each version of the game three times. The playtests for the digital versions were made online due to the accessibility and the legitimacy of games that depend on imperfect information. This allowed us to run more tests as we did not have to use time when doing the physical version test, but hindered us from observing the participants' reaction during playtests. Digital game tutorials were not allowed during the tests, but game rules assistance was offered when needed. Each game had a set amount of sessions for the playtesters to understand the rules and give a fair evaluation, deriving in more reliable results.

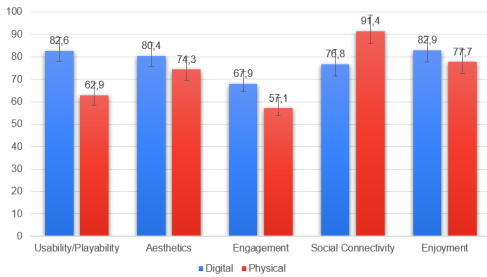


Figure 1: Carcassonne.

Mysterium was a special case since it requires one of the playtesters to play as a ghost while the others play as mediums. One of the playtesters started out playing as the Ghost, and the positions were rotated after each session. Discord was used to keep an open social interaction channel between the players.

A questionnaire was handed out to the participants after a complete set of sessions for both versions of the game. The questionnaire was composed following an adaptation of the Game User Experience Satisfaction Scale (GUESS)[17] that uses a scale from 1-7 for evaluating different game features. Customization was made to remove videogame-related aspects that were not relevant to our purpose, as well as to focus on core game mechanics and game genres. The resulting features are:

- *Usability* represents task success and efficiency. For instance, understanding rules or being able to navigate the board.
- *Engagement* represents how engrossed the player is in the session. For instance, if they are in suspense on pending results or worried about getting found out.
- *Social Connection* represents the social aspects of the game. For instance, conversation and interaction between players.
- *Aesthetics* represents the visual and possible audio aspects. For instance, how art matches the game’s theme or pretty to look at.
- *Enjoyment* represents the amount of perceived pleasure and delight resulted from the player playing the game.

Responses to questions were aggregated into a total score, divided by the number of responses to get an average and then remapped from 1-7 to 1-100.

5 RESULTS AND DISCUSSION

Here we show the results from the custom GUESS questionnaire and discuss them in combination with observational data.

Carcassonne had a higher Usability score for the digital version (Figure 1), mostly due to automation. The digital game calculates and visualizes all scores, which allowed players to remain more engaged with what was happening during each turn. On the other hand, the slower pace of the physical version also led to a rather high Social Connectivity than the digital version. After combining all the factors, the average was 78.1 points to Digital and 72.7 points to Physical, showing that it’s more enjoyable on PC. 8 testers played the digital version and 5 played the physical version. Each playtest involved between 3 and 5 players.

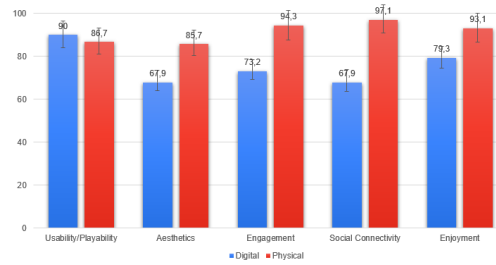


Figure 2: Love Letter.

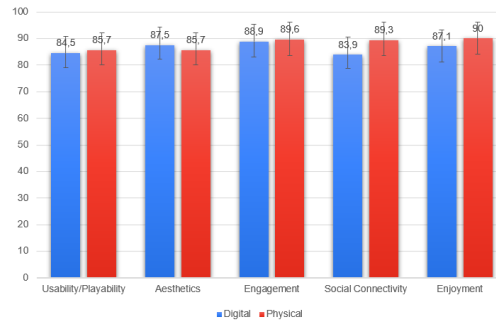


Figure 3: Mysterium.

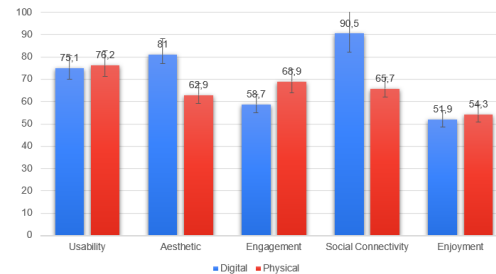


Figure 4: Small World

Figure 2 shows that the digital **Love Letter** got a slightly higher score in Usability. The tester valued positively the better overview of the already played cards in it. Physical Love Letter far exceeded its digital adaptation in Social Connection and Engagement. Missing the face-to-face element kept players from trying to read another player’s expression and moves, as well as from making an impressive play that frequently led to a mix of laughter and astonishment. 8 testers played the digital version and 5 played the physical version. Each playtest involved between 3 and 4 players.

