

“What Games Can Teach Us about Community Participation: Participatory Urban Development in Rosario’s Villas”

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Abstract: Development programs increasingly call for community participation, but most people have more urgent priorities and more appealing options for their limited free time. Could games help attract broader community participation? In Rosario, Argentina, the urban development program Rosario Hábitat uses game techniques to engage slum dwellers in participatory workshops. Through six months of ethnographic observation and interviews, I found that this approach can make community participation more attractive, active, and effective, and make decisions fairer and more transparent. These outcomes depend on replicable game mechanics that engage the senses, legitimate rules, generate collaborative competition, and link participation with measurable outcomes.

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Something was wrong with the map. Mario peered down at it for a minute, his mouth slightly ajar in disbelief.¹ He had sat quietly through the workshop introductions, learning how he and a dozen neighbors were about to turn part of their villa miseria (shantytown) into a regular city block. He had stood with arms folded as the facilitators laid out a giant map of the area on a table, with new streets superimposed over existing land uses. Suddenly, Mario erupted. “That new street,” he blurted out, pointing to an edge of the map, “is on top of my house. I’ve lived there my whole life, since my dad built it with his bare hands. My dad just passed away, and now you’re telling me that it’ll be destroyed for some stupid road?!?” The facilitators looked at each other, and I waited for the inevitable ugly conflict between city plans and resident demands.

To my surprise, the ugliness never happened. Through a series of workshops of the Argentine development program Rosario Hábitat, residents had already learned to negotiate the conflict themselves. Veronica, Mario’s neighbor, reminded him that the new road was necessary for the City of Rosario to finally install reliable water, sewage, gas, and electricity connections for their houses. Julio, another neighbor, added that Mario would still get to pick a nearby location for his new house *and* get title to the land, based on rules that the residents had already agreed on. In the end, Mario asked the facilitators to check with the Planning Department about shifting the road’s location, but then he backed down calmly, “If this is best for the community, I’ll move.”

In a country where similar land disputes routinely result in *piquetes* (road blockades), why were these *villa* residents and city staff able to resolve the conflict amicably? Largely because of games, I argue in this paper. To engage residents in complex development issues, Rosario Hábitat weaves games and game techniques throughout its workshops. Could a game approach help address the challenges of participatory urban governance? Faced with high expectations, pressing needs, and divisive conflicts, development programs increasingly depend on community participation. Yet most people, especially the urban poor, have more urgent priorities and more appealing options for their limited free time. Some institutions, such as the UN and U.S. Army,

are trying to generate more interest through games. Can urban development programs also use games to attract and sustain broader community participation? If so, should they?

Through over six months of field research at Rosario Hábitat, I found that a game approach can enhance the quality of community participation, by making it more attractive, active, and effective, and making decisions fairer and more transparent.² These outcomes did not always occur, however. In this paper, I explain how the success of Rosario Hábitat's participatory workshops depended on many of the same "game mechanics" (techniques, elements, and structures) that designers use to craft appealing games.³ In particular, staff relied on specific game mechanics that engage the senses, legitimate rules, generate collaborative competition, and link participation with measurable outcomes – all of which helped resolve Mario's situation above. After presenting Rosario Hábitat and my research methods, I revisit several of the program's participatory workshops to illustrate how these game mechanics can be applied, and what can happen when they are ignored. Ultimately, the lens of game design reveals a system of replicable participatory techniques that can greatly improve community participation.

Rosario Hábitat

Lying four hours northwest of Buenos Aires, Rosario (population one million) is Argentina's third largest city, and a hotbed of participatory democracy. A progressive coalition government has run the city since 1989, launching an array of participatory programs in public health, children's rights, social economy, and decentralization (Almansi 2009a; Municipalidad de Rosario 2006; Maxera 1999). Rosario's participatory model won international recognition in

2003 when the UNDP awarded the city first prize in Latin America for good governance and local development.

