

Making *Blocks & Lots*: A Window into Learning and Creativity

by Gilda Haas and Rosten Woo

INTRODUCTION

Over the past 15 years, Strategic Actions for a Just Economy (SAJE) in Los Angeles and the Center for Urban Pedagogy (CUP) in New York have been creating popular education tools for urban planning that help prepare working-class people to understand and change the rules and laws that affect their lives and futures.

When Rosten Woo, former Executive Director of CUP moved to L.A. at the same time SAJE Founding Director Gilda Haas passed the organization's reins to a new generation of leadership, an opportunity for collaboration emerged.

The initial goal was to produce an online interactive version of the material contained in SAJE's "People's Planning School" that would be accessible to a larger national audience. As our conversations developed, we identified zoning and its invisible yet powerful impacts on the urban environment as a baseline starting point for the project. Through a process that we neither recommend nor regret, we ended up in the realm of game-making, and became immersed in the intersections between games and learning, games and creativity, and games and social change.

In this article, we will describe our experience with creating the *Blocks and Lots* zoning game and then place that experience into a larger discussion about how the best properties of games and game-making offer lessons both to the project of popular education and the kind of eco-systems thinking that is needed to solve our current epic-scale problems of urban sustainability and inequality.

WHAT IS POPULAR EDUCATION?

Briefly stated, popular education is education for a true and living democracy. Its purpose is to provide people with information, knowledge, and critical conversations that can inform collective decision-making, which is the essence of democratic practice.

Popular education concerns itself with those who have been excluded from full participation in the benefits of the economy and the political decisions that define its winners and losers. Towards this end, popular education also serves to translate research, experience and history into a shared practice so that injustice, its historical moment, and its strategic importance can be seen, articulated, and addressed in action.

Popular education is the "pedagogy of the oppressed"ⁱ that can tease out the commonalities between poor whites, immigrants and the progeny of former slaves. It helps explain the geographies of injustice that deny some communities credit, decent housing, essential services, and the right to name and remain in the neighborhoods where they have lived for decades.

Popular education is an idea-building endeavor through which people can produce their own theory of change.ⁱⁱ For practitioners, it is both a political and scientific proposition, which raises essential questions about democracy, on the one hand, and how people actually learn, on the other.

Myles Horton, founder of the iconic popular education Highlander Center in Appalachia, explains it this way:

Well, we have a philosophy that we know, that we can identify. We believe that — we believe in people. Our loyalty is to people, not institutions, structures. And we try to translate that belief and trust in people's ability to learn into facilitating

peoples' learning. Now you don't teach people things, since they're adults; you can help them learn. And insofar as you learn how people learn, you can help. And that's a powerful dynamic force, when you realize that people themselves in these hollows, and in these factories and these mines, you know, can take much more control of their lives than they themselves realize.ⁱⁱⁱ

This process holds true in the very different urban context of our work in Los Angeles and New York neighborhoods where gentrification and redevelopment had snowballed into mass displacement of people and their communities. Here, popular education is a way to meet people's authentic desire to understand what is happening in their lives, to learn about land use law, and to shift the terms of the debate about contested terrain so that their values and voice are included.

PEOPLE'S PLANNING SCHOOL

In 2006, the City of Los Angeles began the process of updating its 35 Community Plans, beginning with working-class communities of color in South and East L.A. many of which had been struggling for some time to correct the historical practice of land use in their communities as weapons of exclusion, expulsion,^{iv} and dumping.^v In response to neglect and gentrification, community organizations in those areas had invented their own urban planning popular education programs in their efforts to prepare and mobilize local residents around land use issues.

For example, Community Coalition for Substance Abuse Prevention and Treatment had been working for many years to reverse the proliferation of liquor stores and nuisance properties in South L.A. and in the process of this campaign created their

own game to illustrate the City's lengthy and arduous revocation process.

Across town a few years ago, the East Los Angeles Community Housing Corporation held a large-scale charrette to prepare their members for participation in the City's planning process which they culminated in a spirited march (very likely the city of L.A.'s first urban planning march) that was punctuated with enthusiastic call and response yells of "Whose Plan?" "Our Plan!"

In 2007, Strategic Actions for a Just Economy, in collaboration with Trust South L.A. and Esperanza Community Housing Corporation, launched its first four-session "People's Planning School" with a panel of grassroots planners from Harlem, San Francisco's Mission District, San Diego, and Pittsburgh, followed by interactive exercises, workshops, and learning games.

Inspired by these examples, Pacoima Beautiful recently completed their own 12-week People's Planning School for their cadre of community leaders, including outside speakers, home-grown workshops, and even a play-test of the *Blocks and Lots* game.

