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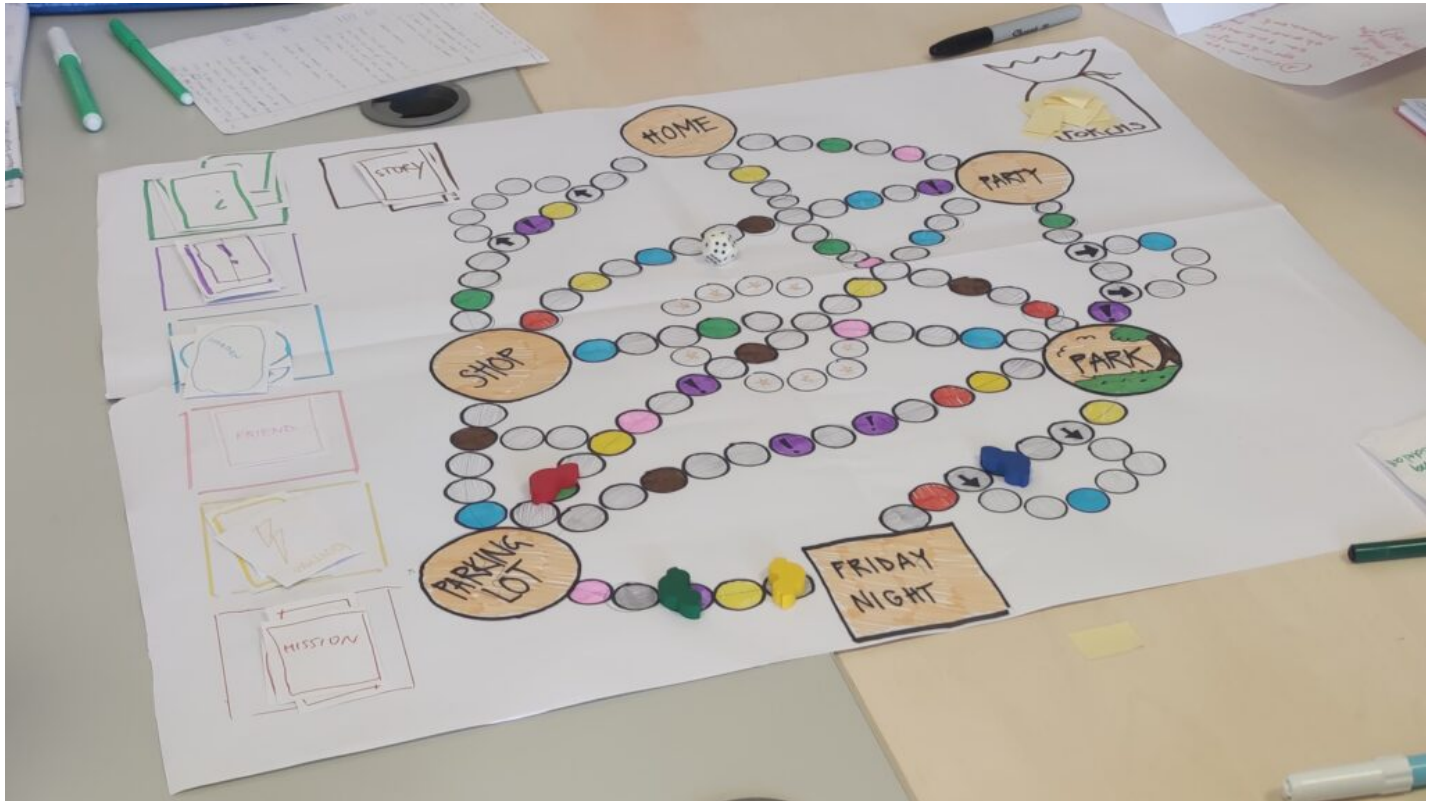
FROM CONSUMERS TO CREATORS: BRIDGING GAME PLAY AND PLAYFUL GAME DESIGN FOR IMPACTFUL CIVIC EDUCATION

JUNE 23, 2024 | JOSEPH DUMIT, SABINA BELC

Game-based learning has an important role in youth work, as games offer immense variety in form and subject matter and can vary from simple to very complex, enabling us to build different learning outcomes from cognitive skills and affective changes (feelings and emotions) to interpersonal social skills.