In 1998, Mayor Hermes Binner called for a new participatory program to improve living conditions in the city's *villas*. These informal settlements had begun to grow on the outskirts of Argentine cities in the 60s, due to internal migration and slum clearance (Almansi 2009b). By the late 90s, there were 91 *villas* in Rosario, occupying 10 percent of the city (Rodriguez and Salomón 2009). The *villas* housed 115,000 people, 13 percent of the city's population, in fragile homes made mainly of scavenged materials. Most residents occupy the land illegally, without legal connections to the city's water, gas, or electricity networks. Because *villa* streets are usually unpaved and lack sewage or storm water systems, rain turns them into muddy quagmires.

Rosario's Public Housing Service (*Servicio Público de Vivienda*, or SPV), a city agency that had previously only led small interventions in the *villas*, proposed Rosario Hábitat as a comprehensive development approach. The SPV obtained a loan from the Inter-American Development Bank to cover 60 percent of Rosario Hábitat's initial \$71 million budget, and the City of Rosario has provided the rest (Almansi 2009b; Rodriguez and Salomón 2009). The SPV launched the first phase of the program in 2000, aiming to improve conditions in 11 *villas* – home to 5200 families, almost a third of the total *villa* population.

In each *villa*, Rosario Hábitat works on three fronts. First, it develops *urban infrastructure*. It generates plans for streets and sidewalks; gas, water, sewage, storm water, and electricity systems; and facilities such as health and child care centers. It then coordinates the efforts of

several city agencies, public utilities, and contractors to carry out the plans. To install new infrastructure, some houses need to be relocated. Rosario Hábitat either builds new nearby houses for these families or helps them move to vacant areas in the *villa*. The program also delivers property title to each family. Second, staff provide *support for children and families*, including nutrition and gender workshops, recreation activities, and placement of children in schools. Third, Rosario Hábitat coordinates a *work and income generation* program, which provides job training, internships, and placement services, and guides residents in forming micro-enterprises and cooperatives. Rosario Hábitat holds participatory workshops for each activity, enabling residents to identify local priorities, decide on rules, reorganize land, select new homes, shape development plans, develop micro-enterprises, and negotiate community concerns.

Through field research in 2005, 2008, and 2009, I used ethnographic observation, interviews, archival documents, and research seminars to assess how games and game mechanics in Rosario Hábitat's workshops affected resident participation. I observed 18 workshops, tracking 35 game mechanics and 30 indicators of democratic participation. I also interviewed 13 residents and 12 staff from across the program. Rosario Hábitat kindly provided me with mounds of newspaper articles, resident surveys, workshop evaluation forms, photos, and internal documents to review. In return, I led three seminars with staff to discuss the research, which was immensely helpful for formulating research findings. In the following sections, I revisit several workshops that I observed, to explore how game mechanics were and were not used.

Engaging the Senses

Rosario Hábitat begins to inspire active participation in planning workshops, where *villa* residents identify the main local problems and ways to address them. The workshop I observed, on a sunny Saturday morning in Villa Itatí, started with an impossible puzzle. By 10:00, around 60 residents had filtered into the community center across the street from the *villa*. Once people had settled into rows of plastic chairs in the main room, the workshop coordinator welcomed them with a challenge. Lucia reminded them that they were about to embark on a journey to remake their neighborhood and then she divided them into teams of ten. Orange-shirted staff escorted groups to tables, handing each a basket of 25 fist-size puzzle pieces. Lucia recited the deceptively simple instructions: to prepare for the difficult tasks ahead, each team should put together their puzzle – without saying a word. Each group flipped its pieces out onto the table, revealing a cartoon scene of a neighborhood. The participants started putting together pieces, but each group got stumped. Seeing this, Lucia announced that in the second round of the challenge, team members could now talk. Still, each group was left with holes in its puzzle, and some pieces that did not seem to fit. A few people complained that the challenge was impossible.

