What Tabletop Players Think about Augmented Tabletop Games: A Content Analysis

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ABSTRACT

In recent years, multiple tabletop games have been released which harness the power of smart phones and tablets to enhance their gameplay. We call these games "augmented tabletop games." Such games have met with a variety of reactions from traditional tabletop gamers, ranging from highly negative to highly positive. The main purpose of this study is to understand the opinions and attitudes of players on the emerging augmented tabletop games. The study also aims to come up with suggestions for game developers by revealing player expectations. A qualitative content analysis was carried out on prevalent tabletop gaming forums. In total, 928 posts on 15 threads were analyzed. From these we derived typologies of negative and positive attitudes towards augmented tabletop games. The overall findings are summarized in a conceptual model. We use this model to discuss design implications for developers of augmented tabletop games.

CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**; • **Human-centered computing** → **Interactive systems and tools**

KEYWORDS

Augmented tabletop games, app driven games, content analysis

1 INTRODUCTION

In the last decade, tabletop gaming has experienced a renaissance. Every year, thousands of new games are published, and the quality of those games is increasing [1]. Kickstarter is currently a popular platform for the production and release of new tabletop games. According to the Kickstarter revenue numbers, funding for tabletop game campaigns is increasing each year and is much higher than for video games [2].

A relatively new development is that developers of tabletop games are experimenting with augmenting the physical games with digital counterparts. Some of the main enablers of these attempts are the pervasive usage of smart phones, proliferation of the mobile market, the advent of mobile applications, and advances in augmented reality technology. With the release of some noteworthy augmented tabletop games, different perspectives on these developments can be seen in the opinions expressed by the game players. Some of them embrace the change and are excited about the possibilities of new designs and new ways of playing, while others seem to be indifferent or are showing predominantly negative opinions on augmented tabletop games.

A variety of motivations for negative and positive attitudes towards augmented tabletop games can be found. The aim of the present study is to understand these motivations, to reveal what players think about the augmentation of tabletop games, and to provide developers and designers of these games with suggestions for their future design endeavors.

2 BACKGROUND

Augmentation of tabletop games has been studied for a while now, mostly from the perspective of design choices. Such studies present the design procedure and technical aspects of a particular augmented tabletop game and then come up with implications for design of such games. The games used in these studies employ a variety of digital items such as projections [3], controllers [4], sensors [5], webcams [6], handheld devices [7] and multi-touch surfaces [8, 9, 10].

Some studies investigate typical traditional (analog) tabletop games to derive design choices for their full digitization [11, 12,

13, 14, 15]. Other studies analyze augmented tabletop games to explore the design space [16, 17] to come up with a typology of such games [18] or with design heuristics [19].

Comparative studies have found differences between analog, augmented, and digital versions of tabletop games in terms of several dependent variables such as player experience [20], collaboration [21], mindset [22], flow and immersion [23], and enjoyment [24].

Most of the literature is concerned with the design of augmented tabletop games and their relation to analog or digital versions of those games. We have found no studies, however, which inspect the acceptance of these kinds of games by players. The present study aims to investigate players' attitudes towards augmented tabletop games by analyzing statements of these players in public spaces.

3 METHOD

To pursue the research objective, qualitative content analyses were carried out using two main tabletop gaming forums, where players expressed their opinions on augmented tabletop gaming. The selection of the forums was based on our domain experience. The two forums selected were boardgamegeek.com, which is the main platform where players specifically discuss tabletop gaming, and reddit.com, which has its own sub-forum dedicated to tabletop/board gaming. In order to find the pertinent threads, search strings were formed and concatenated with the forums names in front. The resulting search strings were then used in Google search from a browser:

(boardgamegeek + OR + reddit) + AND + (app required + OR + enhanced + OR + app driven + OR + augmented + OR + augmented reality) + AND + (board games + OR + tabletop games)

The 30 most relevant results from Google search were inspected. From the results, we selected the threads that included discussions of players on augmented tabletop games.

In total, we inspected 15 threads (8 from boardgamegeek.com and 7 from reddit.com) where the number of posts ranged from 6 to 250. The total number of posts analyzed was 928. The dates of the threads ranged between July 2013 and August 2017. The selected threads were archived as .pdf files. We then coded the posts in the threads, in line with the qualitative content analysis literature [25, 26, 27].

