

Perspectives in Play: Printable Board Games that Teach about Foreign Policy

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ABSTRACT

In this paper, we present the results of a design project that was funded by the German Federal Foreign Office. The project, ‘Perspectives in Play’, aimed at the creation of board games that educate about foreign policy through play. The results include build-up strategy games about climate change, knowledge games about differences between cultures and countries, and discussion games about opinion, truth, resource management and law-making. The collection includes both competitive and collaborative games for group sizes of between two and 27 players. We present the games and initial user reactions, which we collected in informal surveys after users had tried out the games. We discuss our findings, concluding that printable board games have great potential to help political education gain in complexity by embracing new formats that offer a variety of innovative learning styles.

CCS CONCEPTS

• **Human-centered computing** → **Interaction design**.

KEYWORDS

board games; politics; print and play; education; game design

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1 INTRODUCTION

In a democracy, everybody is a politician. For a long time, politics have, therefore, been the subject of formal and informal education, both in schools and at home. Recently, technological advances have enabled the creation of new, experimental education formats, which can be made easily accessible (e.g., to download and print) for use in the classroom. Games have also progressed from a medium solely for entertainment – games used in education today can be immersive activities in which players take on roles in complex systems which must be understood and anticipated in order to win.

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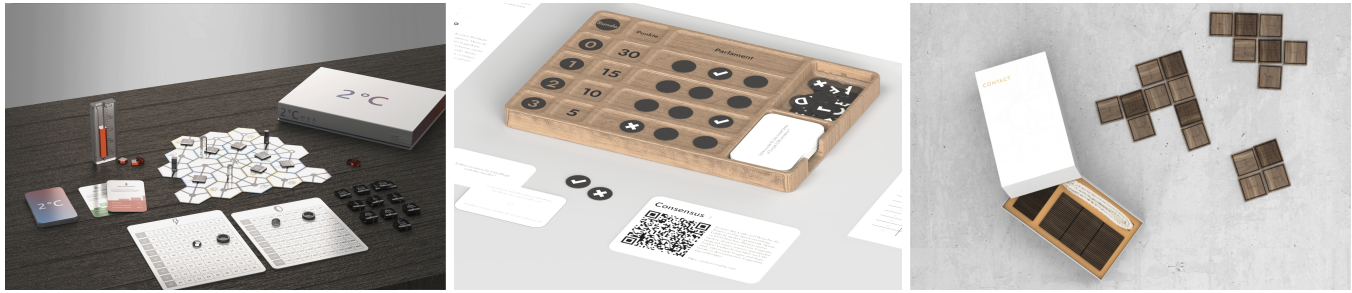


Figure 1: Three games from the *Perspectives in Play* collection. a) *2°C*: a collaborative game of fighting climate change. b) *Consensus*: a game of estimating the group's opinion. c) *Contact*: a game of shared characteristics between countries.

Today's generation of children and young adults shows increasing interest in politics, reflecting the growing impact of politics on people's everyday (and future) lives. This development is manifest in movements like 'Fridays for Future'. At the same time, the very complexity of politics can render it frustrating for schoolchildren trying to understand how the underlying mechanisms (e.g., of law-making) work. Fortunately, children of this age are often very experienced with complex mechanisms, as they often engage actively in gaming. Unfortunately, overlaps between these areas – political education and games – remain unexplored in many of their aspects, despite their great potential. To remedy this issue, we set out to create games that make education about politics fun, immersive and playful – and that can simply be printed out to be played.

2 BACKGROUND

Designing immersive experiences that help young people to broaden their understanding of politics appears to be a worthwhile undertaking: helping people understand how politics works helps them to gain understanding of their own ability to influence the future (e.g., through voting or engaging in their community), but also of the apparently slow processes (e.g., years of negotiation towards a shared climate goal), which arise from the complexity of policy systems. Fortunately, research in this area is being actively pursued.

2.1 Educational Board Games

Board games are increasingly used in education – one reason for that is the immersion [17] in complex ideas that they make possible. For example, they are applied in the teaching of electronics [29], digital literacy [6] and computational thinking [3, 8], software architecture [4, 33], quantum computing [34] and internet engineering [22]. Board games have been used to teach children about nutrition [2] and gender violence in social networks [1], as well as energy consumption in the home [5]. In design processes, they have been used to elicit user needs [31], to strengthen creative confidence [30] and empathy [7, 9], and to foster ideation processes [20].

