Game Usability

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Advice from the Experts for Advancing the Player Experience

Katherine Isbister
Noah Schaffer

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CHAPTER TWENTY

The Four Fun Keys

Nicole Lazzaro, founder and president of XEODesign, Inc., is an award-winning designer and an expert on emotion and games. Clients include Sony, EA, Ubisoft, Sega, PlayFirst, The Cartoon Network, LeapFrog, Mattel, Monolith, Xfire, D.I.C.E, The Learning Company, Broderbund, Roxio, and Maxis. She has a degree in psychology from Stanford University where she also studied filmmaking and computer programming. A frequent speaker at industry events, she consults extensively on games and why people play them.

20.1 Forget Usability! What Makes Games Fun?

Why do we play games? Play experiences are not work experiences. Games are not used to achieve particular tasks; they are played for pure fun. What players like about games and what makes computer games so engaging falls outside traditional usability goals of increasing efficiency and effectiveness and of providing the satisfaction of a job well-done. Now of course some aspects of games must be usable, but usability is not the only way to improve the quality of a game.

Games are self-motivating activities and, as such, inspire a dedication to learning new features that productivity application designers can only dream about. Indeed, aspects of game design can even make business software more self-motivating.

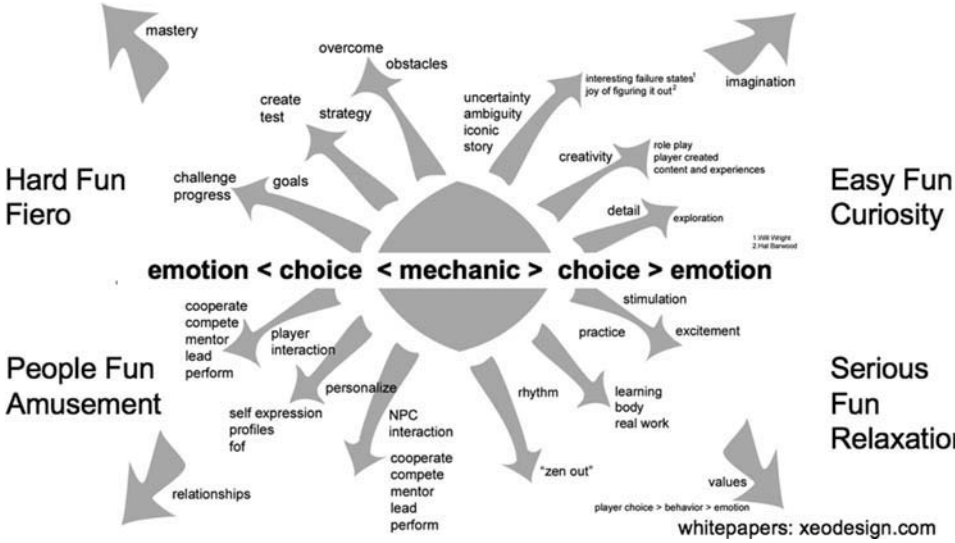
Games entertain by daring the user to change the course of events. Gamers do pursue goals, but what they value most is the experience that the game creates. Instead of task completion, time-on-task, and error prevention the true measure of a player's experience is how much the game affects his or her internal sensations, thoughts, and feelings.

People play games not for the graphics, the license to kill, or even the genre. Rather, we play games for the chance to compete, to explore a new experience, to feel specific emotions, and to spend time with friends. These, then, are XEODesign's

four keys to unlocking emotions in games:

1. Hard Fun: challenge and mastery
2. Easy Fun: inspiring imagination, exploration, and role play
3. Serious Fun: changing a player's internal state or doing real work
4. People Fun: social interaction

FIGURE **20.1**



The Four Fun Keys.

To create a model of how games create emotion XEODesign conducted independent research of players playing best-selling games. By watching the emotions in player's faces we identified four different types of fun each with its own set of mechanics and emotions. For each mechanic the game offers the player choices and feedback that creates different emotions in the player. The relationship between the mechanics and emotions of a game give it its unique player experience profile (PX Profile). The playstyles most enjoyed by players offer different PX Profiles. What we found is that players preferred three out of four different types of fun and that best selling games offered three out of the four. Players likewise would rotate between different types of fun during play.

There are over thirty emotions that come from gameplay. Game designers design the mechanics that create the emotions in players. Games that offer choices in these four quadrants provide more emotions and increase the enjoyment of the game for more people.

Different emotions come from the mechanics of different playstyles. By presenting a goal and breaking it into small achievable steps, games create emotions from Hard Fun, where the frustration of the attempt is compensated by the feelings of accomplishment

and mastery from overcoming obstacles. Outside of goals, games provide novel opportunities for interaction, exploration, and imagination, which create Easy Fun. Games that use emotions in play to motivate real-world benefits to help players change how they think, feel, and behave or to accomplish real work create Serious Fun. Finally, games that invite friends along get an interpersonal emotional boost from People Fun (Lazzaro, 2004b). The Four Fun Keys are a collection of related game interactions (game mechanics) that deliver what players like most about games. Each offers a key to "unlock" unique emotions such as frustration, curiosity, relaxation, excitement, and amusement. Best-selling games provide features that support at least three of these Four Fun Keys to create a wider emotional response in the player. To keep things fresh during a single-play session, gamers move between the four different play styles (Lazzaro, 2004b). Developing each key focuses and rewards the player with emotion from a self-motivating experience that deepens the game's player-experience profile. Designers of products and productivity software can also use these Four Fun Keys to increase emotional engagement for applications outside of games.

Only some of the emotions from playing basketball in the real world come from the Hard Fun of making baskets. Close examination reveals that all Four Fun Keys are part of this popular sport. Dribbling the ball or doing tricks like a Harlem Globetrotter offers Easy Fun from novelty and role-play. Intentionally blowing away frustration and getting a workout creates Serious Fun. Competition and teamwork make the game even more emotional from People Fun. All four types of fun make basketball's player experience more enjoyable. None of these require story or character. Through examination of how each type of fun creates emotions, designers and researchers can create better and more emotional player experiences.

20.2 Emotion and Engagement in Player Experiences

The goal of testing is to improve quality. However, there is more to software quality than ease of use. There is a lot more going on for games. Without usability no one can play a game, make it too usable and it's no fun. That's the difference between user experience design (UX) and player experience design (PX). Games create emotions from experiences that usability and traditional market research cannot measure. Other methods can and designers who can assess a player's emotional responses early in the development cycle can innovate with much less risk. Over the years of testing games and interactive entertainment experiences we developed and modified usability practices to address new areas of human experience not covered by usability.

20.2.1 *Player Experiences Are Not User Experiences*

As the practice of improving the quality of interactive experiences matures we find that there are many differences between the goals and user expectations of productivity software and games. If there are two separate factors then we should

see games that are highly usable, but are no fun. In XEODesign's lab we often see games that do just that. To differentiate the two we use the term user experience (UX) and player experience (PX) defined as follows:

- UX: is the experience of use, how easily and well suited to the task, what the person expects to accomplish.
- PX: is the experience of play. How well the game supports and provides the type of fun players want to have. Players cannot just push a button once and feel like they won.