By using off-the-shelf games, however, we lose enormous learning potential hidden in the game design process. In much game-based learning, young people are mostly consumers. What we can change with game design-based learning is letting young people take the role of creators. Moving from just using games to designing games, we can let them choose specific social topics that they care about. Through designing, participants can deepen their knowledge and gain a bigger picture of the issues by researching the topic and transforming it into a game where different actors, relations between them and power dynamics are captured. That was the idea behind the project "Board Games Design as a Tool in Civic Education."

First, let us introduce ourselves. Sabina Belc is a civic youth worker and an experienced designer of educational escape rooms, these are important but limited to the educational content that can be integrated into the design. She found inspiration to go beyond this in the practice of Dr. Joseph Dumit, who presented at Playing with Method: Game Design as Ethnographic Research hosted by Stadtlabor for Multimodal Anthropology, Institut für Europäishe Ethnologie, HU Berlin. Ever since critical game designer Paolo Pedercini[1] shared his work at *MolleIndustria* at the University of California, Davis in 2014, Joe has been captivated by playful board game design as a way of thinking about dynamic systems from specific points of view. He has been running classes and giving small workshops about game design as a form of social research.

Combining our passions and experience, we prepared a project idea supported by the US Embassy in Ljubljana. "Project Board Games Design as a Tool in Civic Education" covers game design and civic education aspects. We responded to the theme of the Slovenian Presidency of the Council of the EU 2021, "Europe for YOUth – YOUth for Europe: Space for Democracy and Participation."[2] A key goal of which was strengthening young people's democratic participation. The fact that young people's conventional involvement in politics and civic participation is decreasing is quite worrying. Through participation in civil society activities, youth build up their competence and interest in citizen and political participation. Educational game design offered a way to get involved in the design process through exploring social topics, becoming ambassadors of change, and learning civic participation by experiencing it.

Our project's goal was to train the trainers: introduce our approach to youth workers and educators who work with young people in various settings to give them first-hand group experience with a playful-critical game design workshop and empower them to introduce this kind of game design in their work. The main outcomes are the developed method of the workshop and the preparation of a board game design kit that can serve educators in the process of facilitating the creation of social board games and dissemination activities.

Running the Workshop

The training was five days long and moved from deconstructing video games based on the Pedercini's engaging model of quickly modding existing games as a springboard towards designing one's own games.[3] It was delivered in hybrid format, with Joe being online and Sabina hosting the training in person. Fourteen participants gathered in one place and collaborated in person, as it is much easier with creative processes for the participants to be able to talk and share their paper-based projects. And the retreat format enabled them to dedicate time away from their daily jobs and focus to the learning process. Roman shared:

"I was very impressed with the workshop. We spent five days intensively learning about and developing games. The energy in the group was fantastic; we caught on quickly and created an excellent prototype board game."

Figure 1: Participants engaging in game remixing. (Photo by: Sabina Belc)

Day 1: Remixing Games

Sabina hosted the space in a large classroom, arranging multiple tripod-mounted phones to let each table of participants be visible on Zoom (also great for documentation). We began with introductions of the instructors and the participants, and then Joe presented a 45-minute overview of Paolo Pedercini's vision of games and game design as a social practice. Because the participants were mostly youth leaders and teachers, we were interested in representational rather than abstract games: games that were about youth life, or could be used as springboards for conversations. Pedercini is a critical game designer and Professor of Art at Carnegie Mellon University in the US. He primarily teaches and critiques digital game design, creative coding and animation, and shares his talks, syllabi, and games online. He has created video games like *The McDonald's Video Game*, about how the fast-food industry works,[4] and *Oiligarchy*, about international relations and the oil industry.[5]

