

The following is an excerpt from the book 'Casino Game Design: from a cocktail napkin sketch to the casino floor' by Dan Lubin. This is the chapter titled 'What it entails: Performance characteristics of a good table game.' The entire book will be available as an e-book in the near future.

What does it entail to get a game idea from the notes on a cocktail napkin to the casino floor?

I tell you, a million and one people who've ever gambled have come up with game ideas that they thought were sure fire hits and strokes of brilliance. The simple fact of the matter is about ONE OR TWO games per year see the light of the casino floor, and some that do make it onto the floor later fade away. Also note that 80 years after Nevada legalized gambling, (and with the whole world now allowing casinos to exist From San Diego through Iowa and Atlantic City to Singapore and Macau, China) – only about a dozen table games describe casino table gaming: Blackjack, Craps, Baccarat, Roulette, Pai Gow Poker, and Three Card Poker, as the mainstay games. Add to this the side games of Caribbean Stud and other poker-based games like Texas Hold 'em bonus and Deuces Wild; SuperFun 21 and blackjack derivatives; Pai Gow Tiles; Sic Bo, and Big Six. You'd have to have a brilliant game idea, and execute it just about perfectly, - to join this elite group.

This situation is similar to the budding screen writer or director who feels his script will be the next blockbuster, except that the funny thing is, the dreaming scriptwriter has a MUCH better shot of getting to the promised land of a hit film or career. Unlike a dozen or so table game hits, there are thousands of great films and film scripts that had made countless Hollywood careers. From Steven Spielberg breaking in back in the 70's, to Roger Corman, to "The Blair Witch project," there is WAY more room in Hollywood for up and coming inventors, authors, and creators than there is in the Gaming Industry. So if you're going to give it a good shot, you have got to do it right, and doing it right is starting out with a good game idea and refining it to make it great a great game idea.

What is entailed? Well, in the beginning, you'll spend a lot of time doing the following: pitching cards or rolling dice on a linen placed over your kitchen table, until you have a solid conceptual model of your own game idea – which you will not have until you examine and test it on a bench; next you'll be calculating the mathematical odds on your game. These first two steps will be done while examining about eight criteria that pretty much define what a *real* casino game is.

This is followed by studying the government's patent website (www.USPTO.com) along with sample gaming patents, in order to write – all by yourself or with a lawyer - a provisional patent that you will file. All this is done while not sharing your idea until you receive a provisional patent filing number. This first area of laying the groundwork is cheap, perhaps \$200: the linen for a layout, a \$120 provisional patent, some cards, and using a computer for the math, and the like. Using a lawyer is obviously more, but is unnecessary for a provisional patent if you do your homework. Once you receive the filing number self-addressed postcard or the filing receipt letter, (and not an error report!) you are protected.

From there you can show off your idea to gaming industry people, getting a lot of opinions that may adjust the shape of your game. Once you've got positive feedback and a commitment from a table game distributor in the form of a signed contract, (and not just interest in it or "lip service"), things now get expensive.

You will have to obtain a gaming math report from a bona-fide gaming mathematician (\$5,000-\$15,000), and file for a Utility patent based on your provisional patent (\$5,000-\$20,000), as these are two things

are required for a distributor to market and distribute your game. What we're talking about here is getting a second mortgage or some investors with some deep pockets, unless you have an extra \$50,000 cash sitting around somewhere in a savings account or maturing CD. Remember, the distributor will then spend upwards of \$200,000 to get your game licensed in many gaming jurisdictions, and will spend additional capital to market and distribute your game, and so will ask for about 80% of your game's gross revenue in a contract agreement. You should say yes, as this is better than what book authors get, and that it is next to impossible for you to build – from the ground up – a casino game distribution company along the lines of Shuffle Master, DEQ, and Galaxy gaming. Indeed, if you tried, then these three industry players will get together, and carry out all sorts of legal warfare and bad press tricks on you, to get you eliminated from the field.

What you can do is either agree to a contract that gives you 20% of gross revenue, or sell it to one of these companies outright, almost always for less than \$100,000, unless it's a smash hit. If you sell it, you'll make \$50,000 after paying back for second mortgage or investors, then pay taxes on the rest.

In rare cases, you may wish to go the "new company" route, for limited markets requiring one or a just few licensing approvals, and where you have a product that is not a threat to any existing competitor.

The upside:

If your game is distributed for let's say \$500 per table month, you share is \$100 for each table every month. Therefore, 100 tables placed will get you \$10,000 per month or \$120,000 per year income and 500 tables gets you \$50,000 per month or \$600,000 per year income, for the 20 year life of the patent. If you were offered \$1,000,000 outright for your game, that would be \$50,000 per year over the same period, which is much less. However, the outright sale of your game removes countless risks and threats to your game that can occur, including the risk that your game bombs out in the first place.