The original purpose of our project was to consolidate some of these popular education products and make them available on an interactive website. Our goal was to broaden access so that a larger pool of activists could benefit from the above innovations and to prevent that knowledge from being lost as the temporary ephemera of community campaigns.

In order to ground our work in a committed constituency, we partnered with Esperanza Community Housing Corporation. Over the past decade, Esperanza had trained and developed hundreds of local residents into a large corps of bilingual health promoters. These "promotoras" were already immersed in land-use issues and were very

interested in learning more about the relationship between urban planning and community health. They became our touchstone for determining what is useful, what works, and what does not.

THE IDEA OF A GAME

As we started to sketch out content for the interactive website we soon became excited about creating at least part of the site as a game. We developed several sketches of interactive content (ranging from a matching game where players could see different land uses that would be accepted and restricted by various zoning requirements – to a series of short animated tutorials and video interviews with progressive planners).

But the direction that captivated us most was a mini-game that would allow the user to zone a neighborhood and see the responses of different characters in the city. This idea took zoning out of the realm of technical knowledge and into a much more accessible and personal place where questions like "How does zoning affect a neighborhood's development? How can zoning reflect the aspirations, fears, and hopes of the people that live there? Why do some proposals work for some people or institutions and not for others?" could be explored.

We turned the specific experience of contested terrain in the Los Angeles Figueroa Corridor^{vi} into a “story” or scenario that imbued a place with some general characteristics and multiple stakeholders that could resonate as real in many cities around the country, as well as many other places in Los Angeles:

A formerly residential site near the heart of downtown has become, over time, partially industrial. Low-income residents continue to

live in the area because of its affordability – despite its environmental danger. The neighborhood's central location has also made the area desirable to people who have more options, as well as to developers who cater to those higher income people. Meanwhile, a nearby university hopes to expand their campus further into the community..

This story presents a community at a crossroads — with several starkly differentiated visions of what the neighborhood could become. In this way, we presented zoning not as a technocratic exercise, but rather, as an embedded contest where vested interests already exist.

Before investing the time and money necessary to create an online game, we needed to test out the premise with Esperanza's Promotoras. The promotoras are Esperanza's daily link to the community. They conduct health trainings, provide direct service, and organize local residents around a broad array of health-related issues. A zoning game would be a useful addition to their toolkit for educating and organizing the community around urban planning issues.

In order to produce a game that would resonate with our intended audience we decided to use a collaborative design process. Collaborative design entails a time-consuming, iterative process that engages the end-users (in our case, the promotoras) as critical thinkers and decision-makers. The promotoras provided guidance, feedback, and criticism of the project from inception through to completion. In this way, collaborative design shares much in common with notions of popular education. Grounding the project development in an extended engagement with the wants and needs of a community is

time-consuming, but essential to producing a useful end-product. We thus created a “paper” version of our idea that we could play-test with a group of Esperanza health promoters.

It is one thing to keep a particular user or client group in mind while designing and quite another to actually engage those users in the design process. Collaborative design is a messy business that involves testing, surprise, adaptation, and iteration. The design process also has to be planned around those interactions; it cannot be incidental. In order to facilitate a continued engagement with the promotoras, we imagined prototyping the game in a workshop format. Since we did not have an army of coders at our disposal to produce many iterations of an on-line game, we decided that a prototype in the form of a real-time workshop, made out of paper and readily available supplies, would allow us to design more collaboratively.

We approached the paper game with some general ideas about what success could look like. We wanted the game to be accessible and interesting to people who were alienated from planning discourse, including low-income residents of the city who may have limited formal education and English-language skills. We wanted it to be simple to learn and for our players to have fun while playing.

We learned a lot in the process and while we don't regret going this route, we did effectively end up doubling our scope by creating a multi-player workshop and board game as well as an online interactive game.

MAKING A BOARD GAME

In order to test even the basic content of the game scenario that we had created, we needed to offer the promotoras enough game mechanics to keep them engaged. Further, we felt that the game dynamics should correspond directly to the central content of the game. We did not want to simply dress up our content up in game clothes, by adding points and scoring (thus creating merely glorified tests). We wanted to produce a game from the core elements of a land-use and zoning experience: the conflicts, and the politics of the real thing.

It made the most logistic sense for us to schedule game-testing sessions when we could get promotoras together in a group. With that in mind, began to build game dynamics that would be interesting for 4-5 players.

As we play-tested various iterations with the promotoras we decided together that a board game and workshop format would be the most practical and useful for their purposes. By the third playtest, when the promotoras reported that they were taking the game home to play with their families (who enjoyed it), we made a formal commitment to "fork" our development process and create a full board game version.

At the time we expected this detour to take just an additional month or two, but as we got deeper and deeper into the sticky problem of creating an engaging multi-player experience, the board game took on a life of its own, with a year of many iterations and play-tests. In the process, we learned a lot about making games (including how much more we have to learn). Some of these lessons are described below.

