MINI-GAMES TO SUPPORT CIVIC PARTICIPATION

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Abstract

Games have been put forward as a way of easing participatory processes ever since the sixties, having the ability to give form to cooperative environments and support actor interaction. However, developing a good game is time-consuming and thus costly. Considering that civic participation requires the involvement of multiple audiences, typically addressing a multitude of issues over longer periods of time, it is clear that such a process calls for a series of games, making it virtually impossible for one organization to cope with.
As such, this paper proposes to no longer reasons in terms of complete games, but rather in terms of generic mini-games addressing particular challenges/ objectives of civic participation. These mini-games can then be combined into a 'full' game in order to align the actions of all actors involved.

1. Introduction

The need to include multiple stakeholders in complex urban development projects – large infrastructural projects, urban regeneration projects – has reintroduced the interest in civic participation. Ever since the sixties, policy makers have been experimenting with participatory forms of governance as central objectives in various spatial policies. These new forms of governance resulted in models such as advocacy planning, collaborative planning, communicative planning and trans-active planning, revealing various challenges. Failing in maintaining long-term participant motivation and reaching traditionally under-represented members of the population, burdens participatory processes. Adding to this, misunderstandings related to differences in expertise and incapacity to overcome unequal resource distribution (Arnstein, 1969, Healey, 1997; Pares & March, 2013) make the process not only slow but sometimes inefficient. As local governments grow more and more interested in civic participation, it becomes important to explore available methodologies addressing challenges related with participatory processes. Games have been applied in participatory

processes since the 1960's (Abt, 1969; Duke, 1975) as a means of overcoming these challenges. Gordon and Baldwin-Philippi (2014) argue that some of the main advantages in engaging citizens in participatory processes via the use of games are civic reflection, development of lateral and vertical trust, as well as civic learning. Games have the potential to foster cooperative environments and ease the understanding process as they provide a framework for setting collective goals. They provide a structure based on rules and mechanics that can steer participatory processes while acting as a porous communication platform. 'The various actions, behaviours, and control mechanisms afforded to the player' (Hunicke et al, 2004) emerge during the game as a result of combining different mechanics that translate to content. Nevertheless, the use of games in participatory processes is not in itself unproblematic, considering that civic participation is an open process that requires the involvement of multiple audiences, typically addressing a multitude of issues over longer periods of time. It is clear that such a process calls for a series of games, making it virtually impossible for one organization to cope with. As such, this paper proposes to no longer reasons in terms of complete games, but rather in terms of generic mini-games addressing particular challenges/objectives of civic participation. These mini-games can then be combined into a 'full' game in order to align the actions of all actors involved.

The paper starts by introducing the different working environments and challenges encountered followed by a section that describes four different mini-games designed to address these challenges. We conclude with a model, a toolbox for mini-games supporting participatory processes.

2. Living Labs and Design Goals

Four mini-games are developed as part of a co-located participatory process that is meant to facilitate a better understanding of complex urban problems. The prototypes are developed to foster social interaction between players by implementing, adapting and testing game mechanics in specific scenarios. The mini-games will be tested in three Living Lab environments: Genk, Belgium, Vienna, Austria and Groningen, the Netherlands. Each location looks a specific study area and addresses a specific topic: Genk - opening public debate on work and workspaces, Vienna - urban mobility and Groningen - reduction of carbon footprint amongst young adults. The exploratory period investigated the three living labs and their aims and challenges that serve as basis for the game design goals and prototyping (Table 1). Accordingly, the mini-games are a collection of digital, card and board games that aim to introduce people to different topics, concerning their communities and stimulate brainstorming and discussion.
Table 1. Game Design Goals in the Three Locations

	GENK	GRONINGEN	VIENNA
	FLOATING CITY	FLOATING CITY	FLOATING CITY
Design goals	What collective project do we want?	What do we want to do together?	
	> generating ideas		
	> explaining values	> generating and collecting ideas	
	Taking a specific idea and discussing how to make it happen. Evaluate positive and negative points	generating ideas	
Type of game	card-based game		
	gamified brainstorm	card based game	
	> brainstorming with game/elements, playful activity	card game	
Who is the game for?	Mixed groups and/or specific groups		
	Age: 16 - 60+		