Put even more simply for UX we look at what prevents the ability to play and for PX we look for what prevents players from having fun. To test games the first step is to divide the features into two buckets, then apply different techniques to measure and improve the quality of each. Comparing the goals of user and player experiences reveals they are used for different purposes and that they strive for different values.

UX Usability Goals: Productivity	PX Game Goals: Entertainment
task completion	entertainment
eliminate errors	fun to beat obstacles
external reward	intrinsic reward
outcome-based rewards	process is its own reward
intuitive	new things to learn
reduce workload	increase workload
assumes technology needs to be humanized	assumes humans need to be challenged

(Lazzaro & Keeker, 2004) Revised

User experiences and player experiences are like 2 wheels on a bicycle. One connects to the drive chain to make the bike go (UX), the other wheel steers and creates the fun (PX). The practice of improving software has only identified a few spokes on that rear wheel: heuristic evaluation, usability testing, time on task, reduce error rates, satisfaction surveys, certain ethnography such as contextual inquiry. All of these improve interface design and the quality of the user experience. None of these usability related practices address specific emotions. If anything, current UX methods target a single emotion, frustration, in order to reduce it; and they track "satisfaction" without a precise definition. Taken to an extreme a system that is 100 percent usable will have few errors and require little effort, however this risks boring workers by making a task too routine. It also does nothing to increase a worker's sense of accomplishment from mastering a complex task or a job well-done. Usability alone is not enough to improve all aspects of interactive experiences humans enjoy at work or at play.

20.2.2 *Emotions Are the Key to Great Experiences*

Emotions play an important role in games and give them their engagement. Emotions that match the game mechanic help players concentrate more and

mechanics that offer players emotions they enjoy give players a reason to play. Games are self-motivating activities. Emotion plays a big role in this. Emotions focus attention, make decisions, improve performance, create enjoyment, and reward learning (Lazzaro, 2007). Researchers are only beginning to understand the important role that emotions play in decision making. In fact people without emotional systems cannot make choices (Damasio, 1994). Because games are about making interesting choices, studying the emotional reactions of player serves a critical role in improving the quality of player experiences (PX.) Without emotion, or too much of the wrong kind, gameplay feels flat and uninspired. Players know what to do. The game is usable. They know how to play, but they don't know how to have fun.

TABLE **20.1** Emotion During Play Helps Gamers

1. Enjoy: Creates entertainment from strong shifts in internal sensations
2. Focus: Directs effort and attention
3. Decide: Aids decision-making
4. Perform: Supports different approaches to action and execution
5. Learn: Provides motivation for learning, aids in memory and rewards progress

(Lazzaro, 2007)

20.2.3 *Emotion's role in Choice/Games*

To create more emotion from games the relationship between specific emotions must be understood and planned from the beginning. In games player choices must capture attention and motivate further interaction. Targeting specific emotions related to a type of fun at the start of the project allows the designer to understand how emotions relate to each other and design new types of fun. Next breaking the type of fun into specific mechanics, allows the designer to craft emotion with specific choices and feedback. Finally the designer can tune the game by adjusting how the mechanics work together.

Comparing Engagement Models Reveals Similarities and Open Issues

Before beginning our independent study on emotion and games we did a survey of literature about creating engaging products and entertainment experiences. Comparing these models show striking similarities as well as open issues based on our experiences testing and designing games. Of the dozens of emotions that we saw regularly during play, we could not find a model that accounted for more than a handful of them. Plus outside of psychology most literature on creating book, theater, and film experiences focused on creating emotions in a passive audience through empathy rather than the role emotion played through active participation.

These frameworks lay out several basic requirements for entertainment products, however none addressed designing for specific emotions. Paul Ekman's work treats

emotions in detail, but like most emotion research, focuses on negative problematic emotions rather than enjoyable ones. Ekman also focuses on real-life emotions rather than how emotions come from entertainment. Tiger, Jordan, and Norman describe the importance of emotion in product design but focus on general positive or negative emotion, but not how to measure or increase specific emotions such as curiosity or amusement. There is likewise very little discussion about the role specific emotions play in making different types of decision or how one emotion builds into the next.

TABLE **20.2** Comparison of Models for Creating Emotion and Engagement

XEODesign Four Fun Keys	Hard Fun Fiero Challenge Game, Goal	Easy Fun Curiosity Novelty, Fantasy Game, Open = Ended	Serious Fun Relaxation Real World Purpose Life, Open = Ended	People Fun Amusement Social Life, Goal
Bartle's Original 4 Player Types, (1996, 2003a, 2003b)	Achiever Player Killer	Explorer		Socializer Player Killer
Boorstin (1990)		Voyeuristic Eye Visceral Eye		Vicarious Eye
Csikszentmihalyi (1990)	Enjoyment, flow	Pleasure, microflow		
Ekman (2003)		Auto appraisal, memory of emotion, imagination, reflective appraisal		Empathy w/another, violation of social norm, talking about emotion, making facial expression of emotion
Hassenzahl et al. (2000)	Ergonomic quality	Hedonic quality		
Kim (2000)				Community
La Blanc et al. (2004)	Mechanics, Dynamics Aesthetics	Aesthetics		
Malone (1981)	Challenge	Curiosity Fantasy		
Norman (2004)	Behavioral		Reflective Visceral	Reflective
Piaget (1962)	Formal games with rules	Sensory-motor play Pretend play		

(Continued)

TABLE **20.2** (Continued)

XEODesign Four Fun Keys	Hard Fun Fiero Challenge Game, Goal	Easy Fun Curiosity Novelty, Fantasy Game, Open = Ended	Serious Fun Relaxation Real World Purpose Life, Open = Ended	People Fun Amusement Social Life, Goal
Tiger (1992) Jordan (2000)		Physio-pleasure Psycho-pleasure	Ideo-pleasure	Socio-pleasure
Wright et al. (2003)	Spatial-temporal thread	Compositional thread Sensual thread Emotional thread		
Common Drama and Theater Constructs	Character Motivation, Plot points, Objectives 3-act structure	Setting, Plot, Story, Character, Suspension of disbelief	Catharsis, Music, Set and costume design	Character Dialogue Acting

(Lazzaro, 2007)

1.1.1

To help make better games, researchers and designers need tools to measure and adjust the emotional engagement coming from play. Reviewing the literature we found very little on how experiences create emotions, let alone how games create emotions. The three most relevant and detailed models were Csikszentmihaliyi's Flow and Bartle's four player types, and Norman and Boorstin's three sources of engagement (Norman, 2004, Boorstin, 1990). However, none of these mapped out the wide range of emotions we saw when people played their favorite games. None of them broke out different factors for creating engagement.