The third round of the contest revealed why they were wrong. Lucia now said that people could also communicate with members of other teams, although this was in fact not prohibited before. In a matter of seconds, people figured out the trick. Each team had a couple pieces from another team's puzzle, and vice versa. Once the teams had traded pieces and completed their puzzles, Lucia asked what had happened and what this had to do with Rosario Hábitat. Residents jumped in quickly with ideas. "When there was no communication we were isolated." "There was a lack of trust in the other teams." "We need to have open communication and work together."

The next activity put these lessons to the test. The participants were reassigned to groups of six to seven, and Lucia asked each group to identify the main problems in the *villa*, and solutions that Rosario Hábitat might offer. To help, facilitators gave each group a set of cartoon cards depicting neighborhood scenes, like in the puzzles. They asked the groups to first look at each card and write down on sheets of green paper any problems that the image suggested. A cartoon of a tiny house cramped up against a big house inspired the problem “unequal lot sizes.” A picture of a dingy alley suggested “dangerous passageways” and “people irresponsible with trash.” After participants taped up the problem sheets on the wall, the facilitators asked them to propose solutions on sheets of orange paper. Some solutions came quickly, such as “more equal lot sizes.” Others required more discussion. To deal with the alleys, some people suggested more police and education. Others disagreed, proposing wider alleys, street lights, and dumpsters.

Finally, Lucia asked each group to post its problems and solutions in two columns on the front wall and to prepare some kind of creative presentation of their main ideas. After 15 minutes of preparation, the first group led off with a Jerry Springer-esque talk show episode. They acted out a fight that had erupted between two guests, in which Julieta was tossing dirty diapers into an alley and Ana was trying to stop her (See photo in Annex). Rodrigo, playing the talk show host, intervened and asked what Rosario Hábitat could do about fights like this. Group members planted in the audience called out ideas: “get trash dumpsters so that Julieta has somewhere else to put her trash,” “install street lights so that neighbors could see their fight and break it up.” Other groups presented TV news reports, radio call-in shows, and skits of their own. Pointing to the wall full of problems and proposed solutions, Lucia thanked everyone for participating and said that they would meet again soon to decide how to put these solutions into action.

In the span of three hours, how did 60 diverse *villa* residents manage to develop a broad improvement plan for their neighborhood (and much more, as we will see soon)? They started by playing a game, which got everyone out of their seats, introduced them to neighbors, and forced them to question their assumptions. As the facilitators told me, the game made it less intimidating to speak up, established a collaborative mood, and made people more open to new ideas. For these and other reasons, games have become a mainstay in popular education and participatory planning – two inspirations for Rosario Hábitat. As pioneered by Paulo Freire in 1960s Brazil, popular education strives to help oppressed people understand their world in order to change it (Freire 1970). Popular educators regularly use games, especially role-playing games, puzzles, and physical and mental challenges, to explore complex issues such as exploitation *and* devise strategies to deal with them (Centro Ecuménico de Educación Popular 1996; Algava 2004; Algava 2006). For participatory planners, games have become a key tool for engaging community members in workshops and design charettes, usually through physical icebreakers, team-building games, mapping simulations, and contests (Al-Kodmany 2001; Arias 1996).

Games such as the puzzle challenge only tell part of the story, however. Staff also managed to engage residents by making the entire workshop more *like a game*, using “game mechanics” that are common in game design.⁴ The planning workshop in particular illustrated how two game mechanics – vibrant *visuals* and enjoyable *core mechanics* – can engage people’s senses. First, the workshop fully incorporated vibrant visuals into every activity. Participants began by focusing on puzzle pieces of colorful cartoons, then reviewed more cartoons, wrote on and arranged colored paper, and presented and viewed theater scenes. Second, the activities revolved around intrinsically enjoyable *core mechanics* – the basic actions that participants actually do

(Salen and Zimmerman 2003, 316-317). Matching together puzzle pieces, flipping through cards, sticking papers on the wall, and acting are all relatively enjoyable in themselves, at least compared with typical workshop activities such as asking questions and making oral arguments. For many scholars, the tight linkage between engaging visuals and actions generates the deep and meaningful experience of immersion that is common to games (Csikszentmihalyi 1991; Salen and Zimmerman 2003, 315; Laurel 1991, 161).