Joe used a mixture of Pedercini's slides and his own to explain how games enable a felt-understanding of dynamics social systems, and they embody values at the explicit level of their content and more importantly, at the implicit level of their mechanics. Games are always teaching us more than we think they are. Competitive games with only one winner, for instance, reinforce the idea that life is a zero-sum game where only one person can win. In Pedercini's 2012 talk to the Allied Media Conference, "Making Revolutionary Video Games with Verbs," he deconstructed the game *SimCity* to show how it reinforced specific understandings of cities by representing aspects of them in the game and ignoring many other parts of city life and planning.[6] Traffic patterns and crime rates were treated as variables, but race was absent altogether. Cities are presented as the effects of planning and other social processes such as mutual aid and bottom-up social change are not part of the game. The goal of Joe's first lecture was to help the participants identify aspects of game design like "actors", "point of view", and "rules", and to see how these result in "game mechanics": the way the rules interact with each other to advance actors according to the points of view of the game as a whole.[7] Realizing that games reinforce worlds through representing them then led to a discussion with the participants of the explicit and implicit values that they were interested in.

Joe then led the participants through a version of Pedercini's mini-workshop on remixing games around social problems. This involved giving each group of 4-5 participants a worksheet about traditional video game like *Frogger* or *Mario Bros*, where they were asked to the verbs and then the values in it. Then they were able to take paper versions of the sprites (e.g., bricks, cars, frogs, mushrooms, Mario) and use them to make a completely new game about a topic related to the participants' interests (in the original workshop, social problems were provided). One example was remixing *Frogger* to be a game about navigating bureaucratic challenges in a new city by a migrant. The act of naming the values in the original game attunes the participants to how their new design might want to find way to reinforce other values. It also has the powerful critical effect of making it clear that values and biases are always present, and it is a question of consciously making design choices at every step of the way. One participant, Matea, commented:

"It is really interesting how just analyzing and remixing existing games can leave people stunned, how it can lead us to think about all the actors, actions, possibilities, perspectives and realities which are often taken for granted, trivialized or ignored, thanks to the fast, consumeristic pace of our lives."

Two other effects of remixing were that it dropped everyone into togetherness. Sitting side by side and thinking about social issues through game design led to deep discussions that also had a level of playfulness that kept them from freezing. The silliness of remixing games creates generative constraints that open up group creativity. Co-making a game allows you to actually think and talk about lots of issues that you might avoid or feel difficult about. Sharing these afterwards also showed everyone how much intelligence and surprise was already in the room.

The game remixes were put on a shared Google slideshow. Having them all on the same slideshow enabled everyone to peek at what others were doing, taking inspiration from them. In general, this approach raises the bar for what gets shared and how motivated everyone is. Another participant, Varja commented:

"This workshop opened my mind about using the process of creating a game as a learning tool. It completely changed the

*perspective I had before, on learning through games. In working
with kids and teens, I only thought about using different games
to learn some topics, always thinking I need to prepare
everything in advance. But the idea that they can create a game
and they learn as they go was new and very inspiring."*

Each morning session ended at 1 PM with lunch followed by 2-3
hours of homework during the afternoon. The first day's homework
was to have each participant use the afternoon to think about a situation that they are interested in and to make an extensive list of actors, verbs, issues, environments, and so on that might be part of a
game about that situation.

Figure 2: Final game prototype testing. (Photo by: Sabina Belc)

Day 2: Points of View

Day 2 began by having each participant share their ideas for a situation. This allowed us to create some groups based on clusters of interest.

Joe then introduced the concept of "Points of View" (POV) as one of
the superpowers of game design. Because we were interested in
games that related to real-life situations, one helpful approach is to
design games that focus on a single point of view level. Each player in
the game is the same kind of actor. A game about climate activism
for instance, would have all players be activists, or all players being
companies trying to disrupt activists, or all players being elected
government leaders trying to save the planet, manage constituencies and get re-elected.