4 AUGMENTED TABLETOP GAMES MENTIONED IN THE DISCUSSIONS

Some of the posts we examined discuss specific augmented tabletop games. Sometimes these games are brought up as examples in a general discussion. We have coded the number of times specific games appeared in the texts. The games most referred were Mansions of Madness 2nd Edition, XCOM: The Board Game, Alchemists, and Descent: Journeys in The Dark 2nd Edition. These four games are rather well-known by the

community. The rest of the games mentioned were less-well known, to varying degrees. An overview is shown in Table 1. While Table 1 does not contain an exhaustive list of augmented tabletop games, it gives an idea of the modern augmented tabletop games that are being discussed among players.

Table 1: Most-often Mentioned Games in the Discussion Threads Examined

Name of the Game	# of Times Mentioned	% of Posts
Mansions of Madness 2nd Edition	69	7.4%
XCOM: The Board Game	49	5.3%
Alchemists	41	4.4%
Descent: Journeys in The Dark 2nd Edition	22	2.4%
World of Yoho	7	0.7%
Golem Arcana	6	0.7%
One Night Ultimate Werewolf	6	0.7%
First Martians: Adventures on the Red Planet	4	0.4%
Specter Ops	3	0.3%
Mask of Anubis	2	0.2%

5 VIEWS ON AUGMENTED TABLETOP GAMES

As expected, the attitudes in the content of the messages were clustered in three major categories: Positive, Negative and Neutral. The responses of players in the forums were on different abstraction levels. Some of them gave great detail about their motivations, whereas others just commented on a very general level. We decided to order them into a hierarchical typology of responses, discussed below.

5.1 Why Do Players Resist Augmented Tabletop Games?

The analyses resulted in 15 separate themes for negative attitudes of players towards augmented tabletop games (Figure 1). These can be treated as unmotivated negative attitudes and motivated negative attitudes. We made this dichotomy because some of the posts contained negative attitudes of players without explicit reasoning, whereas some of them included reasons for their negative attitudes.
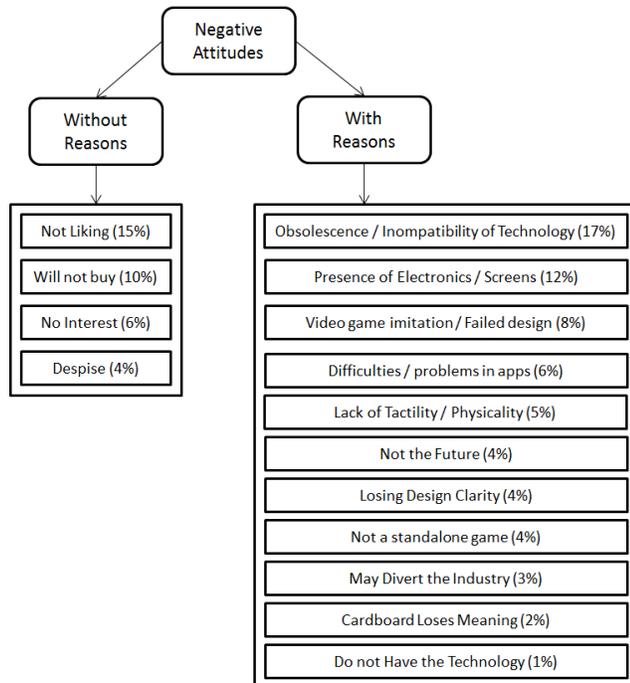
Figure 1: Negative attitudes of players towards augmented tabletop games.

Negative attitudes without reasons included (i) no interest in augmented tabletop games ("I have no interest in board games with apps"); (ii) not liking these types of games ("Board game requiring an app is off-putting"); and (iii) despise of the idea of augmented tabletop games ("I despise them"). Other than these, there were also players who definitively stated that (iv) they will not buy any type of augmented tabletop game ("I will not buy or play board games that require me to stare at a screen"). Although these attitudes inform us descriptively, the responses by themselves give us little information as to why there is certain attitude in the first place. Therefore, we turn our attention to the other sub categories.

