Design Intuitively

by Rob Daviau

If there's one person I know whose livelihood depends on people understanding his games right out of the box, it's Hasbro designer Rob Daviau. It is not uncommon for him to be presented with two simple beats ("It's Pixar's 'Cars' meets Operation!*"), and know that he has very little room for error in making his games intuitive. The cool thing about Rob is that when he tackles a more complex subject, such as* Risk: Black Ops *or* Heroscape*, you can see that intuitiveness beam through just as clearly.*

A few years back I was at MIT[13] and I had a room of about 25 ridiculously smart people at my disposal. So, like anyone, I tried a sadistic experiment. "Pair up," I said, "and choose a game that looks fun but you know nothing about." Eagerly they picked their games and returned to their seats, ready to open them and see what was in there.

"So the challenge is simple," I continued. "You and your teammate have five minutes to learn this game and present it to the rest of us.

"Oh, I've also removed all the rulebooks."

Take that, smart people.

But against every expectation I had, they did an amazing job. Now, granted, they spend most of their time inventing molecules or building cold fusion coffee makers, so they probably have a leg up on a lot of people. But the fact remains that people who'd never seen these games before could still intuit how to play them given nothing more than the bits, the box, and five minutes.[14]

This episode changed my entire outlook on game rules. I had, as you will, an epiphany:

Rules shouldn't explain a game;
they should only confirm what the rest of the game tells you.

That is, if your game makes intuitive sense from the moment players crack open the box, then you've done far more work toward people learning the game than you think.

Because tabletop games, unlike videogames, require every player to

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[13] Many good stories start out with this phrase. Other good ways to start a story include "I was in a bar in Amsterdam," "It was about this time that the motorcycle lost control," "I don't remember actually getting the tattoo," and "An old man in robes sits down with your party and says 'I'm looking for some adventurers.'"

[14] You should try this sometime with a new game. Makes you see new games in a new way.

understand the entire game system to play. You need to understand not only the components, the goal, the rules, and the flow of play, but also how to assemble all these into a comprehensive strategy that will lead you to victory.[15]

We've all played games that make no sense at all, where every rule fights another and the pieces seem like an afterthought. Don't design one of those. Instead, design games that need the rulebook as little as possible.

If you are using the rulebook to fix an unintuitive game, you are making it very hard on your players to enjoy what you designed.

WHAT, EXACTLY, IS A GAME?

A while back I came up with my definition of what a game is, which is sort of a milestone for game designers.[16] We're going to use this definition to walk through different areas to focus on for intuitive design:

A game is an interactive mathematical system, made concrete, used to tell a story.

Just to clarify a bit:

- "interactive mathematical system" = mechanics and rules
- "made concrete" = pieces and graphics
- "story" = theme

Although all games have these three elements, the weighting of them varies greatly from game to game. Roleplaying games, for example, consist almost entirely of story with enough of a mathematical system to make the story work[17]; they can often play without pieces or graphics. Eurogames, on the other hand, are heavy on math systems, while the story is extraneous and the pieces are often reused from game to game. Abstract games ignore story entirely.[18] Miniatures games are all about the pieces. And so on. There is no magic weighting to these components. If you want to design a Eurogame, just know that your mathematical system is going to have a lot of weight, so pay particular attention to making that intuitive. Your audience will not mind a light theme or generic cubes and meeples. If you are designing a wargame, you're going to want elements more evenly weighted.

Let's take a look at how to make each component of this definition intuitive, so that players will enjoy your work without a struggle.

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[15] And they should be fun, too. This may seem obvious, but I swear I've played some games that have missed this vital point and come across like graphics vomited onto a math problem.

[16] As is clinging to some design that you just love but everyone knows is awful.

[17] Honestly, you can ignore at least half the rules of any RPG system. RPGs don't have rules; they have *guidelines*. And 10 foot poles.

[18] Have you ever really felt like you're on a medieval battlefield while playing chess? Has it even crossed your mind?

The joys of an intuitive interactive math system

This is the nuts and bolts. The mechanics. The good stuff.