This shared point of view means that the game design can delve into what that player/actor can do (their verbs), what they actually care about (their goals), and what they attend to (the world as it appears to them). This approach helps avoid one problem of representational games in which the true inequality of a situation (e.g. activists vs corporations) has to be drastically altered in order to make the game fair for the players. It also allows the designers to really dive into, think about, and research what that actor's worldview and world looks like and they can start to feel the dynamic structure of the world at work: how my decisions feedback on yours as well as mine.

Each participant was then asked to spend some time defining a situation and building out points of view. For each POV they were asked to name it, and answer for it:

- What do I want, my sense of self?
- What matters to me, my goals?
- What are my matters of fact, what do I notice, what is my world?
- What are my matters of concern, my values and triggers?
- What other dynamic forces are happening that might affect my world?"

These too were shared on a slideshow and discussed in the whole group. Some examples of points of view included: a counselor trying to survive in the NGO sector, a youth trying to find a good party to go to, a worker trying to help a migrant get aid, a migrant trying to navigate the social system, a camp leader trying to make sure an expedition goes correctly.

Joe then provided an overview of the many kinds and genres of existing games and their varied mechanics, and of the many kinds of players and play approaches to the same game. Tsing & Pollman's *Global Futures* (2020) game was used as an example of a collaborative storytelling game. In this game, players are each given a *mission card* such as "create a revolution" or "use a natural resource to create havoc," as their secret goal. Then they take turns playing pairs of different image cards a deck to co-create a story of the future that combines the cards (money, corn, rockets, a tree) into a coalescence, a "transformative coming together of disparate things."[8] The goal is to both create a compelling future and accomplish your missions. The game invites one to think outside normal narratives with others.

Sabina guided them through this process. Playing the game gave the participants experience with a storytelling game, which was new to many who only had experience with more strategic or chance-based board games. It allowed the groups to interact with each other as creative individuals, with diverse ways of thinking about the world and futures.

For homework, each group met and chose a situation they wanted to explore in depth. They mapped out points of view and worlds for it and were asked to come back with some kind of rapid prototype. They were given big sheets of paper, colored markers and pens, many kinds of tokens and dice and cards, and lots of sticky notes.

Figure 3: Preparing for a hybrid presentation. (Photo by: Sabina Belc)

Day 3: Imaginative Prototyping

Day 3 began with groups sharing their imaginative prototypes. They had illustrated them on a slideshow with photos, diagrams, and text. The games included:

- A migrant trying to find the right person to help with a problem – but they can only communicate with abstract picture images.
- A group of kids trying to enjoy Friday night, based on pawns moving along a map encountering cards with different situations to solve, topics to discuss along the way, and problems of not having enough money and getting home at the end.
- Group dynamics in a discussion or meeting – each person having a randomly chosen secret goal, and one or more behaviors (e.g. dreamer, competitive, smarty pants, funny, anxious).

With each prototype, we collectively brainstormed variations on it, sometimes seeing what different game mechanics might offer (e.g. more or less openness, chance, storytelling, competitiveness, length of play—including whether the game might be played repeatedly in a row).

Joe discussed what makes a good game drawing on Jane McGonigal's book *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*. McGonigal draws on game research which looks at how create a social encounter in which we *agree* to abide by arbitrary rules that also suspend normal social etiquette of both competition and loss. McGonigal argues that some of the core strengths of collective games is that they leverage the power of shared goals, positive feedback systems, voluntary participation, small wins, happy embarrassment, and failure as fun.[9] Joe showed how this approach could also be applied to game making: it is hard, and it is experimental fun. Groups were encouraged to make some variations on their ideas for games and to try them out. This was called *imaginative prototyping*: to take their game as it existed as a set of ideas, then draw a gameboard on a paper and add labeled pieces of paper or use existing gameboards in new ways; to jointly makeup a playthrough; then play them in whatever way they could as a form of understanding, thinking about what was really interesting in the encounters, what needed to be clarified, and to discover what might make the gameplay itself engaging. According to Sara,

"The approach is very useful, as it helps you think "outside the box" and thus expands creativity, which is the key to making something new! In addition, it is an excellent tool for promoting teamwork."