The remaining eleven reasons that are listed in Figure 1 are discussed below, including a typical statement which expresses the reason, and the percentage of posts which contain the reason. The reader may note that there is some slight overlap between some of the reasons, but we tried to categorize them distinctly to the best of our ability.

Obsolescence ("I echo the concerns not being able to play when the software become obsolete"; 17%): Most of the negative attitudes come from the considerations that the technology that a game uses will become obsolete in the upcoming years. There is a prevalent suspicion in the community that the company which produced the game will not support or will cease to support the technology that the game requires to run (i.e., the app) after the game goes out of print. Consequently, the belief is that the game will become unplayable and thus worthless in a number of years. Some players state that they play 20-30 year-old tabletop games and argue that tabletop games should be timeless. One example

given by the players for technology obsoleteness is how cassettes and VHS tapes are not used anymore. They also mention that old video games are sometimes hard to run. It is acknowledged that fans in the community might take the responsibility of trying to maintain the software, yet players do not know if that actually will happen for each game. Even if the community itself tries to maintain the software, it is unclear whether the company will allow this or not. Players claim that control over their game is being taken away from them by the integration of digital media. From a technological perspective, emulators are seen as the last resort. Nevertheless, many players believe that emulators are not a good solution, because of compatibility issues, lack of technological knowledge, and emulators being a hassle to run. In general, the consideration is that software maintenance will be a constant factor in keeping a game alive, and the uncertainty of such maintenance seems like a major barrier for the market success of augmented tabletop games.

Presence of electronics ("I buy board games to be independent of electronics"; 12%): The very existence of electronics in tabletop gaming is considered inappropriate by some, as tabletop gaming is conventionally a physical domain. Most of the players who vent complaints in this category state their appraisal for the lack of electronics in the hobby, and express a feeling that the digital augmentation of tabletop games is counter to why they play games. They want to "get away" from technology, computers, and phone screens. They seek a place where there is no need for batteries or electricity, and desire a "screen-less" time outside their workplace. Smart phones are considered a distraction as they do not belong at the game table. Using a phone for playing a game might pave the way for people to use their phones for other purposes during the game, which will detract from the experience for everyone. This easy access to smart phones also makes players more vulnerable to instant messages during the game. Moreover, passing around a tablet is thought to detract from the tabletop gaming experience. Finally, there is mentioning of a possible lack of tech-savviness among players, and claims of living in rural areas with frequent loss of electric power which might disrupt game playing.

Video game imitation ("If a digital device is handling the computational aspects then it is a video game"; 8%): Augmented tabletop games are criticized for being deficient video game imitations. Players state that augmented tabletop games can be converted to a full-blown PC or app games, so that the developers can maximize the utility of the software. It is claimed that if a tabletop game needs an app to play, then it is based on a failed design. In other words, players think that the design should be simple and should work with only physical components. If it cannot uphold this principle, then it is too complex to be a tabletop game. The idea is that the design should not include tedious bookkeeping only to incorporate apps to compensate for that tediousness. The incorporation of apps make the games appear as if they are deep, which is not necessarily the case. Moreover, it hurts the elegance in design.

Difficulties in apps ("Smartphone is a complex device itself"; 6%): Augmented tabletop games, by definition, are vulnerable to

technology glitches. Players remark that usage of smart phones is rather complex, compared to the pure physical form of gaming. Accidentally resetting or doing irreversible things, losing a saved game state, interruptions due to draining of the battery or crashing/freezing of the applications are all possible downsides of the use of technology. Moreover, since the screen size is limited, it prevents the players from "seeing everything in one glance." Because of the small form factor, reading texts becomes tedious or may obscure other elements on the screen. The requirement of players having to wake and unlock the phone every time it is needed during the game is considered an inconvenience. Finally, apps are rigid in how they control the game, which prevents the players from "house ruling" (i.e., making small changes to the rules to make the game more fun for the specific players involved).

Lack of tactility ("Board games have tactile feeling that you cannot get from a device"; 5%): The claim is made that a lack of tactility/physicality detracts from game experience. It is stated that there is joy in the fact that tabletop games depend entirely on physical objects. Setting up the game, moving the pieces, interacting with the board, manually rolling dice, manipulating the overall game, feeling and smelling of the physical components are what provide enjoyment. One player, for instance, claimed that they like the "quaint nature" of tabletop games.