2.2 Political Simulations

The parallels between politics and gaming have often been pointed out [10, 32]. Their potential to strengthen the 'sense of political activity, and to counter [...] weariness of political processes' [28] has also been argued for. Consequently, a wide variety of games exist, ranging from games that foster empathy with refugees [27] to educational games about decision-making [13], ethics [16], conflict management [18, 35] and peacekeeping [11]. The reverse approach of designing politics to be more game-like has also been explored [25]. Simulation games for political education [14, 15, 19, 23], ranging from financial [24] and water systems [12] to health systems [26] are actively being used in schools. Both educational board games and political simulations are being actively researched and used. However, the number of games for education in politics which are freely available as print-and-play games appears to be limited.

3 PROCESS

In a 13-week design project, including a research phase, a concept phase, a design phase, and a documentation phase, our team of twelve industrial design students designed twelve games. In the research phase, we compiled a list of possible political topics and what potential games could teach players about them. As the project's funding was connected to the German EU council presidency, all games focused on the European Union (EU). In test play rounds, in expert exchanges with members of the German Federal Foreign Office and through weekly discussions, we developed the following twelve game prototypes. Regarding the games' target groups, we sought to include players of all age groups and expertise levels by providing ways to estimate and adjust the games' complexity levels.

4 PROTOTYPES

All the games were designed as print-and-play variants, which are freely available from the project website [21]. Each game was also designed as a physical 3D version, but these remained at the stage of 3D renderings. All user tests were conducted with the print-and-play variants.

2°C (Fig. 1a) is a cooperative game about the transition to clean energy. Players take different roles and must cooperate to transit to clean energy while maintaining the required energy level, balancing

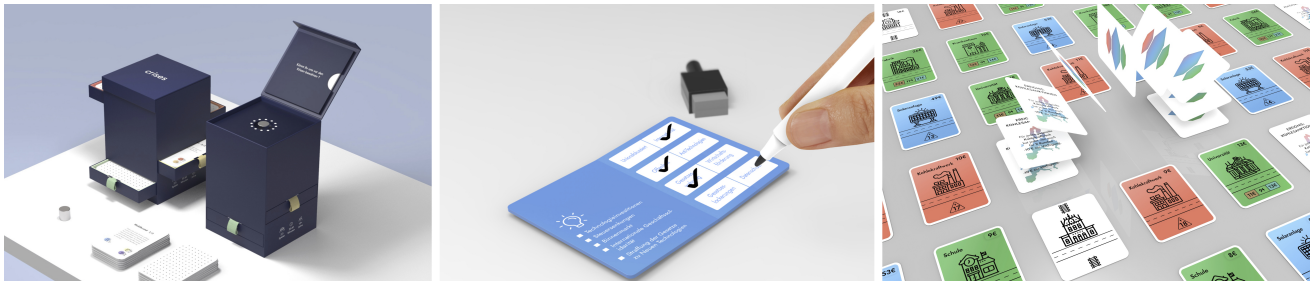


Figure 2: a) *Crises*: a game of unfolding stories and shared resource management. b) *Decisions*: a game of empathy for political viewpoints. c) *Decisions*: a game of empathy for political viewpoints.

cost and progress. Its core mechanic is that each player takes on a specialized character (e.g., an engineer or a scientist) who has special abilities, and then uses their character to help the energy transformation take place, without the supply of electricity falling below a critical threshold. The political lesson is that changing to renewable energy is crucial, but that this cannot be achieved instantaneously. The game also makes it obvious that collaboration between different fields of expertise is necessary, but not always easy. This is achieved by making the various roles different enough – all the roles are needed to beat the game’s ‘enemy’, the 2° C rise. All the players play together as one team; they win if they finish the game’s last quest before the global temperature rises by 2° C.

Consensus (Fig. 1b) is a discussion game about estimating the group’s consensus. The game’s core mechanic is that a political ‘yes/no’ question is posed – then, pairs of pros and cons are gradually revealed. After each new set of arguments, players can place a marker. This marker indicates whether they believe that the group as a whole will finally arrive at a ‘yes’ or a ‘no’ answer. Players who correctly estimate the group’s opinion score points. The earlier they place their marker, the more points they receive. The player with the most points after the last question wins. The political lesson is that it is not always easy to estimate the opinions of others. This is achieved by a secret voting mechanic – players also have the ability to place ‘blind markers’, so it is impossible for the other players to know when a player has made their decision.