PRODUCING PLAYER INTERACTION

As stated above, we wanted players to learn about the basic functions and mechanics of zoning through the game-play itself. In addition, we wanted to present zoning through the lens of politics — as a process that is always invested with the political — shared and contested ideas about justice and freedom. From the outset we knew that we wanted the game to be hard to win unless players built alliances and agreements with each other. Thus, negotiation became a central dynamic of the *Blocks and Lots* game.

In many games, players have similar or identical goals (to get the most points, to get the most money, etc). But we wanted our game to reflect the community problematic of zoning by showing how the same outcome can feel dramatically different depending on your vision for and stake in the neighborhood. So, for negotiations to occur, players needed to have overlapping, but not completely conflicting goals.

A precedent for this type of dynamics is the German game^{vii} “Ticket to Ride” in which players draw individual routes to complete. In the course of the game, these routes are likely to have some conflicting links. In order for one player to complete a route, they may, for example, get in the way of another player; although they are neither competing for the exact same routes, nor are they aware of one another’s precise goals.

The children's card game “Go Fish” works like this as well. Here, each player chooses a set of cards to collect, based on their current hand, which becomes their "goal." Players then compete for cards, hoping to complete their own personal goals. In the process, sometimes players stymie each other. Other times they merely race for completion.

To test our initial “overlapping goals” idea, we actually devised a simple card game along the lines of Go Fish. In this early version of the game, each player drew a “character card” that identified the set of cards the player needed to collect to win. Play then progressed with each player taking turns: drawing and discarding cards, while hoping to assemble a winning hand.

This initial card game was unsatisfying for numerous reasons, but the idea of characters resonated well with our players who quickly grasped the different roles (developer, factory owner, tenant, etc.) and were easily able to use the characters as a gateway into planning issues. Characters were thus maintained as an element of the game throughout the iterations.

At the same time, we learned quite a bit about what did not work. We ended up making more than a dozen iterations of the game and play-tested each variation several times with the Esperanza promotoras; friends and family; students; and colleagues from labor, community, and environmental movements.

We also tested the game with members of PEG-LA^{viii} (L.A.'s Pervasive and Environmental Gaming Group) a community of artist game designers who provided insightful feedback from their dual perspectives as avid players and professional designers.

Through the process of design, testing, and iteration, we developed and refined myriad game dynamics. That experience led us to the basic structural elements of our game, which are described below.

A ZONING GAME SHOULD BE SPATIAL

Although it should perhaps have been obvious from the outset, a game about zoning really needs to be spatial. The focal point of our final game board is an overhead map of a city. This allows players to imagine a real place; see physical buildings and spatial relationships; visualize conflicts; and keep track of the action. Each player is given a specific character to play, each with a particular interest in Solano Heights. Some want to zone a certain number of lots in a particular way. Others want very specific locations (an apartment, a factory, etc) to reside in a particular zone. Play is centered around the blocks and lots of Solano Heights and their spatial relationships to one another.

CREATING CURRENCY

In early versions of the board game, players moved around the board and then "zoned" lots when they landed on them. In our play-tests, we found that this created situations where too many outcomes were instantly determined. For example, if one player zoned a factory as "open space," a pro-factory player would have no opportunity to recover.

In the game, "zoning" is a process where players can place a finite number of "influence tokens" on game-board lots, knowing that other players can place their tokens on the same lot as well. This allows players to make progress towards their goals without being able to make final wins or losses. The tokens enable players to signal their intentions on the board and build towards an eventual goal in a structured way, adapting to one another's moves and developing shared strategies. The board becomes a visual and

tactile record of conflicts, allowing players to indicate which territories and battles are important to them and pushing them to interact and negotiate with each other.

INDIVIDUAL AND COMMUNITY GOALS

At the suggestion of one of our tester/collaborators, we introduced the idea of larger community values and goals, above and beyond the goals of each player's character. The way this works practically in the game is that after a player hits a midway point on the board, a new set of “table goals” are revealed. These goals are similar to the goals of individual characters but these goals must be met by the entire group or else ALL the players lose. These table goals gave players explicit reasons to collaborate creating an interesting tension between individuals and the group. Players now had a framework around which to negotiate, shared stakes, and personal stakes. They had to simultaneously guard their own interests and figure out what sacrifices they would be willing to make to help the whole board “win.”

TIME LIMITS

To produce additional tension (and prevent the game from stalemating) we created a track around the game board perimeter that gives the players a finite number of moves before the game ends. This time limit creates a sense of pressure which encourages players to resolve their negotiations.

We also created a modified and simplified “speed” version for use in larger groups, or as a brief workshop warm-up. In some ways, this may be the purest and most efficient version of the game. It brings up 80% of the issues in about 20% of the time.

