

“Show your cards!”: What do creators need for the game design process?

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ABSTRACT

In this paper we present the results of our research exploring the possible challenges board game creators might face while developing and playtesting games and we identify user requirements for their ideal digital game development platform. Our goal is to gain insights into the game development process and foster a deeper understanding of the creators’ perspectives and needs to inform our design of an effective digital tool to support them. We proceeded in two stages: (a) researching the web for designers’ views on the creation process, as well as reviews of commonly used digital tools, and (b) creating a questionnaire based on the information acquired in step (a) and organising a user study. 16 board game developers participated in the study, whose valuable feedback along with the data gathered from the online research will set a strong foundation for the development of an innovative platform.

CCS CONCEPTS

• **Human-centered computing** → **User studies**.

KEYWORDS

board game design, playtesting, digital tools for board game creation, user study

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1 INTRODUCTION

The design and development of board games can pose many challenges to both new and experienced creators. These can be related with time or monetary investment, access to resources, as well as recruiting players to playtest their game. Digital tools for board game design are the technological solution to these problems, by providing creators with digital resources to design, prototype, playtest and even distribute their games online using just their personal computers. These tools of course offer specific advantages, however

they also come with their own set of shortcomings. Consequently, research in the field of digital board game prototyping and creation is still uncharted territory.

In this work, we aim to identify the challenges of creating a board game in the physical world, explore the capabilities and weaknesses of relevant digital platforms, as well as gain insight into what board game creators need out of a digital game design and development tool. Our goal is to examine the different perspectives of creators to work towards supporting them by ultimately developing their ideal tool, taking advantage of the technological advances made in the field. We approach this objective by carrying out a user study with board game creators using a custom questionnaire. The questionnaire was created based on: (a) online research for reviews and discussions regarding the steps of the creation process, and (b) by searching for reviews of commonly used tools found online. Section 2 presents a brief overview of the results of the conducted research of (a) and (b). Section 3 focuses on our methodology for the user study, while Section 4 presents the findings. Section 5 discusses the results and concludes the paper.

2 BACKGROUND

In this section we present the approaches of board game creators regarding the creation and playtesting processes, as well as their views on relevant digital tools. Considering the lack of research in the area and that the content we are looking for can come in many different formats across the internet, we searched the web for independent designers’ articles, reviews or blog posts. In addition, we performed a deep dive into discussion forums of tabletop and board gaming communities in order to search for threads that could prove useful. Specifically, when it comes to the forums, we ended up referring to discussions found on BoardGameGeek’s “Game Design” forum, as well as the “boardgames” and “tabletopgamedesign” topics on Reddit (subreddits).

2.1 Game design and development process

Looking at the different approaches creators might have when it comes to game design and development as a process, we can see that designers often break the process down to steps, each designer offering their own perspective on the task. One approach defines the process as the following sequence of actions: (a) Deciding on a concept for the game, (b) Determining the goal: what the player has to do to win, (c) Defining the victory path: how a player has to move through the game to win, (d) Coming up with the gameplay and game mechanics, (e) Making a prototype, (f) Playtesting the game



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with users, (g) Finalise the design and write a rulebook and (h) Publishing the game. Subsequently, by following these steps creators may have a literal walkthrough to replicate in order to transform an idea into a published game [1]. Similarly, a web article published by the Board Game Design Lab describes the design process as a set of tasks. What is interesting however, is the importance the article puts on the internal work and creative decisions a designer has to make before reaching the stage of prototyping. More specifically, it starts with stating the importance of concept ideation as a first step, followed by defining the theme and the mechanisms of the game. Afterwards comes maybe the most important step, the definition of the overall player experience- from the target audience, the innovations and mechanisms, the goal, to finally determining the logistical aspects of the game [7].

2.2 Playtesting

Our next search revolved around the subject of playtesting -the process, the different types and advice individual designers might have to share with aspiring creators. According to an online article published by the City of Games [6], the playtesting of a board game can be organised and achieved in a series of six stages. The first stage consists of playtesting the mechanisms and flow of a rough prototype of the game with 5-10 people for proof of concept, followed by the second stage of testing with 10-20 people where the designer focuses on observing how the users interact with the different mechanisms, how long it takes them to make decisions and the decisions themselves, as well as their emotional reactions. Stage 3 revolves around the refinement of the game’s mechanisms, components and look and feel, while ensuring that the game is fun, exciting and has a good flow. Playtesting with larger groups begins once the refined version of the game is ready, where the creator’s main focus is on gathering feedback from users. Next is Stage 5, where groups of first-time players of the game are asked to test the game on their own using the rulebook, followed by the final stage which is playtesting the game with users who do not play board games to observe how they cope with the rules, the gameplay and mechanisms.