Contact (Fig. 1c) is a tile-placing game about the commonalities and differences of the EU in which players lay down tiles containing facts about countries and country tiles, following a dominoes-like principle. The core mechanic of the game is that only countries for which the statement is true can be placed next to the statement – and vice versa. Players take turns placing new tiles or questioning the current tile layout. If they correctly challenge an error, the last player receives additional tiles; if not, the player who questioned does. The player who is first to place all the tiles in their hand wins. The political lesson to be learned is that there are many things about countries in our neighborhood that we do not know – and that learning about those things can be fun. This is achieved by making it necessary to think about simple geographic (‘This country is connected to two or more oceans’) and political (‘My country is a constitutional monarchy’) facts about European countries.

Crises (Fig. 2a) is a resource management game about handling crises in which players discuss how to cooperatively manage a crisis that unfolds over the course of the game. The game’s core

mechanic is that players cooperatively ‘bid’ resources to react to a situation which is described on a crisis card. Depending on the effectiveness of their bid, the situation changes for the better or for the worse. Then the next card is read out, in which the situation unfolds further. Players play cooperatively. If they finish the last crisis successfully, without too much collateral damage, they win. The political insight to be gained is that crises are unpredictable. This is achieved by having players play through a series of scripted events. The game’s design is based both upon a developing story which is hard to predict for the players, and a collaborative bidding system.

Decisions (Fig. 2b) is a political role-playing game about different political vantage points, which players take before discussing law proposals. The core game mechanic is that a timer is set for the discussion. While the timer is running, players try to argue for a law proposal – or against it, depending on their chosen role. The game’s political lesson is that different political character types exist, and that it can help to be empathetic with them regarding their arguments and desires. This is achieved by allowing players to view the situation from a different political standpoint.

Districts (Fig. 2c) is a competitive card game about managing a city’s transition to renewable energy. Its core mechanic is building up a city, based at first on fossil fuels (since these cost less in the game), then changing to renewable energy. The political point to be made is that moving towards renewable energy is time-consuming and cannot be achieved overnight. This effect is achieved by having the players buy buildings for their city from a ‘market’, while earning money from their city. Its design builds upon the idea of balancing growth and sustainability, which the game embodies through competitive, yet unaggressive gameplay.

Facts (Fig. 3a) is a guessing game in which players estimate facts about the EU by marking spots on a map or timeline. The core mechanic of the game functions as follows: a question is asked, and players mark their estimates of the answer – a place in Europe, or a point on a timeline. Then, the correct answer is announced (via a ‘solution ruler’, or ‘solution coordinate system’) and players measure the physical distance between their answer and the correct solution with a ‘score ruler’. To avoid confusion, each ‘guessing mark’ is labelled with the number of the current question. The political lesson for players is that many interesting facts can be learned about countries that are not far away, but yet – for them – unexplored. Choosing to use questions that are almost impossible to answer (‘Where is Europe’s biggest volcano?’) was a design

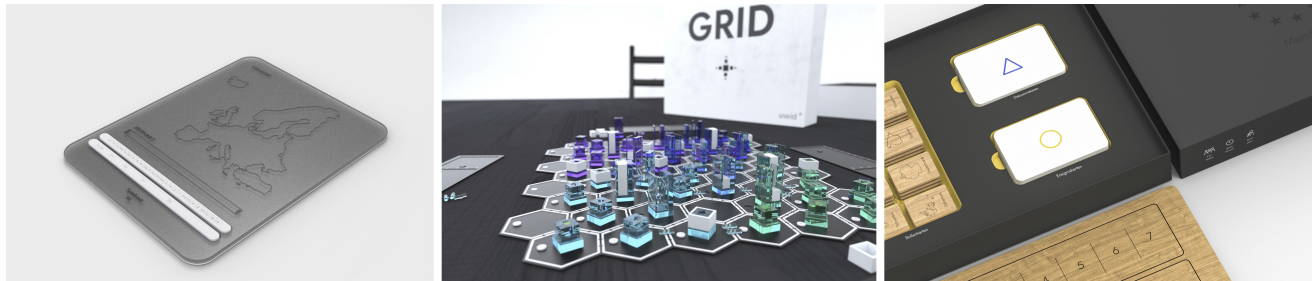


Figure 3: a) *Facts*: a game of estimation. b) *Grid*: managing the path to renewable energy. c) *Members*: a game of discussion.

choice to make the game more fun, and to put players with little geographical knowledge on a par with experts, in order to increase the game’s playability for diverse groups (e.g., families with younger children).

