Designing "Game Idea Generation" Games

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Abstract

This paper introduces brainstorming games developed for the use of game designers. Three games designed especially for generating new game ideas were developed in the GameSpace project, which studies methods for design and evaluation of casual mobile multiplayer games. GameSpace idea generation games have been developed through an iterative process in collaboration with the end users: game industry professionals. According to our workshop experiences and tentative results from a pilot study, idea generation games can be successful devices for the creative work of game designers. Game-based idea generation techniques provide an easily facilitated, focused yet playful setting for coming up with new ideas. However, our experiences indicate that idea generation games feature special challenges that must be taken into consideration when designing such games.

Author Keywords

Game design; creativity; idea generation; idea generation games; brainstorming; serious games; games for production; design games.

Introduction

In 2005, Screen Digest reported that the development costs for digital games are rising with each new technology generation. It was estimated that in 2008, as few as 80 games per year would actually be profitable as the required market share increases (Gentile-Williams, 2005). Not surprisingly, these trends were discussed again at the Game Developer's Conference in 2008 (Kumar, 2008).

One of the strategies to stay ahead is to enhance the innovation process of game design. Idea generation is generally recognized as a critical part of innovation; the ability to generate ideas has been shown to be one of the characteristics of successful business ventures (Clapham, 2003). The game industry is no exception. Although the industry is making a profit with the existing Intellectual Property (IP) by producing sequels or sure hits, innovation is needed to create new IP and genres, attract new target groups, and establish new gaming experiences (Gril, 2007; Fullerton et al., 2006). The game industry holds vast resources of highly talented and creative people, but this does not mean that creativity is an automated process. Even the most creative people can find themselves struggling to avoid being repetitive.

The aim of our GameSpace project has been to study methods for designing and evaluating casual mobile multiplayer games. This process included the examination of the early phases of game design processes: ideation and conceptualization. As one of the research methods in the project, expert

workshops were organized in order to discuss the features of casual, mobile, and multiplayer games, as well as create new concepts for the corresponding topics. For the use of the workshop attendees, we developed special idea-generation tools supporting the subject matter. Some of the tools took the form of games; thus, we refer to these games as "idea generation games."

During 2006 and 2007, over 240 new game ideas were documented in our workshops. We also conducted a pilot study where we studied the use of the tools in the authentic production settings of four Finnish game companies. Based on our workshop experiences and the positive feedback we obtained during our pilot study, we maintain that our idea generation games are successful tools for creativity. By playing GameSpace idea generation games, game designers are able to expand their imaginations and create new game ideas that can be productized.

Moreover, we claim that the success of our techniques can be partially explored through the features that game play brings into the creative process. While designers are required to be creative on demand, a successful creative process requires a relaxed and playful atmosphere (Mumford & Gustafson, 1988). Such an atmosphere can be difficult to create in a busy and oppressive environment. This challenge is acknowledged in several studies of brainstorming; despite the intent of creating an atmosphere where ideas flow freely, the sessions are disturbed, for example, by fear of evaluation (Furnham & Yazdanpanahi, 1994). While in classical forms of brainstorming the right atmosphere is facilitated merely by the will of the participants, idea generation games succeed in building the favorable atmosphere immediately and automatically when the players start to play. However, there is a specific challenge as the motives to play are tied to the serious function of using the game itself as an idea generation tool. The players know they will use the results of their play sessions after the game is over, an awareness that might break the magic circle of the game play. This tension produces an interesting design challenge: how to design an idea generation game that immerses the players in playful activity but helps them focus on their creative task. In this paper we present the design process of three GameSpace idea generation games and discuss the challenges of striking the right balance of structure and freedom within such games.

Enhancing Creativity

The game industry is seeking ways and means to enhance and develop its creative processes. One way to ensure creative output in the form of successful products is to gather versatile and talented teams or provide a supportive and inspiring atmosphere conducive to creativity. For the team leaders, the task of getting the most out of the staff can be difficult. It is always a matter of allowing enough freedom but within constraints, or managing order and chaos simultaneously.