Similarly, an online article found in the Medium’s “UX Collective” topic [5] defines five types of playtesting formats, much resembling the stages described above [6]. These formats are: (a) Solo playtesting, where the creator playtests the game themselves, (b) Quick playtesting, which offers a less strict approach of a playtest session carried out usually with friends or family members, (c) Guided playtesting, a fully-fledged playtest in order to collect feedback from users, (d) Extreme playtesting, which is applied when it is time to refine the game and test unexpected play-styles, and (e) Blind playtesting, which lets users playtest using the rulebook, with no interventions from the creator. Last but not least, a web article about playtesting tabletop games [10] offers interesting advice for designers about the process. More specifically, the author encourages creators to keep their eyes open for the playtesters’ “lies” - as in users being overly nice instead of giving constructive criticism out of politeness. They also prompt them to participate in the process mainly to observe, without intervening to guide, and to never ask for positive feedback. The author urges creators to look for signs and moments when players might feel bored, disengaged, confused

or disappointed, stating however that they should ignore any suggestions users make for solving problems that come up during the session.

2.3 Digital tools and platforms for creators

Over the past years, several digital tools and platforms have emerged to support board game and tabletop game designers with the creative process. Especially since the outbreak of the COVID-19 pandemic and people having to cope with the reality of managing their business affairs mostly from home, game designers had to reach for new ways and resources to support design, prototyping and testing of their concepts [9]. In this section, we will be going over two of the most popular digital platforms within the game designers’ community which integrate all stages of the game creation process, with their strengths and weaknesses. These platforms offer a more complete overall experience compared to others, from prototyping to play. We focus on features catering to the game creation process instead of play, since this work aims to explore these tools and their capabilities from the designer’s perspective.

First on the list is Tabletop Simulator [2], described by users as the most “feature-complete” for designers, with what is probably the largest community for support. It offers unlimited online sandbox access, mod creation and scripting support. However, being so robust is probably the reason the program is quite heavy, requiring a computer with good specifications. In terms of user experience, Tabletop Simulator is reported to have a moderate learning curve and a multitude of shortcut keys that are not easy to memorise and use, according to reviews from designers and comments from users on forums [3, 4, 11]. Next on the list is Tabletopia [13], an online platform which offers creators the opportunity to build games from scratch, as well as use a selection of tools to playtest and promote their games. According to users, being able to create a free account and access the platform on any browser is a strong point, even though they can only create one game for free before having to upgrade. When it comes to user experience, the platform is designed to have context menus of options and actions available for everything during creation and play, which some users seem to find quite helpful. However there have been reports of the website being too slow [8, 11, 12].

3 USER STUDY

Based on the findings of our research on the different perspectives board game creators might have regarding the creative process in general, as well as their views on commonly used digital tools, we organised a user study to collect additional information from board game creators regarding specific aspects of the creative process.

3.1 Questionnaire

We created a questionnaire consisting of the following parts:

Demographic information: This is the introductory part of the questionnaire recording user information relevant to the types of board games they play and how often, the types of board games they have created and how many, and how much time it usually takes between the conception of a board game and its first playtesting session.

Digital mediums and boardgames: This part focuses on the board games they play digitally and the digital tools they have used.

Digital tools and platforms for creators: In this part we recorded the tools the creators use for creating digital versions of board games, such as Tabletop simulator and Tabletopia, as well as their rating and opinion about them. We also recorded the most important features of such tools according to the creators, and the pros and cons of using digital tools to create and playtest a board game in comparison with creating it and playtesting in the physical world.

Playtesting with users: The last part consisted of questions related to the process of playtesting. We cover aspects of cost, time, design iterations, difficulties during the process, methods and difficulty of acquiring testers, ideal number of testers, methods of conducting the tests and recording player feedback, as well as the physical components used for playtesting.

The complete questionnaire can be found [here](#).

3.2 Participants

Subsequently, we reached out to game creators with different levels of experience, from aspiring amateurs to developers with professional expertise, by posting a call for participation along with a link to the questionnaire on several social media groups, discord servers and gaming forums. Out of all the groups and servers we appealed to recruit participants, our posts were approved in 2 facebook groups for game designers and one discord server for tabletop role-playing games. We were also able to recruit some users by creating a thread on BoardGameGeek’s Game Design forum, as well as through reaching out to personal friends and acquaintances who are involved with the creation of games. A total of 16 users with various levels of expertise participated in the study by completing the questionnaire.