Every single game can be broken down into one ugly flowchart that defines everything players need to know about the order of play. I don't know anyone who actually makes this flowchart, even when designing, but I'll make an exception this time. Here is the flowchart to *Jenga*.[19]

Even if you don't flowchart your design, it still helps to think about it, so you can see exactly what it is you intend your players to learn and understand. If your flowchart has a whole side branch sprawling out to explain/control/balance one little part, then re-think that part. The more intuitive the mental flowchart, the easier your game will be to learn and the better it will be to play. The rules are usually the flowchart cleverly disguised as words, so you will know, once you get to rules, how intuitive your design is. If you can't explain something easily or you can't figure out what to explain first, you might want to go back and change the mechanics rather than spend time making the rules clearer. Rules are a poor patch for clunky design.

Figure 2-2. Flow Chart for *Jenga*

If you are reading this book[20], then probably you already can learn a game better than 99% of the people off the street. You read new rules and unconsciously figure out how this particular game fits your preconception of what a game is, based on hundreds of other games you've played in the past. But you're not designing games for you. You're designing for the other 99%.

So make your design as "clean" as possible, meaning all the mechanics are related and necessary. If your game requires players to roll a pool of dice and look for matches, then don't introduce a special case where players must roll
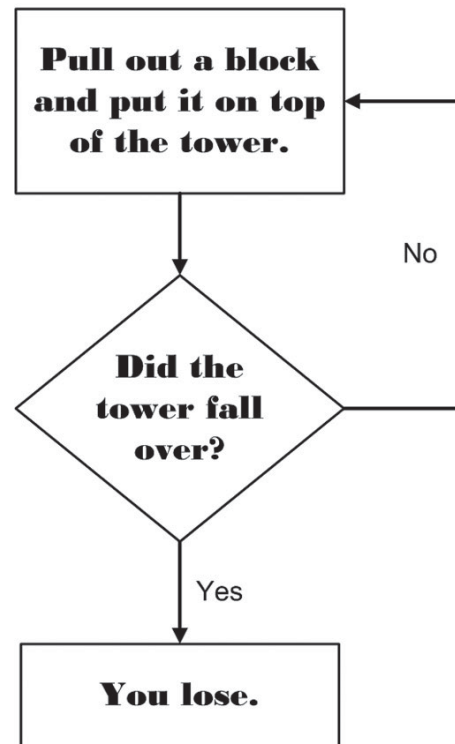
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[19] I used to use *Candy Land* as an example of an easy flowchart only to discover that it isn't. It's not hard, mind you, but I looked like an idiot at a whiteboard getting the flowchart to *Candy Land* messed up.

[20] As if there were any other possibility.

one die and look for a number lower than four.[21] Likewise, don't make play go counter-clockwise, simply because you are bored of clockwise. Keep it simple and sensible: An elegant, easy-to-understand concept or mechanic that accomplishes 95% of what you want is much better than a clunky, obtuse mechanic that gets you 100%.

Similarly, if you have mechanics in there that come up extremely infrequently, try hard to close the loophole so you don't need the "patch." When I was finishing up work on *The Buffy the Vampire Slayer Game* in 2000 (most of the design is someone else's and I don't want to take credit for his brilliant work), we ran into the issue of Oz, who is sometimes human and sometimes a werewolf, possibly getting sired by a vampire. We had a full page of rules regarding werewolf vampires. The rules worked, had nice examples, and would be relevant so infrequently as to be useless. The entire page was changed to "Due to his werewolf blood, Oz cannot be sired." Is it more "realistic"? Probably not. More fun? Probably not, because werewolf vampires sound cool. Is it much easier to learn and play and teach new people? Yes, a thousand times yes.[22] Don't fall in love with a fringe element to your game.

Of course, no design *starts* clean and elegant and intuitive; what's important is that it ends up there. Some designers (like me) are sculptors: We cram everything we possibly can into our early game designs, and then, through testing, pare away everything that doesn't work. Other designers are more like painters, starting with a blank page and adding one mechanic at a time until they complete their design.