After a short sharing and discussion of their playthroughs, their homework was to prepare a prototype version of their game to playtest the next day.

Figure 4: Sharing feedback after playtesting. (Photo by: Sabina Belc)

Day 4: Playtesting

Day 4 began with sharing the current state of groups' games. Each had mutated greatly from the previous day as they had experimented with different approaches. For instance, one game had started as a combination of Dixit-like[10] imaginative storytelling game about immigrant experiences, and a guess-the-secret identity game of who could best help them with a problem. As they imaginatively prototyped it with different kinds of cards, they found it was not clear enough what communication meant. As they discussed daily modes of communication however, they came up with the idea of communicating only with emoticons. This was both immediately understandable and fun since emoticons change their meaning depending on the ones next to them.

Figure 5: First prototype of Language from Scratch game.
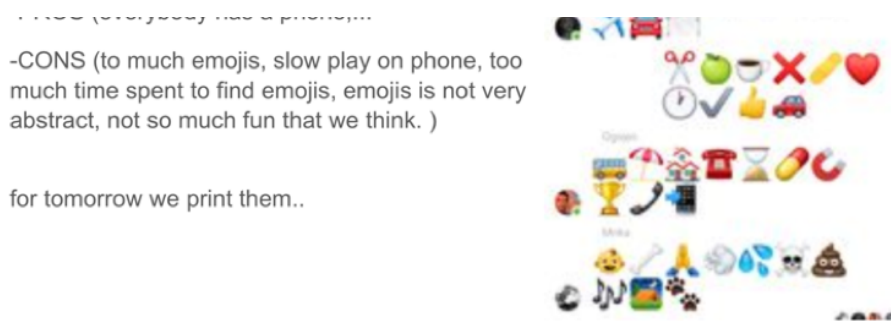
Figure 6: Refined Language from Scratch game with input from feedback.

Joe then introduced playtesting as a next-level challenge to game design: letting others try your game out, even in this preliminary stage. We discussed how it is scary but maybe never too early to learn something. Since we are emphasizing iterative design rather than feeling over-invested or proprietary over a game we have the opportunity to be surprised at what we had previously overlooked in thinking about the game in our own groups.

For playtesting, each group sent one player to each other group and kept one host back to observe how their game was played. The host explained the game and then watched the play, intervening if the players were truly stuck. The host also took notes on how the game-play went, specifically trying to notice dynamics: how their game is played and the kinds of playstyles that emerge. And everyone did a quick feedback session about what they liked, didn't, moments en-joyed, and were frustrated by. Then everyone rotated so that each got to play each game and host their own.

Everyone found this exercise inspiring and surprising. Because the games were so obviously raw, there was a lot of co-imagining what the game could be. And because the games were about social situa-tions that most could relate to, there was a lot of inspirations about what else might be in the game. It was especially valuable to notice the variety of player feelings while playing, from calm to frantic, co-operative to embarrassed, strategic to laughing. Mrika stated:

"Designing a game opens up new worlds and awakens creativity and the inner child who wants to have fun by playing games while learning many new things. It can be used as a tool or as a method."

This led to a second round of remixing. By this point the power of

remixing was evident. As with the first Pedercini remix approach, there is a very small barrier to entry. It feels easy, non-threatening and reveals how much we already know about games and therefore game design. The emoticon game gained a crossword-puzzle-like board so that emoticons interacted horizontally and vertically, increasing the joy of unexpected connections and unexpected misunderstandings, which further emphasized the daily struggles of trying to communicate in a language you are just beginning to learn.