4 RESULTS

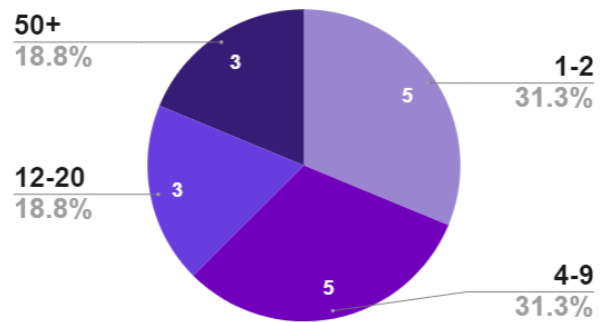
In this section, we report on our findings from the user study.

4.1 Demographics

As mentioned in the previous section, 16 users participated in the study by completing the questionnaire. Regarding their levels of expertise as game designers, out of the 16 users, 31.3% (5) have created 1-2 games, 31.3% (5) have created 4-9 games, 18.8% (3) have created 12-20 games, 18.8% (3) have designed 50+ games, as shown in Figure 1a. The types of games designed by users are presented in Figure 1b.

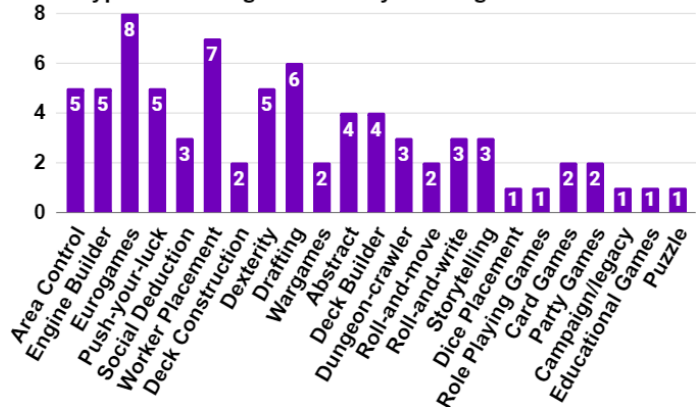
When participants were asked how much time it usually takes them from the conception of a board game idea until organising its first playtesting session the answers varied. 43.75% (7) users reported that the whole process lasts approximately a few weeks to a couple of months, 37.5% (6) of users reported requiring at least a few months up to more than a year, while a small 12.5% (2) of users reported needing just a few days. Other factors play a role in forming these durations, with 62.5% (10) of creators reporting that the time period depends on the time and effort they are able to put in the project, while 43.75% (7) state that the level of the game’s complexity plays an important part as well. The answers to

How many boardgames have you designed/created?



(a) Creators’ level of expertise

What types of boardgames have you designed/created?



(b) Types of board games designed by creators

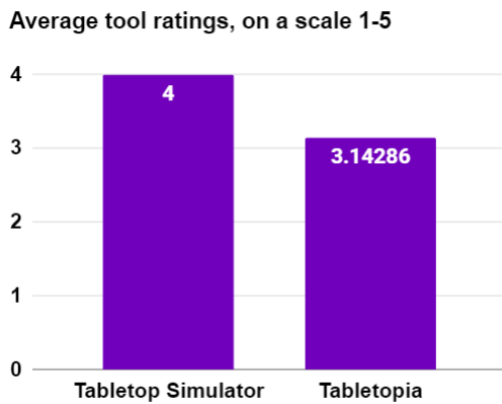
Figure 1: Demographic information about creators

this question were not mutually exclusive and multiple could be selected at the same time.

