The Fourteenth Annual Game Design Think Tank
Project Horseshoe 2019

Group Report:
Architecture, Analysis, and Applications of Antici… pation in Game Design

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Part 1 - What is Anticipation

Anticipation is…

What you're feeling right now.

We get an email notification, and instantly wonder who it's from. Our mind is flooded with possibility - is it good news or bad? Will it matter, or will I just delete it? Is it from a loved one or a spammer?

We watch progress bars forever. We wait for downloads, and then for installs. We wait while we move files around. We wait for the printer. All of these short term payoffs occupy much of our moment-to-moment existence.

Music is built on anticipation. The first time we hear a song, we experience the joy of discovery as the lyrics and story unfold. Later, we look forward to our favorite line, or melody, or key change, or musical phrase. The entire Dubstep genre is founded on the buildup and waiting for the "bass to drop".

So what is it? It's…

...the sense of tension we feel when we imagine the future. We fear bad things that might happen, and we get excited about potential payoffs.

In this paper, we propose a formal model for anticipation, and explore its practical applications in game design.

Biological Foundation

Biologically speaking, anticipation involves two systems: Wanting and Liking.

- Wanting is the seeking behavior leading up to a goal. It uses the brain chemical dopamine to stimulate your drive toward the payoff.
- Liking is the satisfaction of a goal achieved.

While a deep dissection of the underlying processes is beyond the scope of this paper, there are several

key lessons we can summarize and apply to game design.

Wanting > Liking

Wanting is more intensely felt than Liking, so there is an immediate dropoff after we achieve a goal. This explains why we are constantly overestimating how happy something is going to make us, and is most commonly felt as buyer's remorse.

Uncertainty Tempers Intensity

The Wanting system gets stronger as we get closer to a goal. This makes experiences right before a goal very intense - the moment we see the finish line, a countdown almost at the end, or being 99% on a download.

Also this means that after we fail at something, much of the same chemistry fires as if we were CLOSE to victory. Near misses are have all the Wanting intensity, without switching over to the Liking system, because the goal wasn't achieved.

This is because the more uncertain we are about our attaining the goal, the less intensely we feel anticipation. It feels like a "long shot".

Too Much Is Too Much

A common pitfall with the Wanting system is that the brain can get attached to dopamine and get stuck in a loop of constant seeking. This happens in slot machines and endlessly scrolling social media pages.

As game designers, we need to be aware that constantly increasing player anticipation can result in player burnout and exit - the opposite of our goal.

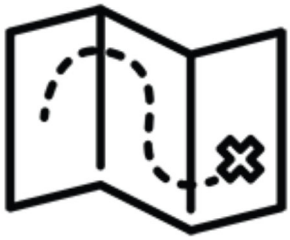
Anticipation is at the core of who we are. It is, in fact, a key contributor to our survival and evolution as a species. The ability to envision a future boon (a surplus of food, or the safety and security of a warm cave), and to manage risk (not trying to swim across a raging river) are integral to the human experience. Anticipation drives us to action, keeps the world moving, and keeps players playing.

Part 2: A Model of Anticipation

Design Requirements

In order for a game to create anticipation in its players, it must have certain design characteristics, mostly geared around visibility and the player's ability to formulate a mental model of the game. More specifically, for a game to successfully create player anticipation it must have the following:

1. Explicit Rewards: For players to build anticipation for future rewards, it is important that players understand that these rewards are upcoming. Interestingly, it is not critical that the rewards arrive at a regular cadence or through a predictable set of steps, or even that the exact rewards be predictable but rather just that the rewards exist and that they will have value.



2. Understandable Rules: For a player's anticipation of rewards to translate into more engagement, the player must have some sense of how their engagement with the game will ultimately yield those rewards. These models may be extremely systematic, like leveling rewards in RPG with a predictable leveling curve, or extremely unpredictable, as in a slot machine. So long as the player understands that a particular style of engagement will yield a desired reward given enough time (even if that might be several lifetimes of pulling the arm of a slot machine), this requirement is satisfied.

3. Consistent Delivery of Value: Players anticipate the utility that they will receive from upcoming rewards. This only works as a design conceit if previous rewards have delivered value to the player. To the extent that rewards received earlier that fallen flat, the player's anticipation will be diminished or perhaps erased altogether. For example delivering a set of rewards with too little utility may lead to reduced player anticipation.

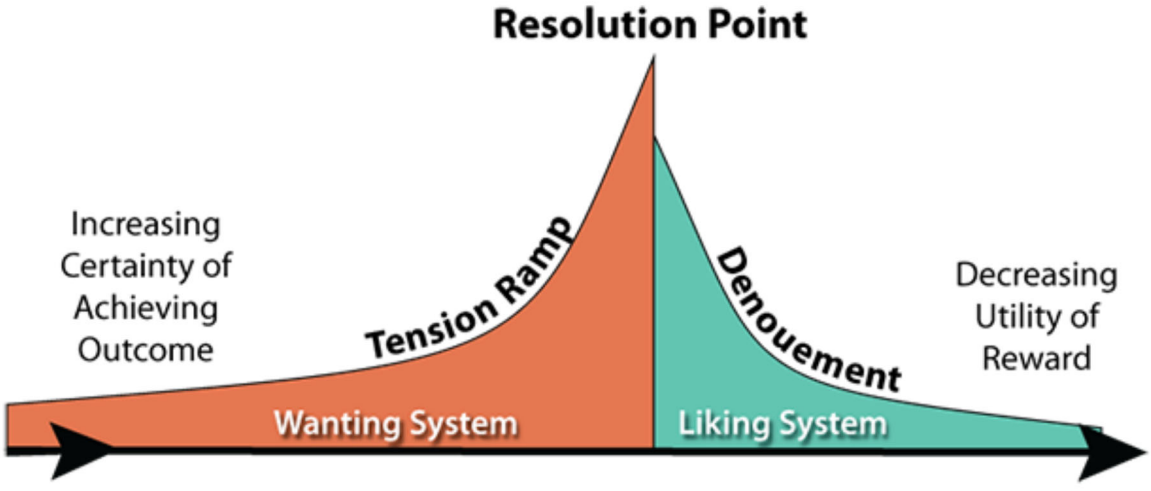
Description

The Anticipation Model describes the structures and systems whereby a person can project themselves into a possible future state, and how that anticipation of a future event can drive behaviors and level of engagement.