Not the future ("App required board games are fad"; 4%): Some players have negative attitudes towards augmented tabletop games, as they disagree with the idea that augmented tabletop games are here to stay. They think that their novelty will wear off quickly and people will not like them in the future. Their idea is that there will be only few such games and that the majority of tabletop games will be tech-free. They believe that if an augmented tabletop game is good, app-less versions will be created.

Losing design clarity ("Board game is a board game because of its transparent mechanics"; 4%): Some players, who take a design perspective, care for the design clarity of tabletop games. They like the creation of rulesets under the limitations and constraints of physical components and cardboards. Some of these players enjoy figuring out the entire mechanisms by themselves without the aid of a device. To be able to do this, they desire transparent mechanisms in a game. For instance, if there is randomness, they want to be able to calculate the odds, and not depend on an app to present results from opaque calculations.

Not a standalone game ("I wouldn't buy a board game that uses an app since it is an incomplete box"; 4%): Most traditional tabletop games are delivered "complete in a box" without requiring any other items to be played. Augmented tabletop games require external devices, and thus create an impression that they are not complete games in a box. To be a proper tabletop game, it is argued, the box needs to include all required components.

May divert the industry ("I hope they don't make further headway into the gaming industry"; 3%): Some of the players are worried that the industry, jumping on the bandwagon of electronics in games, will be flooded by technology-dependent games. They are bothered that increasing numbers of games are being published which require apps, and that these games are getting popular attention from the community. They do not want a future where all games are augmented, and they hope that the industry will not move in that direction. A major concern is that existing titles will see a future release which is augmented (this happened with two of the four best-known games mentioned at the start of this paper, notably the second editions of *Mansion of Madness* and *Descent*, of which the first edition did not need an app). Moreover, they are afraid that the inclusion of technology in games will make the games more expensive to develop, and thus that technology gobbles up resources which would otherwise be spent on making good tabletop games.

Cardboard loses meaning ("Feels like the physical game is only there to support app"; 2%): Several players fear an inversion of the focus of a game, where the cardboard loses meaning, becomes obsolete, and is only present as support for the app, rather than the other way around.

Do not have the technology ("Never tried, never will because I do not own devices"; 1%): Finally, some players claim that they cannot play augmented tabletop games as they do not own digital devices.

5.2 Why Do Players Welcome Augmented Tabletop Games?

Now that the reasons for rejecting augmentation in tabletop games have been laid out, we turn to the other side of the coin: we discovered multiple themes for why players accept and embrace augmented tabletop games (Figure 2).
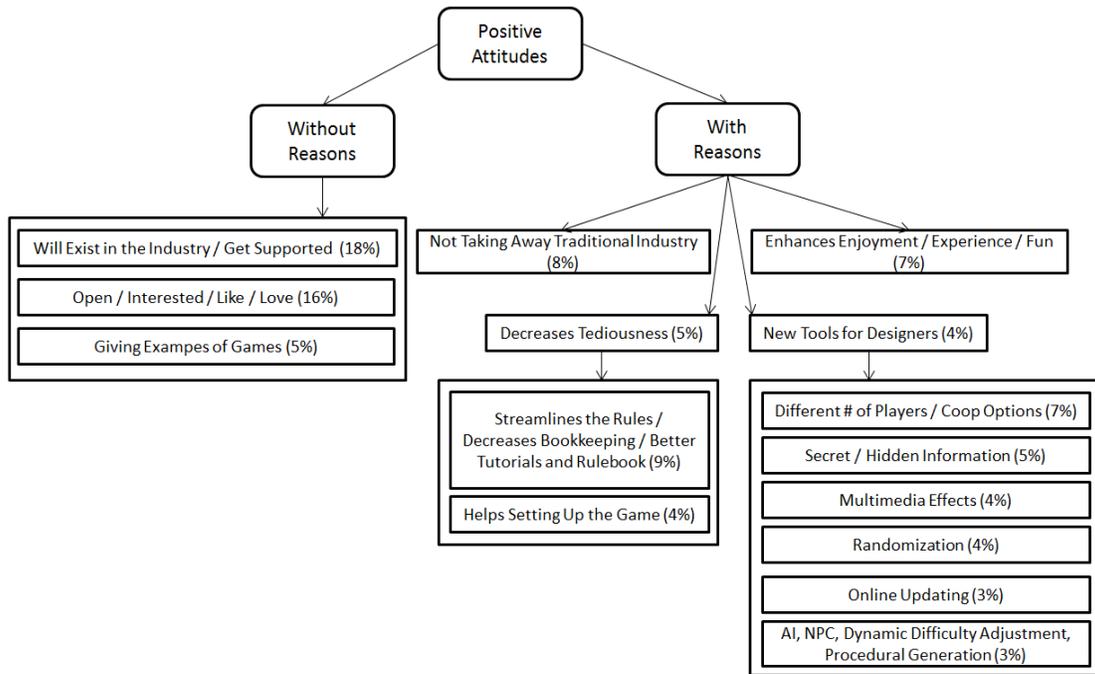
Figure 2: Positive attitudes of players towards augmented tabletop games.