Characteristics of a successful game idea:

There are eight areas of game performance and qualities that must be met before any table game idea can be considered a viable game idea, that is, a game idea that will eventually make it onto the casino floor. All areas must be met, and if any one performance area cannot be implemented for your game idea, then your game idea will never come to be. For example, if your game is fraudable or defeatable by advantage play, it'll never be adopted. These areas define performance qualities which you will use to shape, repair, and refine your table game idea, or use them to determine if you should abandon an idea, if it is too far from these qualities.

The table game performance and quality areas are:

1. **Knowing your "game idea type"**: did you come up with a brand new game, or did you come up with a game variation, or a side bet for an existing game? The two things you need to know about your table game idea is "where does it fit in?" and "what are the advantages of this?"
2. **Enjoyable to play**: is it fun to play, or is it boring or awkward to play? An honest assessment will come from a mini-trial after you have filed a provisional patent.
3. **Easy to learn**: uncomplicated and straightforward rules that people can readily pick up.
4. **Easy to play**: Your game does not require special devices nor has unwieldy rules.
5. **Easy to deal**: A casino dealer or operator would have little issue in offering the game.
6. **Not fraudable** by cheating procedures. There are no "trap doors" to cheat or defeat the game.
7. **Variety in play**: Your game idea has enough features and offerings to make it interesting, but not so many that it makes the game too complex or awkward. Basically this means there is enough

variety of hand types or situations to provide a strategy, and options or bets. (examples: Roulette: many bets. Pai Gow and Poker: hand types. Blackjack: variance of strategy based on dealer's up card. Craps: many bet options and features.)

8. Mathematical soundness: house edge, variance, element of risk, table hold, hands per hour all must be of good performance for both the casino and the casino patron.

1. **Types of new games. Three very important distinctions:**

There are three main areas of new table game development in which your game idea will fall into. Know these areas well as you are developing your game. These new game areas are:

- Brand new games that are unrelated to any existing game.
- Variations of existing games, usually supplying features to improve an existing game, and
- Side bets, which are additional bets that are tacked onto existing games.

It is important for you to know where your new game idea falls, in order to handle the advantages and disadvantages of your new game idea. This will better help you refine your idea, and to properly place and market your idea. In more detail, these new game areas are:

- a) Totally Brand-new games (e.g., "Three card Poker" released in the mid-90's, and "Quick 7," released in 2010). These game ideas fall into the category of "brand new and fresh," because they are completely unrelated to other existing games such as Craps, Pai Gow, Blackjack, and Baccarat, etc. The advantages of brand new games are:
 - i. That it's next to impossible for someone to claim that your new game infringed someone else's – precisely because it's so new and unrelated to anything out there.
 - ii. Safer market area: it'll be unlikely that any existing game distributor will take a legal shot at you (claiming you infringed something they did), because as a new game – you won't be treading upon any one else's existing market area, so you won't be a threat to them, and for them to try to shoot you down.
 - iii. Patent writing is easier, because you won't have to delineate or compare your patent idea to similar products as part of the process. Since nothing else really intersects with your idea, you have a "straighter road" to go in describing your idea in a patent without worrying about potentially infringing others.
 - iv. If your game idea takes off, you'd be in the leadership position of a new table game market area.

The disadvantages that brand-new games have are:

- i. Requires a Field Trial: This is a very important aspect that concerns brand new games. Since a brand new game has no history, a field trial **must** be done. This is where a Casino elects to adopt and use your game for a three month period, to analyze how it performs in the real casino world, and to see if it is defeatable. This is somewhat expensive and time consuming, and it also does NOT always give a good example or representation of how your game should perform. This is because it takes multiple sample tables in multiple areas to get a statistically fair pulse on how your game really performs, while the standard field trial is a single table at a single location. In order to have a shot with a field trial, the following must be in place:
 - a. The math of your game is perfect, and it gives a good balance between table hold and player win satisfaction.
 - b. Your game is bug-free, and there are no unaddressed situations that could come up in play that'll cause confusion to a dealer, player, or management executive.

An example of this is Superfun-21's rule that a 5-card 21 pays double. Now what if you had doubled down on a four card 11, and got a face card for a 5-card 21? Do you get paid *four times your original bet*, or is the double payout on the double down cancelled by a rule that address this up front?