Further, we describe how the components of the Anticipation Loop model can be adjusted to alter an individual's experience of a loop and the effectiveness of the system itself. These tools are then discussed within the context of their application to game design.

Graph

Visually, the model looks like this:



1. The player becomes aware of a possible Outcome, and begins working towards the Resolution

Point.
2. This activates the Wanting system. At first, the player is uncertain of success, and therefore feels low intensity anticipation. The goal is still far off.
3. The player proceeds towards the goal, becoming more certain of success.
4. Player arrives at the Resolution Point, and either achieves the goal or fails.
5. If successful, player transitions to the Liking system, and begins enjoying their gains.
    a. If unsuccessful, the player re-evaluates the distance to the goal given the failure. This creates a pivotal disengage or persist moment. We cover this later, under “Near Misses”.
6. As time passes and/or they become familiar with / normalized to the new game state, the intensity of the Anticipation Loop wanes.

Components

- Tension Ramp: the process of building increased emotional engagement over time to obtain the result.
- Resolution Point: the climax of a particular anticipation cycle, which comes at the very end of the Tension Ramp. It consists of the moment just before, during, and after the Outcome occurs and is the period of peak emotional response.
- Outcome: the expected possibility space at the end of a particular Tension Ramp. Outcomes can be positive or negative, or both (either simultaneously or within the range of the possibility space).
- Denouement: the period after the Outcome has been achieved during which there is ongoing emotional attachment to the Outcome and the cycle of reaching it. This can be impacted by factors such as the ongoing utility of the Outcome, the experience of the process of progressing up the Tension Ramp, and the level of agency and volition.

Wanting and Liking

The player’s Tension is modeled differently when the two systems are active.

Wanting

Outcome probabilities and valuations are typically objective, but the perceived value or subject weight assigned to them by the player will be what actually impacts the anticipation cycle.

When the Wanting system is active, the player’s Tension increases with both their subjective perceived future value, and their certainty of achieving the goal.

Perceived Future Value is a complex, often subjective process. How much a player “wants” something is impacted by things like:

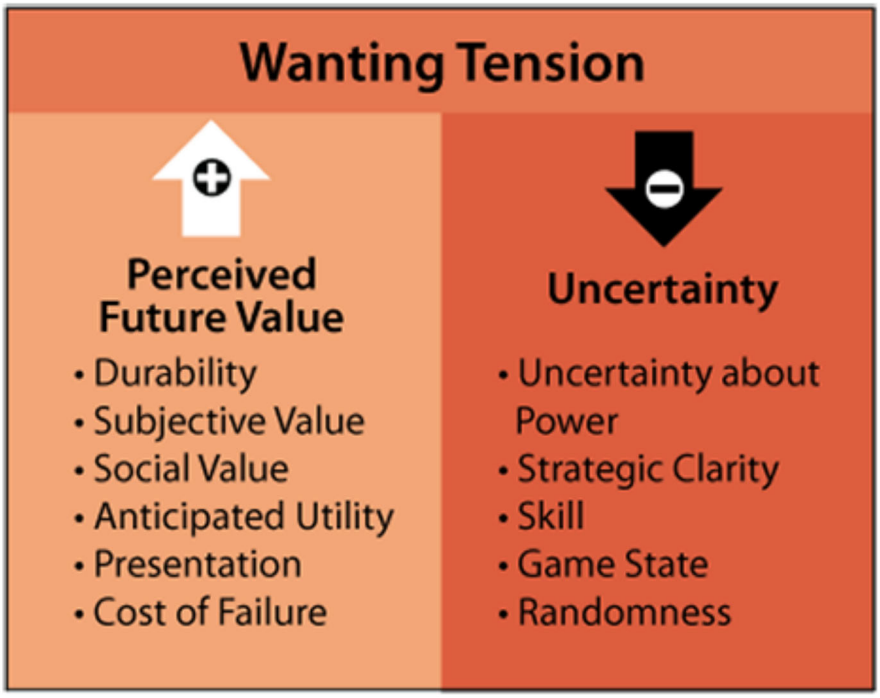
- **Durability**: Do I stand to gain a one-time boon, or an ongoing benefit?
- **Subjective Value**: An explorer-type player may value Boots of Climbing more than a socializer-type player.
- **Social Value**: Will obtaining this Outcome increase my standing with other players? (Vanity items)
- **Anticipated Utility**: If I can see the stats on the item and know that it’s twice as powerful as my old weapon, I can begin to model how much stronger I’ve become. If it opens up completely new gameplay, I can estimate how much of the game’s content just unlocked.
- **Presentation**: A car that has been freshly washed on a well lit stage presented by an attractive, well-dressed person will be perceived differently than the same car in a dingy lot.
- **Cost of failure**: If I lose something of value on failure, I will value success more. This ends up being true for even nominal losses (e.g. "penny poker"). We discuss this as Intensity, later in this paper.

Uncertainty can be broken into sub components including:

- **Power**: Do I have enough health / potions? How many charges do I have in my most powerful tool? How strong is the enemy? Am I the right level to even try?
- **Clarity**: How clear is what I have to do? Do I have a workable strategy, or is this a shot-in-the-dark?
- **Skill**: If I do have a strategy, will I be able to execute on it? (Especially important in twitch/action games)
- **Game State**: How many players get to act before I can advance towards my goal? Are the conditions set for me to use my strategy?
- **Randomness**: What are the chances things will go my way?

Interestingly, the actual peak point of the model is not when the Outcome is achieved, but just before it (the 99% Stage). The Tension Ramp is at its highest level when a person is close to obtaining or discovering the Outcome rather than at the actual point of achievement. At the 99% Stage, Anticipation is at its maximum, as the person envisions the Outcome (or range of Outcomes), the future state of reaching it, the expected emotional experience at that time, and factors that could prevent success. Neurochemically speaking, research indicates that the wanting of the dopamine hit that occurs is stronger than the effect of the actual dopamine release itself.