Figure 7: Turning the Language from Scratch game into a paper version.

Figure 8: Example of a played game in Language from Scratch.

Prototyping and playtesting are amazing reminders about how we often see ourselves as consumers rather than creators in most areas of life. And the act of remixing provides constraints that prompt rather than limit creativity, partly by freeing the overwhelm feeling (paralysis) of too many possibilities and providing a playful approach

to problems.

We concluded with Joe discussing some additional aspects of trying to get a game to a shareable state: clarity of rules, information density, fairness or not in outcomes. And player-player interactions such as asymmetrical information, teamwork and possibility to gang up, cooperation and blame, and whether storytelling is encouraged or not, how much experience mattered for gameplay vs chance. Each game could have variations along these dimensions, and thus could be aimed at different kinds of players.

Homework was remixing and refining each groups game to a potentially shareable state. Not with the stress of having to do it in one afternoon, but to gain an appreciation for the choices.

Day 5: Teaching Game Design

By this point the participants were all convinced that game design workshops were a powerful and fun way to motivate people to think about and discuss situations, even stressful ones, together. A group designing a game about "Friday night," to help teens talk about the challenges they face in negotiating social problems, parties, peer pressure, and differences in wealth, realized that they were learning about each other's perspectives throughout the process, and this was something that they wanted to pass on to the teens they worked with: the engagement that happened while *designing a game*. The design process itself encouraged everyone to speak up about the "reality" of the game, noticing when the prototype ignored a difference that mattered to them. Realizing that the resulting game would reinforce that ignorance or repress its existence, they wanted this value to be in the game.

Friday night

Individuals are spending their friday night, going to a party and coming home. During the game they are collecting tokens. They get tokens by completing different tasks described on cards. There are 6 different coloured cards (cards with questions, cards with missions, situations, values, stories, ecc.). Each player when it's his turn, he throws a dice and advance on the board. The colour they get on the space where they end up decides which card he has to "solve". Examples of cards are showed on the pictures below and next slide. We are still looking into how to make this more fun for youth and put some obstacles in the way.

Figure 9: First prototype of Friday Night game.

Figure 10: Refined Friday Night game with input from feedback.

Having gone through it and seeing the widely varied approaches to remixing, prototyping, and inventing games, many were interested in figuring out how to run their own mini-game design workshops. They could see how easily game design could engage the youth they worked with. Some were also interested in continuing to develop their game or another one with other participants.

We began the final day first discussing the long tail of getting a game from prototype to shared, including the importance of continuing to playtest as a way of better understanding what you want your games to generate (e.g. feelings like fun, knowledge, discussion, skills, empathy, teamwork, strategy), and checking with playtesters to understand whether this what they experienced. We also explored the possibility for these youth leaders to engage their youth in modding one of their prototypes, putting the youth in the educator role: asking them to revise some of the encounter cards for the *Friday Night* game, creating additional behavior response cards for *Group Dynamics* game, and so on. This approach immediately launched conversations about their lives that are playful and serious at the same time and engages their expertise as gamers as well.

We ended by discussing what the youth leaders would like in a kit that could help them run game design workshops of varying lengths, from a couple of hours to a couple of days, to weekly meetups.

Reflections after the Training

The main "aha" moment and inspiration stayed with our participants at the end of the process: "Game design has its own learning potential." Interestingly enough, most of them came to create their own games. We were so thrilled when they realized how powerful it is to design a game and are committed to bringing young people into the designing process, not just seeing them as consumers of their own games. The process itself is more impactful than just using the outcome—the game. This is well captured in the testimonial of Mrika who said:

"I use games as a tool when working with children to support learning about a specific topic by using a board game I design myself and later offer others to use it. The training opened a new horizon for me by seeing game design as a didactic method to approach a more complex topic through participants experiencing the game design process."