Csikszentmihaliyi's Flow models one aspect of how games create engagement (Csikszentmihalyi 1990). The flow model offers two parameters for designers to adjust and three emotional states: boredom, anxiety, and "flow" which is more of a state of engagement than an emotion. In testing games we often measured how players responded to other parameters than the game's balance of skill and difficulty. During great gameplay we knew that players responded to: reward cycles, the feeling of winning, pacing, emotions from competition and cooperation. To get great gameplay designers had to make a lot of adjustments, not only in difficulty.

Our experience testing players showed there were several types of player behavior not predicted by Csikszentmihalyi's model for Flow. The experience of being in a flow state is an important part of many ways that games create engagement not just the actions that are challenging. Players also experienced other emotions such as curiosity in addition to frustration. The most engaging designs that came through our lab often started with challenge but players preferred games that offered more than balancing difficulty with skill. Examining the relationship between players'

favorite emotions and how they play we saw that people played for other experiences as well. Players clearly responded to factors outside the Flow model.

Similarly, we saw that players enjoyed games in more ways than Bartle's four player types (or his revised model). There were likewise more forms of creating engagement than in Norman and Boorstin's models. Players enjoyed more than whether an emotion was positive and negative or was arousing or relaxing. In short game designers needed a model for creating emotion from gameplay and researchers needed a way of collecting data from players to inform the designers.

Given the lack of research on this subject we decided to use a simplified version of Paul Ekman's Facial Action Coding System (Ekman, 2003) to identify what emotions came from what players liked most about games. Watching the emotions on players' faces that would lead us to understand how they relate to the types of choices that players liked the most. We would hack the "what's fun" problem from the player's perspective.

In designing the studies to look at how games create emotions we kept two things in mind. First to design emotions game developers needed a way to measure specific emotions. Second, the emotions to measure were ones that relate to what players like the most about games.

20.3 Hard Fun

1.1.2

"Games are a series of interesting choices."

Sid Meiers

Hard Fun is the opportunity for challenge and mastery. Hard Fun is also what most people think of when they talk about game design. Players play to overcome obstacles and score points. In short people play games not because they are easy, but because they are hard. It requires balance of difficulty with player skills. Many familiar game design techniques such as levels, boss monsters, and power ups evolved to maximize the Hard Fun.

In testing, games lacking Hard Fun often have goals that are too difficult, too easy, or uninspiring. A common flaw in the Hard Fun of games is only increasing the challenge by giving players more monsters and less time. This is one way to make the game harder, but ignores a big source of pleasure for gamers; which is the creation of new strategy.

20.3.1 *Hard Fun Emotions*

"I always know how my husband feels about a game. If he screams 'I hate it! I hate it! I hate it!' then I know two things: a) he'll finish it, and b) he'll buy version two. If he doesn't say these things, he'll put it down after a couple of hours."

Wife of a Hard-Core PC Gamer

Hard Fun comes from a careful balance of three emotions. The most important emotion has no word in English, so at XEODesign we borrow an Italian word, fiero (like the car) which means personal triumph over adversity (Ekman, 2003). For example fiero is the feeling you get from winning the Grand Prix or beating the boss monster. Players experience fiero often scream "Yes!" and punch an arm up over head, jump their characters, or do a victory dance. If the feeling is especially strong players even jump up out of their chairs.

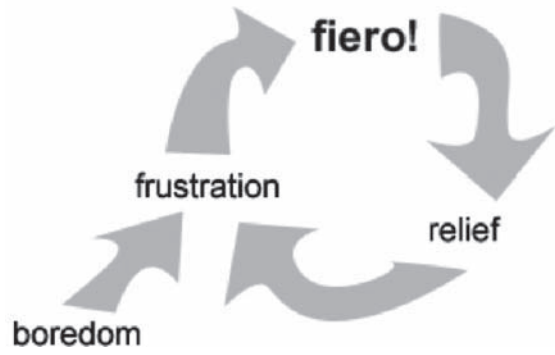


FIGURE **20.2**

Hard Fun: The opportunity for challenge and mastery

During play gamers often start bored, then become frustrated, experience fiero and then feel relief.

Looking for fiero during player testing is a good way to assess the Hard Fun in a game.

PX Spiral: Hard Fun Creates Fiero.

Players cannot push a button and feel fiero, they must feel frustrated first.

In Hard Fun players cycle between three emotions: fiero, frustration, and relief. We call the way players cycle between emotions a PX Spiral. During play gamers often start bored (a top reason to play a game), then become frustrated as they work to solve the challenge. When they solve the challenge they feel fiero causing a huge state change in the body where they go from feeling very negative to feeling very good. As the feelings of fiero fade the player feels relief. Then the player encounters a new challenge and the cycle repeats.

Because game design requires balancing a number of choices and parameters, it is helpful to first focus on the Hard Fun of the game and creating fiero. Fiero is the strongest and most satisfying emotion coming from Hard Fun mechanics and for many players fiero is their favorite emotion. Fiero also offers a special paradox to researchers and designers: usability requires removing frustrating features, where as mechanics that produce fiero demand adding them. In game testing separating good frustration from bad frustration is a requirement during observations aimed at improving Hard Fun. Make a game too usable and it is no fun at all.

20.4 Hard Fun Mechanics

Game designers cannot design player emotions directly; instead they design the rules that offer players the choices and the feedback that creates the emotions. The choices and feedback that the game offers the player are called game mechanics and based on our research these mechanics are different for each type of fun. In

this way each type of fun focuses on different types of choices with different kinds of feedback and therefore creates different emotions. To create the emotions in the PX Spiral for Hard Fun the game requires different mechanics than those found in other types of fun.

The emotions for Hard Fun come from the choices and feedback relative to a goal with at least one major obstacle. We call how the mechanics create the emotions a PX Profile. It is possible to target these emotions and increase the Hard Fun of a game by adding mechanics such as the extra bonus coins in *Zuma* or seating customers by color in *Diner Dash*. Creating a PX profile helps explore the relationship between choices, feedback, and player emotions.

The emotions for Hard Fun come from the player using the controls to make choices, develop strategies, overcome obstacles, and achieve the goal. Typical Hard Fun mechanics include short term and long term goals, obstacles, levels, boss monsters, and power ups. All of these vary the pace of the game, affect the challenge ramp, and enhance player feelings of accomplishment. Player testing of Hard Fun examines what kind of response these mechanics create in players.

TABLE **20.3** Hard Fun PX Profile

Choice and Feedback	Emotion
goals	fiero
challenge	frustration
obstacles	boredom
strategy	
power ups	
puzzles	
score	
levels	
monsters	

Hard Fun mechanics are the ones most at odds with traditional measures of usability. Here is where usability recommendations can do the most damage to gameplay. Usability advice to widen and lower a basketball hoop will reduce error rates however, it also makes the game less fun. Pushing one button to buy a car upgrade improves the game, pushing another button to win the Grand Prix does not feel like winning.