Grid (Fig. 3b) is a simulation game about managing an energy grid while transitioning to sustainable energy. *Grid*’s core mechanic is that power plants must be strategically placed, amid cities which demand their power and, in turn, provide money to run and upgrade the plants. The realization that energy grids are highly complex entities, and need time to be transformed to renewable sources, is the political lesson of the game. This is achieved by putting the players in a complex game of building and – financially – maintaining an energy grid.

Members (Fig. 3c) is a discussion game for up to 27 players, in which players take the role of different countries, trying to find a consensus. The game mechanic at its core is voting, with some questions requiring intense discussion. The political lesson from this is that discussions can take time, if they are to come to a result that satisfies everybody. This is achieved by providing such scenarios for discussion, to be acted out by the players, who adopt the role of a country. Its design involves different starting points for each player, who assume the roles of different European countries. The goal is to balance one’s country’s progress on different development scales (‘environment’, ‘economy’, or ‘social’). The game ends once one player reaches the maximum on one of these three scales, but the winner is the player who has the smallest accumulated difference between their scores on all three scales.

News (Fig. 4a) is a creative game about fake news – players have to invent fake news, tailor-made for an algorithm that tries to supply news articles to different target groups. Its core mechanic is that the player assuming SAM’s role is given a target audience (e.g., ‘retired teachers’), about which the other players can gain information by asking a round of yes/no questions. Then, a photograph is revealed. All the players get hints on how to come up with convincing fake news (e.g., ‘involve a celebrity in your story’, ‘pick a concrete time and date’). Then, all the stories are revealed and the player playing SAM chooses the one that best matches the given target group. The inventor of this story gets a point. The player with most points at the end of the last round wins. The political lesson is that fake news is easily manufactured, and that it is often created for a specific audience and delivered via algorithmic distribution.

Solidarity (Fig. 4b) is a competitive-cooperative card game about balancing one’s own short-term interests with long-term interests of the community. Its core mechanic is that helping each other

will not benefit players in the short term, but will in the long term. Players can, however, lose out in the short term, making it necessary to balance altruism with taking care of one’s own needs. The game demonstrates the political lesson that solidarity pays off, but isn’t always easy. This is achieved by putting players into a resource-scarce situation, in which they fight for survival in every round, but in which helping each other is – in the long run – the only way to win the game.

Union (Fig. 4c) is a strategic quiz game in which players have to answer questions about the EU, ranging from less-known facts to differences in laws. The game’s core mechanic is that players – split up into two teams – take turns picking a card, then choosing a field on the game board that matches its category (‘basic facts’, ‘curiosities’, or ‘laws’). The question is then read out. If the player can answer it, they can place their token on the field; otherwise, the other player is allowed to place their token. The team that manages first to complete a horizontal, vertical or diagonal row of four of their tokens, wins. The political lesson the game is designed to impart is that much can be learned about the different European countries – and that there is often far more than meets the eye.

5 PRINT AND PLAY

Originally, we planned to produce physical prototypes of all the games, and to iteratively develop these physical designs, in parallel to the development of the games’ mechanics. Due to the coronavirus pandemic, however, access to our university’s workshop was prohibited. This led us to the decision to create the games as print-and-play versions (Fig. 5). PDF versions of the games are published on the ‘Perspectives in Play’ website [21]. The original games were created in German-language versions, but as we used none of our budget for physical prototyping, we were able to allocate the money we saved to the creation of English-language localizations. All the available games are published under a Creative Commons CC-BY-SA 4.0 license, in order to foster future expansions and localizations into further languages.

6 USER REACTIONS

The prototypes were evaluated in brief, informal user tests, including questionnaires.

2° C was tested with 10 people (9f, 1m, aged 20-23). In a questionnaire, they were asked about what they felt they had learned about energy politics. They indicated that they ‘realized how different factors must be taken into account’, that they ‘might feel



Figure 4: a) *News*: a game of inventing fake news. b) *Solidarity*: a game of balancing one's own needs with the long-term benefits of mutual support. c) *Union*: a strategic quiz game.

too comfortable' and that 'they might have overlooked connections in the real world'. They noted that they enjoyed the fact that the game 'was continuously interesting' and that 'it was positively frightening to move towards the 2° C mark', while they disliked the fact that the 'cutting out was cumbersome' and that it 'sometimes caused situations in which nothing right could be done'. Notably, they liked the fact that the game frightened them, which might cause positive change in players' real-world energy consumption behavior.