The speed version replaces the track with an actual timer, is turn-less, and requires players to use verbal negotiations to achieve their goals in a five-minute round.

Although this game-play tends to be frantic and somewhat confusing, it works very well as a means to quickly get issues onto the table as a prelude to a longer workshop discussion. We envision this version to be the most frequently used.

CONVERSATION AS A PRIMARY DYNAMIC

Throughout the game design process we added and removed a great many components from the game. Some versions of the game included color-coded “constituencies” that players worked to collect; numerous additional goals that players could collect and discard; and a series of “seasons” that changed gameplay over time. There were versions where players moved a pawn around on the map itself and versions where players had uneven advantages at the game's outset (to reflect the power imbalances of the real world).

Each of these elements were gradually removed in order to clarify and push forth the game's central dynamic of negotiation and discussion. It is in the conversations between players where the game really takes place and is most enjoyed. The more we streamlined game-play, the better the game became.

ROOM FOR IMPROVEMENT

The game, of course, can still be improved and we still find rough patches that do not feel completely resolved. On the one hand, we wanted the game to include pointers to real world solutions that transcend zoning because there are so many critical inequality

issues in land use that are rarely or never addressed by zoning alone. These include affordable housing, community benefits-agreements, local hiring, health impact analysis, etc. As activist planners, a game that focuses only on zoning might: a) suggest that zoning is a more useful tool than it is; and/or b) alienate players, like the promotoras, whose primary interest in zoning is to reduce inequality and produce a more just city.

Solutions that lie outside of zoning's purview were hard to incorporate into the game for the very reason that they exist outside of zoning, the game's central dynamic (i.e. they are non-spatial; they exceed the scope and scale of municipal powers; etc.)

Our final solution was to add a series of tradable "solution" cards that help to resolve certain character's issues, such as an affordable housing zone, a special height-district, or a green manufacturing zone.

But, even after many rounds of iteration and improvements, the solution cards still do not feel completely natural and in-game. Some of them still sit awkwardly on top of the rest of the larger game's dynamics. And, some players may end up in a position where they have accomplished their goals and are now just waiting, hoping to draw the right solution card.

In reality, urban planning solutions are quite complex, but because the explanations and ideas must be streamlined for game-play, we developed a facilitator's guide that includes suggestions of how to use the game to as a prompt for deeper discussions about land-use and values.

Inevitably every simulation (and any representation) is an exercise in skillful, purposeful abstraction and omission. What is really important? What can be removed or made general? Compromises were made here between making game mechanics coherent

and representing the messiness of the real world. If the purpose of *Blocks and Lots* was to simply entertain, we likely would have made different decisions and compromises.

RETURNING TO THE DIGITAL REALM

Once we were satisfied with our board game, we returned to our initial task, which was to create an on-line learning experience about zoning.

By now, we had a very developed understanding of how our zoning conflicts and solutions worked spatially. Balancing the challenge of each zoning goal required a lot of testing and evaluation. Our task now was to apply what we had learned and then use the spatial dynamics of zoning to create puzzles and gameplay to produce a single-player, interactive, online experience.

There are important differences between designing a single-player online game and a multi-player board game, and those differences presented us with new limitations as well as new possibilities. The difference between these two kinds of games are too numerous to count here. Below are a few of the key distinctions.

With a single-player, the dynamics of conflict, negotiation, and compromise that occur between players are not available. Instead of having the player represent a single interest (learning about other interests through conflict and negotiation) the player now has to represent a mediator working to solve conflicts between non-player characters.

But this also affords an opportunity, while a multi-player game needs to provide equally interesting roles for each player, a single-player game doesn't require that kind of balance. In the *Blocks and Lots* board game we had to give each character (the factory owner, the garden advocate, the housing advocate, etc.) an equally difficult and nuanced

challenge. The online version, however, could position some of the characters in minor roles and others in major ones.

A single player game can work well by encouraging a player to use trial and error, make mistakes, and start over. In a multi-player game, this dynamic must be applied more gently so that no player feels like a total failure — players need ample opportunity throughout the game to recover by encountering luck or chance to re-set the odds. In a single player game, the failure loop is much smaller and the consequences of failure much lighter. The duration of the game is so short that failing just means a quick re-set — not an hour of boredom. In this environment, failure becomes one of the key modes of learning.

MAKING A PUZZLE

At the end of the day, it became clear that our online game had to be structured like a puzzle: the player would be presented with a toy that rewards interaction and requires very little introduction or pre-play instructions. The player's learning experience occurs through exploration, trial and error. Through experimentation, players understand the environment and, ramp up through “levels” to acquire more and more layers of complexity. Unlike the board game, which takes about an hour to play and where the structure of interaction is largely social, it was important that our single-player game take no more than ten minutes.