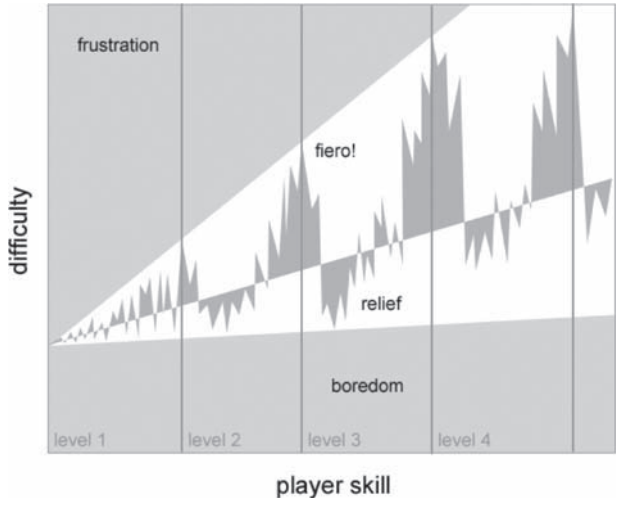
20.5 How Hard Fun Mechanics Work Together to Create Mastery

There are many ways to measure and increase the Hard Fun of a game. Mechanics that enhance the challenge and progress towards goals, suggest multiple strategies, and otherwise increase the opportunities to overcome obstacles will help. The designer increases Hard Fun emotions by balancing these aspects to create opportunities for mastery and create more Fiero.

Hard Fun: Mastery creates Fiero. Player choice rewards effort.

FIGURE **20.3**

How to increase emotions from choice related to a goal.



Hard Fun offers the player more emotions than the boredom and frustration (anxiety) predicted by Csikszentmihalyi's model of flow.

Hard Fun PX Model.

How to increase emotions related to goal.

Designing how Hard Fun mechanics work together as a system is as important as having the right ones. To get players "into the zone" Hard Fun offers players the perfect balance of player skill with game difficulty. If the game is too easy the player quits because they are bored. If the game is too hard players quit because they are too frustrated. Over time as the player improves, the game must also increase in difficulty to keep the player in this zone. Games increase variety by offering secondary objectives, extra points, or expert scores to offer more ways to win. Having mechanics that suggest multiple strategies also increases engagement as players try out different ways to play.

Hard Fun builds on the observations of Csikszentmihalyi's model of Flow in several ways (Csikszentmihalyi, 1990). First of all players enjoy games where the difficulty varies rather than progresses in a straight line. The level of challenge had to wiggle and the overall angle had to match player preferences. It can be relatively flat for meditative games like Bejeweled on un-timed mode, and quite steep for a first person shooter like *Halo.* The game also must present some degree of challenge to start. The placement of levels and power ups relative to the game's more difficult challenges (boss monsters and puzzles) affects enjoyment as well.

The most important difference between Hard Fun and Csikszentmihalyi's Flow is that players clearly enjoyed other emotions such as fiero and relief, in addition to boredom and frustration (anxiety). For example for fiero to occur players had to become so frustrated that they were about ready to quit. To get fiero, the player must succeed just when they are on the verge of quitting. When they achieve at that point they experience a huge phase shift in the body from feeling very bad to feeling very good. Being close to the edge of quitting enhances the positive elative feelings of fiero. This meant the player has to wiggle within the zone often touching both edges. Players' favorite games have them alternate between Hard Fun and Easy Fun (definition coming up) to prevent becoming too frustrated or to motivate the next round of challenges. We saw players alternating between challenge and exploration. Games that were more successful provided rewarding experiences for both.

20.6 Easy Fun

"In real life, if a cop pulled me over I'd stop and hand over my driver's license. Here I can run away and see what happens."

Xavier playing GTA Vice City

Easy Fun is the bubble wrap of game design. Best selling games offer interactions outside the main challenge to inspire player imagination and capture their attention in between challenges. Novelty inspires player curiosity to fill their attention and motivate different kinds of play. In Easy Fun these opportunities for fantasy, exploration, and role play increase immersion into the game world outside of the main goal and offer a refreshing alternative to the emotions from Hard Fun.

For Easy Fun novelty inspires player curiosity similar to the role challenge has in Hard Fun. Because of this Easy Fun lacks the structure of Hard Fun. Instead players play for the sheer enjoyment of the interaction. Like Improv theater, games such as Grand Theft Auto (GTA) make offers to the player. To get from point A to point B in a mission the game offers the player a car, in fact any car they want and then other things such as parking meters, plate glass windows, and freeway exit ramps. It is up to the player to accept these offers and see what happens.

Easy Fun plays an important role in the life cycle of a play session. Players often self regulate their emotions when the challenge becomes too hard by switching from Hard Fun to Easy Fun such as goofing off inside the game, off track play, or exploring what Will Wright calls "interesting failure states."

Games without enough Easy Fun may be highly usable and have appropriate challenge ramp, but players will play less if they don't want to see what is on the next level, they don't enjoy the theme, or if the controls feel arbitrary or too realistic. Accelerometer games such as XEODesign's accelerometer game *Tilt* on the iPhone or *Wii Sports* on the Wii creates part of their appeal from the controls themselves. The difference between using the real object and the virtual one increases engagement. Without enough Easy Fun players are more likely to become frustrated with pursuing the game's main goal. Oftentimes players find the theme unappealing or the story uninspiring. They don't see the point and don't care about the outcome. If the game is only about the Hard Fun players loose interest.

20.6.1 *Easy Fun Emotions*

For Easy Fun we look for curiosity in the player, examining what activities they engage in outside the main challenge for the game. Similar to the emotion of frustration in Hard Fun, curiosity focuses player's attention this time with a positive emotion. As players fool around curiosity leads to surprise then wonder which is a big emotion in humans. And wonder (rather than fiero) rewards their actions. Like fiero, the feeling of wonder is a big emotion, plus it focuses player attention. Wonder is a feeling such as the first time someone sees *Trinity* do her slow motion round house kick in the movie *The Matrix*, or in *Close Encounters of the Third Kind* when the mother ship UFO rises up over the desert. The feeling of wonder rivets attention on something that appears impossible or at least highly improbable without being so unlikely that the player feels disbelief.

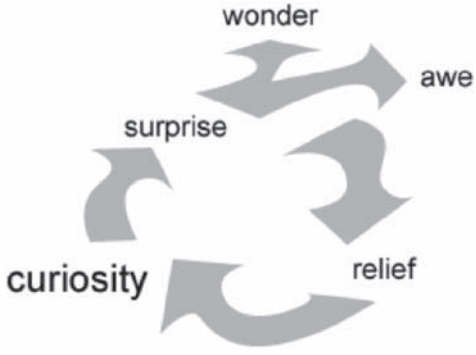


FIGURE **20.4**

Easy Fun: Inspires experimentation, role play, and fooling around.

During play something inspires curiosity that leads to surprise then wonder and awe. Relief completes the cycle and the player either explores further or encounters a new goal and starts Hard Fun.