Education: mixed groups and/or specific groups (low educated – higher education)
Gaming experience: low to noneMixed audience, highschools, muicipality, initiatives; could be that there is a backlog on higher educated, white males we have a very mixed group.
Age:16 -75, mostly educated, white, mostly males   Mixed groups and/or specific groups
Age: 16 - 60+
Education: mixed groups and/or specific groups (low educated – higher education)
Input   Player brainstorms   helping to balance the city
Narrative   Foster positive thinking, commonality between participants provides a motivating structure for discussions that involves
all participants in expressing shared values   Group discovers different ideas and topics they consider important (positievely/negatively) for a certain spatial entity,
Expected dynamics   Participants interact, define common values, discuss issues, compare differences in perspectives
upon issues, react to behaviour that does not comply with their norms or values
(1) collective reflection (1) collective reflection
(2) collective process of decision making
Expected experience   > collective reflection
> collective efficacy   > explore different interests and topics
 > let players discover that there are joint interests (weights for the topics)
> collective reflection
> collective efficacy   > collective reflection
> collective efficacy
Mechanics   Collaboration   > collaboration
> collecting (ideas)
> selecting (ideas, weights)   What are the main collective ambitions?
Output (1) shared norms
(2) shared success criteria
(3) a collective project (program)
> what are (collective) ambitions?   > Broad Collection of different weighted ideas and topics
Debriefing   > Summary and comments from people on the different ideas
> Information what happens with the collection next! (follow up)> Recap of the activity
> Summary and comments from people on the different ideas
> Information what happens with the collection next! (follow up)documentation of ideas and of the process
Setting of the game   (1) living lab setting, workshops
(2) long participatory processes faculty, community centers
Expected time of the game

        1h – 1h30'   1-1,5h 2 h
CITY MAKERS   CITY MAKERS   CITY MAKERS
Design goals   What do we need to implement this collective project?
> balancing individual & collective goals
> networking   > Which resources and steps are necessary to realise projects
  How to realise a project?   networking
Type of game   Card game   board game / card game board card game
Who is the game for?   Mixed groups and/or specific groups
Age: 16 - 60+

Education: mixed groups and/or specific groups (low educated – higher education)

Gaming experience: low to nonemixed audience, probably backog on higher educated, white men

Input   floating city

safari   > exploratory phase, interviews

> literature study, policy review, existing projects

> knowledge gained from the co-creation/co-design of safari   floating city safari

Narrative

> define the steps that you need to implement the action

> define your own project

> define for yourself which achievements you need to succeed in this project

> define various projects to help transition in cities

Expected dynamics   People collaborate over particular assignments, sabotaging common 'enemy', to change perspectives (e.g. no longer see something as a problem but as a challenge …), people evaluate one's action's, role, assess progress   > collaboration among players

> competition

> partly collaboration and networking to help each other, but also compete for scarce resources or getting there first.

Expected experience   > increased trust

> informing

> collective learning   > learning on administrative capacity

> learning on resources necessary

> experiencing that collaboration is necessary for certain projects

> civic learning (debriefing) capacity building, collective learning   > increased trust

> informing

> collective learning

Mechanics   Collaboration & competition   > collecting resources

> trading resources

> competing for projects

> building networks   > collecting resources

> trading resources

Output (1) alliances of players, linked to the projects/resources

(2) strategies/steps/actors required to implement the given project

(3) proposals for (extra) actors, individual projects and collective projects

> what are chosen projects to reach the (collective) ambitions / to address a common challenge   unclear yet   > common challenge = climate change//projects

> address climate change e.g. sharing (mobility, food, gardens)