With this in mind, the core dynamic of the online version of *Blocks and Lots* is a puzzle. The player's goal is to make different constituents in the city happy by zoning the

city in a manner that meets their needs and then finding clever ways to please multiple constituents.

As in the board game, we wanted to offer additional policy solutions that could help solve problems and resolve conflicts between characters, extending beyond what zoning can typically do. Here, our unresolved problem of how to introduce these "non-zoning" solutions returned with a vengeance. We were willing to let some of the nuance fall to the wayside in our board game version, which we expect to be used primarily as a prelude to deeper workshop discussions about planning. But the single-player on-line version had to work as a stand alone. We needed to be certain that players would understand the game's attitude about zoning just by playing the game.

Take, for example, the problems of Consuelo, a character in the game whose housing is threatened both by the pollution coming from a nearby factory, as well as the threat of luxury development. In real life, there is very little that zoning alone can do to secure healthy, affordable housing for the character. Presenting simplified "magical" affordable housing or green manufacturing zones suggests to the player that the problem is much easier to solve than it is. Similarly, suggesting that a supply-side solution like inclusionary zoning will completely solve Consuelo's problem could alienate an important community of activists who are working on various strategies to prevent displacement. Finally, allowing the player to solve Consuelo's problem by simply selecting affordable housing from a list is just poor game design, offering no challenge, or exploration and therefore no fun. Nevertheless, affordable housing is a critical concern to many potential players of the game and part of the game's story.

We ultimately solved the problem by creating a mini-game that pops up when a player chooses a button marked “solve a conflict”. Selecting this option allows the player to engage any two characters in a conversation, opening up a dialogue tree that moves the player through a series of choices and consequences that are related to a conflict between two characters. The dialogue draws the player's attention to the trade-offs inherent in any “solution” like green manufacturing zones or tenant relocation benefits. The mini-game allows the player to explore a complicated policy solution through a series of simple decisions, beginning with a goal ("Do you want to keep Consuelo in her current apartment, find an affordable place for her to live, or compensate her for the pain and expense of moving?") and proceeding through logic trees related to their choice. Along the way, the characters in question comment on how the player's choices affect them, giving the player more clues and feedback.

Making *Blocks and Lots* required us to produce an experience for non-planners of what planning actually is about. As novice game-makers, we were constantly presented with design problems, rewarded with creative insights derived from both the failures and successes of our many iterations and play-tests, the reactions and ideas of players, and the new challenges that our solutions inadvertently produced. As evident from our narrative, we got "hooked" into the project of making a game, well beyond the original scope of the project itself. We expanded our commitment in order to solve the puzzle that we ourselves had posed. In this way, making a game inspired the kind of challenge to our creative capacity that was both frustrating and satisfying. The process produced a high learning curve which also revealed how much more we could possibly learn to be truly successful game-makers.

A speeded-up, compressed version of the motivation, inspiration, and problem-solving synapses that hooked us into game-making is much of what "hooks" the 183 million people in the U.S., 105 million in India, 100 million in Europe, and 200 million in China into *playing* computer or video games for an average of 13 hours a week.^{ix}

With this in mind, we will now move from our micro experience with *Blocks and Lots* to the larger question of what the world of games can teach us about learning, teaching, and creative problem-solving.

LEARNING FROM GAMES

In the 1960s and 1970s, advocacy planners and War on Poverty policies attempted to balance the scales for the Consuelos of the world by producing the means and methods that were necessary to recapture planning's decisions for and by the community. Around the same time, the popularization of "systems" thinking and new possibilities offered by computerization infused the social sciences with game-like testing ideas, a spate of simulations and an interest in producing actual games.

For example, during its heyday in the 1960s, the Hopkins Game Program^x, headed by Johns Hopkins professor, James S. Coleman, produced various games as a way to model and better understand behavior and decision-making, including "Ghetto: The Original Urban Simulation Game (original title: "How Black People Live"). Coleman's group also made the games "Democracy", "Community Disaster", "Consumer" and "Generation Gap," among others.

In 2011, the larger context in which game-making as a means of popular education — as a tool to infuse social movements with accessible, enjoyable, and

effective ways to combine shared values with knowledge that is both connected to and outside the realm of daily experience — has changed considerably since the time of the Hopkins Game Program.

For example, climate change has so radically repositioned the scale of human impact on the natural world that scientists have widely adopted the informal use of the term *Antropocene Era* (Greek roots meaning "human" and "new"), while it awaits deliberations by various geological societies for formal acceptance into the Geological Time Scale.