In more detail:



Therefore, to increase Wanting Tension:

- Make the Outcome look more valuable, or
- Make the player less more confident of success

These tie very tightly with the core gameplay loop. Often the very nature of the game itself is a system by which the player uses their Agency to increase certainty in the outcome. They make Predictions about their actions, observe results, and incorporate that feedback into their mental model. This informs future predictions and actions - and so on. We'll discuss Agency in more detail further on.

Liking

When the player passes the Resolution Point, they enter the Liking System, and their Tension fades as they use the reward.

Applied Value is a subjective assessment of the value of the Outcome, such as a new ability, a new inventory item, winning the game (or taking a big step towards that, such as defeating the mid-game boss), etc. Because it's subjective, it's built from components like:

- **Actual Utility**: Did that new item or ability live up to my expectations?
- **Contextual Value**: Replacing your "crooked stick" with a "rusty half-dagger" is pretty amazing at first, and for a while you rule the Grasslands. Then you meet your first Armored Rat, and realize it's not quite as powerful as you thought…
- **Permanence**: Is this a permanent new ability, or a consumable?
- **Type**: Is this a qualitative change (unlocks new abilities, e.g. flight), or qualitative (a more powerful version of a Thing I Already Have)?

The more they become habituated to this new state of affairs, the less exciting it is to "have the thing", and the less Tension they feel. Novelty is often a function of time, but has both functional and contextual components.

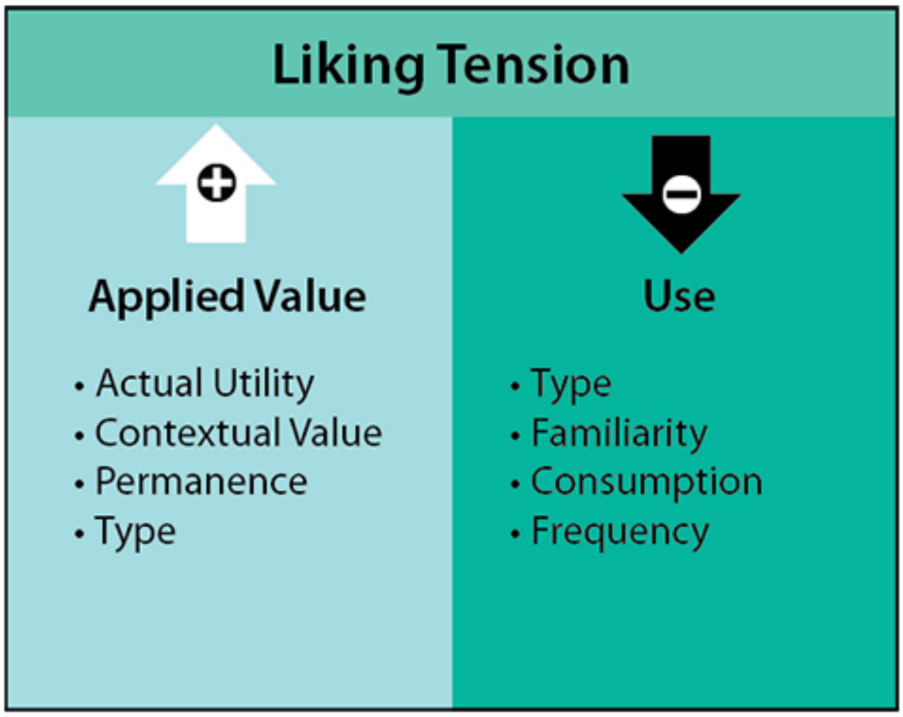
A number of factors reduce our enjoyment of the Outcome:

- **Time**: The longer we're in a state, the more normalized (and therefore, less exciting) it is.
- **Familiarity**: The first time you fly after getting your Wing upgrade is amazing. The 1,000th time, it's just a way to get to the Flying Castle level where you can start having fun again. The more you use something, the less novel it is.
- **Consumption**: Using up charges or one-shot items degrades their value.
- **Frequency**: Especially for vanity items - if everyone is running around in Shining Gold Amazing Armor, then it's no longer serving as social proof or boosting my reputation.

Here the game designer's job is to balance the enjoyment of this new accomplishment with the enticement of a new goal.

If the player fails at the Resolution Point, it's important to offer them a new Outcome to look forward to. We'll discuss this in more detail in Part 3: Applications in Game Design.

Breaking it into its detailed components:



Modifiers to the Model

There are a number factors and methods for impacting the shape, length, and curve of the Tension Ramp and the Denouement, the utility of Anticipation Loops and players' experience of them.

Outcome Characteristics

The ongoing utility of the Outcome can impact the length and effectiveness of the Anticipation Loop. Outcomes with ongoing utility, such as experiences, objects that introduce new verbs, etc. are more "sustainable" than non-utility Outcomes such as badges.

Additionally, Anticipation Loops built around experiences can typically sustain extended Tension Ramps and have a more gradually declining Denouement, providing longer sustained player engagement value.

Frequency and Predictability

As in the well-known Skinner Box experiments, predictability and frequency of reward cycles also impact the success of Anticipation Loops. Careful tuning of Outcome frequency, and moving players into a new Anticipation Loop before ending the previous loop's Denouement can create a more sustainable cycle of anticipation-driven engagement. Small, short-cycle Anticipation Loops can be embedded within longer-term loops to keep moving players towards the Outcome where it would otherwise be harder to sustain high percentage player engagement through the entire loop.

Likewise, the use of intermittent reinforcement in the construction of Anticipation Loops can be an extremely effective tool for improving the engagement value of an Anticipation Loop. Introducing elements that limit the predictability of the Outcome value or exact Tension Ramp duration are primary methods for altering the Anticipation Loop in this way.

In particular, humans are bad at accurate mental modeling for extreme probabilities, and will overestimate the likelihood for extremely rare events.

Emotional Charge

Extra value is often assigned to low probability Outcomes. The subjective value of success is typically greater when the player feels like they are beating the odds or when the underdog wins. Consequently, high and low volatility Outcomes with the same net value have different experiences.

Loss Aversion

People overestimate the level of enjoyment they will get out of receiving a boon and the level of suffering they will experience from a loss (the latter, known as “loss aversion”).