Debriefing   > ask players to reflect on alternative projects   unclear yet

Setting of the game   (1) living lab setting, workshops

(2) long participatory processes faculty, community centers   (1) l workshops

(2) long participatory processes

Expected time of the game   30' – 40'   1-1,5h 1h

SAFARI   SAFARI   SAFARI

Design goals   > informing   > information,

> social learning

> civic learning

> spatial capacity building   > activating

> informing

 capacity building

Type of game   Game board, gamified process   board game   board card game
Who is the game for?   Age: 16 - 60+
Education: mixed groups and/or specific groups (low educated – higher education)
Gaming experience: low to nonemixed audience gaming experience: little
Input   Floating City   > policy reports / interviews with energy people
>prior knowledge from the vienna proto/typing and playtesting
Narrative   > People and collectives of people are exploring the region and by implementing projects are contributing to the transition of Genk
> collaborative effort, how much do you get done during a certain number of rounds > Region & City of Groningen wants to turn energy neutral
> People and collectives of people are exploring the region and by implementing projects are contributing
to the energy transition
> collaborative effort, how much do you get done during a certain number of rounds
> competitive: how many KW points can I collects
> the different qualities of the projects request different resources (people/network, money, permits, etc) to get implmented
> different projects are including externalities or effects   > collectives of people are exploring the region and by implementing projects are contributing to the transition process
Expected dynamics   > individual action,
> contextualizes people's actions,
> participants evaluate one's action's/ role, use of information
Expected experience   > informing
> learning
> capacity building   information, collective learning > activating, informing
> learning
> capacity building
Mechanics   >individual action
> resource management
> territorial acquisition – in the form of investing in areas
> chance (e.g. rolling the die and the betting)
trivia   > Collecting: resocurses for project implementation, KW points to achieve the goal
> Sharing: resources and knowledge
> chance: rolling dice, which direction the player moves and colours/projects chosen
> Resource management: balancing my resources for the next rounds
> Quiz: quiz question replacing the dice (sometimes)
> Progression (perhaps)? With the clusters ???? not sure, if that counts as progression?
> Round limit: the game is limited to a certain number of rounds
> Competition: competing against each other in collecting KW points   > Individual action
> resource management
Output > Which are the projects participants choose to support most?
> What are the different projects in Genk?   > not yet defined   > important projects for players
Debriefing   (1) analysis of the choice of projects   1) Analysis of the KW & choice of projects (in case you choose!)
2) What was new? Novelty and Learning
3) Cooperative / competitive
4) Check intended experience (learning, capacity)

1) What was new? Novelty and Learning
2) Cooperative / competitive
3) analysis of the chosen projects
Setting of the game   (1) living lab setting, workshops
(2) long participatory processes faculty, community centers   semi-closed settings
Expected time of the game   30'   1-1,5h 45-50'
MY BIZZ   MY BIZZ   MY BIZZ
Design goals   what do we need to realize our collective project?
> collective management   collective managemnet // self-organisation
Type of game   game   digital
Who is the game for?   Mixed groups and/or specific groups
Age: 16 - 60+
Education: mixed groups and/or specific groups (low educated – higher education)
Gaming experience: low to none   Mixed groups and/or specific groups
Age: 16 - 35
Education: mixed groups and/or specific groups (low educated – higher education)
Input   Floating City, City Makers, Safari   not definet yet
Narrative   product choice, attracting customers   not defined yet
Expected dynamics   > collective decissions
> resource management   > collective decision
Expected experience   > collaborative action   > player collaboration
Mechanics   Resource Management: Storage, Capacity, Abilities
Chance: Customer walking path, satisfaction and money amount
Twitch: Using the abilities
Competitive Entity: attracts customers, deprives players of profit
Progression: Upgrades, City Projects
Time limit: Rounds are limited by time   Resource Management: Storage, Capacity, Abilities
Chance: Customer walking path, satisfaction and money amount
Twitch: Using the abilities
Competitive Entity: attracts customers, deprives players of profit
Progression: Upgrades, City Projects
Time limit: Rounds are limited by time
Output (1) resources
(2) alliances of actors, linked to the resources
(3) sequence of actions
> what is the action plan to implement the collective project?   (1) resources
(2) alliances of actors, linked to the resources
Debriefing   No debriefing   No debriefing
Setting of the game   (1) living lab setting, workshops
(2) long participatory processes   ONLINE // short, midterm and longterm
Expected time of the game   5'-10'   5'-10'
> like a game-app for public download

With these aims in mind we proceeded by developing mini-games that can foster collective reflection and lateral trust (Table 1). If learning is a collective action during which a group of people reflects upon their actions of participation (Schaffer, Squire, Halverson and Gee 2005), than such a process requires trust. Community members need to trust that their opinions will be taken seriously and will be included in the decision making process, that their opinions

have power and will be supported by others and reinforced by giving productive input a/o take future action. This is both lateral trust, between members of the community, as vertical trust, between the community and local authorities (Gordon & Baldwin-Philippi, 2014). According to Gordon & Baldwin-Philippi (2014), lateral trust is a precondition for association building, "simultaneously providing a context within which citizens believe in the importance of their actions and creating associations among individuals and between publics that have the potential for future productive use" (p. 778). A civic learning process is successful when it helps these associations to make public decisions and establish public policies (Schaffer, Squire, Halverson and Gee 2005).