Consensus was tested with five people (3f, 2m, aged 29-71). Their responses to the questionnaire indicated that they were surprised 'how much their opinions about some topics agreed', that they had 'learned about many new arguments' and that they had engaged in much discussion while playing the game, despite the fact that they only had to come to a 'yes or no' decision.

Contact was tested with 21 people (11f, 9m, aged 17-74). When asked how they liked the game and what they felt they had gained from it, they indicated that they had 'learned many new things'. They noted that they enjoyed the game because 'it was very communicative' and 'informative', while they disliked not having 'learn[ed] anything about political mechanisms' and that it 'was beneficial if people simply knew more than others'. Notably, some found the game to be 'chaotic', while others appreciated its organic nature of 'growing' on the table.

Crises was tested with 24 people (10f, 14m, aged 17-61). Each group of players was asked how their perception of political crisis management had changed. As they indicated, they 'were surprised how difficult it is to manage resources in times of unknown developments', that they had 'discovered that solving a tough situation can only be done together' and that 'teamwork works'. They noted that they enjoyed the game because 'it was realistic in terms of the unknownness of the future', while they disliked the fact that 'shy players are always likely to be outvoted'. Notably, they reported that they found it positive to have learnt something that 'isn't taught in schools'.

Decisions was tested with 21 people (11f, 9m, aged 14-32). Once a group had finished playing, players were asked how their understanding of politics had been affected. They said that they 'were positively surprised to learn how important discussion and empathy are', that they had 'learned how important it is to listen to each other while benefiting from each other' and that 'it was good to see different opinions on a single proposed law'. They noted that they enjoyed the game because they 'had to think about unusual

topics' and that 'listening was so important', while they disliked the fact that 'for some topics, they did not feel able to say anything'. Notably, players said that they had learned how politics is much about listening.

Districts was tested with 7 people (1f, 6m, aged 22-57). After playing, the players were asked about their experiences with the game and about what they thought they had learned. They uttered that they had 'learned about how the EU can subsidize energy sources' and that they 'would wish for more control instances regarding the transition to renewable energy sources'. They reported that they would like to see fewer 'states following their own interests', hoping for more collaboration in the reduction of fossil fuels.

Facts was tested with four people (3f, 1m, aged 15-56). After playing, they were asked what they thought they had learned from the game. They pointed out that they found it important 'to think about the other countries of the EU', that they 'were surprised to learn about the different contracts existing between European countries' and that 'they would enjoy playing it with their friends'. They noted that what they enjoyed about the game was that 'it showed many unknown things about Europe', and that what they disliked was that 'it should have been longer'. Notably, one player felt that if this game had been the introduction to their politics and geography classes in school, they might not have chosen to opt out of that school course. Another player noted that the game should be a warm-up in school 'every day'.

Grid was tested with 13 people (5f, 9m, aged 21-27). In the questionnaire, they were asked how they felt the game had affected them. They replied that they had learned how 'change takes time' and that the 'path to renewable energy is long'. They noted that they disliked the fact that 'an unfair starting position is possible' and that the game 'was too tedious' in some constellations. It is worth noting that this game may have to be long, though, in order to achieve its educational goal – teaching players that renewable energy cannot be established overnight.

Members was tested with 29 people (12f, 17m, aged 14-54). After playing, each group of players asked how it impacted their views on political processes. They responded that they 'found new perspectives on everyday topics', that they 'gained new insights, even though they were familiar with most topics' and that 'some facts are not as clear as they seem to be'. They noted that they enjoyed the game because 'it fostered discussion', while what they disliked was that 'the game could be more fluid' and that it 'does not add

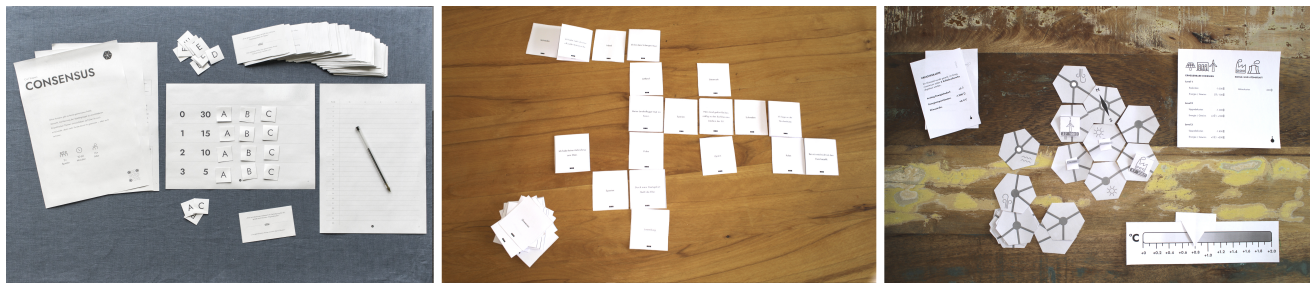


Figure 5: The print-and-play variants of ‘Consensus’, ‘Contact’ and ‘2° C’.

new facts to the discussion’. Notably, they found the game to be an ‘interesting method of educating young people about politics’.