Hope

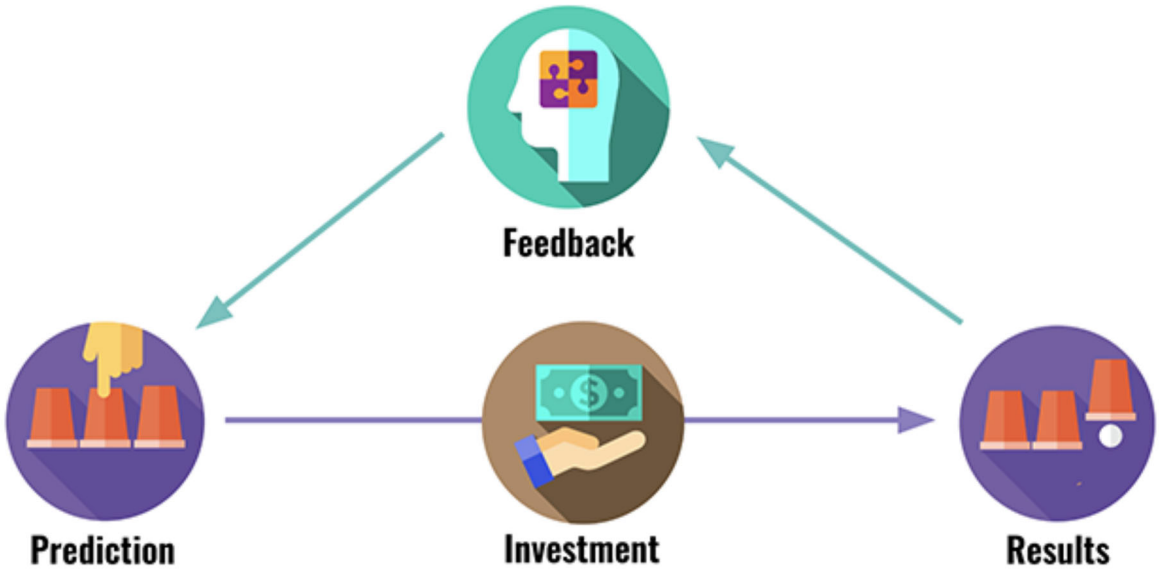
There are studies that measured players in competitions. In deterministic games like chess, after a loss, players didn’t want to play against that opponent again or sometimes even the game itself. They didn’t have an emotional “out” to blame it on, so they can’t hope. In games where there is some luck element, where players can blame a loss on it, players will stay engaged. But if the game depends too much on luck, the win feels unearned. So winners want to win by skill, and losers want to lose by luck. Each needs hope in order to Anticipate a positive Outcome next time.

This is predicted by our model of Anticipation. In the former (deterministic games), the player has no doubt - they’re sure they’re going to lose future games. There’s nothing to Anticipate, just a presumed negative Outcome. In the latter, there’s a possibility to win - but no way to reliably move up the ramp towards success.

Agency

While heavy use of pure randomness will ultimately lead to player disengagement, use of player Agency together with limited predictability of Outcome value or exact Tension Ramp duration can be extremely effective tools for improving the engagement value of an Anticipation Loop.

For example, in-game crafting systems often provide players with methods for adjusting risk/reward metrics (higher investment may provide higher chance of success or greater quality of success), choice of preferred Outcome, and so on. However, the Resolution Point of the Anticipation Loop is still ultimately decided randomly by a system outside the player’s control.



Even “perceived agency” can improve the effectiveness of Anticipation Loops. For example, some modern slot machines allow the player to choose between multiple bonus rounds, even though all options have the same Return to Player or Expected Value and the difference is, in effect, purely the visual and experiential during that portion of play.

While the introduction of Agency does not directly change the Tension Ramp itself (and, indeed, over short durations lack of control can be a more effective tool for sustaining tension), it does provide mechanisms for players to actively increase certainty, and with it, engagement levels with the loop.

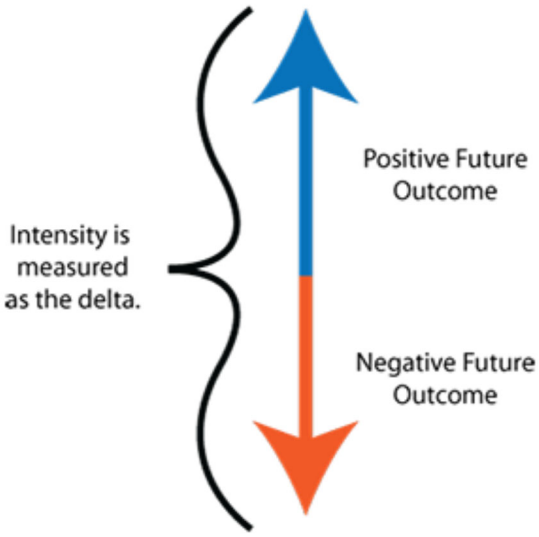
Agency is particularly useful if your game’s Anticipation Loop is more opaque or complex - that is, the player sees the goal, but has no strategy for achieving it.

Agency can also be used to introduce player driven loops, which can convert Outcomes from Extrinsic to Intrinsic rewards. Substantial bodies of research support the notion that intrinsic rewards are more effective and sustained drivers of behavior that extrinsic ones.

Intensity

Intensity of the Outcome can affect the success of an Anticipation Loop by increasing the height at both ends of the Tension Ramp - the initial entry point of the ramp and the Resolution Point. This elevated anticipation level will drive in turn drive higher levels and longer periods of sustained engagement.

Of note, Intensity applies to both positive and negative Outcomes. Anticipation of a significant loss can be as Intense a modifier as a significant positive result. Further, in variable results Outcomes, Intensity should measured as the delta between absolute positive and negative possibilities. An Outcome in which the player can win $1,000,000 will be more Intense than one in which the user can win $20. However, the Intensity will be even higher in an Outcome in which the player can either win $1,000,000 or lose $1,000,000.



Over time, however, people will acclimatize to very high levels of Intensity if they are sustained without breaks or variation. The most common types of acclimatization are:

- Thrill seeking: a person requires ever increasing levels of Intensity to create engagement.
- Over sensitization: a person begins to develop negative associations with high Intensity events or anticipation of high Intensity Outcomes, and starts to actively avoid them.