But does all this engaging participation in the planning workshop really matter? If Rosario Hábitat's goals are already set in advance, are residents just jumping through hoops to arrive at pre-determined "solutions"? Yes, the solutions are partly constrained by Rosario Hábitat's workplan, as in any development program. That said, the plan is exceptionally broad, encompassing most of the problems and solutions raised. Proposals that fall outside the workplan have often led to changes, such as workshops that let residents decide on floorplans for new houses, contracting of local cooperatives for construction work, and a city-wide program for informal trash collectors. Finally, sensory stimulation provokes further participation and creative new ideas, which are necessary for the workshops that follow (Algava 2006, 9).

Legitimizing Rules

To address the multitude of problems in the *villas*, diverse state institutions, private enterprises, and residents must collaborate on development initiatives. To make this collaboration work, Rosario Hábitat tries to establish clear program rules, largely through a participatory process. One Tuesday morning, I observed a rule-making workshop in Villa Itatí, at a health center recently built by Rosario Hábitat. Inside the meeting room, staff arranged 25 plastic chairs in an

oval, leaving a scuffed white table in the middle. As they posted flipchart paper and maps on the walls, residents began to arrive, each one receiving a folder with handouts.

By 9:45am, 20 people were waiting in their chairs, so the lead facilitator started the workshop. Juan explained that today, the residents would start deciding which of their houses would relocate and to where so that new roads and infrastructure could be built. Their specific tasks: pick criteria for determining who stays and who leaves, and start to map out passageways in the new block. Paula, another facilitator, pointed to a flipchart paper on the wall, labeled *Fixed Rules*. “Eleven basic Rosario Hábitat rules are outlined here,” she clarified, “and in your handouts.” As she explained, passageways were necessary so that all houses would have direct and safe access to the roads. Juan went over the other rules and explained their rationales: each new lot must be at least 100m² large (to ensure equality and basic living standards), no more than 30 percent of the families could move from the *villa* (to ensure that people’s livelihoods were not disrupted excessively), etc. People asked a few questions of clarification, nodding as staff responded.

“These rules are a good start,” Juan concluded, “but now it’s your turn to decide on new ones.” If there were three families living in a space that only fit two 100m² lots, how would they decide who would relocate? Juan explained that people in other workshops had suggested several criteria for making such decisions: length of tenancy, how precarious the house is, number of inhabitants, family members with disabilities, chance, mutual agreement, etc. Juan posted on the wall sheets of colored paper presenting the criteria and asked if anyone wanted to add new criteria. Yasmín said that she wanted to stay near her brother’s family, so maybe they could add

“family members nearby” to the list. Juan nodded and posted it on the wall. Others suggested a few more ideas, and as the discussion died down, Juan called for a vote to set the order of the criteria. Paula handed each family a paper strip with the numbers one to ten printed in a column. Juan explained that everyone should think about which criteria mattered most and then come up to the wall to label them in order of importance. After some discussions, people tore their sheets into 10 pieces and, armed with glue sticks, stuck the numbers on the criteria sheets to show their preferences (See Annex). Juan counted the votes and reviewed the order of the criteria.

Juan thanked everyone for prioritizing the criteria and invited them up to the table in the middle of the room. A giant map was on the table, with each family’s house labeled. Their task was to suggest where passageways should go, using several long, rectangular cut-outs of colored transparency sheets. As Juan explained, each cut-out represented a passageway, to scale with the map. The neighbors began moving the pieces around and new questions surfaced. Did the passageways have to be straight, like the cut-outs? Yes, because otherwise they would be unsafe. Why were some cut-outs wider than others? Because the width depended on how many families used the passageway to access their house. As Mónica noticed, the cut-outs were labeled with different sizes – 1.5 meters wide for access to one house, 1.8m for two houses, etc. After 20 minutes of playing with the cut-outs, the participants settled on locations for two passageways. With the criteria and passageways decided, Juan called the meeting to a close around 11:00.