As in the negative attitudes category, some of the players in the positive attitude category stated their attitude without any explicit reasoning. These players stated that (i) they love ("I love the mix of technology with cardboard"), like ("I like the trend"), are open to ("I am open to app driven games") or are interested in ("I am interested in the Descent and Mansions of Madness apps") augmented tabletop games; (ii) they feel that this genre will exist in the gaming industry and be supported by the game development companies regardless of what some players think; or (iii) just give examples of games. These claims provide little information on the causation of the positive attitude.

Four groups of argumentations for a positive attitude towards augmented tabletop games are discussed below. Two of these groups have multiple sub-groups. The percentage listed for the group as a whole is the percentage of comments in this group without further reasoning/explanation (i.e. 18% of the posts fall in *decreases tediousness* group).

Not taking away traditional games ("You can still sit with friends holding cards and dice collocated"; 8%): In response to negative comments on augmented tabletop games, some players state that the core elements of traditional tabletop games still exist in augmented tabletop games. The players can still hold cards, roll dice, move pieces and live all the physical/tactile experience. The overall claim is that augmentation will not change tabletop games as much as the worries of the opponents seem to indicate.

Decreases tediousness ("The app delivers a less tedious experience"; 5%): A major reason for positive attitudes towards augmented tabletop games is that they may decrease tediousness in games. Two major aspects of games where an app may help decrease tediousness were mentioned; these are listed below.

Decreases tediousness: **Streamlining** ("I like apps when they help keeping track of things"; 9%). Augmentation may streamline tabletop games. The games get more fluid by enforcing some of the rules, rather than have the players worry about rules, and decrease human errors by taking over tedious bookkeeping procedures. The software can handle math and complex calculations if needed, automate some activities, speed up the game and still leave high level decisions to players. The software can replace big instruction books and help the games take less storage space. An app can incorporate a tutorial for players to easily get acquainted with the game.

Decreases tediousness: **Setting up the game** ("App improves insane setup time"; 4%). For some of the more complex traditional tabletop games, setting up of the game requires effort. Before the actual play begins, players need to arrange the board, shuffle the cards, place the game bits, sometimes following the rulebook line by line for intricately designed scenarios. Such a setup may take hours of preparation in extreme cases [28]. Augmentation may decrease setup times, leaving more time for playing.

Enhancing enjoyment ("Devices may be used to enhance the enjoyment of the game"; 7%): Some players claim that digital devices may enhance enjoyment and provide unique experiences. Augmenting tabletop games may create new mechanisms, new ways of playing, and improve immersion.

New tools for designers ("It is another tool for a game designer"; 4%): The introduction of the digital devices to tabletop

gaming may supply game designers with new tools. Six particular categories are mentioned, which are discussed below.

New tools: **Different numbers of players** ("Apps can make games more accessible for different number of players"; 7%). Augmented tabletop games may give players the opportunity to play with different number of players. Some games inherently require a game master or particular numbers of opponents to play. Augmented tabletop games have the power to assume the role of the game master or an opponent, allowing for cooperative play against the board or against an AI player, or playing with less than the required number of players.