- c. The casino crew dealing your game thoroughly understands your game.
 - d. The casino crew dealing your game *likes* your game.
 - e. Management likes your game.
 - f. The particular player population of that field trial casino likes your game, and they play it often.
 - g. You get lucky and you get a good balance of hands being dealt, so that your game neither "dumps money" to piss off the sponsoring casino, nor "kills players" to piss off the players and abandon your game.
- ii. It's sometimes VERY hard to try to convince Casino patrons to try something absolutely brand new. Gamblers are often set in their ways, sticking to their favorite games, and are suspicious in nature of new Carnival games as "having an angle," or that "the casino is trying to short me from my money with this new cockamamie thing!" You have to fight this gamblers' perception.
 - iii. Dealers and casinos executives are reluctant to take on the new workload required of games that enter into brand new areas. By contrast, established games and their variations are much easier to adapt.
 - iv. Existing games are very competitive against new games simply because they are so refined, so perfected, and so established. It's next to impossible to push them out for your own floor space in the table games pit. Players feel that nothing has quite the excitement of a red-hot crap game, or big money Blackjack session. They also feel that nothing has quite the social fun of a Roulette game or friendly Pai Gow game. With a brand new game, you'd be trying to force a new road where well-running highways are already in place. Very hard to do.

The best ideas here were the original Pai Gow Poker game (in spite of the commission hindrance), and Three card poker, a Brilliant little game from Derek Webb. Three card Poker has moved from "Carnival game" status to full-blow standard casino game. Three card poker is not a true poker variant, as it was not based on a ported-over poker room game like Texas Hold 'em Bonus, and because the simple three-card hand was a completely novel and never-before seen idea in the casino pit.

- b) Variations of existing games just add or refine mechanisms or features to existing games. Examples: Superfun-21, Spanish 21, double exposure [BJ]; Caribbean Stud, Texas Hold 'em bonus, etc [poker-based], EZ Pai Gow [Pai Gow poker variant that removed the commission], EZ Baccarat [Baccarat variant, that also removed the commission].)

Advantages:

- i. People are already familiar with existing games, so a game variation is very easy for them to pick up.
- ii. Easier for Casinos and dealers to adopt.
- iii. A field trial isn't necessary for a variation to an existing game, only a math report from a bona-fide gaming mathematician indicating the game's performance is correct.

Disadvantages:

- iv. It is VERY hard to find a new twist that improves upon an already well-refined existing game. If the original game invention was good enough to make it all the way to the casino floor, it's a hard task to improve upon it.

The best ideas in this area were porting poker-based games over as table pit games (Caribbean Stud, Texas Hold'em bonus) and cleanly fixing the problems with existing games (both EZ Baccarat and EZ Pai Gow removed the "drag" of a commission on a game for the same house edge.)

- c) Side bets: these are bets that are added onto existing games as additional bets to make. Typical examples include the "Push your luck" tie bet for blackjack, the Fortune Pai Gow bet that added the fortune bonus side bet to Pai Gow Poker, and the Fire bet, which gives a large payout if three or more new consecutive points are thrown during a crap game - without a seven-out occurring. The fire bet is simply a crap game "bonus bet" whenever a strong hand of three or more new points were thrown; very simple, straightforward, and exciting.

Advantages:

- i. Easy to implement. Like variations of existing games, adding a simple side bet to an existing game is easy for patrons and dealers to pick up and learn.
- ii. Improves a game's value. Quite often, a side bet is something that is a natural fit for an existing game, that the original inventor should have thought of – but hadn't.
- iii. No field trial for a side bet is required, just a math report that proves it mathematical validity.

Disadvantages:

- i. Large fees cannot be requested or expected of side bet type products. They are minor additions, and the base game operates in the same way, so the money asked for the use of these products cannot be large.
- ii. The Inspiration aspect: It's very hard and "elusive" to come up with new side bet ideas for an existing game that the original inventor did not see, or the legions of other players who came before you did not see, either. Great ideas here were the Fortune bonus bet in Pai Gow, and the Fire bet.

- 2. Enjoyable to play. The next characteristic of a game, after "knowing the game type," is that IT'S FUN TO PLAY. This is crucial: what is meant here is that, - and while this is NOT scientific –the game is arguably enjoyable. While this "fun" aspect is very hard to quantify, there are some elements to it:

- a. The presence of a "very balanced" primary bet. There needs to be sufficient player "hits" or player wins on the main bet of the game, in order to keep the player satisfied and rewarded on a frequent basis, to have him continue playing into a "session" status with the game. This is described as the balance of the game's primary bet: the player wins about as often as he appears to lose on the even money main bet, with neutral ties making up the rest of the decisions. This is called good "SSGT," for good "Steady State Give-and-Take" on the primary bet where a player receives – and *feels* – his wins *approximately* as often as losses, with the small 2% house edge or so not even being sensed during play. The primary bet of the game should be a well-balanced even-money bet.