The rule-making workshop, and others like it, helped generate and legitimate the rules of the game - what participants could and could not do. To do this, it used several key game mechanics: *participant-generated rules, multimodal presentation of the rules, justification of fixed rules, and*

structures for organic learning. First, Rosario Hábitat let *participants develop and order their own rules* for negotiating land conflicts. While most games start with fixed rules, some allow players to generate their own rules – and players are often more interested in the rules they create (Hughes 2006). The story was similar in the workshop. As Mónica said, the best thing about the workshop was that “We set the rules ourselves... so if we complain it’ll be stupid.”

Rosario Hábitat also imposes some fixed rules, however. Some are technical constraints for installing infrastructure, while others outline the rights of residents. Like good games, the rule-making workshop did not assume that people instantly understood the rules, but rather that rules needed to be constantly communicated, explained, and reinforced. One way to do this is *presenting rules in multiple formats*. In *Monopoly*, for example, players learn to collect \$200 on passing *Go* not just by reading the instructions, but also because the game board tells them. Likewise, facilitators gave participants a handout with the program rules, but also wrote the rules on the wall and read them aloud. When asked how clear the rules were, one participant pointed to the wall and said, “they’re very clear, because they’re there.”

In some cases, the reasoning behind rules is not obvious. Many games invent narratives to explain why a player can or cannot take certain actions. In Rosario Hábitat, facilitators also try to *justify fixed rules*, as they present them. Thus, they presented 100m² per lot not just as a program rule, but also as a way to ensure that all residents have a dignified amount of land, and that land distribution is more equal. One facilitator felt that explaining the rules more fully was important so that residents “accept because they understand,” rather than just accept blindly.

Finally, the workshop included *structures for organic learning* - elements that help participants learn rules through the act of participation itself. Organic learning is especially common in the designed spaces of video games, which give instant feedback that teaches you what to do. In the workshop, participants organically learned the rules about passageway size by playing with transparency cut-outs that were cut to represent the minimum sizes and labeled with these sizes.

All the residents that I interviewed said that Rosario Hábitat's rules were both clear and fair, but this was not always the case. In the program's first two interventions, in the *villas* Las Flores and La Lata, residents could not set any rules and staff did not present or justify rules very clearly, or use structures for organic learning. The results were not pretty. In the first two sectors of Las Flores, frustrated residents blocked nearby roads with *piquete* protests. This backlash forced staff to redesign the participatory process for the remaining sectors. After adding the mechanics described above, the remaining workshops in Las Flores went smoothly, without protests.

Generating Collaborative Competition

Clear and legitimate rules are not enough to resolve the most serious conflicts that arise in Rosario Hábitat. For this, the program has tried to balance competition and collaboration, especially in *loteo* (lot allocation) workshops, such as the one described at the beginning of this article. In the *villas*, land is already divided informally into lots. Through the *loteo* workshops, residents reorganize these lots so that new infrastructure can be built.

Juan began the first *loteo* workshop in Itatí by reviewing the program rules discussed above, and inviting everyone to gather around the map in the center of the room. Like in the prior workshop, each family's current lot was labeled on the map and the new passageways were marked with

transparency cut-outs. There was also a colorful pile of smaller transparency cut-outs, shaped like squares, rectangles, and Ls, as in the video game *Tetris* (See Annex). As Juan explained, each piece represented a 100m^2 lot – the dimensions were even written on the cut-outs. The goal: to arrange the pieces such that each family had a 100m^2 lot within the available terrain.