Sampson (1997) refers to the capacity of a group to realize collective goals as opposed to forced ones as a process of collective efficacy. As in the case of civic learning, collective efficacy depends on two types of trust: mutual (or lateral) trust, refers to the belief in one's own capacities and in the capacities of others. In summary, the concepts of civic learning and collective efficacy can be operationalized as collective reflection, (perception of) lateral trust and (perception of) vertical trust (or willingness to intervene). What follows is an attempt to translate these concepts into design goals:

Aesthetics related to collective reflection:
- to make people experience that they share concerns, values and norms
- to make people experience that they play a role in these concerns
- to make people experience that they also can have different perspectives on the same concerns
- to make people experience that they can anyway come to shared objectives

Aesthetics related to lateral trust:
- to make people experience that they share capacities and roles
- to make people experience that it is also good to have different capacities and roles
- to make people experience pleasure in reaching a common objective
- to make people experience appreciation for taking initiative

Aesthetics related to vertical trust:
- to make people experience reward in involving external actors

2. Game Concepts

With these design goals in mind, four mini-game prototypes were designed as exploratory activities for groups of four to eight participants. Alternatively, the games could either feature multiple groups, each playing separate instances, or be scaled up to work with a greater number of players. To accommodate for different playing preferences and contexts, three entirely separate approaches were chosen: a card-based game, a map/board game and a digital game. Although each of the game prototypes focuses on different aspects of the identified design goals, all of the games share a number of similar features:

1. Each game is designed for a co-located context, i.e. players interact within the same physical space,
2. All games foster communication between individual players,
3. The games aim to establish trust between players and promote the ideals of collective efficacy.

A brief description of each game prototype is given followed by a brief analysis of its proposed benefits in respect to the design goals.

2.1   Game Concept 1: Floating City

The first game concept, Floating City, is a card-based activity. Such games are routinely used to help groups quickly identify major problems with a product or service without getting too caught up with the negativity typically associated with voicing complaints. In Floating City, the respective town, city or neighbourhood of the players serves as the focus for collective reflection activities. In this game world, cities (or neighbourhoods) of the future are elevated into the air like floating castles to have a better access to resources (i.e. the sun) and better views of the world below. However, each city needs to be tethered so that it does not float away due to wind or other adverse conditions. The weight of pressing urban problems also influences the height cities can attain, and the higher a city flies, the better the quality of life.

In the first round, players are presented with a graphical representation of their floating city and given cards of two separate colours (e.g. brown and yellow) and asked to write down the strengths (brown cards) and problem areas (yellow cards) of their city or neighborhood. For the problem cards, players also need to estimate the "weight" of the respective problem (in tons, kilograms, etc.). The cards are then collected and then examined together by the group (with a moderator). Only strengths that were identified by at least two players are then added as tethers to the graphical representation of their city. In the second round, all players receive an additional card of an additional color (e.g. green). After selecting one of the established problems that they are most concerned about, each player proposes an idea to lessen its metaphorical "weight". The new cards are then reviewed in the group and each player gives their estimate to how much "weight" each of the proposals would relieve. The average of those answers is taken and the weight of the city is recalculated. This process could be repeated for multiple steps, but the goal is to calculate the weight difference between the initial and final phases of the game so that players can quantify the results of their brainstorming.

Benefits: The proposed game structures the brainstorming process and provides democratic mechanisms for sharing and evaluating the ideas of others. It promotes reflection as an individual and as a group and reinforces the identification of shared beliefs.