But keep in mind that even an elegant, intuitive system can be explained poorly, if you're not careful. For example, *Tigris & Euphrates's* scoring system always gives new players pause. During the game, you earn four different colored cubes; your final score is your number of cubes in the color you have the *least* of. If you've never played *T&E*, then you probably stopped and reread that sentence; it certainly seems counterintuitive to focus on your weakest color for scoring. But if we change the wording to be "your final score equals the number of complete color sets you have," then suddenly, scoring makes a lot more sense. New players find it more obvious to group four colors into one set and think "that's one point," even though the scoring is exactly the same.

While playtesting your games, you will immediately notice which mechanics people forget or stumble over. If you find yourself constantly needing to

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[21] In fact, high should be good, and low should be bad, unless you really can't do it any other way Yes, I would say—and have said—this to Larry Harris about *Axis & Allies*.

[22] Eight years later, I did the same thing to *Clue*. There used to be a whole block of rules about blocking people in a room, something that would be hard to do if you tried, let alone by accident. By changing the design to allow movement through other characters, I removed about two paragraphs of rules that shouldn't have been there in the first place.

remind players to roll a certain die at the end of their turns, for example, then you might want to find a different way to achieve the same effect in your design.

MAKING IT CONCRETE: GRAPHICS AND PIECES

Mechanics may be the wizard behind the curtain, but no one plays a flowchart. The flowchart is ever-present—an invisible, abstract set of what-nows and if-then statements floating in the players' minds. But the math must be transformed into something the players can see and touch and move: pieces, cards, dice. These parts dress up your math and make it real.

It's easy to overlook the physical chits and graphics, but you should put as much thought into these as you do the mechanics. The way a game looks and feels informs how the game will play, and serves as an unconscious reminder of the rules. Remember: the first thing players do when they open a new game is not pore over 50 pages of rules. No, the first thing they do is remove all the bits and pieces from the box, enjoying, even savoring, that magic moment of unknown about what they're going to play.

Physical pieces offer all sorts of opportunities to make your design as intuitive as possible:

- **Color:** If a player sees certain colors again and again, he will assume they go together in some way. If you give him four colors, and he knows it's a four-player game, then rightly or wrongly, he'll assume that each player takes pieces of that color. If this is not the case, you'll want to use another distinguishing characteristic—like shape—instead of color. And if your game uses colors in two different ways,[23] then use two different color systems. *Alhambra* makes the mistake of using the same colors two different ways. It's something players have to unlearn and gets in the way of just playing. Also, while we're at it: white means good and black means bad, if you have gold as money use yellow, and if you have wounds use red.
- **Form:** If it looks like a gun, it should shoot. If it looks like a boat, it should go on water. These are overly obvious examples, but consider how each of your pieces should look to best convey their function. If your boat moves three spaces, give it three oars. If it can attack twice, put two cannons on it. If it has a capacity of five cargo cubes, make sure five cargo cubes fit on it or it has a 5 printed on it.
- **Size:** Bigger means "more," "stronger," "elite," or "better." Small means the opposite.
- **Integration:** All the game pieces should work as a whole. If color plays a significant role in the game, then make sure the dice and card backs reflect the game's color scheme. Likewise, if your game includes round

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[23] For example, one to track player identification, and another to track resources.

tokens, and your board has round spots on it, then players will naturally try to put the tokens on the spots.

- **Game board:** If your game has a board, look at it from many angles, not just right-side up. Does it still make sense when viewed upside down (as players sitting across the table will see it)? Likewise, we've all been trained that certain places on the board correspond to certain gameplay elements; e.g., a numerical track circumscribing the board means "scoring track." So if certain areas on the board relate to specific pieces or rules, mark them clearly, preferably with a ghosted (i.e., faded) symbol. And don't get complex with your symbols; if you're going to use one, make sure it still makes sense when faded on the board. And viewed upside-down. In low lighting.