Part 3: Applications in Game Design

Understanding and effectively utilizing this model and the psychology of anticipation has a wide variety of practical applications in game design, which in turn leads to a wide range of best practices. Leveraging these best practices can lead to strong positive impacts on a game's performance - especially in the games-as-a-service era. This model can also serve as a framework for future refinements and the discovery of new best practices.

Anticipation and Retention

As ample research has shown, players engage with games for a variety of reasons. There are many different kinds of satisfaction and enjoyment that players derive from games, as shown in frameworks like Bartles' player taxonomy, Quantic Foundry's Gamer Motivation Model, and Nicole Lazarro's 4 Kinds of Fun (among many others), but they all share a common thread - that players are engaging with games to receive some kind of intrinsic reward from the activity.

As discussed in Part 2 of this report, neurochemical research strongly suggests that anticipating a desired Outcome is more pleasurable and intense than actually securing that Outcome. This strongly implies that one of the biggest reasons that players play games is the anticipation of receiving those rewards in the future rather than the satisfaction in the moment they are received.

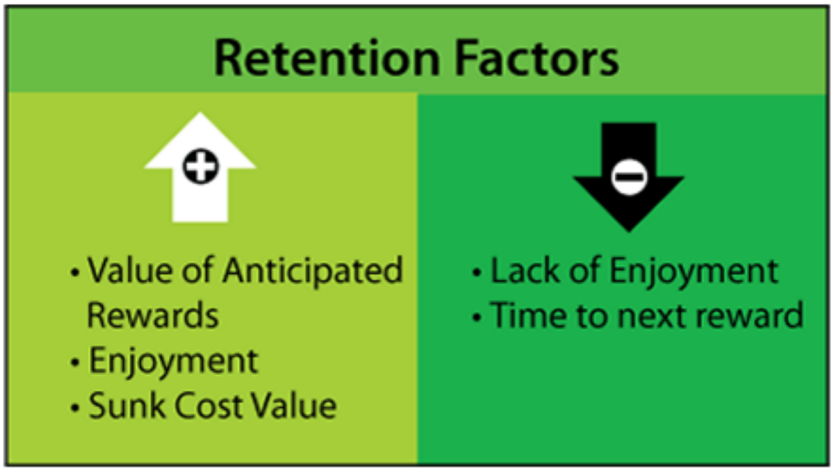
Certainly, it is intuitively obvious that the anticipation of future rewards is one of the most important reasons that players **continue** to play a game after their initial period of discovery has ended (and it is arguable that the initial period of discovery is itself a long series of very short tension ramps as the player encounters various aspects of the early game), making the management of anticipation one of the most critical elements of player retention. Developers of free-to-play and subscription games rightfully prize

player retention as one of the most critical measures of success as these games realize the revenue value of their players over time.

In fact, there is arguably an underlying player calculus at work that determines whether players retain or churn, specifically:

- **Value of anticipated rewards**: How much utility and raw joy does the player expect from the currently anticipated rewards
- **Enjoyment of moment-to-moment gameplay:** Anticipation clearly isn't the only reason that players play games. Players derive pleasure and satisfaction from the moment-to-moment act of playing, particularly if its challenge curve is well structured and the game's "feel" is strong. On the other hand, if players perceive the game to be repetitive and "grindy", the moment-to-moment experience of play may actually be a net negative in this calculus.
- **Time to next reward:** As discussed in Part 2, the time it will take to earn a reward is a major component of the player's tension level at any given moment. The further out a reward is the less motivating it is to the player in the current moment, although this does vary significantly based on the intensity of the anticipated reward.
- **Sunk cost factor:** As players play games they build equity in the game, having leveled up characters, gained equipment, passed levels, etc. As players invest more and more time in games, they feel more and more hesitant to abandon all the progress they have made. This helps explain accounts of players staying in games after they are "no longer fun".

Although quantification of these factors is outside the scope of our work and several of these factors are subjective (and their valuation that will vary from player to player), we suspect at some point a quantitative analysis will be possible.



Maintaining Anticipation

As outlined above, keeping a player in a constant state of anticipation is a powerful tool for maintaining that player's interest in your game. There are certain specific and pragmatic design techniques that deliver this result consistently (when well executed).