They pointed out that games are an intriguing way to engage young people in exploring difficult topics. They can lighten our conversations but raise awareness, tackle taboos, and deepen the understanding of certain social problems.

The biggest challenge when applying this approach to their work is a limitation regarding knowing about different games and game mechanics. The more games you play more ideas you have about how to approach or represent certain social relationships. Creative thinking is often combining existing ideas in new ways.

They were contemplating how easy it is to hide messages and values in the games. They stressed the importance of having a clear aim and goals we want to achieve and messages we want to send to users to lead the design. They emphasize the power of POV as it influences the design greatly and can send a totally different message. Deconstructing the existing games at the beginning can help us remember this throughout the process. Participant Kaja noted:

"During the training, we worked in groups to develop board games that we would use with young people. Three board games were created, addressing very different groups and needs

of young people. This was a turning point when the theoretical background Joe shared with us incorporated my previous knowledge and experiences from youth work. It encouraged me to think more broadly about using board games as a medium for knowledge transfer in my work."

Figure 11: Group photo after completion of the training.

Running the workshop in a hybrid format, where the main instructor was remote, meant that the lecture and feedback sections had to be concentrated and there was no time for one-to-one feedback or play-alongs. Our schedule also allowed the afternoons to be used for extended group work. Having all of the participants in one place did enable mingling during breaks, group cohesiveness and easy playtesting.

In feedback at the end of the workshop, many thought it would have been better to have more time, either spacing out the days or more total days. But concentrated effort had its advantages: groups were in the challenge together and supported each other with feedback and testing. And the pace of rapid prototyping meant that no one had time to fall in love with their idea too much, so they were willing to hear feedback as constructive and generative.

Furthermore, most participants were at their limit taking three workdays off as training and spending two weekend days of their

own time to attend. All of these are local constraints to be considered. That said, the workshop was at capacity, game design is an exciting technique to learn and was not a difficult sell to administrators.

One challenge was certainly the limited experience with board games (and gaming in general) by many participants. Even in the classes Joe teaches at UC Davis, many students have little to no gaming experience—social media, sports, and other forms of social life fill their time. Those with little experience had less variety of game mechanics to draw upon, less potential analogies, and less ability to imagine types of gameplay. This made modifying games and playtesting very valuable. More of this might be built in earlier (more chaotic, but also more fun).

In any case, it was easy to trust the process: game design is quite fun to do in groups. It provides a great context for learning about each other's interests and their worlds. At the end of the training Urška expressed:

"Play a game to create a game. That's how I would describe our training. It was a friendly get-together with very motivated and positive people who are daring, curious and want to "gamify" our work (even) more. On the first look, simple steps of exploring game history, game design and matrices, we slowly but surely fell into the world of possibilities and action. It was so much fun! I woke up every morning feeling like a child, eager to learn and do more. And even though my team did not finalize our game during the training, we kept our promise and are meeting now. Following the needs of young people we work with, keeping in touch with our passions and creating a board game I am in love with. And it is the easiest and most fulfilling work I have done in a while. Thank you!"

Results and Next Steps

The project generated many meaningful results. First, it brought training that was well received and needed by the youth work community in Slovenia. We also prepared a board game design kit which will be at the disposal of youth workers who would want to deliver board game design workshops to their local youth. At the time of

writing this article, our handbook, capturing the idea, process and tips and tricks, is still in the making.

Most of the participants left full of enthusiasm, and some of them applied new knowledge to their work. They shared the knowledge with colleagues and within the first six months have used it as the basis for workshops for:

- Firefighter mentors
- Alumni members of the German organization Volksbund organization exploring the topics of democracy in Slovenia
- Local youth on remixing games
- Volunteers on a mid-term evaluation meeting as a part of European Solidarity Corps organized by Erasmus+ National Agency Movit

In addition, youth workers who are part of the network for career orientation (Mreža KROJ) have used the workshop as a launch point to create a board game on the topic of job market and career path. One of the participants shared that she was impressed to know that game design could be a topic for bachelor thesis, so she decided to dedicate hers to this topic.