Creativity is most commonly connected with different modes of self-expression or artistic skills, such as drawing. The modern conceptualization of creativity places the emphasis on a certain kind of thought process, leading to phrases such as "thinking differently" or "thinking outside the box." The latter expression is derived from a classical example of a creative problem-solving puzzle. This puzzle consists of nine dots in the form of a square and the task is to draw four connecting straight lines between the dots without lifting the pen (Figure 1). As the brain is naturally efficient in creating patterns (de Bono, 1970), it is typical that people struggle with this task as they interpret the formation of the dots as a box that cannot be crossed.
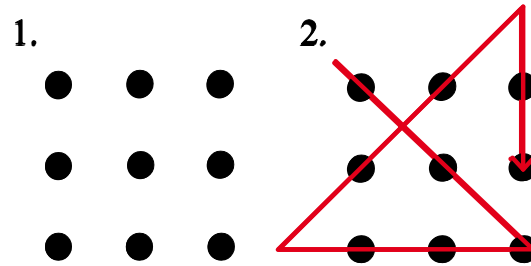
Figure 1: The puzzle and one of its solutions. The task of the puzzle is to connect the dots with four lines without lifting the pen. The relatively easy puzzle becomes complicated when the formation of dots is interpreted as a frame that cannot be crossed.

Creative thinking involves processes that lead towards a wide variety of solutions rather than targeting one single solution in order to break these mental patterns. Creativity is, however, a complex phenomenon that involves the processing of multiple influences and different stages, moving from the initial generation of an idea to the delivery of an innovative product (Mumford & Gustafson, 1988). In this sense, creativity can be seen as a combination of insight and special thinking skills (de Bono, 1970).

As a critical part of innovation (Clapham, 2003), the ability to generate ideas has been shown to be one of the characteristics of successful companies (Gabler et al., 2005). Although the processes of coming up with new ideas may appear mysterious, idea generation can be seen as relatively structured and explicable (Perttula, 2006). This enables systematic approaches for enhancing the creative processes of producing new ideas.

Generating new ideas may appear to be an easy task that does not require enhancement. However, studies show that creativity training has the highest impact on the originality of the ideas (Clapham, 2003). While it may not be common to use a wide variety of formal approaches for improving ideation, one of the most popular techniques, brainstorming, is known to be used among game designers. Unfortunately, brainstorming does not necessarily lead to innovation (McFadzean, 2000), and there are reports from game designers about their disappointment with this method (Gabler et al., 2005).

Brainstorming has a long history that began in the late 1930s, and over the years its effects have been studied. Not only the benefits, but also the problems of brainstorming are well known to researchers. Among the most common documented difficulties are production blocking, social loafing, and fear of evaluation – phenomena problematic in any kind of group work (Furnham & Yazdanpanahi, 1994).

Brainstorming has become such a popular technique that today it can refer to many different settings of group ideating. Nevertheless, for brainstorming to be effective, it is important how the session is constructed (Rossiter, 1994). One of the most important guidelines for ideation sessions is to target quantity instead of quality, thus allowing the mind to explore a wider variety of possibilities. Consequently, the brainstorming session needs a strong facilitator to prepare and guide the process.

Despite the known issues with brainstorming, the core virtues of the technique have been incorporated into various brainstorming variants such as *Brainwriting* and original approaches such as *SCAMPER*. Features common to many techniques include the establishment of equality among the participants and a

relaxed, somewhat playful atmosphere. It may also benefit the process of generating ideas to use multiple brainstorming methods: studies indicate a strong relationship between the number of ideation techniques and the number of successful products (Parnes, 1961; Sowrey, 1989).