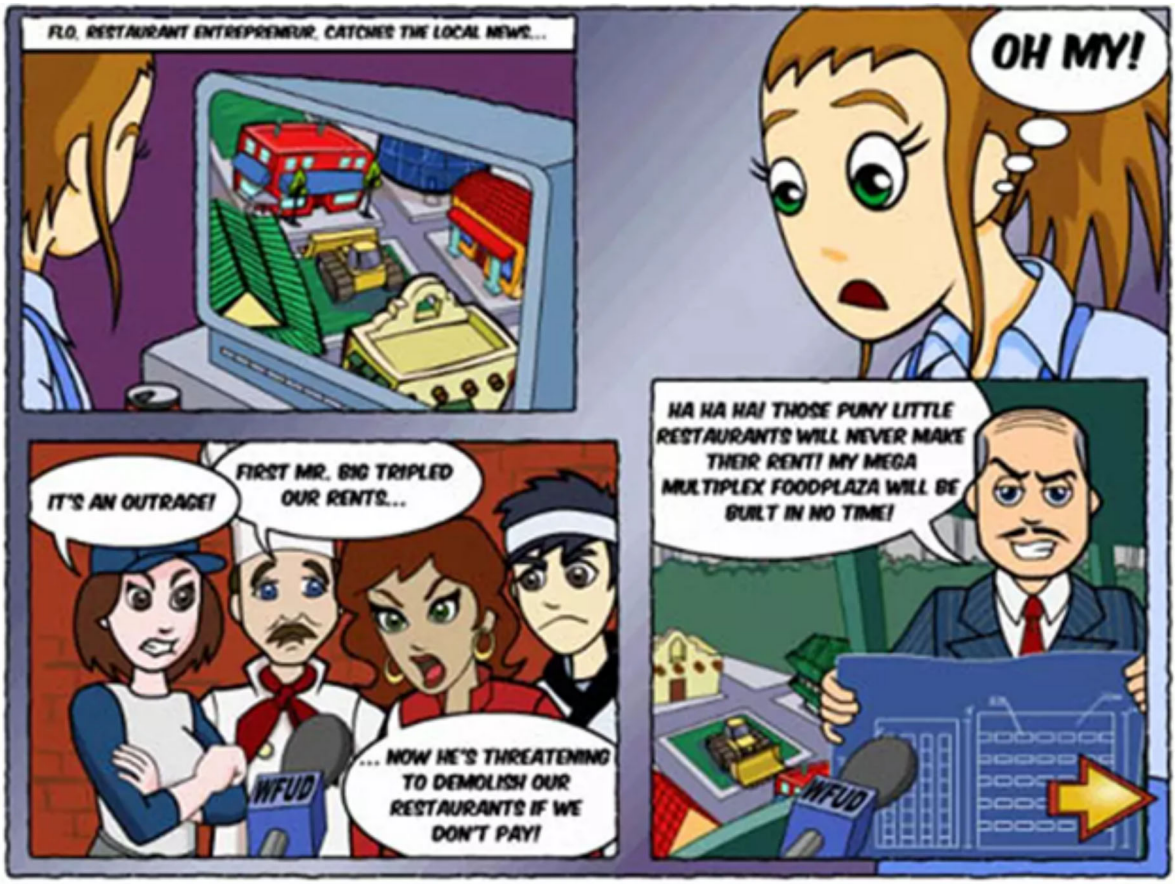
Early Epic Goals

It is traditional in many genres of game design to give the player an early vision of the ultimate narrative and/or mechanical goals of the game, though this is sometimes neglected in more abstract or casual games. This kind of explicit exposition of the game's end goals can be a powerful motivator for the player to persevere through all that the game will throw at them. Despite the fact that the player may be

separated from this goal by hundreds of hours of gameplay, the height of the final peak serves to create a good level of anticipation despite the massive time separation.

Designers have used a variety of techniques to expose players to these epic goals, including:

Opening cinematics: So long as they retain tight focus, these serve as a great vehicle for orienting players toward long-term goals and building early anticipation in a game. They may give the player a strong grounding in narrative, end-game power level, or both.



Diner Dash's opening cinematic builds a great deal of narrative anticipation without creating any significant mechanical expectations.

"Loaner" tutorials: One well-established design trick is to let the player play through the early part of the game as an exceptionally powerful end-game character making short work of all that opposes them. Once the tutorial is complete the player is returned to their newbie status, but they are left with the memory of what a high power level looks and feels like in your game, building anticipation for the end game.

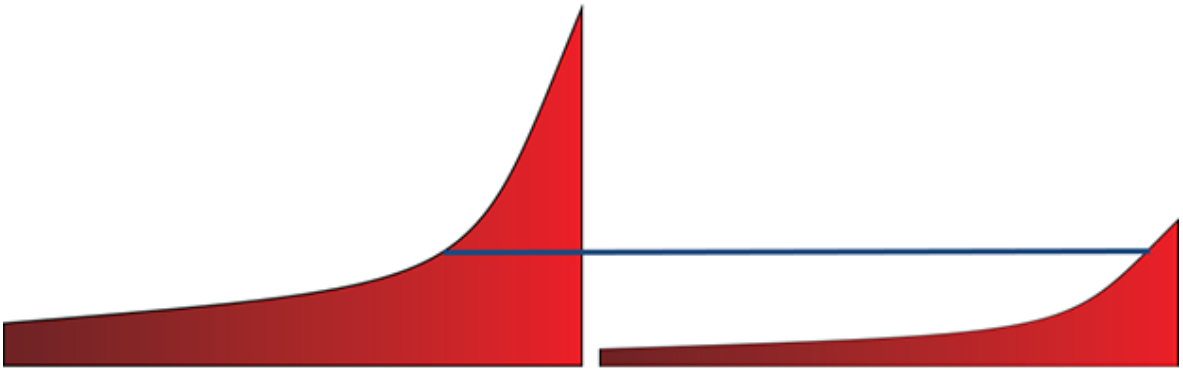
The first battle of Infinity Blade loads the player up with epic gear to fight an end game boss, then strips the player down to a starting loadout to begin the real work of the game.

“Fake friends”: Many games - especially in the Facebook era - expose the player to an NPC early in the game and encourage the player to interact with them as if they were another real player (in this case one of the player’s Facebook friends). This NPC’s domain or loadout was invariably far better than the player’s own, looking like the account of someone who had been playing the game steadily for several months. This lets the player see how appealing an established player’s game state might look, building the player’s anticipation for the later stages of the game. This also has the salutary effect of teaching players that visiting other players can be compelling and rewarding.

The player visited this Farmville NPC's farm on their first or second day of play, seeing a farm that would take several months to build.

Proximity Balancing

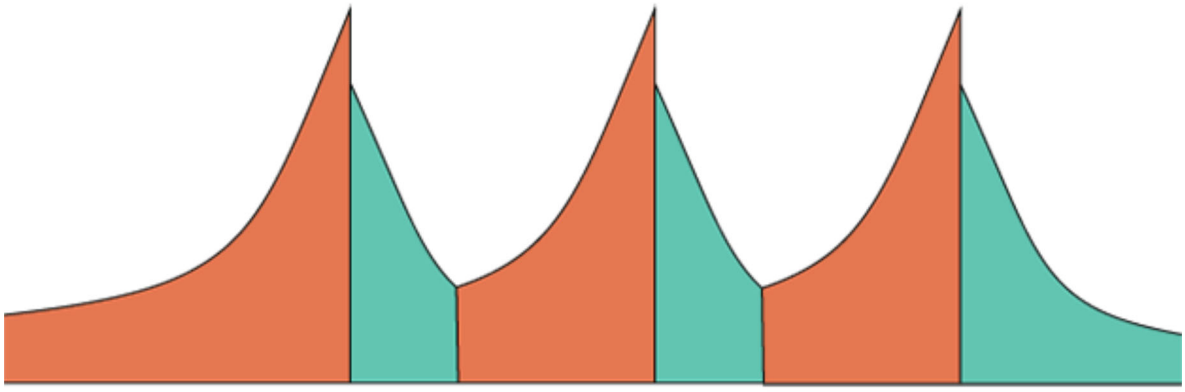
It is important that the player be exposed to potential rewards on a time horizon proportional to the size of the reward. Since the height of the tension curve varies significantly based on the anticipated intensity of the reward, a small reward that the player is about to receive can generate as much pleasurable anticipation as a larger reward that will take longer to earn.