4.2 Digital mediums and tools for creators

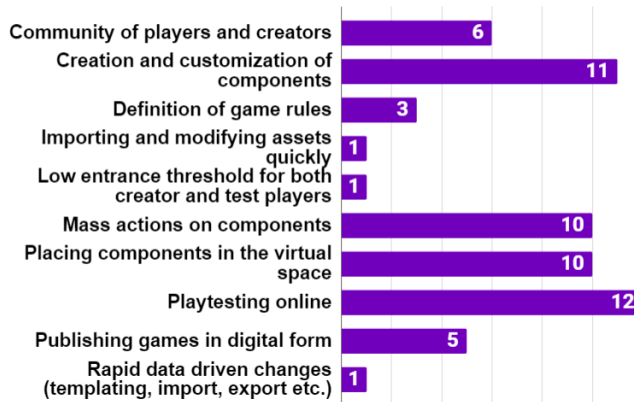
When it comes to the use of digital mediums and board games, the vast majority - 93.8% (15)- of users said they have played board games digitally, while a crushing 87.5% (14) of users stated that they use digital tools to create digital components or build physical components for their games. Some of the most popular tool choices are Tabletop Simulator used by 31.25% (5) of users and Tabletopia, Microsoft Excel, Google Sheets, Adobe Photoshop, Adobe Illustrator, each respectively used by 12.5% (2) of users. In terms of using digital platforms to create a complete board game, 81.3% (13) of users stated that they do so, with 68.75% (11) of participants using or having used Tabletop Simulator, 43.75% (7) of participants using Tabletopia and 18.75% (3) of participants using other platforms. Participants also provided ratings for the platforms they have reported using, the average calculated rating for each platform is presented in Figure 2a. We can see that Tabletop Simulator ranks first with a rating of 4/5.

When asked what are, according to them, the most important features a digital board game creation tool should have, the ability



(a) Participants' average ratings for each tool/platform

What are, according to you, the most important features a digital tool for boardgame creation should have? (multiple answers/user)



(b) Most important features digital tools should have

Figure 2: Participants' answers to questions regarding digital tools/platforms

to playtest their game remotely over the internet was the most popular answer, with 75% (12) of users in agreement. Creation and customization of assets/components is a close second with 68.75% (11) users in agreement, while mass creation, grouping and organisation of assets/components, as well as the ability to place and organise assets/components in the virtual space both earned the agreement of 62.5% (10) of participants. The count of users' preferred features is shown in Figure 2b. Some participants also made comments regarding what they would like changed in the tools. Going over the most popular opinions, 18.75% (3) of users stated that they would like the tools to be more user-friendly, while 12.5% (2) users would like the platforms to have more options when it comes to components and their customization. Last but not least, 25% (4) of users reported to have used VR, and 50% (2) of those users said that they would use VR to playtest their games.

Some of the most interesting feedback received through the questionnaire can be found in the answers given to the open-ended question: "In your opinion, what are the pros and cons of using digital tools to create and playtest a board game in comparison with creating

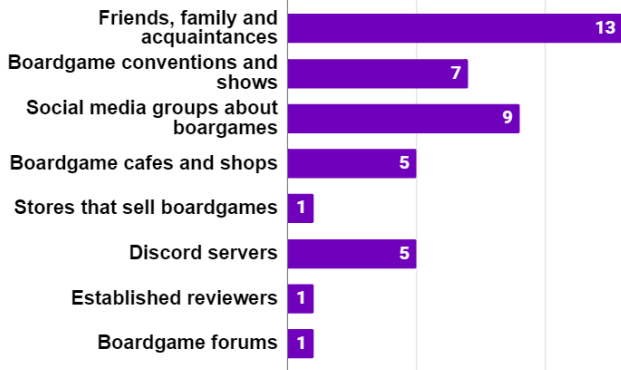
it and playtesting in the physical world?", especially regarding the playtesting process. Even though at least 37.5% (5) of users stated that playtesting is easier, quicker and more accessible when done online/remotely using digital platforms, several users expressed their reservations. More specifically, one user commented that "feedback is much more difficult to gauge online - you can't see people's expressions, body language and behaviour. Therefore you are relying on written/verbal feedback, which can be limited", while 12.5% (2) of users stated that playtesting games that rely on social interaction online is quite hard, considering "the process lacks nuanced player interaction". One user also reported that in the case of games where gameplay is based primarily on utilising the room space or dexterity, playtesting online is very difficult due to the lack of quality game mechanics offered by digital platforms. Another useful comment made is that "All the paragame elements (how touching/using a piece feel, the impact or graphics of specific pieces, use of the body, ergonomics etc.) change a lot while playing online".