New tools: **Secret information** ("Apps are handy for managing secret information"; 5%). One of the properties of video games is their ability to preserve player-specific secret information. Fog of war is an example where a player is not allowed to observe the whole game state. This creates an element of mystery, surprise and curiosity in a game, possibly creating suspenseful moments. Maintaining global hidden information and also maintaining the secrecy of distributing hidden information is hard to design in a fully physical environment. Not only do augmented tabletop games make secret information easier to implement, they also may offer new design possibilities which have not been explored before. Secret trading, secret identity/role assignment, hidden movement (e.g., stealth units), and hiding are all possible mechanisms which may benefit from digital enhancement.

New tools: **Multimedia effects** ("Games with story, action and atmosphere benefit from apps"; 4%). The ability to incorporate multimedia properties of digital devices to games may create new game experiences. Theme music, sound effects, voice overs, intros, outros, timers and animations are some examples of such multimedia effects. These might allow designers to trigger different emotions (e.g., tick-tocking to create tension). Some players state that in particular in story-driven games, special effects greatly increase player immersion.

New tools: **Randomization** ("It's nice that it can randomize so new things every play"; 4%). It is stated that augmented tabletop games have the possibility to use software for randomization of events. This has both the effect of decreasing manual randomization efforts (e.g., shuffling of cards), while also generating the possibility of breaking a game's linear procedures. Preventing repetition increases the replayability of a game. Examples can be the generation of random events at certain times, creating random locations on a map, or adding random modifiers before reaching a numerical result.

New tools: **Online updating** ("Apps being able to add future scenarios is exciting"; 3%). The content of a game may be updated by the developer/publisher over the internet when a digital device is used. This may provide some games with virtually infinite replayability. Examples given by the players include adding new cards, new scenarios, new quests, flavor texts, and expansions. Online updating also minimizes the effort of providing errata for a game.

New tools: **Artificial intelligence** ("App may allow for a better AI than a deck of cards"; 3%). Augmented tabletop games may utilize artificial intelligence algorithms to come up with non-playable characters (NPCs), dynamic difficulty adjustments, informed quest generations, adaption to play styles, etcetera. Realistically, having an AI in a game is only possible when a game is digitally augmented.

5.3 Neutral Suggestions and Comments

The neutral entries mostly comprised of suggestions and comments (Figure 3). As these comments are of little relevance to our study, we will only briefly discuss them.
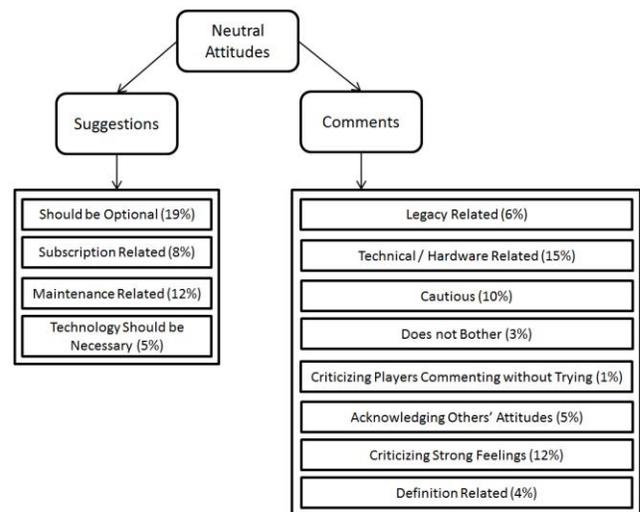

Figure 3: Neutral attitudes of players towards augmented tabletop games.

One suggestion posed was that the technology used for these games should be optional rather than mandatory or essential. This makes a game "a complete game in a box," with the possibility of augmenting it digitally. A related suggestion was that technology should only be incorporated to a game if it is absolutely critical to the design, when physical components are impossible to use.

Almost all of the players seem to be opposed to the idea of a subscription-based model, where an app can only be "rented" from a store. However, some of them stated that they were willing to pay for new content.

Maintenance of apps was considered an important topic, with mixed views on the number of years that a company should maintain their software. Some players claimed that they should be maintained as long as the physical components last (i.e., virtually forever), whereas others came up with more realistic expectations such as 5, 10, or 20 years. One suggestion was that freeing the software from mobile markets and making it browser-based might decrease maintenance efforts.