2.2   Game Concept 2: City Makers

The City Makers card game has one simple idea at its core - present projects as a set of steps that people need to collect resources for. By doing so, players will learn about the different resources needed for particular projects happening in the city. The game adapts abstract terms such as material, permit and location as resources, which players obtain in the form of cards. Each player receives a project that they need to finish to acquire points. For example - to start a business one might need to have a budget, idea, location and people to work with. Players receive three player cards and a project. Players place their projects on the table, visible for everyone. Steps must be finished in the correct order by placing the required resource and each accomplished step is placed on the right side of the project. Players can invest in other players projects by completing one of the steps. Players can invest in each other's projects by contributing resources one of their cards and a token, which awards them additional a points if the project is completed. The idea of the common project - players can contribute their resources to it in order to obtain action cards, which provide them with actions such as special rolling the die to trigger an event, sabotage or a universal resources. The common project is simply bigger and requires resource

investments from all players. Players can invest as many resources as they want in one turn. At the end of the game, players are asked to customize a project of their own with available resources.

Benefits: The game fosters reflection on the steps needed to take in real life projects by motivating players to think within the constraints of the game. Herein lies the learning aspect of the game - through the abstraction of resources and social interactions players attain certain ideas about how this can work in real-life scenarios.

2.3   Game Concept 3: Safari

Safari is a board game that presents an abstracted map of the province/city that uses it tessellated in units of five different colours standing for different types of projects that one can realize in that area from which, one that represents squares where nothing happens. At the beginning of each round every player has to pay four coins for using fossil based energy. In every round energy costs rise. The player rolls the dice and decides in which direction he wants to move. When the player lands on a coloured tile, he receives a task card of the same colour with a project he needs to realize. Projects are described on cards piled according to project type with the main side up. Each task requires the player to network with other players, to get permits and to get the finance. Network is achieved by asking fellow players to bet one or more of their coins in the project. A player can also realise the project only by himself. In this case he has to bet for one but gets the revenue of each missing partner, however he does not receive any Community points. Permit can be granted by rolling the dice or answering a quiz question. Some projects do not require a permit to be realized. Finances are decided based on the dice roll. Each project also has effects on its neighbouring tiles. Project-specific variations on these scenarios are described on the project cards and can include additional costs or profits in any of the currencies and pulling a joker card. For each completed project, the player places a flag with his colour on the tile of the completed project. Each project owner receives two coins in each round and each project participant receives one coin as revenue, representing money he saves or earns by using sustainable energy. One event card is played at the end of each round.

Benefits: The game acts as a platform where collectives of people are exploring the region and, by implementing projects, are contributing to the transition of their city. It promotes collective effort and competition among players while making clear how different qualities of a project requests different resources (people/network, money, permits, etc.) to get implemented.

2.4   Game Concept 4: My Bizz

My Bizz is a video game where players control a branch of a company, small shop and are in charge for its improvement, product choice, attracting customers and help the other branches do the same. Customers walk freely along the shopping street. They are attracted to the shops and spend some time inside shopping. Their money and satisfaction are affected by the shop's stats. If one of them is depleted, they leave the shopping area. Players use abilities to restock products, attract and entertain customers. When attracted, customers run to the shop, buy the product and change their need to another colour. Players have to cooperate to satisfy the customers as fast as possible. The happiness level of customers depletes over time so players should act fast. At the end of each day all revenue is collected by the mother company and each shop receives a part of it plus a bonus for the best performing players. Players take turns in deciding

what global improvement to make - they are given the choice to improve the city, the company or the welfare of citizens. Depending on the choice, certain things change. The earned money can be spent on upgrades, abilities and invested in the city. This unlocks new production slots, abilities and increases customer needs and money.

Benefits: The game structures a collaborative action and provides mechanisms for resource management. It promotes shared action, decisions that have to be taken as a group and reinforces the identification of collective benefits.

3. Conclusions

By nature, games are a participatory mediums that offer individuals help in understanding complex issues and support them in participatory processes. Using games in a collocated setting also provides the benefit of interpersonal communication, allowing and/or forcing participants to verbalize and therefore more profoundly concern themselves with their own opinions, beliefs and ideas, as well as those from others. A few limitations defined the direction of the games and guided the design process from the beginning. The games should be playable by up to six players in a mixed group (different age, sex, education, game experience) and be adaptable to each project partner scenario. Each of the locations deals with a specific topic and the games need to be adaptable to each one of them. Game events and interactions between players should make sense in each of the settings since they would later be compared with each other and evaluated.

Specific design goals need to be met when creating games that promote civic awareness and participation. These goals focus on establishing commonality and trust between participants. When such games provide multiple goals and mechanics they become a promising methodology that fosters civic participation where players are continuously activated.

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