And, while it is hard to imagine that inequality in this country can actually have increased from a time when "How Black People Live" was given serious consideration as a game title, the fact is that the distance between the poorest and richest Americans today now approximates that of the robber barons period — a time before social security, unemployment insurance, and minimum wage. Inequality, like the immense human-caused environmental consequences of climate change, has also grown to epic proportions carrying with it the possibility of severe consequences. It is widely held that inequality is democracy's greatest threat.

Finally, the growing primacy of cities and their attendant problems is profound. The UN forecasts that by 2030, three out of five people in the world will live in cities, with over two billion living in slums. Today, the questions of "Whose City?" of the "Right to the City," of who plans, for whom, and to what end has never been more complex.

Margaret J. Wheatley, who applies lessons from chaos theory to the life of everyday organizations, describes the current moment like this:

It is a world where small groups of enraged people alter the politics of the most powerful nations on earth. It is a world where very slight changes in the temperature of oceans cause violent weather that brings great hardship to people far from those oceans. It is a world where pandemics kill tens of millions and viruses leap carelessly across national boundaries. It is a world of increased fragmentation where people retreat into positions and identifies. It is a world where we have very different interpretations of what's going on, even though we look at the same information...^{xi}

Einstein's maxim, that "We can't solve problems by using the same kind of thinking we used when we created them," has never been more evident. Today's problems demand unprecedented reservoirs of human creativity and problem-solving. We need to infuse our latent talents with higher levels of understanding, empathy, and divergent thinking than ever before. We need to heighten our tolerance for complexity, our capacity for "eco-systems thinking" (seeing the world as a complex web of interconnected interdependent parts) and develop a deeper practice of collaborative experimentation. We need to get better at learning, together, from our failures and successes.

There are those, of course, who deny that climate change and inequality even exist as problems-in-the-world. But that is far less vexing than the fact that our pervasively held methods of teaching, learning, planning, and experimenting with new ideas have not kept pace with the challenges and possibilities that lie before us.

We are not directly proposing here that games can solve the world's problems. But there is much that we can learn from games, game-like thinking, and game-making about how we can harness our human desire for creativity, heroism, and adventure to

build our capacity to do just that. What follows is a brief discussion of what some of those lessons might be.

GAMES AND EXPERIENTIAL LEARNING

James Paul Gee is a researcher who has worked in psycholinguistics, discourse analysis, sociolinguistics, bilingual education, and literacy. He is recently best known for his writings about the relationship between video games and learning. His books include *What Video Games Have to Teach Us About Learning and Literacy* and *Good Video Games + Good Learning*. Gee has been particularly systematic in pulling out the properties that the best video games have to contribute to the best kind of learning within a framework of well-documented evidence.

One of the properties that Gee attributes to video games is that of "experiential learning with all the right conditions for learning from experience met."^{xii}

Gee explains that games put players in worlds where they experience things and that this experience is fundamental to how games "recruit good learning." Gee tells us that old-school learning theory presents the mind as a calculating machine that thinks and learns by "manipulating abstract symbols via logic-like rules." More recent research, however, presents another view, arguing that people do not think through abstract calculation, but rather, through the lens of their experience.

In this view, memories from experience allow us to run simulations in our minds that prepare us for action and problem solving in new situations. These mental simulations help us create theories about how to proceed in new situations based on past experience. But this process works best when certain additional conditions are met.

Research shows that the experiences that are most useful to our ability to solve future problems are the ones that relate to specific goals. This is true because we archive our experience in terms of our successes and failures in achieving goals. In addition to goals, for experience to really produce learning, we need to interpretation — ways to analyze the relationship between our goals and what we did to accomplish them. This idea is not very different from Myles Horton's view of how people learn:

"...People say you learn from experiences — [but] you only learn from experiences you learn from, you know. That's not all experiences. And we try to help them learn from their experiences in such a way that when they go back they'll continue to learn...And one of the things we have to do in addition to what they have to do, is to learn how to relate our experiences to theirs. And you do that by analogy, you know, you do it by storytelling. You don't get up and say, "Look here are some facts we want to dump on you." We say, "Well, you might consider this. Now this happened to somebody kind of like you in a different situation." So we get them doing the same thing with each other."^{xiii}

According to Gee, good games, like Highlander's methods, make people see through the game into the patterns and rules within. This window into structure helps people think strategically and become successful at increasingly difficult levels of the game. Good games model good experiential learning because they reinforce strategic thinking with feedback about why failures occurred and what could have been done differently; they provide players with opportunities to apply previous game experience; and in the case of multi-player online games, they often offer ways to learn how others succeeded at the same tasks.

POSITIVE FAILURE

There is a popular adage that we often learn more from our failures than our successes. But while the learning may be great, the actual experience of failure in real life is often devastating. Jane McGonigal is an unparalleled evangelist of the proposition that games can literally save the world (the title of her recent book is: *Reality is Broken: Why Games Make Us Better and How They Can Change the World*).