6   THE MODEL

To summarize the findings, we came up with the model shown in Figure 4. This model was built on the categories that emerged from the analysis of the raw data.

From our study of the comments on augmented tabletop games, we hypothesize that three factors lead to a positive attitude towards augmented tabletop games. These are (1) ease of use, (2) novelty, and (3) enjoyment. Ease of use is related to decreasing the tedious aspects of tabletop games, such as setting up a game, learning the rules, or making calculations. Novelty is related to the new tools that digital media provide to designers to create new experiences. Enjoyment relates to enhancing experiences with, for instance, digital effects or personalized play. The relationship between ease of use and attitude, and enjoyment and attitude were tested in numerous hedonic contexts such as social network games [29] and online video games [30, 31].

We also hypothesize that three factors lead to a negative attitude towards augmented tabletop games. These are (1) experience with tabletop gaming, (2) lack of trust in company maintenance, and (3) negative attitude towards technology. Experience with tabletop gaming refers to the fact that the more a player has experience with traditional tabletop gaming, the more prevalent themes like "losing tactility," "losing design clarity," and "losing the meaning of cardboard" are. Lack of trust in company maintenance refers to the fear that the technology to play a game gets obsolete quickly as companies abandon games that no longer sell. Negative attitude towards technology refers to players being averse to using technology during gaming or not owning the required technology.
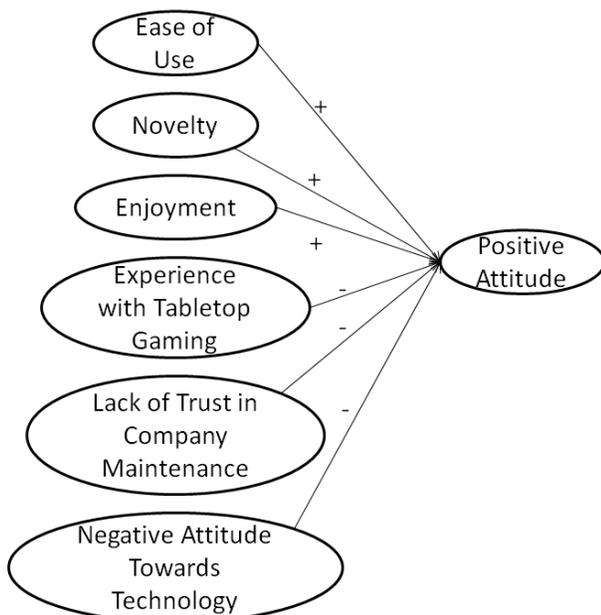

Figure 4: The conceptual model for the acceptance of augmented tabletop games.

7   IMPLICATIONS

From a theoretical point of view, we have come up with an acceptance model for augmented tabletop gaming, based on a qualitative study of discussions of players of these games, and players of tabletop games in general. This model has implications for augmented tabletop game designers.

The results showed that players are worried that the technology required may get obsolete. Therefore, developers and publishers should be mindful about the type of technology used. They need assure the players that technology support is guaranteed for a reasonable amount of time. Alternatively, developers may consider the use of technology as being optional.

Some players feel that augmented tabletop games are failed imitations of video games. To win over such players, they should be convinced that the essence of their game is still a tabletop game. Whatever the technology and whichever way it is distributed, the tactility and physicality aspects of augmented tabletop games have to be preserved, if a game in this genre is targeted towards the tabletop gaming audience.

Of particular importance is that technology should not be found an obstruction to game enjoyment. Applications should be as bug-free as possible. Having manual save options, backup saves and undo options seems to be crucial. Developers should also consider that there are many different technological solutions that players might want to use, rather than relying only on mobile applications alone (e.g., players might want to use a laptop).

8   CONCLUSIONS

Modern augmented tabletop games have been introduced into the hobby market for a while now, and the increasing trend shows that the area will be explored more in the upcoming years. Designers should take note that, while many players see digital augmentation of tabletop games as a positive change, there are also many who are weary about the impact that digital technology has on game playing. This study provides multiple reasons for negative attitudes of tabletop players towards digital augmentation, while also showing which positive effects players see. The study can thus be used by developers to make their games acceptable to a large audience.

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