Tracking player curiosity is a good way to identify opportunities for Easy Fun.

PX Spiral: Easy Fun Creates Curiosity.

Curiosity is an emotion with a strong intellectual component. Once the mystery is solved curiosity disappears instantly. That's one of the reason movies are less

compelling if someone "spoils the plot" by telling you the ending. If the outcome is known the only curiosity left is how the characters get there.

20.7 Easy Fun Mechanics

Easy Fun inspires player curiosity through mechanics that suggest novel forms of interaction. They inspire players to ask, "What happens if I put my Sims in the pool and pull out all the ladders?" or "What if I drive in the race track backwards?" Easy Fun mechanics offer players choices and feedback that create an interesting fantasy. Like affordances in interface design Easy Fun mechanics invite the player to try something out and see what happens. Easy Fun mechanics often suggest uncertainty or employ ambiguity (lack of detail) so that players take action to figure it out. For example, *The Sims* use an ambiguous cartoon language. To have more fun the player must interpret what they are saying. Other games such as *Myst* and *World of Warcraft* (WOW) provide a lot of detail to encourage exploration and paying attention to small details. Evoking iconic situations and characters such as a battle between trolls and humans rallies players to action inspired by emotions drawn from other entertainment experiences.

TABLE **20.4** Easy Fun PX Profile

Choice and Feedback	Emotion
role play	curiosity
explore	surprise
experiment	wonder
fool around	awe
just have fun with the controls	
iconic situations	
explore	
experiment	
ambiguity	
detail	
fantasy	
uniqueness	

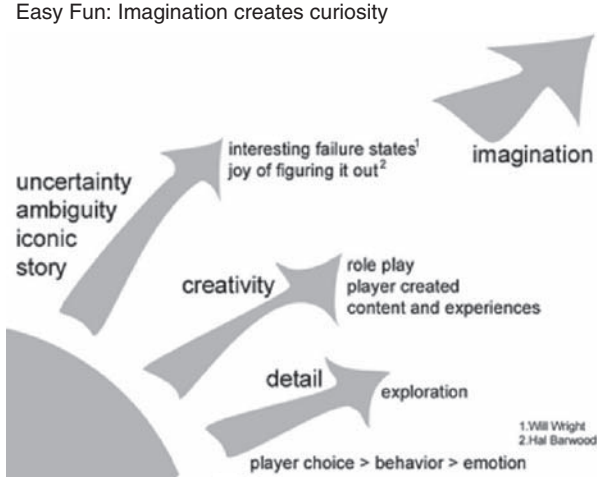
Identify a game's Easy Fun by looking at how these kinds of choices and feedback create the emotions of curiosity, surprise, and wonder.

20.8 How Easy Fun Mechanics Work Together to Inspire Imagination

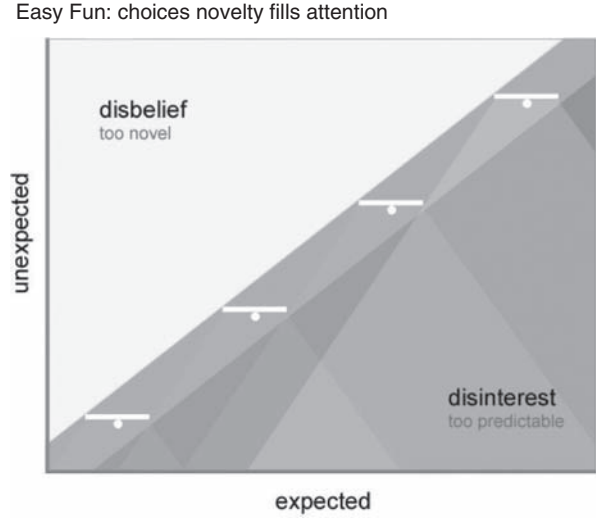
Easy Fun mechanics such as role play, ambiguity, creativity, and story work together to inspire player imagination. The use of detail and iconic situations gives players something to start with. An appropriate level of uncertainty and ambiguity encourages

players to explore what Will Wright calls interesting failure states or what Hal Barwood calls the pure joy of figuring it out.

FIGURE **20.5**



How to increase emotion from choice relative to imagination.



Increase Easy Fun emotions by balancing these aspects to engage the player's imagination and create more curiosity.

Easy Fun PX Model.

20.8.1 *Novelty and familiarity*

Like Hard Fun choices that create Easy Fun must balance to maintain equilibrium between the two emotions. Instead of frustration and boredom, Easy Fun mechanics balance novelty and familiarity to keep the player engaged between disbelief and

disinterest. If the game becomes too predictable the player leaves because they are bored, if it becomes too novel then they quit because it does not make sense. To borrow a phrase from literature the game balances novelty and boredom to create a suspension of disbelief. If something is too predictable players leave because they are bored, if it is too improbable players slip into disbelief. A 100 percent novel experience where nothing is recognizable would be confusing like a gun that shoots flowers. A 100 percent familiar experience is too much like real life. Games strive to balance between these.

20.9 Serious Fun

"Playing helps me blow off frustration at my boss."

A Hard-Core Halo Player

Serious Fun* is where players play with a purpose to create something of value outside of the game itself such as to relax after a hard day at work. Players aim to change how they think, feel, behave, or to accomplish real work. Players often select games based on how they feel before, during, and after play. Serious Fun requires engaging the player viscerally and mentally. Players use the fun of games to motivate the development of other skills or to change how they feel inside. For Serious Fun we look for what players are doing to relax, create excitement, learn, or do real work through play. They play with a purpose or use games as therapy.

Serious Fun focuses on the emotions created at the intersection of the game and the player in the real world. Where as Hard Fun and Easy Fun both create emotions about events inside the game world. In Serious Fun players feel differently about how the game changes their real life. Although like Easy Fun, Serious Fun offers engagement without challenge; Serious Fun is different than Easy Fun in that it creates engagement directly from visceral sensory stimulation and thoughts about the game rather than through the imagination and curiosity of Easy Fun. People play the game because the game gives them something they value and reflects their values. These additional outcomes and reasons to play creates emotions as well. Most importantly Serious Fun uses different mechanics to create different emotions than other kinds of fun.

Serious Fun creates emotions about benefits from playing a game such as playing *Dance Dance Revolution* to loose weight or *Brain Age* to get smarter, or playing *Halo* to blow off frustration at their boss. The emotions from play reward practice. Some games create a real work product such as the *ESP Game* developed at Carnegie Mellon University, where people play a guessing game to make the otherwise boring task of providing text labels for images on the Internet more exciting

*Note: At first we called this type of fun Altered States because it was clear that players played to change how they felt (Lazzaro, 2004a, Lazzaro, 2004b). The visceral sensations from the game's graphics, audio, and rhythm clearly created enjoyment. As we continued our analysis we then found that those who played word and card games or ones that did real work wanted a mental workout and often created a real world skill or work product. Therefore, we renamed this playstyle Serious Fun.