To McGonigal, one of the most important characteristics of good games is what she calls "positive failure," an intrinsic (and painless) pathway to learn from trial and error and feedback. As mentioned earlier, most digital games are learned this way, from trial and error that occurs in the playing.

In *Reality is Broken*, McGonigal tells a story about the findings of researchers from the M.I.N.D. Labs^{xiv} who were studying the emotional responses of students while they played *Super Monkey Ball 2*, connected to biometric monitors. The researchers were stunned that players demonstrated positive emotional reactions to "complete and unquestionable failure in the game" — even more positive than when they were winning.

But in *Monkey Ball*, failure is fun. The game is designed around the idea of a bowling alley where players roll "monkey balls" (transparent bowling balls with monkeys inside them) down crooked bowling lanes that look like they are floating in space. Whenever a player fails, the monkey goes nuts, whirling and wailing over the game's edge into space. McGonigal explains that failure here is not a passive experience. It is instead "spectacular, entertaining and funny." This makes players feel more in control and as a consequence, more willing to try again.

McGonigal says this is why games research and design expert Nicole Lazzaro spends so much time consulting with game developers about how to design failure sequences that are spectacular and engaging, the trick being to show the player their own power in the world of the game.

The message here for teaching, learning, and problem-solving is that as long as our failure is interesting, we will keep trying, hopeful that we will eventually succeed.

Veteran grassroots fundraising trainer Kim Klein has been preaching "positive failure" for years. After she informs her audience that on average, one out of ten solicitation calls will result in a "Yes," she tells her crowd that they should therefore get really excited and hopeful upon receiving their ninth consecutive "No."

Good digital games and good education involve learning by doing, trial and error, and failure as instruction. In these cases, the feedback received from failure becomes information rather than shame or punishment.

A couple of years ago, Gilda Haas met a game designer at an E-Learning Conference who produced realistic scenario learning games for emergency response units of the military. He described how the younger recruits, gamers to a person, zipped through his material, figured things out from their mistakes, and moved on quickly to the next challenge, while their officers, ingrained with the attitude that "failure is not an option" took roughly three times longer to complete the course.

ECO-SYSTEMS THINKING

Today's ecological and equity challenges require "ecosystems thinking" — a way of looking at the world as a complex web of interconnected, interdependent parts. Games,

particularly multi-player digital games, immerse people in worlds that are like that, allowing them to produce variations, multiple viewpoints, and collaborative strategies.

While this certainly is the experience of the player, it is even more so the experience of the game-maker.

A few rare individuals, like the autistic genius, Dr. Temple Grandin can produce this effect and conduct all the necessary design thinking, failures and corrections, and variations within her mind alone:

...in my work, before I attempt any construction, I test-run the equipment in my imagination. I visualize my designs being used in every possible situation...Doing this enables me to correct mistakes prior to construction. ...My imagination works like the computer graphics programs that created the lifelike dinosaurs in Jurassic Park. When I do an equipment simulation in my imagination or work on an engineering problem, it is like seeing it on a videotape in my mind. I can view it from any angle, placing myself above or below the equipment and rotating it at the same time. I don't need a fancy graphics program that can produce three-dimensional design simulations. I can do it better and faster in my head.^{xv}

As you might imagine, we would have relished Dr. Grandin's ability when we were producing yet another iteration of *Blocks and Lots*, making the platform for our players' experience; figuring out how to produce a balance between difficulty and success, between skill and chance; constructing paths of discovery and feedback through integrated elements of mechanics, story, technology, and aesthetics.

To game designer and professor Jesse Schell:

...creating (experiences) is all a game designer really cares about....(but) the game is not the experience. The game enables the experience...Game designers only care about what seems to exist. The player and the game are real. The

experience is imaginary — but game designers are judged by the quality of this imaginary thing because it is the reason people play games.^{xvi}

Similarly, the challenge of teaching and learning is to produce what really matters to learners — those "aha moments" where experience, reflection and action converge into meaning.

In one sense, Schell's *Art of Game Design: A Book of Lenses* offers ordinary people (or at least ordinary game designers) instruction to help us approximate what Temple Grandin's brain can do, or in another sense, what might actually be involved in ecosystems thinking as a process. Schell's "lenses" —100 in all — begins with "The Lens of Essential Experience" and concludes with "The Lens of Your Secret Purpose." Together, they construct a game-making process that views the game from the many angles, posing questions, and offering connections.