At first, people just stared. Juan picked up a yellow rectangle and placed it over Maria's lot, then slid a blue square next to it, over Miguel's lot. The square did not quite fit though – part of it overlapped a passageway. Juan now invited Maria and Miguel to try to rearrange their pieces, or substitute them for other shapes, so that both lots would fit within the boundaries. Otherwise, Miguel would have to leave the block and relocate. Miguel reached hesitantly for a thinner orange rectangle and tried switching it for Maria's yellow one, then shifting his blue square over into the liberated space. His move worked, but created a new problem. Now, Maria's lot overlapped with Daniel's land to the north.

After a few minutes of shape-swapping, it became clear that Miguel and Maria could not both fit in the block – at least not if Daniel's lot stayed as it was. It also became clear that Daniel's lot was relatively big – 150m^2 . Miguel put a red 100m^2 rectangle over Daniel's lot, and suddenly there was space for the three lots. Picking up on the conflict, Juan asked Daniel if he could give up some space. Daniel stared down at the map and cringed, saying that he was planning to build a new bathroom in the extra space. Juan asked if they needed to use the criteria to see who had priority, but then Daniel had an idea. Pointing to his lot on the map, he looked at Miguel. "If you give me some building materials for the bathroom, I'll give you a bit more space." Miguel

looked to Juan for approval, and Juan gave the ok: “The exchange of materials is up to you, but if you can reach an agreement, no problem. Agreement *is* the top criteria, no?” Conflict solved.

Many conflicts were resolved even more easily. Often, enough families would want to move out of the *villa* that no compromising was necessary. Many families could stay where they were, and others would see an empty space on the map and volunteer to move there. Some of the more complicated conflicts, though, required two or three workshops of discussion and negotiation. This time, all of the families were able to agree on new lot locations, whether inside or outside the *villa*. After an hour and a half of playing around with the map, Juan asked everyone to review the final distribution of lots and sign their new lot if they agreed. All of the residents signed.

The *loteo* workshops managed to negotiate key conflicts between residents, and between residents and the program. This was possible partly because earlier workshops had established norms of active participation and agreed-upon rules. With the stage thus set, the *loteo* workshops walked residents through the drama of conflict resolution using two additional game mechanics: *magic circles* and *group vs. system* competition.

Johann Huizinga first used the term *magic circle* in the 1950s, to refer to a play space that is temporarily separated from the ordinary world, within which special rules apply (Huizinga 1955, 10). Magic circles are defined by both space and time. For example, the rules of soccer only apply in a space designated as a soccer field, within a time period designated as a soccer game. The physical boundaries of magic circles are often accentuated, to create the feeling of safety necessary for play (Salen and Zimmerman 2003, 94-95). In the *loteo* workshop, the puzzle map

served as a magic circle. Conflicts that at other times have led to violence could be played out on a safer playing field, such that outcomes depended on agreed-upon rules rather than force. Land disputes took the form of overlapping colored puzzle pieces, which residents could rearrange safely. When discussing these conflicts, residents tended to point to the map, not each other. On the simplified terrain of the map, land inequalities were communicated more clearly. The magic circle also leveled out inequalities between residents with different skills, creating more horizontal relations. As a facilitator summed up, thanks to the *loteo* mapping puzzle, “we were able to achieve consensuses that would have been impossible otherwise.”

This level of consensus was also encouraged by a *group vs. system conflict structure*, which some games use to bring a group of players together to compete against the game system (Salen and Zimmerman 2003, 250). In the *loteo* workshop, residents struggled together against the constraints imposed by the program rules and the map itself. For one facilitator, the residents’ collective quest to complete the puzzle “generates a certain intimacy... a group spirit.” Combined, the workshop’s magic circle and group vs. system competition created what I call *collaborative competition* – competition that both requires and enhances collaboration.