(von Ahn, 2004). That players accomplish a real world task increases their enjoyment. Simulation games can also teach complex ideas such as city management (Sim City) or leadership (running a guild in World of Warcraft (WOW)) (Gee, 2003). Such simulation games give players the ability to make choices and get real-time feedback—an experience that reading from a textbook cannot.

Games low on Serious Fun feel like a waste of time. The enjoyment quickly fades as the game does not make a lasting impact on how the player feels, or it creates a less desirable mental state such as watching too much TV. While all games to a certain extent are "time wasters" especially among adults, players believe they provide value whether it is stress release or a quick break. Without visceral or mental stimulation from Serious Fun the game often is not engaging enough to change how they are thinking and feeling.

A common flaw in games is that players may find it challenging (Hard Fun) and are curious about the theme (Easy Fun) but the game fails to establish a rhythm, or provide enough visceral stimuli to draw them in, or does not let them express their interests, morals, or values. For example the pacing of interaction for the game may be too chaotic for players to find a pattern. In this way Serious Fun can influence the enjoyment of other kinds of fun. The basic sequence of moves may require too much thinking for players to complete a strategy (Hard Fun). If the game does not engage them to relax, get excited, or enough mental stimulation then it fails to provide them an experience they value. Players often enjoy learning something they don't know, even if it is as simple as where chocolate comes from, as in the game *Chocolatier*.

20.10 Serious Fun Emotions

> *"I felt better about playing [crosswords] because it's good for me. If someone would tell me Tetris was good for me I'd feel better about playing that."*
>
> *Ellen, on doing crosswords to keep her mentally sharp and delay the onset of Alzheimer's disease.*

Because they play to change how they think and feel, players can experience a number of emotions from Serious Fun. Most common is to play to relax or to get excited. These different states of arousal are on different ends of a continuum. The visceral pleasure of the senses may become so strong that the player becomes enchanted, like finding the perfect sea shell on a beach or becoming mesmerized by a surrealistic vista in *Halo* or *Myst*, or coming to a compelling realization about the player's own character. Thoughts about playing the game create emotions as well. Players enjoy getting their daily workout, preventing Alzheimer's, or learning something new.

Interestingly, the same game can produce different player responses. It is important how they play. Those who play intense demanding games can feel more frustrated or force themselves to calm down to pay attention to complex stimuli with a zen-like focus. Casual game players often choose to turn on timed mode depending on whether they want to feel excited or relaxed.

FIGURE **20.6**

Serious Fun: a ticket to relaxation and enjoying otherwise boring tasks.

During play players start bored and seek to relax or get excited.

Looking for how much a game relaxes or excites a player is one way to measure Serious Fun. Be also on the lookout for how gameplay creats other things that players value such as learning a new skill or a mental workout.

PX Spiral: Serious Fun Creates Relaxation.

20.11 Serious Fun Mechanics

Serious Fun mechanics create emotion by offering stimulating visceral engagement that relieves boredom and makes repetitive tasks more engaging. Players enjoy how the bright graphics, catchy music, and rhythmic interaction change how they feel. Some really enjoy a certain mood whether it is the thrilling crossfire of *Counter Strike* or the flurry of customers during a lunch rush in *Diner Dash*. Feedback that counts the calories they have burned in *Dance Dance Revolution* or how long it took to reach age 30 in *Brain Age* makes the doing something good for themselves more fun. Learning activities such as a vocabulary game or points earned from a stress reduction biofeedback such as the *Stresseraser* boost self-esteem and create pleasure from acquiring new skills. In addition, what players play whether it is *Super Smash*

TABLE **20.5** Serious Fun PX Profile

Choice and Feedback	Emotion	Value
rhythm	Visceral	relax
repetition (practice)	relax	excite
collection	excite	kill time
completion	learn	relieve boredom
bright visuals		loose weight
music	Self	get smart
learning	learning	practice
simulation	esteem boost	create real work
meditation	express values	product
work out		develop skill
study	Real work	
take away	pleasure from	
	do real work	

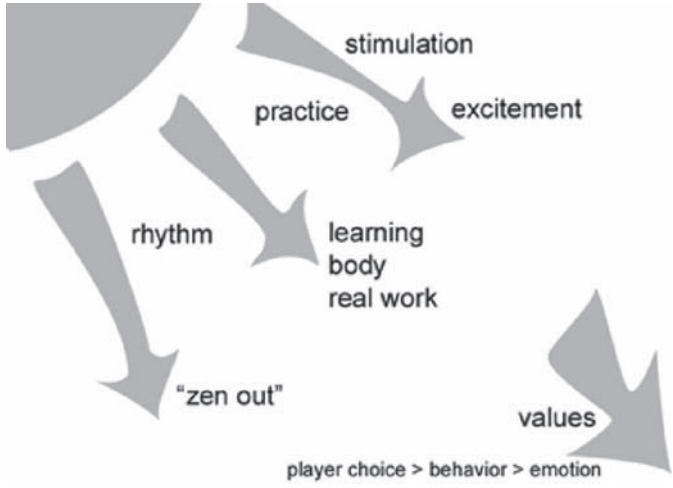
Bros, *Gears of War*, or *Animal Crossing* expresses a player's identity and their sense of values to themselves and to others.

20.12 How Serious Fun Mechanics Work Together to Express and Create Value

There are many ways to measure and increase Serious Fun. Serious Fun creates engagement through the raw stimulative attention grabbing power of a game's graphics, audio, and ideas. Measuring mechanics such as rhythm, collection, and learning during testing is one way to track the game's perceptual and mental engagement and offers opportunities to increase Serious Fun.

Serious Fun: Players value how a game makes them feel and helps them change themselves

FIGURE **20.7**



Serious Fun PX Model.

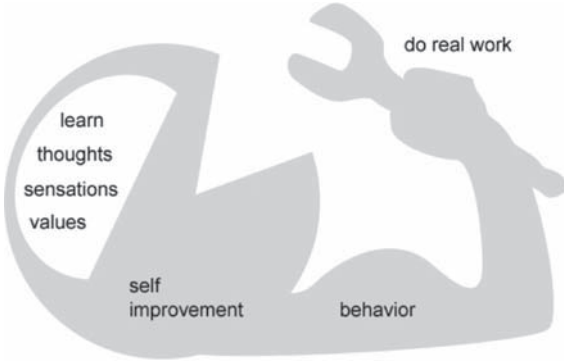
20.12.1 *Visceral Engagement*

The emotions from Serious Fun require offering experiences in a way that creates relaxation or excitement and something of value for the player. To create relaxation and excitement the pacing of choices and feedback is very important to motivate play. Some games such as *Halo* create excitement with a lot of stimulation and unpredictability while other games like *Bejeweled* offer a more meditative PX Profile through slower paced highly predictable stimulation. That said, the fast pace of playing Bejeweled on timed mode excites many players. Therefore the temporal design of stimuli, choices, and feedback creates a desirable rhythm and engagement.