In addition, exposing players to goals that they are quite close to achieving can trigger the endowment effect, giving players additional motivation to complete the required tasks.

The Civilization games do a great job of giving the user both near-term goals (like completing their next technology research or civic building) and long-term goals (like conquering enemy capitals and building wonders), and balancing their value precisely.

Goal Rolling



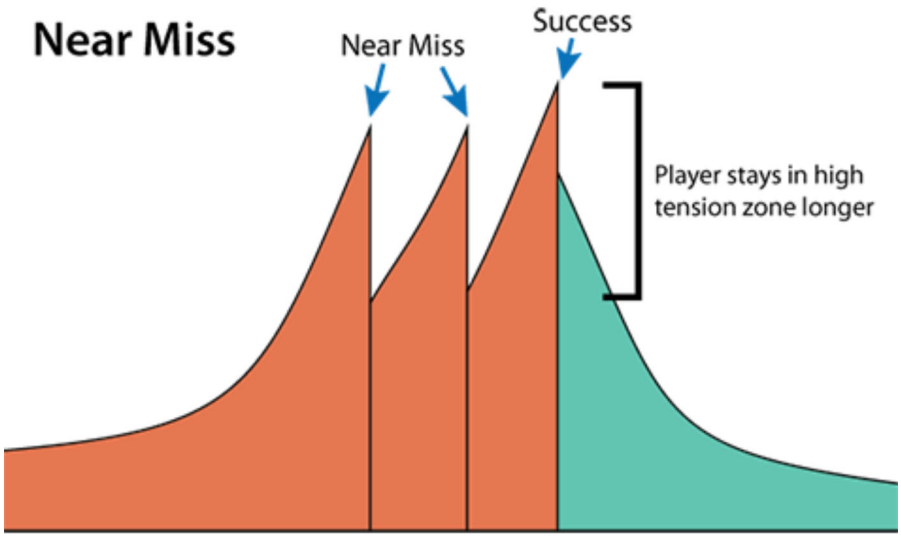
So far, our models and visualizations have dealt with the shape of the tension curve generated by a single anticipated reward. However, players are not such meager thinkers as to be able to hold only one goal or reward in their mind at any given time. In fact, one of the best ways to maintain audience attention is to ensure that new goals are introduced before the previous ones are resolved. This allows designers to ensure that the decrease in wanting dopamine that occurs after a desired reward is earned does not leave the player in a low dopamine state without additional goals to anticipate. This simple technique can have powerful impacts on retention and engagement.

The goals shown at the top of this Trailer Park Boys: Greasy Money screen gives the player some small near-term goals to aspire to while they work toward completing a level that may take a week or more. Completing the goals gives a small reward while completing the level yields much larger rewards. Some goals are introduced with partial progress, giving the player a strong sense of endowment.

Near Misses

A Near Miss of a desired Outcome can be a successful method for extending the length of the Tension Ramp. While successfully reaching an Outcome takes the person into the Denouement stage of exiting the loop, a Near Miss can instead reset the person part of the way back down the Tension Ramp without

ending it.



In order for a Near Miss to be effective in this way, the person must perceive the Near Miss to be a sign of upcoming success and/or provide a hit of the same emotional experience as actually reaching the Outcome. Neurochemically, this Near Miss triggers a firing of almost all of the “success” neurons.

This associates the Near Miss with success rather than failure, creating an incentive to continue trying. This is a form of “Seeking” behavior that drives people to keep trying when they are getting close to success (real or perceived).

Slot machines are a classic example of how a perceived Near Miss success can very effectively drive ongoing engagement via Anticipation Loops.

This classic 3-reel slot shows a Near Miss state, with the third reel just a nudge away from a jackpot. Modern implementations enhance this effect with things like slow-motion deceleration (called a “Wind Up”) on the 3rd reel accompanied by intense music and sound effects.

Enhancing Anticipation Through UX

Designers can enhance the steepest part of the tension ramp with careful attention to the user experience. Some slot machine games make use of a “Wind Up” mechanic to create an anticipation loop despite existing within a completely predetermined game result. In such games, all the reels except the final one will stop, displaying a large potential win. The display of the final reel result is artificially delayed by keeping it spinning longer to build, even though the game determined the actual reel value at the outset. Introducing this delay, rather than displaying all the reel results at once or in immediate sequence creates

an extended Tension Ramp. During this time, the player engages in future state projection of the potential outcome range, increasing engagement, and creating a more intense experience during the Resolution Point.

The timing, method, and ritual around many casino game aspects, such as the ball and wheel spinning in roulette or poker cards being dealt and revealed, are examples of user experience being tuned to create and heighten anticipation. Similar techniques can be applied across a wide range of games to great effect, so long as designers clearly understand where their systems are generating moments of maximum tension.

In Hearthstone, when the player opens a legendary (highest rarity) card, a very flashy animation plays accompanied by loud exclamations.

Simulating Agency

As discussed previously introducing or increasing user agency can be a powerful method for modifying players' experience of an Anticipation Loop. However, even within predetermined or fixed game, the creation of perceived agency can be an effective tool for increasing player engagement. For example, the casino game of Baccarat involves no player agency (beyond placing the initial bet) and provides the player with no ability to alter the outcome. Unlike Draw Poker or Blackjack, all determinations about number and sequence of cards dealt to each hand are according to a fixed formula with no player decision points. However, it is typical for in casino play to allow the highest bettor in a round to do things like touch the cards, peek at their values, determine when and how to reveal them, and engage in a variety of "lucky" rituals such as blowing on the cards and so on. These elements and actions can create a false, but compelling sense of agency, with a strong corresponding impact on engagement and the effectiveness of the Anticipation Loop.

Plus, it makes for good cinema. Right, Mr. Bond?

Part 4: Conclusion

Learning to build and maintain Anticipation is an effective tool for any game designer's toolbox.