The *loteo* puzzle is not always successful, though. In another area, I witnessed a disastrous workshop which ended in a man on crutches storming out of the room, as he and several other residents cursed the program for being a mess. What happened? To start, the facilitators did not create much of a magic circle. Their map was largely illegible and too small for everyone to see, and the facilitators did not encourage participants to move the colored pieces. Nor did they frame group vs. system competition. Rather, they asked residents to pick lots individually and did not

remind them about the program rules that limited their options. After not establishing healthy or collaborative competition, staff were left with a rather unhealthy chaos.

Linking Participation to Measurable Outcomes

By the time I observed a workshop at Villa La Cerámica, the end was near. After several years of work, the project team had reached the last round of workshops. In the final “relocalization” workshops, families that could no longer fit in the *villa* were invited to select homes in a new housing development. The first meeting was held one evening behind a social club that bordered the new development, so the participants could see their half-constructed new homes in the background. As I helped staff set up a ring of chairs, they explained that this workshop was for single people and huge families, who had special relocation needs.

By 5:30pm, ten residents were sitting stiffly in their chairs, representing all but one of the families. Ximena welcomed them, announcing that today they would choose from amongst the largest and smallest lots in the two new blocks. First, she proposed a round of introductions, asking everyone to say their name and favorite place in their house. For nearly an hour, the introductions led to a stream of insights, laughs, and discussions. Alberto admitted that he liked to keep to himself and was quiet, but Gigi gushed about playing music and dancing in her yard. Carlos said nothing about his house, so Ximena asked about his favorite furniture. He sighed, “I don’t really have anything,” and laughed slowly. By the end, everyone had talked and met new neighbors.

Ximena now got to the point. “The idea of that exercise was to get to know each other and start to build a new neighborhood,” she explained. “You could stay in this new house for life, so think about what you’d want.” Next, the residents would have to decide on some rules, before picking lots. Like in the rule-making workshops, they discussed and voted on criteria for negotiating conflicts over lots. Juan Pablo then pointed to the wall and explained the maps of the new blocks and the floor plans of the new houses. Eight lots were highlighted on the map - three large and five small, some facing the street and some set back.

The families now got to work picking from amongst those options. Gigi and Hilda requested two of the neighboring set-back houses, pointing out that since they were friends they should get priority, since this was one of the top criteria the group selected. No one objected, and Juan Pablo labeled the lots with their names. Carlos asked for another rear lot and got it, and the rest of the families picked their lots with surprising ease. In less than ten minutes, all the lots were allocated, and staff passed out cups for a soda toast. After toasting, Juan Pablo led everyone on a tour of the new houses. The residents pointed and pondered. “I could plant flowers here.” “Look how wide the path is.” “That’ll be my room.” By the time we finished, it was almost 8:30pm.

Impressively, all of the residents participated actively for the full three hour meeting. Why? In part because of the game mechanics discussed earlier but also for a new set of reasons. The relocation workshop in particular illustrated how Rosario Hábitat tightly links participation with measurable outcomes. It enabled the families to clearly see the results of their participation, *by presenting concrete outcomes in concrete ways, making clear the uncertain nature of these outcomes, breaking participation down into levels, and keeping score with points.*

By definition, all games end in *measurable outcomes*, meaning that a player wins, loses, or receives some score (Salen and Zimmerman 2003, 80). The clearer the potential outcomes, the greater the motivation to play. Rosario Hábitat is fortunate that its workshops have extremely *concrete outcomes*, literally. While bricks and mortar infrastructure is an instant appeal, the program makes it more appealing with *vivid presentation of the outcomes*. In the relocation workshop, staff posted plans for new blocks and houses on the wall, convened within sight of the houses under construction, and started by envisioning favorite house spaces. In other workshops, they displayed giant posters with photos of other *villas* before and after improvements (See Annex). Tellingly, everyone I interviewed said they believed that the infrastructure would be built, though they were skeptical of other development programs. As Julia said, “I’ve lived in the *villa* since 1973 and many programs have come and gone, but none of them delivered. Rosario Hábitat is the only one that delivers - that is already delivering.”