Many Serious Fun mechanics have a strong visceral component. Pleasure from the visual and audio stimulation increases desire to continue. Matching and gathering mechanics such as Bejeweled have a very primal sense of enjoyment. Collecting Achievement badges in *Pogo* or completing a set of *Pokemon* cards is rewarding. Whether it is the collecting dream jewels in *Dream Chronicles* or a gold star for an expert score in *Diner Dash*, designing game objects that look valuable or pleasing to hold enhances the feeling of collecting them. *Bejeweled* would create a very different experience if instead of matching rubies, diamonds, and emeralds the player matched dog droppings and dirty broken glass.

FIGURE **20.8**

Serious Fun: Purposeful play changes self and real world



Serious Fun: PX Model.

20.12.2 *Cognitive Identity and utility*

Serious Fun mechanics also operate on a more cognitive level. How players react to ideas in the game and how they feel about playing are both important sources of emotions. Players can express their identity through the games they play whether it is *Madden NFL* or *RockBand*. Offering players a concrete take away such as learning new defense plays or a better singing voice adds to the fun. All games involve learning. If nothing else, players learn how to play better. Serious Fun offers the opportunity to learn something beyond the game. The Serious Fun of the game gives the brain a workout and gives players something to think about outside of the game. Serious Fun mechanics that exaggerate the player's sense of progress encourage repeat play.

20.13 People Fun

"People are addictive, not the game."

Bob, a sports game player

People Fun offers players the excuse to hang out with friends. People Fun is also the source of more emotions than all the other types of fun combined. Players play to spend time with their friends, many play games they don't like, or play even though

they don't like playing games. Games often serve as icebreakers, topics of conversation, something to get the party started, or structure the conversation. Some players enjoy talking about a game more than actually playing it.

The emotions from People Fun can also come from in game characters as well as other players. Part of the success of *Diner Dash* is the tight integration of the game mechanic with balancing the emotional states of numerous NPCs (non player characters)(Lazzaro, 2005). Please enough customers as a waiter and the player wins. Not all games need People Fun, however, games that lack people fun such as Bejeweled have to be a lot stronger in the other areas to create the same level of emotional engagement.

Games without enough People Fun offer limited interaction between players and game characters. As a result players do not care about the plight of a game character. Without People Fun the game fails to spark competitive urges or cooperation between players towards a shared goal. These games can be MMOs whose NPCs feel like quest vending machines rather than reacting to choices players make. In multiplayer games each player's actions can feel isolated lacking the opportunity to interact with other players.

An easy way to reduce People Fun is to provide a highly organized experience that is too immersive for social interaction. Such games offer one way to play and provide too much structure, limit customization, restrict house rules, offer ridged communication channels, and too much stimuli. Sometimes the only reason the other player is there is to provide more competition (where Hard Fun and People Fun overlap) and in doing so these games miss out on opportunities for other emotions between players.

20.13.1 *People Fun Emotions*

"Since we lost half our guild to Star Wars Galaxies it's not as fun."

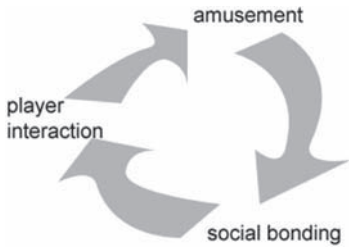
—A Hard-Core Gamer Playing Dark Age of Camelot

People Fun comes from social interaction around the game. The game focuses, structures, and suggests new types of interaction between players. People playing in the same room express more emotions than people playing the same game in different rooms. People playing together express a wider variety or emotions, more intense emotions, and more frequent emotions than those playing on their own. Many human emotions such as amusement also require two people whether they are real people or NPC's. These emotions from interacting with friends offer an opportunity not available in passive forms of entertainment such as movies.

The most visible emotion from People Fun is amusement, where players laugh with and at each other. Amusement is the most common emotion expressed between two friends playing together. Schadenfreude, the feeling of pleasure at a rival's misfortune, is often seen during competitive play. The emotion most prized by players is the feeling of social bonding such as how one feels after laughing hard with friends. This emotion has no good word in English, but it feels good to players, and strengthens bonds between friends.

The experience of playing games together deepens social bonds. Players will laugh at each other, themselves, and tell jokes. They develop secret languages and pass social tokens that create rich emotional bonding between players (Lazzaro, 2008). Playing together generates positive emotions, feelings of trust, companionship even in highly violent games. It is this emotion of feeling closer to one's friends that players most enjoy from People Fun. It is the intense feeling of closeness and companionship after laughing with a friend. Again there is no word in English for it.

FIGURE 20.9



People Fun: the excuse to hang out with friends.

Social interaction through the game creates amusement and results in social bonding.

Wherever there is a lot of amusement between players social bonding and People Fun cannot be far behind.

PX Spiral: People Fun Creates Amusement.

In People Fun players interact and cycle between many emotions. These cycles of emotions offer what players like about hanging out with friends and increase social bonding.

20.13.2 *People Fun Mechanics*

The emotions from People Fun come from many types of social interaction. Games cannot make people friends directly, but they can offer the opportunity to spend time together. Players like to test their skills with others and enjoy the feeling of camaraderie while accomplishing a joint challenge. People playing together in the same room often add content, change rules, and compete to outwit each other with witty commentary. For online play, open channels of communication allow players greater freedom to personalize their game experience such as sharing secrets and niche interests, teasing each other, and telling inside jokes (Lazzaro, 2008). During gaming players chat about common passions and get to know each other. It is these kinds of social interactions that also increase the bonds between people. Offering choices and feedback that require people to interact increases the amount of People Fun.

These emotions between people and types of choices are huge drivers in Massively Multiplayer Online games (MMOs) as well as social media (collaborative websites such as Wikipedia, Flickr, and YouTube). These applications allow people to interact with each other and create group experiences instead of one person editing a single document. The emotions from creating something that millions will take part in are a strong motivator for action (Lazzaro, 2008).

People Fun is often more emotional with other players, but it does not require other people. NPC's and even animals, such as *Nintendogs*, can provide the "other"

with which to play. In *Diner Dash* the game mechanic requires players to balance the emotions of the NPC's. In *Diner Dash Home Town Hero* players can do this and play with and against other players.

TABLE **20.6** People Fun PX Profile

Choice	Emotion
cooperate	amusement
compete	social bonding
communicate	schadenfreude
mentor	naches
lead	envy
perform	love
spectacle	gratitude
characters	generosity
personalize	elevation
open expression	inspire
jokes	excite
house rules	ridicule
secret meanings	embarrass
Pets	
endorsements	
chat	

People Fun mechanics have the ability to greatly widen a game's PX. If we look at what choices create the emotions seen between players the PX Profile includes game mechanics such as cooperation, competition, and the opportunity to perform and to personalize. These choices create emotions such as schadenfreude (taking delight in the misery of others), naches (a Yiddish word for the sense of pleasure and pride when someone you help succeeds), and amusement between players. Adding a single mechanic such as a tradable health pack to a game creates three emotions: generosity when a player gives it, gratitude when a player receives it, and elevation when someone witnesses the human kindness in the exchange. Later on in the game the emotions switch places depending on who's in what role in the interaction.