- b. The use of a strategy for the player to attempt to obtain an advantage. A good game has strategy selections that allow a player's decisions to improve his chances of winning. Examples: Blackjack has players hit or stand; Pai Gow poker has multiple ways to set a hand for best chances of winning; Texas Hold 'em bonus allows players to raise in an attempt to win more. All of these methods allow for strategy options for the players.
 - c. Competition with and against the dealer or a don't pass side. In well designed games, a player should have the objective to achieve a victory against some opponent via strategy, to defeat or deny an opponent or dealer. This gives the game the feel of an exciting challenge, as an element of game play or aggression. Casino-banked table games generally have this. Blackjack, Three card poker and Pai Gow are "player versus house" games, where the player plays directly against a house opponent who is using a strategy, while giving the player hand setting options to strengthen his position. In Craps, Roulette, and Baccarat, the players can bet equally on either side on the hand, wheel or dice result. As such they are picking sides of a game device outcome instead, and so the sense of competition against the dealer is less strong. Baccarat is a more serene game to play as a result; in Craps this competition is supplied by a "team spirit" against the don't pass side, as the vast majority of the players play the pass line side. A good casino game provides an element of competition that is begging for resolution.
3. Easy to learn. A good game should be easily learnable. A rule of thumb is that if you cannot explain your game in less than a minute, its rules are too complex. Examples of good rules are: in Craps, "Seven you win on the come-out roll, Seven you lose on a point number." Blackjack has, "Make a hand that's higher than the dealer, but without going over 21," etc. Please note that an easy to learn game does not mean it is overly simplistic. Blackjack, as simple as it is to learn, has a very detailed basic strategy that allows players to grow into as they mature as blackjack players.
 4. Easy to play. A good game is easy to play. This could mean that players aren't pressed for more bet raises in order to stay in the game, but are allowed to "check," for example, making it easier for them to stay in the game.
 5. Easy to deal. A good game does not make the job of the dealer harder than it has to be. Most casino games are easy to deal, except for craps. If the game of craps were introduced today, it would not be accepted by casinos. Furthermore, if a game is too hard to deal, it is generally too hard to play easily.
 6. Not fraudable by cheating procedures. There has to be no trap doors or any method of cheating or defeating the game. While there are not many examples in tables games where a casino game was purposely designed with a cheating mechanism (although slot machine programmers have done some tricks!), Blackjack had a characteristic where if the ratio of ten-value cards remaining to be dealt increased above the norm, the player got an advantage over the house. Your game must be "cheat-proof," and care must be taken so that there is no way that players or house dealers can possibly get an unfair advantage.
 7. Variety in play: A good game has some options to it, as from strategy considerations, and this usually concerns side bets being provided with a game design. In Pai Gow Poker, with was originally a one-bet "main-bet-only" game, Shufflemaster improved the game by adding a "bonus bet" for strong hands that have a three of a kind or better, then Galaxy gaming added a "Pai Gow Insurance" bet, for when players get a hand with no poker elements in it, just high card singletons. Other bets that could be created for Pai Gow include a Red or a Black bet, (where a hand is of a majority color), a bad-beat bet, where a hand of a certain strength level receives a surprise loss, and the like. Basically, a good game design has the following three standard bets:

- a. A Balanced main or primary bet;
 - b. A bet for a strong hand, called a “bonus” bet.
 - c. A bet for a bad hand (a “crap check” bet) or a bad-beat bet (A strong hand’s surprise loss).
8. **Mathematical soundness.** A new game must have a slight ***house edge***, so that the casino will make a profit, but not so strong a house edge that the players loose too frequently and get burnt out from the game. The house edge is the mathematical ratio of the amount won by one side versus the amount one by the other wise, and is expressed as a percentage. For example, a 3.5% house edge means that, on average, a \$10 player bet would award the house \$0.35 or 35 cents. Basically, the house edge of each type of bet should be in the following ranges:
- a. The main bet, if it is an even money bet where the player wins almost as often as he house, should be about 2% to 4%.
 - b. A side bet that has a payout table ranging from 1:1 up to 30:1 or greater, should have about a 7% edge.
 - c. A side bet that has a 15:1 to 50:1 payout should have a 10% to 15% house edge.
 - d. A Jackpot bet where nothing but windfall winners of 100:1 or better are awarded, should be in the order to 20% to 40%.

If the house edge is appropriate, it will provide for a good ***table hold*** or the amount of the players’ buy-ins that the house ends up keeping. If a casino game had a table hold of 20%, it means that it kept 20% of what people bought in for at the table.

Hands-per-hour is another important mathematical guideline for a game’s performance. Good games allow the dealer to quickly process each hand decision, and continue on with the rest of the game’s action.