4.3 Playtesting with users

In regards to playtesting games with users, a significant 81.25% (13) users reported that they turn to friends, family members and acquaintances to recruit playtesters, while the second most popular answer was posting in social media groups about board games with 56.3% (9) of users choosing it. Again, users were able to select multiple at the same time. A full view of the participants' chosen methods is presented in Figure 3a. 56.3% (9) of users stated that the recruitment process usually lasts approximately a few weeks, 31.3% (5) of users said it takes them a few days, while 12.5% (2) of users reported to require a few months. When it comes to the number of repetitions/cycles of tests and applied changes are required during playtesting a game, 81.3% (13) of users answered that they need more than 10 cycles, with the remaining 18.7% (3) of users being equally divided among 2-4, 4-6 and 6-8 repetitions. Expanding a little on the logistics of the process, a significant 62.5% (10) of users reported that playtesting costs them somewhere between less than a 100 euros, 12.5% (2) of users said that the cost is somewhere between 100 and 500 euros, while 12.5% (2) said that it costs over 500 euros. The remaining 12.5% (2) stated that the cost varies from case to case, since it is dependent on multiple factors. Moving on to the difficulties of the playtesting process, when asked to rate how hard the process of recruiting playtesters is on a scale of 1-5, from very easy to very hard, 33.3% (5) of users gave a rating of 2 (easy), 26.7% (4) of users gave a 3 (neutral), 20% (3) of users rated the process with a 5 (very hard), 13.3% (2) of users with a 4 (hard) and the remaining 6.7% (1) of users gave a rating of 1 (very easy). Some users shared more issues they often have to deal with while playtesting their games, which can be found in Figure 3b.

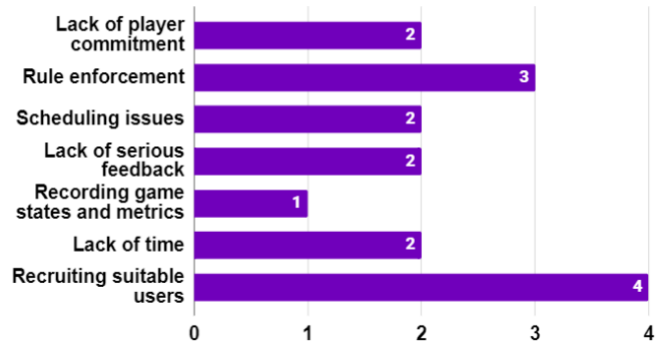
Additionally, the study also included questions regarding the way creators approach various aspects of the playtesting sessions, the methods with which they choose to facilitate the tests and record user feedback. As shown in Figure 3c, the most popular method of playtesting among participants is Group Testing, with 87.5% (14) of users applying it while testing, while facilitation of an open discussion comes second with 68.75% (11) of users' agreement. When it comes to recording user feedback, the vast majority of participants, 93.75% (15), prefers taking notes on paper while

What ways and methods do you use to approach and ask users to playtest and provide feedback about your boardgames?



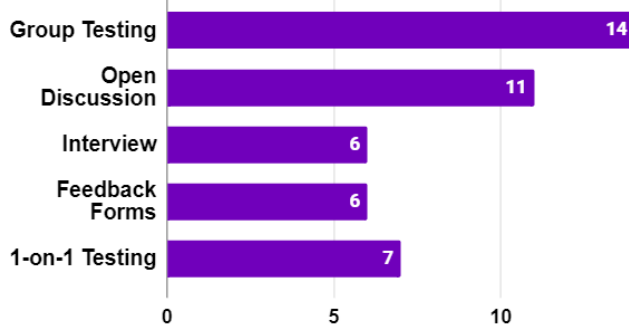
(a) Participants' methods for recruiting playtesters

What are some of the difficulties you have to deal with during the playtesting process?



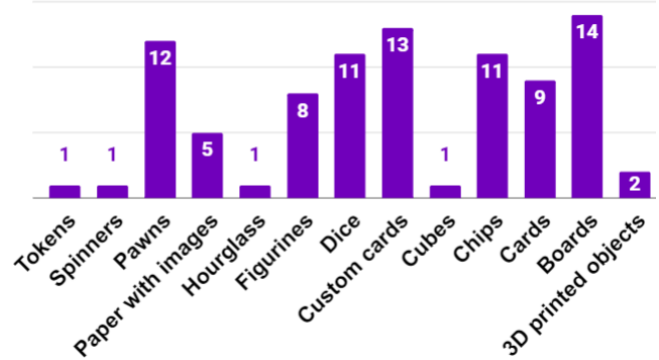
(b) Some problems participants often have to deal with while playtesting

What ways/methods do you use for playtesting a boardgame?



(c) Participants' preferred methods of playtesting

Which of the following components do you use for playtesting?