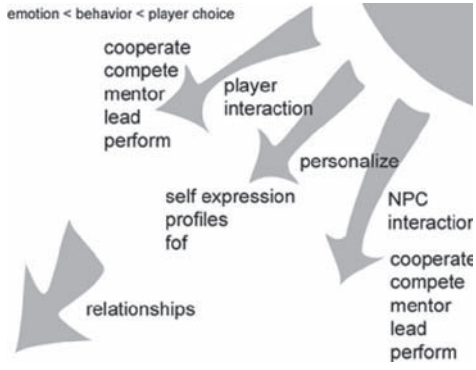
20.13.3 *How People Fun Mechanics Work Together to Create Relationships*

There are many ways to measure and increase the People Fun of a game. Players connect, interact, and express their identity and themselves. To allow players to enjoy each other's company the game provides just enough structure for social interaction but not so much structure that players focus more on the game than on their friends. Knowing that a person is playing against another person often increases their efforts to express their personality as well as those to compete. Games that

provide opportunities for people to express themselves or create their own special way to play enhances the emotions that players feel. Increase People Fun emotions by balancing these aspects to increase the amount of player interaction and increase amusement and social bonding.

FIGURE **20.10**

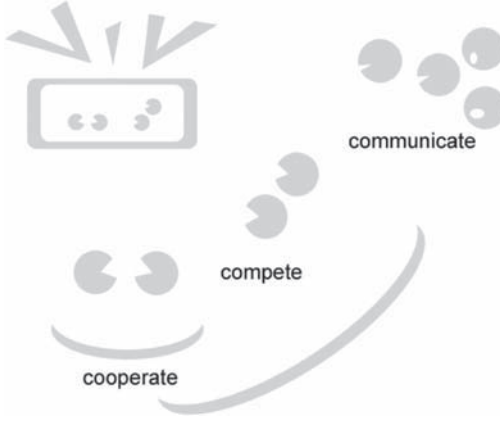
People Fun: Playing with friends creates amusement and social bonding



How to increase emotion from choices involving social interaction.

The ability to connect and make friends, send messages, and customize actions helps develop relationships and deepen interaction.

People Fun: choices with others increase emotions and social bonds



Players use games to start and structure social interaction.

Players experience more emotions, wider variety of emotions when played in the same room.

Offering more lines of interaction, more opportunities for players to interact with each other increases the opportunities for People Fun.

People Fun PX Model.

Cooperative and competitive gameplay increase the opportunities for People Fun. In *Top Spin Tennis* players feel one way playing across the net and another interacting with their tennis partner on the same side of the court. For example each car in *Mario Kart* has two seats, one player drives and the other throws stuff. Players cooperate to win and compete against others. This also allows junior players to learn

how to play from the back seat and eventually drive their own cars creating naches for their mentors.

We found other interesting results in a study we ran people playing multiplayer games and using social media (Lazzaro, 2008). The opportunity for emotions came across three channels: how the service allowed players to connect and make new friends, the messages that were passed between them, and the actions they could take. The shape of these channels, how they worked, affected how and what type of engagement they created between players. By offering different features the services created different emotions.

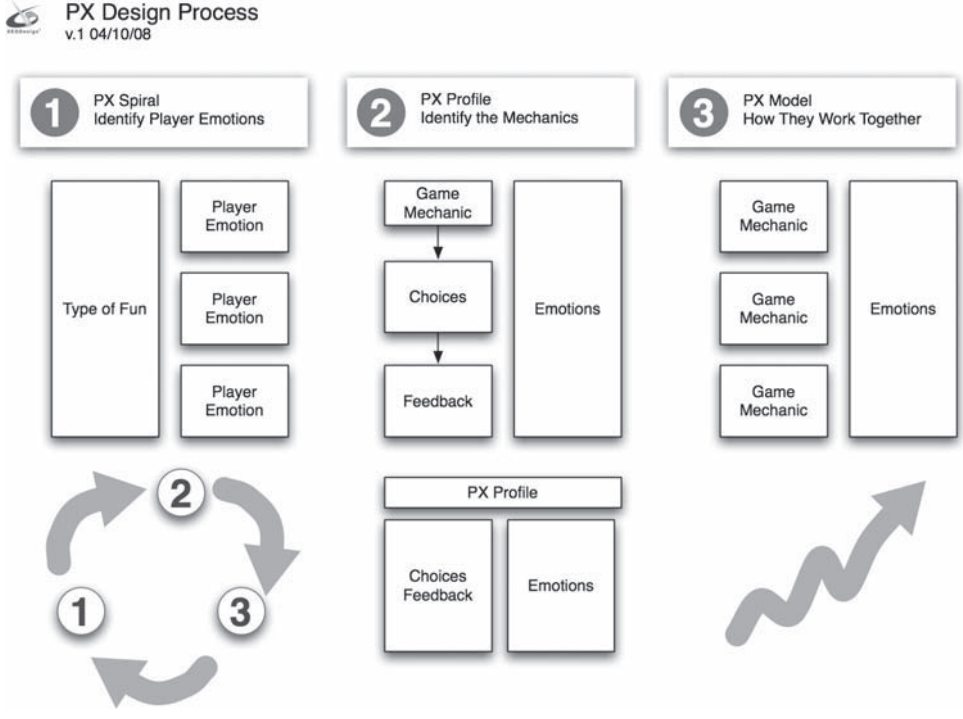
People Fun is the difference between eating a cheese sandwich and eating fondue with friends. The additional lines of interaction structure social actions to create more emotions whether it is helping someone with a long string of cheese or fighting over the piece that fell off someone's fork.

20.14 A Few Suggestions for Applying the Four Fun Keys

20.14.1 *Improving PX Player Experience for Games*

Tuning emotions with the 4 Fun Keys can improve the PX of a game at any part of the process. Here are a few pointers to get you started. At concept, personas for

FIGURE **20.11**



each type of fun can be used to focus design discussion of how to support particular playstyles. Balancing the game between personas will widen the base of appeal by increasing the opportunities for emotion and providing more ways to enjoy the game.

Player Experiences and emotions need to be designed and measured from the beginning of the project, not just tacked on at the end. Starting with a playstyle such as Hard Fun, identify the desired player emotions. Then choose the mechanics (the choices and feedback) that create these types of emotions. Finally, tune the mechanics by looking at how these choices and feedback work together as a system to create the intended player response.

Towards the end of the process, testing a playable build with players against opportunities for fun from each of the four Fun Keys offers a way to fine tune the emotions from gameplay. Analyzing player behavior and responses to the game's Hard Fun, Easy Fun, Serious Fun, and People Fun can identify weaknesses in game design as well as expose opportunities for deeper engagement beyond what is possible with pure usability methods.

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