We have published on this board game design approach in a handbook about methods for remembrance pedagogy and learning from history. It was also an important part of the inspiration for a blog, The Power of Games: *Game Design-Based Learning*, which Sabina wrote for *Focus Learning Blog* hosted by SALTO Training & Cooperation Resource Centre. In 2023, Sabina and colleagues from Socialna Akademija, a Slovenian NGO, prepared a two-day training for teachers which received financial support from the Ministry of Education and was included in the national database for teacher training. One day was dedicated to board game and one to escape room design.

So what are the next steps? We need to finish a handbook to support youth workers, teachers and youth leaders in bringing board game design to the youth they work with. In addition, the next edition of teachers' training is planned for autumn.

All of this activity really makes it clear that playful game design has a

huge potential which hasn't been properly taken advantage of. It rapidly creates group motivation, enjoyment, and camaraderie, and it enables discussions of difficult and political topics from a research point of view: what are the dynamics at play here and could they be different? We hope this example will inspire others to apply it to their work and bring more fun and meaningful interactions to civic education.

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Featured image is a photo of the prototype of the *Friday Night* game board. Photo by Sabina Belc. Used with permission.

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Sabina Belc is a biotechnologist by her formal education, but since 2008 she has been working as a youth worker, facilitator and experiential educator. Her main passions are educational games (especially escape rooms) as a tool for improving civic literacy, game design-based learning, media literacy, youth dialogue processes and, in recent years, digital youth work.

Joseph Dumit is an anthropologist of passions, performance, brains, computers, AI, games, bodies, drugs and facts. At the University of California Davis, he is Chair of Performance Studies, Professor of Science & Technology Studies, and Professor of Anthropology at University of California Davis. He is also Professor of Interdisciplinary Data Collaborations at the Interacting Minds Center, Aarhus University, Denmark. He is co-founder of the ModLab for games research at UC Davis, and member of the Center for Language and Artificial Intelligence (CLAI) at Aarhus U. He is author of two books: *Picturing Personhood: Brain Scans & Biomedical America* (Princeton 2004) and *Drugs for Life: How Pharmaceutical Companies Define Our Health* (Duke 2012).

Critical Hits!

- Towards a Transpacific Future: A History of Board Games in…
- Extracting the Pedagogy: Using Games as Texts in the Language…
- Black Boxes out of Cardboard: Algorithmic Literacy through

Critical Board...

Notes:

1. See Paolo Pedercini's website: https://paolo.molleindustria.org/.
2. Previous EU Youth Dialogue Consultations," European Youth Portal (European Union), March 5, 2024. https://youth.europa.eu/get-involved/eu-youth-dialogue/previous-eu-youth-dialogue-consultations_en.
3. Paolo Pedercini, "Making Revolutionary Video Games with Verbs" (presentation at Allied Media Conference, Detroit, June 30, 2012).
4. See Pedercini's The McDonald's Videogame: https://www.molleindustria.org/mcdonalds/.
5. See Pedercini's "Oiligarchy Postmortem": https://molleindustria.org/oiligarchy-postmortem/.
6. Pedercini, "Making Revolutionary Video Games with Verbs."
7. Joseph Dumit, "Game Design as STS research," Engaging Science, Technology, and Society 3 (2017): 603-612. https://doi.org/10.17351/ests2017.132.
8. Anna Tsing and Elizabeth Pollman, "Global Futures: The Game," in Histories of the Future, edited by Susan Harding and Daniel Rosenberg (New York: Duke University Press, 2005), 107-124.
9. Jane McGonigal, Reality is Broken: Why Games Make Us Better and How They Can Change the World (New York: Penguin, 2011), 19-34.
10. See Dixit (Libellud, 2008): https://www.libellud.com/en/our-games/dixit/.