(d) Participants' choices of components for playtesting

Figure 3: Participants' answers to questions regarding the playtesting process

observing the testing sessions. Last but not least, participants were asked what components they use during playtesting. According to the participants' answers, the most commonly used component is Boards with 87.5% (14) of users opting for them, followed by Custom printed cards which are used by 81.25% (13) of users. Again, the answers to this question were not mutually exclusive. A full view of participants' choices can be found in Figure 3d. Last but not least, seeing designers' answers to the playtesting section in relation to their level of experience might give the way for patterns to emerge. For example, we can see that all users who have designed over 50 games agree on the recruitment process requiring just a few days. Other observations include that as the experience level gets higher, users seem to require more playtesting cycles for each game, while also agreeing that the ideal number of playtesters depends on the game itself. More of these analogies can be found in detail in Figure 4.

5 DISCUSSION AND CONCLUSIONS

In light of the results presented in the previous section, this section focuses on discussing significant findings, as well as possible patterns and preferences among game designers regarding the use

of digital tools and playtesting of board games. The results of the questionnaire conducted in this study indicate that board game creators are relying heavily on digital tools for the creation of their games. The most desired features of these tools include the ability to connect with playtesters and test games over the internet, create and customise assets and components, bulk management of the assets as well as placing them on the virtual table. The positive aspects of these features include ease, speed, cost-effectiveness, and accessibility in comparison to traditional physical methods of playtesting, prototyping, and making changes.

Diving a little deeper, our findings suggest that the playtesting process might in some cases end up requiring a significant number of users, considering that the vast majority of participants needs over 10 cycles of feedback and changes while testing a game. Moreover, according to the feedback received from participants, one of the most common issues creators have to deal with while playtesting is the recruitment of users that are suitable for the game that is to be tested. Subsequently, having immediate access to online communities of possible playtesters with experience in different types of games can also be added to the list of strong points for digital online platforms. However, there are also negative aspects

Number of games designed	Approximate time required for user recruitment	Approximate number of playtesting cycles required	Some difficulties met during the playtesting process? (multiple / user)	Factors affecting the total number of users necessary for playtesting (multiple / user)
1-2	A few days (1) A few weeks (3) A few months (1)	4-6 (1) 6-8 (1) 10+ (3)	Lack of player commitment (1) Scheduling issues (1) Lack of serious feedback (1) Rule enforcement (1)	Depends on the game (1) Commitment of players (1) The more users, the better (2) Game complexity (1) Rules (1)
4-9	A few days (1) A few weeks (4)	10+ (5)	Recording game states (1) Lack of time (2) Recruiting suitable users (3) Lack of serious feedback (1)	Game complexity (2) Mechanics (1) Time (1) Access to suitable users (2) Publisher expectations (1) Depends on the game (1)
12-20	A few weeks (2) A few months (1)	10+ (3)	Lack of player commitment (1) Rule enforcement (1) Scheduling issues (1)	Depends on the game (1) The more users, the better (1)
50+	A few days (3)	2-4 (1) 10+ (2)	Recruiting suitable users (1) Depends on the genre/game (1)	Depends on the game (2) Access to suitable users (1)

Figure 4: Participants' answers to questions regarding the playtesting process in relation to their experience

of playtesting board games using digital tools, such as the lack of user interaction and expression in the form of body movements, facial expressions, and communication. As reported in Section 4, another issue with digital tools arises with games where gameplay relies heavily on the space of the room, since it is nearly impossible for players to have a sense of presence and space through a web platform.

One possible solution to these limitations is the use of virtual reality (VR) technology. Understandably, the idea of using VR technology might still be faced with some scepticism and misconceptions about the current state of VR and its potential capabilities in the context of playtesting board games, given that not a lot of people have casual access to VR headsets. This fact is also confirmed by our findings, since 2 out of 4 users that have tried VR were not positive about using it for playtesting. However, VR has the potential to add social aspects such as presence, gestures, and facial expressions through specific hardware, as well as natural hand interactions and physics interactions. It can also support nuanced player interactions and conclusions that can be transferred to the physical world.

In conclusion, in this paper we examined the strengths and weaknesses of the current digital platforms for creators when it comes to designing and playtesting games, as well as what users require from such tools by conducting a user study. Having formed a more inclusive view of the board game design and playtesting process at its current state, we firmly believe that combining this information with the technological novelties of VR is an approach worth exploring, possibly paving the way towards developing a tool that covers all of creators' needs and desires.

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