In addition to the proven effects of systematic approaches, creative processes are also said to be domain specific (Baer, 1994; Clapham, 2003; Harkins & Macrosson, 1990). Creativity performance in any domain requires domain-relevant skills, creativity-relevant skills, and task motivation (Amabile, 1990). Despite these dependencies, however, much of the research into creative processes focuses on psychological or managerial factors of creativity. Relatively few studies have been conducted on the specificity of creative processes within game design, not to mention the development of tools to specifically improve the practice of game design.

Games for Creativity

One way to break out of the box of conventional thinking is to use the magic circle of idea generation games. According to Huizinga, play contributes to the well-being of the group and the magic retains even after the session. Huizinga (1938) introduced the idea of the magic circle and summarized the formal characteristics of play in *Homo Ludens – A Study of the Play Element in Culture*. The definition of the magic circle consists of three main characteristics of play. First, play is a free and voluntary activity. Second, play separates itself from real life, which led Huizinga to create his theory of the magic circle. Third, the magic circle is separated from ordinary life both spatially and temporally. This separation gives a lot of power to games as creativity techniques. The mood of the participants and the atmosphere of the creativity technique are critical factors for the success of the gaming session in terms of generating ideas.

Another positive effect of games from the perspective of inspiring creative thinking is their rule-bound nature. The rules of a game ensure that players progress in an orderly manner and have their fair share of chances to make moves or decisions. The game, the playing session, and the rules provide a solid facilitation structure for an idea generation session. However, participation alone is not enough; the act of playing an idea generation game has a specific accomplishment as its goal, an accomplishment that is not part of the game itself. Huizinga states that the element of tension is an important part of play. This tension is a driving force for the players because they want to resolve the cause of the tension and conclude the game. As Huizinga phrased it: "The player wants…to "succeed" by his own exertions" (10-11). This tension can be considered conducive to creativity as well.

Though it is useful to present games in the context of the magic circle, some drawbacks exist to this contextualization. First, Huizinga claims the activity of play cannot produce anything material and there is no profit to be gained (13). Even though players of idea generation games are not producing anything material, the ideas they generate as a result of playing such games have material value as intellectual property. Next, the game session could be required by an employer of game designers. In this situation, the designers might feel pressured to use idea generation games as just another part of their jobs, which may endanger the free spirit of the activity. It is true, however, that this problem is not exclusive to idea generation games.

The purpose of a game designed to help its players generate ideas for new games is to free the thoughts of game designers from conventional thinking by inviting the designers into the temporary world of the

magic circle that games create. An ideal session with such a game enables the players to trust that their playful activity within the magic circle will eventually yield beneficial results connected to real-world objectives. Properly designed game-idea-generation games inherently provide the requisite stimuli and structure needed to establish such feelings among the players. After the session, the magic circle disappears and the resulting ideas can be put to serious use.

For this reason, game-idea-generation games can be considered *serious games*. One of the definitions of serious games includes all games intended for some purpose other than pure entertainment. Serious games traditionally include games with educational or political purposes – games that change the way people think or teach something new (Michael & Chen, 2005). Peter Smith and Ben Sawyer of the Serious Games Initiative[1] state that "Most labels define a specific output ignoring the larger possibility space for serious games." Thus, the serious games definition tends to be too narrow and is geared to achieving only one, pre-set objective, although serious games have the potential for much more. Based on this realization, Smith and Sawyer have proposed a new taxonomy for serious games that takes a broader look at the domain (Smith & Sawyer, 2008).

Game-idea-generation games could be located in one of the categories that Smith and Sawyer established: *games for production*. However, we contend that the examples that Smith and Sawyer present (remixed audio, unreal art, machinima) are usually by-products of these games rather than the main products, which reflects a difference from the goal of game-idea-generation games. Thus, game-idea-generation games may be considered an even more serious example of games for production.