The scores in **Mysterium** (Figure 3) are near equal overall with a slight exception for the Social Connection. The digital implementation of the asymmetric game was well-received, and players discussed each other’s clues and cards freely in both versions. The majority of testers expressed a preference for the physical version due to being easier to set up at social gatherings. The digital online mode was deemed poor for this purpose. 8 testers partook in both versions. Each playtest involved between 3 and 5 players.

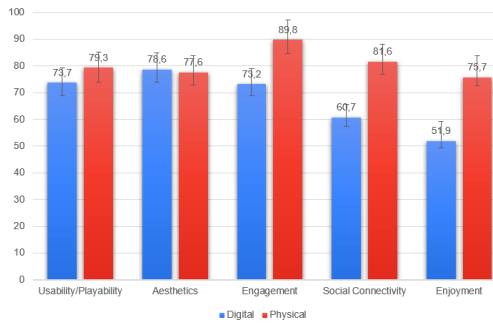


Figure 5: Ticket to Ride.

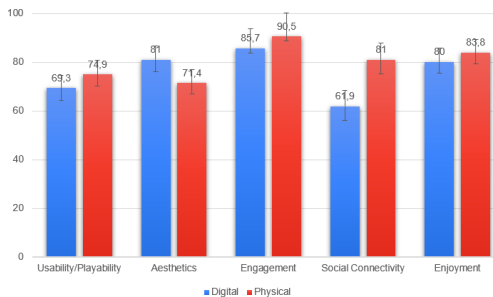


Figure 6: Twilight Struggle.

Small World's rating of Usability is very close between the digital and physical versions 4, whereas Aesthetics and Social Connectivity, was highly rated in the digital version. From our observations, the digital version led to more chaotic gameplay where players enjoyed sabotaging their opponents rather than aiming to win. The physical version focuses more on politics and competitiveness, which, together with the impact of the players placing and removing the tokens from the board, led to a higher Engagement rating. 6 testers played the digital version and 5 played the physical version. Each playtest involved between 3 and 4 players.

Ticket to Ride (Figure 5) scored higher in the physical version of Engagement, Social Connection, and Enjoyment. Engagement scored low in the digital version due to the difficulty of keeping players' cards secretly when playing Pass N' Play. Also, managing the actual train car tokens produced a very positive impact on the physical version players, reinforcing their moves and decisions. The slower pace in the physical version was also valued positively towards building Social Connection. 8 testers played the digital version and 5 played the physical version. Each playtest involved between 3 and 5 players.

Social Connection in **Twilight Struggle** (Figure 6) scored much higher in the physical version. Unexpectedly, for a heavy micromanagement game, Usability scored slightly higher in the physical version. The automatic micromanagement in the digital version made testers feel that they had less control over the gameplay. The players appreciated the digital version because it's less time-consuming. 3 testers played both versions. As this is a 1v1 game, only two playtesters partook in each session.

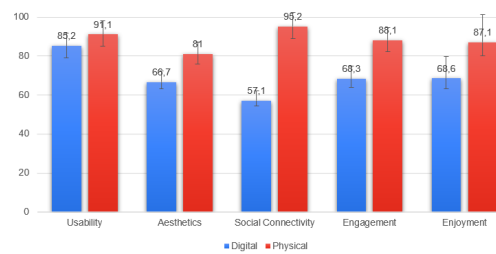


Figure 7: UNO.

The physical version of **UNO** scored higher than the Digital version in all metrics, as seen in Figure 7. Usability scores are quite closely matched due to the game's simplicity in both versions. The micromanagement was, therefore, not significant enough for the digital version to score higher. The lack of proper online communication in the digital version turned into a very low score in Social Connectivity since inter-player communication is key in UNO's gameplay. Digital Engagement scored low primarily for the inability to read other players' intentions. 6 testers played both versions. Each playtest involved between 3 and 5 players.

6 CONCLUSIONS AND FUTURE WORK

We have shown the results from an initial comparative study on the UX in digital and tabletop games. These results show that the analyzed digital tabletop games can't offer the same social interaction and engagement as their physical counterparts, especially in games with a strong imperfect information component. Social Connectivity only scored higher in the digital Small World. Automated management let players feel invited to play in a more unconcerned fashion that fostered social interaction. Notice that without using external tools for digital communication, digital social interaction would have been impossible.

Digital conversions are frequently higher rated in Usability due to the commodity provided by automating component and score management. Another factor that was proven important during the playtesting was availability since online options allow people to spontaneously and quickly gather a group of players.

Interestingly, automation caused a negative reaction in digital Engagement for Twilight Struggle and Ticket to Ride, since component management was very well valued by players. The only case with a higher digital Engagement was Carcassonne, due to alleviating the tile placement that was appreciated by players.

For future research, we would expand the number of playtesters to cover a more varied gaming background. It would also be interesting to include more games per genre and test games that rely more on dice-rolling.

GUESS customization allowed us to carry out this first evaluation, but a deep analysis of the consequences of this adaptation should be carried out, promisingly leading to the design of a specific tabletop game user experience evaluation tool.

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