News was tested with 12 people (4f, 8m, aged 15-80). Based on their experiences while playing, player groups were asked how the game affected their perception of news. They indicated that they ‘learned how easily fake news is created’, how it is meant to ‘influence people’ and that the game motivated them to ‘critically question online news’. They noted that they enjoyed the game because it teaches people ‘that fake news is hard to distinguish from fact-based news’ and that it was ‘well balanced’ and ‘very entertaining’.

Solidarity was tested with 19 people (4f, 15m, aged 22-28). Also, they were asked how the game affected their thoughts about politics. They expressed that ‘short-term disadvantages can have long-term benefits’ and that ‘solidarity can sometimes be harder than you think’. They noted that what they enjoyed about the game was that it teaches how ‘theory [of being solidary] and practice do not always go together without effort’. Different extreme playing styles were tested, without game-breaking influences on the game’s outcome.

Union was tested with 15 people (8f, 7m, aged 9-74). Player feedback was collected about how the game had affected their thoughts about Europe. On the positive side, participants indicated that they ‘had found Europe to have many layers’ and that they had ‘found it interesting to learn new things, despite living here for years’. They disliked the fact that ‘grandma and grandpa know more about Europe than the children’, which the game does not counter-balance.

7 DISCUSSION

Although they were tested only in informal settings, the results of the user test indicate that the games do have the potential to have a positive and informative impact on their players. Players noted that the games might positively affect their real-world behavior, e.g., in terms of their energy consumption or of their openness to the opinions of others. They also indicated that they had learned how important collaboration is, even if it is difficult at times. They found it to be worthwhile to engage with political topics, despite their complexity. The fact that we had switched our design from manufactured games to print-and-play PDFs has pros and cons. On the negative side, the limited replayability of some of the games (especially the knowledge-based ones) may increase the amount of paper waste. This could be countered by encouraging users to pass the material on to other people who might be interested

in playing, since almost no material is destroyed or irreversibly marked when playing. Also, the durability of the printed games might – especially in a school context – be an issue. This might be countered by laminating the material, which all of the games allow for. On the positive side, the print-and-play versions allow for instant production in schools and at home, which we hope will positively influence political education for children and young adults. In general, users appreciated being put into the position of politicians, to learn about how politics work. Also, as some games focused on teaching about facts (rather than political mechanisms), showing players that there are still many interesting things to learn about Europe can have a knock-on effect on their political awareness: people tend to be more open to new things when they know that there is much to discover – showing the richness of diversity can help fight prejudice. Players enjoyed the games. That is noteworthy, as fun was not the main objective – the main objective was to educate them about politics, which happened as a (perceived) side effect. Players also reported negative aspects of all the games – this underlines the necessity of publishing the games’ source files with them, for future educators to develop the games further.

8 CONCLUSION AND OUTLOOK

The title of this project, ‘Perspectives in Play’, was chosen for its ambiguity: politics is about the interplay of perspectives – but there are also great perspectives on education in the medium of play. We are aware that this project, and its goals are not as neutral as might be the case for other research projects. The beliefs that the games presented incorporate are openness, diversity, a richness in perspectives and a belief in democracy. Each game will now be published online, alongside a modified questionnaire. This will also enable longer-term studies on their potential impact. The coronavirus situation confronted us with the necessity of changing our plans – from physically produced board games to print-and-play PDF versions. In the end, this change has greatly benefited our project and its reach, as the print-and-play PDFs will now be available for all players – and teachers – who want to use the games for their own purposes. The fact that all the games are available as open-source material will enable them to be developed further, to be translated into other languages, and to live on on their own. For us, the design phase of this project ends here – but we hope that the games we created will live on, and impact political education for the better. To quote a player from the ‘Crises’ game: ‘It just works better if you don’t try to do it on your own, but all together.’

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