Although concrete results were guaranteed, residents did not know what exactly these results would be. *Uncertain outcomes* are essential for sustaining people’s attention – if the outcomes are known, people will stop playing (Fullerton 2008, 32). In the relocation workshop, the families knew *that* lots would be assigned, but they did not know who would get *which* lots.

The facilitators also broke participation down into *levels*, requiring residents to complete certain sets of tasks before advancing to the next activity. First, they had to envision favorite parts of their house, then select decision-making criteria, then pick lots. Because the workshop was divided up so sharply, people had multiple opportunities to achieve intermediate objectives.

Because these objectives built on each other, they generated a sense of progress, something lacking in many three-hour meetings.

Finally, staff used *points* to quantify the results of participation. In the relocalization workshop this occurred during voting for decision-making criteria, but residents have also voted on locations for new housing developments, models for new homes, and other improvements. In each case, vote tallies allowed people to more easily measure the impact of their participation. In a sense, the quantification of lot sizes also served as a kind of score. Many residents, such as Andrea, measured the outcomes in square meters: “Now I have 36m² of land... if they give me even five more meters it’s a miracle.”

The outcomes seemed much less miraculous, however, in Villa La Lata, where Rosario Hábitat used none of these game mechanics. Because of its central location in the city, La Lata already had roads, sewers, and most basic infrastructure. Rosario Hábitat did not offer other concrete benefits, but rather announced that some residents would have to move for a process of “regularization.” Staff did not present vivid images of future improvements, but they did dictate exactly where new passageways would be placed and who would have to move, removing uncertainty about the outcomes. Residents were never allowed to vote. In the end, as one coordinator recalled, “people weren’t interested in the solution we were offering.” The residents stopped participating in program meetings and at the moment of relocalization they refused to leave. As tensions escalated, a resident tried to stab a staff member, and the project team was literally chased out of the *villa*. While this failure had many roots, the most significant was the disconnection between participation and outcomes.

Conclusions

As Rosario Hábitat illustrates, games are a treasure chest of tools for community participation. Games such as the puzzle challenge ignite participation, build community, and open people's minds. Game mechanics such as vivid visuals and enjoyable core mechanics activate and engage people's senses. Participant-generated rules, multimodal presentation of the rules, justification of fixed rules, and structures for organic learning establish and legitimate rules. Magic circles and group vs. system conflict generate healthy competition that increases collaboration. Linking participation to concrete yet uncertain outcomes, presenting these outcomes vividly, and measuring progress through levels and points provides more incentives to participate, and to keep participating. These game mechanics are even more powerful when implemented systemically. In the two projects that did not include games or game mechanics, residents violently rejected the program. Tellingly, the program director had a simple explanation for why Rosario Hábitat uses game techniques: "For me, because they work, because they give results."

Of course, not everything should be designed like a game. Many games and game mechanics are only appropriate in certain contexts, and some can in fact make participation *less* democratic and appealing, as I discuss elsewhere (Lerner). The experience of Rosario Hábitat, however, suggests that if development programs use game mechanics that engage the senses, legitimate rules, generate collaborative competition, and link participation with measurable outcomes, they can enhance community participation. In particular, they can make participation more attractive, active, and effective, and make decisions fairer and more transparent. The research thus shows that games and game mechanics can be useful tools for development programs struggling to attract, facilitate, and sustain the democratic participation of slum residents.

Annex



Photo 1: Acting out problems in the villa, in a planning workshop.



Photo 2: Voting on decision-making rules, in a rule-making workshop.



Photo 3: Rearranging lots in a *loteo* workshop.



Photo 4: Vivid presentation of workshop outcomes, through a “Before and After” poster.

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¹ To protect confidentiality, some names of individuals and locations have been changed.

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³ Elsewhere, I discuss how games can be used directly in participatory processes (Lerner).

⁴ In Spanish, staff refer to many of these game mechanics as “técnicas lúdicas” (playful techniques).