We also point out two interesting precursors to our work: GameGame[2] and ThinkCube[3]. The latter is targeted at a variety of innovation processes in the form of a game while the former is targeted especially at game design, but it also has the purpose of teaching what games are (Järvinen, 2006). GameGame succeeds in providing the game structures and creates the magic circle, but it fails to stimulate the creative mind; whereas the ThinkCube provides the stimulation, but it can be difficult to create the magic circle as the technique is hardly a game. Striking a balance between the game specific features and the features supporting creativity is a challenging design problem.

Designing Game-Idea-Generation Games for Game Designers

As mentioned earlier, in addition to our game-based techniques, we designed and examined several game-specific idea generation tools in the GameSpace project, including computer programs, pen and paper approaches, game specific brainstorming, toy-boxes, user enquiries, and mobile applications. In contrast to general idea generation techniques, we aimed to support the specific domain of idea generation: casual mobile multiplayer games. Tools were implemented with game structures, game-specific stimuli, or a user-centered approach. So far, the most successful approaches have been the techniques that were in the form of card and tabletop games.

During the development phase, several iterations of the prototypes were made to enhance their design. Three of these games were finalized as research prototypes[4] for a study package that was tested at four Finnish game companies. The game-idea-generation games were sent along with the other techniques to be used in an authentic production environment. The duration of the test period was about three months, during which time the companies used the techniques according to their needs. After the test period we interviewed the participants about their experiences and opinions of the techniques. Feedback from the

pilot study and the workshop experiences yielded some insight into how to design game-idea-generation games. In the following sections we will introduce our three games and their paths of evolution to their present forms.

VNA (Verbs, Nouns, and Adjectives)

Verbs, Nouns, and Adjectives (VNA) is a fast and easy game that helps its players to create high-level game ideas. It can be used alone or in a small group. VNA is based on three decks of cards where each deck contains only verbs, nouns, or adjectives (Figure 2). These different cards give a very broad starting point for the game idea. The players draw each type of card onto the table and describe the ideas inspired through association with the chosen words. The aim in VNA is to create shared, high-level game ideas with minimal effort, striving for quantity and speed.

Figure 2: Example cards from VNA. The red deck contains verbs, the blue contains nouns, and the yellow contains adjectives.

The game starts by placing the three decks of cards on the table. The first player picks up a verb and shows it to everyone by placing it face up on the table. The player continues by describing the basic game mechanic associatively based on the verb she just picked up. Next, the second player picks up a noun and continues to describe the game idea further based loosely on the word. Finally, the third player picks up an adjective and completes the game idea by merging the verb, noun, and adjective together. After three cards have been drawn, the players may discuss the game idea freely. The game continues when the players draw their next set of three cards.

VNA is based on rapid idea generation by producing initial game ideas that focus on the game mechanic or action (verb), game entity (noun), and game thematic elements or properties (adjective). VNA offers random and surprising stimuli that force players to think outside the box, resulting in ideas that would not have necessarily otherwise emerged. Turn-based flow allows everyone to have their say in the game idea, ensuring that no one is excluded from the idea generation process.

Design process of VNA
The first version of VNA (Figure 3) was tested in the 2006 GameSpace Casual Games Workshop.

Figure 3: First VNA prototype included an ad-hoc word set.

The workshop results indicated that the game was working as a game-idea-generation game, but the words in the cards required revision. Initially the word set was created ad hoc, aiming roughly at the needs of casual games. In order to be more appropriate for casual game idea generation, the word set was revised by analyzing 40 casual and children's games and building a 240-word set (80 words per category) from the findings. With the new word set, casual game ideas seemed to be easy to produce, even though more hardcore ideas were not excluded from the sessions. The second prototype had a more polished layout (Figure 2) and was included in the pilot study set. Feedback confirmed that the word set was working well, along with other features of the game. Interest in the different variations for the VNA card set was also expressed. VNA was considered the favorite technique of the set by nearly all users who participated in the pilot study.