- **Reference:** Don't clutter your board with useless information, but do make sure you use your real estate to provide reminders of key rule moments. If there's a space on the board that says "bank," and on the bank space is a "+3 coins" icon, then it's pretty intuitive what happens on that space. And while reference cards may seem redundant to you, to a new player they can be a godsend. Don't be ashamed to throw in reminders and reference cards.

The best way to test the physicality of your prototype is to do what I did at MIT: lay out the game without the rules and have someone try to figure out how to play. Listen in. Ask questions. Have your tester tell you what she has assumed about the gameplay. Chances are, she won't be able to figure it out entirely, but if you listen to the assumptions she makes, you'll learn much about what is (and is not) intuitive in your game.

Tell a story

Obviously story matters more to some games than others, but only designers of the most abstract games will ignore theme entirely. If you design Eurogames, theme often comes later—but still take the time to find one that makes the game instinctive.

A game's name and theme set the stage for the play more than you might think, and players can often experience mental whiplash on games that set certain expectations, only to veer in a different direction. The name *Galaxy Trucker* suggests that players will drive an interstellar truck, probably laden with cargo. Guess what? That's mostly what you do. *Race for the Galaxy*, on the other hand, suggests a racing game, or at least a contest to be the first to achieve something in the galaxy. In this case, not so much; the game is really about civilization building, which is a race. Sort of. Immediately, players have to unlearn their misconceptions before they can learn the game. It's still a very good game.

So if you call your game "Pirate Adventures: Mutiny on the High Seas," but it's actually a Eurogame about cargo loading and worker allocation, I'm taking a lot of time trying to figure out where my cannons and gold and plunder and buried treasure should be. But if you call it "Dockworkers and Cargo," I understand what I'm getting into. It's not nearly as exciting a name but, intuitively, I get it.[24] Great names should definitely be thematic and inspiring, yet capture exactly what the game is going to be about.

At the same time, be careful not to get so carried away with the theme that it creates obstacles for players learning the game. We all understand the concept of turns and rounds[25], or victory points and phases. So stick with the common terminology unless new words and phrases would make your game substantially easier to understand.

For example, if a scoring event occurs in your game at the end of four rounds, then you can write, "After four rounds, there is a scoring event to gain VPs." Predictable, but we all get it.

If your theme could bear "Four seasons make up a year, and there is a scoring event at the end of each year," then even better. It makes logical sense, and people instinctively expect something to occur after each winter passes.

But writing a rule like "There are four convocations, and after that there will be reckoning to gain Prestige points" is flirting, heavily, with confusion. Maybe it adds thematic drama, but explaining it requires so much unclear terminology that you'll only end up getting in the way of, you know, playing the game.

WHAT THE HELL DOES ALL THIS MEAN?

Designing games is not just about crafting rules that makes sense. It's about crafting an experience that makes so much sense that players become utterly immersed in the play.

Most people believe rules are the only thing standing between a designer's vision and the players' enjoyment. But the mechanics, the pieces, and the theme all work together to set the stage and emphasize what the player needs to absorb. Make all these components logical and cohesive—and intuitive—and you'll create a game that transcends the math and cardboard; a game where players aren't just cranking through a set of rules, but enjoying an experience, and telling a story. That game will have a life of its own, even before that rulebook is cracked open.

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[24] "Dockworkers and Cargo" is actually an awful, awful name and would never, ever be bought by anyone who wants to have a fun time. But this is an article about design intuition, not naming games that sell.

[25] Although surprisingly, those two words are used interchangeably in different games. Can we create a convention right now? A player takes a turn. All the players taking one turn is a round. Who do I talk to about codifying this?

The views expressed are those of the author and do not necessarily represent the views of Hasbro, Inc.

Rob Daviau started in the game industry by writing an article for Dragon magazine in 1998. This turned into a design job at Hasbro, where he has worked on all sorts of games for all ages. During this time he also designed or co-designed Risk 2210 A.D., Axis & Allies: Pacific, Risk Star Wars, Heroscape, and Risk Legacy.