During an Anticipation Loop, the player:

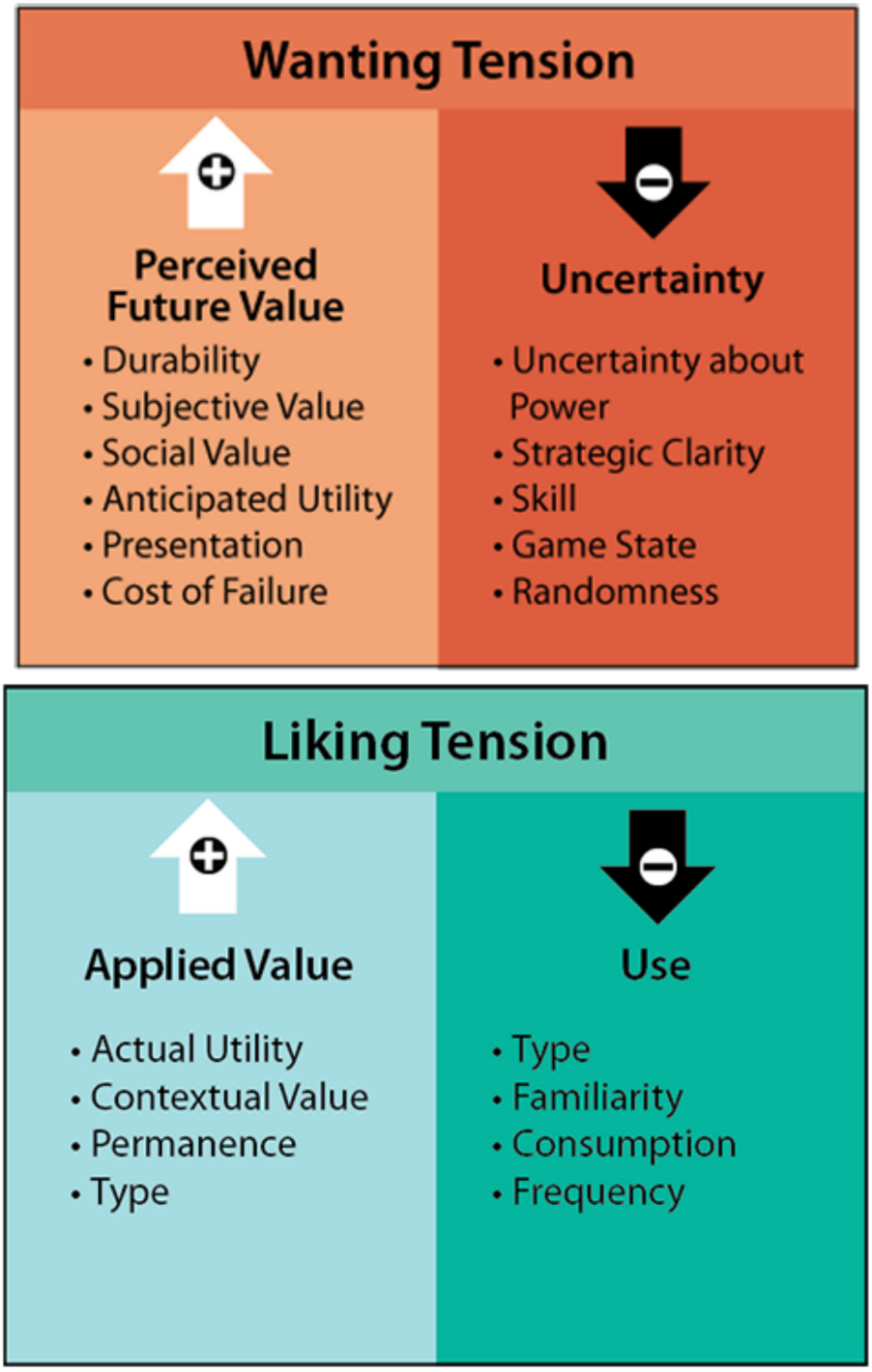
1. Learns of a potential Outcome
2. Enters a state of Wanting the most desirable reward available via the Outcome
3. Begins progression up a Tension Ramp, towards a Resolution Point
4. Achieves the Outcome (or fails along the way)
5. Enters a state of Liking their possession of the Outcome's result
6. Loses interest in the Outcome over time

The player moves from a state of Wanting the Outcome to (if successful) Liking the goal they've accomplished.

In order to build Anticipation, your game must have:

- Explicit Rewards
- Understandable Rules
- Consistent Delivery of Value

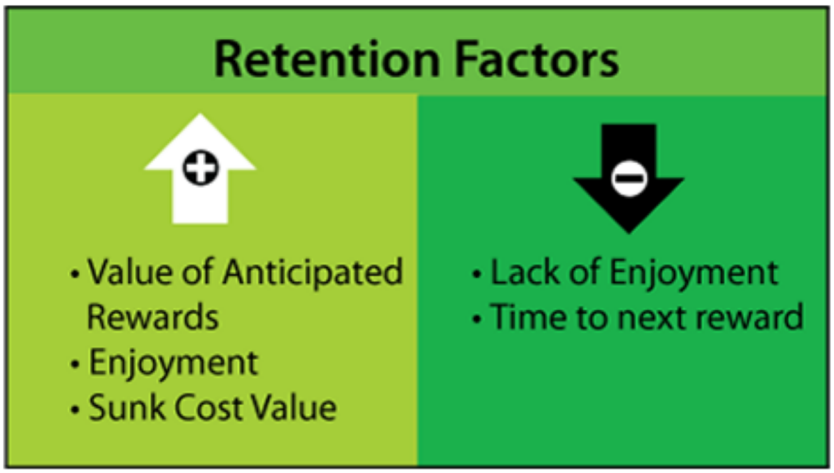
Many factors impact player Anticipation during the Wanting and Liking phases:



We covered a number of Modifiers to the base model, including:

- Outcome Characteristics
- Frequency and Predictability
- Emotional Charge
- Loss Aversion
- Hope
- Agency
- Intensity

Anticipation can have a strong impact on player Retention, through aspects such as:



Finally, we discussed several ways to develop and maintain anticipation:

- Early Epic Goals, illustrated through:
  - Opening Cinematics
  - Loaner Tutorials
  - Fake Friends
- Proximity Balancing
- Goal Rolling
- Near Misses
- UX design techniques

We invite feedback and critique, and look forward to refining the model with the help of our friends in the game development community!