GameSeekers
GameSeekers is a collaborative card game with four different types of cards: red cards with photos of objects, people or abstract themes; purple cards with different black and white patterns; green cards with descriptions of casual game genres or social aspects; and blue cards with possible operations that can be performed during the game (Figure 4).

Figure 4: Different types of cards in GameSeekers.

GameSeekers is played similarly to UNO® by dealing a certain number of cards for each player and placing one card on the table in turns. There is no winner in the game, but one can try to reach the status of "idea dictator" who can decide to finalize the idea without the content of the others by being the first

one to place the last card on the table. Otherwise the idea is finished after every player has passed his or her turn without taking any action.

The generated idea is built on associations that the players make with the cards in their hands at the same time, a process that creates connections to the existing cards on the table. The operative cards of the game can be used to remove an existing card, refine the whole game idea, or simplify elements in the idea. During the game, one shared game idea is developed visually on the table as in the *mindmapping* process.

Design process of GameSeekers

The design process of GameSeekers consisted of playtesting several different versions of the game. Early versions of the game were tested in two GameSpace workshops where game industry professionals used the game-idea-generation games.

The first version of GameSeekers was divided into two different games (Figure 5).

Figure 5: First prototypes of GameSeekers were divided into two different versions: The three cards to the left belong to the first prototype and the card to the right belongs to the second one.

In the first game, the deck of cards consisted of random pictures, patterns, words, and sentences that were selected randomly from magazines and comic books or that were made up by the research team. The other game consisted of a card set of interesting game structures derived from Game Design Patterns (Björk & Holopainen, 2004). During the second GameSpace workshop (Figure 6) we realized that both decks were limited: associative pictures, patterns, words, and sentences produced mainly stories or ideas that were not necessarily games at all. The second deck of game structures endorsed mechanical additions, where the players only mentioned the structure of the card without adding any real content to the idea. Experiences with the combined version of these games at the third GameSpace workshop were more positive and eliminated the problems described above.

Figure 6: Game designers playing GameSeekers early version with pictures, patterns, words and sentences at the GameSpace workshop.

In order to prevent the linearity of the idea generation process, we adopted rules that would promote networked relationships rather than chronological order. We also wanted to support the use of game structure cards to ensure that the technique produced rich game ideas. As we wanted to make our techniques as specific as possible for the focus that we had in the GameSpace project, we reduced the number of game patterns to social aspects and added genre cards to support casual game conventions. The final prototype had 190 cards and specific game play rules for the actions for each turn.

In the pilot study, GameSeekers was found to be among the games that participants eagerly tried, which was also true for the other game-based techniques of idea generation. However, compared to VNA, the rules of GameSeekers were found to be a little too complicated and the structure of the game endorsed large and fragmented ideas. On the other hand, some users found this particular feature beneficial and considered VNA too high-level. Also, some of the cards of the GameSeekers deck gained additional interest. In the end, GameSeekers was neither rejected nor praised, but was rather seen as a potential game-idea-generation game in need of further development.

GameBoard
GameBoard is a competitive game-idea-generation game for two to five players with two possible play modes: co-op play or solo play. In co-op play, all the players work toward one shared game idea. In solo play, each player works with his or her own game idea. In this paper, we generally refer to the co-op version since it gained slightly more popularity.

The game is turn-based and the players allocate different cards from their hand to the game board (Figure 7), filling up slots that represent different aspects of the game idea. From the perspective of idea generation, the goal of the game is to produce applicable and well-structured game ideas. From a game experience perspective, the goal is to win by collecting the most score tokens as the result of putting cards onto the game board.
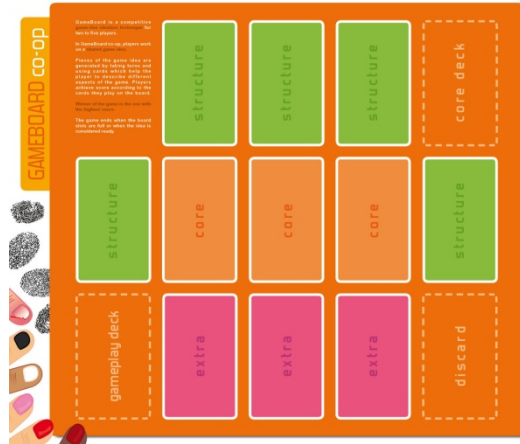
Figure 7: GameBoard ideas are built on a board with 11 slots.