Jane McGonigal suggests that people who play the genre of computer games that are actually known as "god games" — games like *The Sims* or *Civilization* that give players godlike power over the lives of people, often over lifetimes — are actually practicing some key skills that are needed to solve tomorrow's problems. Included here are ecosystems thinking and pilot experimentation, which McGonigal describes:

A good ecosystems thinker will study and learn how to anticipate the ways in which changes to one part of an ecosystem will impact other parts — often in surprising and far-reaching ways...Pilot experimentation is the process of designing and running many small tests of different strategies and solutions in order to discover the best course of action to take...

Making games evoke these practices. Making *Blocks and Lots* required us to apply multiple lenses to its critique, to engage in cycles of rapid prototyping, testing, and adjustments that may fix one problem while creating another. Inside of the process of making games are elements of design thinking and problem solving that produce motivation and commitment and creativity. Inspired by this experience, when Gilda experimented with teaching game-making as a form of advanced popular education in UCLA's Community Scholars Program^{xvii}, she was impressed with students' productivity and willingness to engage in many iterations, tests, and prototypes, getting hooked on experimentation and the experience of their own creativity, knowing full well that asking them to re-write a paper ten or twenty times would have not likely produced similar receptivity or results.

What our own experience and the work of McGonigal, Gee, and Schell suggest is that game-making, even more than game-play, may be a new kind of literacy that more and more disciplines might want to adapt, as a method for honing our problem-solving skills and our capacity for creating pedagogy that works.

ⁱ Freire, Paulo. *Pedagogy of the Oppressed*. Seabury Press. 1970.

ⁱⁱ Parts of this description originally appeared in Haas, Gilda "Mapping (in)justice," *City*, Vol. 15, No. 1, February 2011. Routledge.

ⁱⁱⁱ Moyers, Bill, "The Adventures of a Radical Hillbilly: An Interview with Myles Horton," *Appalachian Journal*, Volum 9, Number 4, Summer 1982.

^{iv} "Expulsive Zoning: The Inequitable Legacy of Euclid," by Yale Rabin from *Zoning and the American Dream: Promises Still to Keep*, edited by Charles M. Haar and Jerold S. Kayden. APA 1990.

^v Bullard, Robert D., *Dumping in Dixie: Race, Class, and Environmental Quality*, Third Edition, Westview Press, March 2000.

^{vi} The "Figueroa Corridor" refers to the stretch of Figueroa Street that extends from downtown to south central Los Angeles. It includes the offices and constituencies of Esperanza Community Housing, SAJE an Trust L.A., as well as the competing large scale development interests of the Anschutz Entertainment Group (owners of L.A. Live! and the Staples Center); the University of Southern California; and the Shamus Group (which owns most of the auto sales lots in the corridor, along with other large real estate holdings).

^{vii} *From Wikipedia*: "German-style board games are a broad class of [tabletop games](#) that generally have simple rules, short to medium playing times, indirect player interaction and attractive physical components. The games emphasize strategy, play down luck and conflict, lean towards economic rather than military themes, and usually keep all the players in the game until it ends. German-style games are sometimes contrasted with American-style games, which generally involve more luck, conflict, and drama." See also: Haas, Gilda, "Havana (my first German game)," *Dr. Pop*, 4/27/2010, <http://drpop.org/2010/04/havana-my-first-german-game/>

^{viii} <http://peg-la.com/>

^{ix} McGonigal, Jane, *Reality is Broken: Why Games Make Us Better and How They Can Change the World*, The Penguin Press, NY, 2011.

^x Boocock, Sarane Spence, "Johns Hopkins Game Program," *Simulation & Gaming*, SAGE, June 1994.

^{xi} Wheatley, Margaret J. *Leadership and the New Science: Discovering Order in a Chaotic World*. Berrett-Koehler, 2006.

^{xii} Gee, James Paul, "Theories and Mechanisms: Serious Games for Learning," *Serious Games, Mechanisms and Effects*, Ritterfeld, Ute; Cody, Michael; Vorderer, Peter; eds. Routledge, 2009.

^{xiii} Moyers, Bill. "The Adventures of a Radical Hillbilly: An Interview with Myles Horton."

^{xiv} The M.I.N.D. Labs are a networked consortium of ten labs located in seven countries spanning universities in the United States and Europe. The labs conduct research in human-computer interaction, communication, and virtual environment design.

^{xv} Grandin, Temple, *Thinking in Pictures: and Other Reports From My Life With Autism*, Vintage, 1996.

^{xvi} Schell, Jesse. *The Art of Game Design: A Book of Lenses*, Morgan Kaufmann Publishers, 2008.

^{xvii} The UCLA Community Scholars Program is a joint initiative of UCLA's Urban Planning Department and the UCLA Center for Labor Research and Education. Founded in 1991, every year, the program brings community and labor leaders and activists together with graduate students to collaborate on a six-month applied research project. for six months. In 2011, the project focused on making games as a popular education strategy, resulting in three original games as well as over 20 smaller prototypes.