The game is based on two different decks of cards: the Core cards (Mechanics and Themes) and Gameplay cards (Structure, Feature, Joker, and Special cards) (Figure 8). The Core cards are used at the beginning for initializing the game idea. The Gameplay cards are used in-game to complete and define the high-level idea. Players can describe structures such as goals, challenges, win conditions, and so on through the Gameplay cards. They can also describe technological features or focus solely on content. Lastly, the players can remove cards from the table, draw a new set of cards, or perform other actions that affect the processes of the game.

Figure 8: GameBoard set with card decks, 6 game boards and score tokens.

The game begins by drawing the necessary Core cards and placing them on the game board. The players discuss the game theme and mechanics quickly to achieve an understanding of the initial game idea (co-op mode), or decide on their own (solo mode). Four to five Gameplay cards are dealt to each player, depending on the play mode. The players take turns and play the cards according to the rules. When a player places a card on the game board, she must explain how the card affects the idea. For example, if a player places a "Challenge" card on the game board, she must explain the challenge element of the ideated game. The game ends when all the spaces on the game board are full, the players agree that the idea is ready, or if someone plays the "Idea ready!" card. The player with the most score tokens is the winner.

Design process of GameBoard

The design intention for the GameBoard was to create a more formal game ideation method than VNA. The ideation method that VNA uses is based on simplicity and quick idea turnout, whereas GameBoard was designed to create more complete ideas based on structuring the ideated game in more detail. This design intention leads to more formalized game ideas, but at the same time the quantity of created ideas per session is less than with faster methods such as VNA. GameBoard design was inspired by the

GameGame method (Järvinen, 2006), where the game ideation is also based on structuring the game into several elements, such as theme, environment, component, etc. Unlike GameGame, GameBoard was not intended to educate the user in game design per se. Instead, the primary goal of GameBoard is to create new game ideas through playing a board game. As in GameGame, GameBoard also features scorekeeping to make the ideation process feel more like a game.

The design emphasized the strength of GameBoard as a systematic producer of well-defined game ideas. The first playable prototype (Figure 9) featured 11 card spaces for players to fill up.

Figure 9: First playable prototype of GameBoard.

Players were able to place three different cards on their respective spaces on the game board. This prototype was tested at the GameSpace Casual Mobile Multiplayer Game Workshop in spring 2007. The feedback was positive, but the gameplay still needed balancing and the design had some usability issues.

Workshop experiences and internal play testing led to a revised version in which the card types were simplified and the space allocation was changed accordingly. The new version went through internal testing, which resulted in more streamlined and consistent play. The scorekeeping was also revised and simplified. The usability of the game was improved by color coding the cards and the game board in more distinct manner. The revised version was sent to the GameSpace industry partners and the user experiences were mainly positive. However, many users found the point system awkward and unnecessary. This scoring system has been one of the most challenging design problems in GameBoard. It is a unique problem because the other game-idea-generation games described in this paper do not feature any external rewarding system. Because of the complexity of the game, GameBoard contained even more rules than GameSeekers. This created a barrier for many players. Other players discarded the rules and played the game according to their intuition, consulting the rulebook if necessary and changing the rules as they went. Possibly for this reason, the experiences of using GameBoard were polarized; players either liked or disliked their experience with GameBoard.

Discussion

As game-idea-generation games become more complicated, they also become more difficult to polish in terms of their game play. Based on our workshop observations, our games have already become absorbing enough for the players to free their thinking, letting the game facilitate the process and keep

the focus. The structure of these games is strong enough to support the generation of certain kinds of game ideas, for example hardcore, casual, or narrative games. Designers can temporarily forget the focus and play these games even though specific restrictions for game ideas are explained at the beginning of the session. A magic circle has been formed, but the challenge is to direct the activity within that circle in the desired direction.

Compared to the similar setting of brainstorming, VNA, GameSeekers, and Gameboard create an easily facilitated idea generation session that gets ideas flowing immediately after the cards are dealt to the players. Typical brainstorming requires someone to shake the participants in the beginning to loosen them up and guide the session in order to keep the focus. A playful atmosphere is easier to achieve with game-idea-generation games since they refer to the playful conventions familiar to anybody who has experience with card games, whereas typical brainstorming sessions often feel more like formal business meetings. We are used to playing card games by taking turns in an equal setting, usually in a non-serious mode. Business meetings are led hierarchically by bosses and with divisions of labor and ability to provide input. Creativity is found in the settings familiar to the former, not the latter.

The preliminary results of the pilot study show that even though the participants' opinions about the different idea generation techniques varied, the game-based techniques emerged as most popular among the designers. Even though VNA gained some negative comments from some users and other games needed some tweaking, the overall opinion of the package of game-idea-generation games was positive and encouraging. All the game designers would continue to use and recommend the tools to others.

Significant design challenges remain for these game-idea-generation games described in this paper. For example, the challenge with GameBoard has been the scoring system and its implications for the activity (whether the players play for the score or for creativity), as well as how to tweak the scoring system so that score and creativity are not in conflict. One of the problems with GameSeekers is that it tempts players to continue adding more to the idea without considering the general view, ending up with highly complex or fragmented ideas. VNA could be considered a final product, whereas these other two games are still at the prototype stage.

It could be argued that game designers are most eager to test game-like approaches, which explains their popularity in our study. However, apart from being interesting games, game-idea-generation games have something special to offer to creativity techniques: their structure. Huizinga mainly refers to *play* rather than *games* with the notion of the magic circle; therefore, we could argue that, in order to strike a balance between freedom and order within a game, we need a facilitator. Among the non-game techniques that we tested in our pilot study, a box filled with toys was included. This method was perceived by some designers as very appealing but rather inefficient or at least difficult to relate to the task at hand. For some designers, it felt too embarrassing to use toys in the formal setting of the workplace.

According to our observations in the workshop environments and based on the preliminary results of the pilot study, game-idea-generation games seem to have great potential for domain-specific creativity. Our games fulfill a serious need: providing ideas outside the designers' thinking-boxes in an efficient way for the fast–paced reality of the game industry.

Developing polished gameplay to balance the structural and creative aspects of a game demands a more profound understanding in both domains. As for future work, it would be desirable to continue refining GameSeekers and Gameboard in close collaboration with industry professionals. It is also noteworthy that a wide variety of games should be designed instead of one perfect game, providing more options for the users to choose from and pushing designers' thought patterns in different directions. While the gameplay immerses the players in the activity, documenting the ideas that arise becomes burdensome. It is important to document the progress made during the game and the outcomes that result without disrupting the activity or playing the game itself.

Conclusions

In light of our experiences, we can state with confidence that VNA, GameSeekers, and GameBoard are successful *game-idea-generation games* for domain-specific creativity*,* helping designers generate new game ideas within the magic circle and bring their ideas into real practice. Game-idea-generation games provide easy access to a playful mode of behavior, a *magic circle*, which can be conducive to creative thinking. Additionally, game-idea-generation games reduce the need for third-party facilitation and provide an equal setting for all participants.

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[2] http://www.gameswithoutfrontiers.net/lecture-materials-requests/the-gamegame/

[3] http://www.metamemes.com/products.php

[4] The set is available for download at: http://gamelab.uta.fi/gamespacetool/