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Difficulty: Scaling The Peak

by Jon Brown on 09/22/10 08:55:00 pm   `Expert Blogger` `Featured Post`

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A large part of game design, especially towards the end of development, is concerned with what we call "balancing". This term refers to two distinct areas of the game:

Firstly, there is the requirement to balance various elements in the game against various other elements. If you're making a driving game this means all the vehicles in a class should be competitive against one another, although they will require different driving styles to make the most of them. Making an RPG? Then you have to make sure that each character class can play a meaningful role in a larger party. And there are examples like these for most genres.

Secondly, and this is the lion's share of the work, there is the requirement to balance the player against the game. This process is normally approached as one where we look for difficulty spikes in the general flow of the game, levels, areas and encounters that the player finds hard, in comparison to the surrounding experience. Our aim is to create a smooth(ish) difficulty curve that climbs towards the sky. But do we really understand what we're trying to accomplish with difficulty curves? And why is there one spike we don't design out of the system often enough?

When you sit down to design a console game there is one given that's taken as red, and that's that the game will get harder. As an industry we are all about the challenge, and in console games that means a progressively tougher world for the player to interact with. Through the introduction of tougher, smarter, faster enemies and more cunning, increasingly lethal hazards, game and level designers dial up the challenge as the game progresses, creating a planned difficulty curve like the one below.
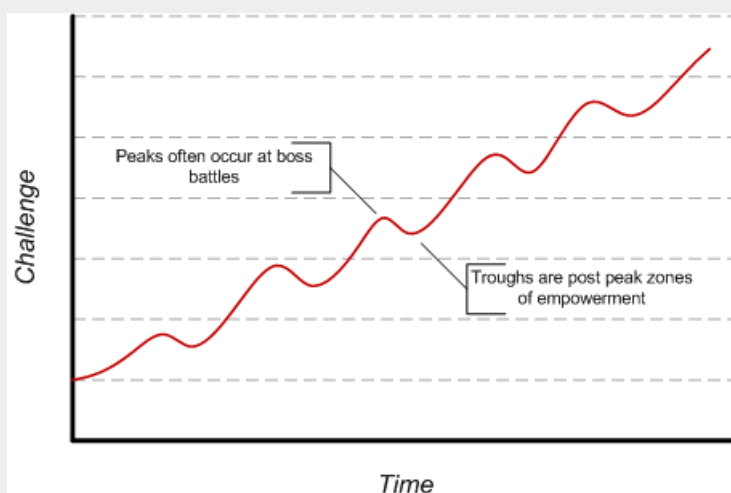

It's well recognised that difficulty curves should have regular peaks, often representing boss battles, which are crescendos to shorter passages of play. These peaks are actually created by dips in the level of difficulty immediately after them. These dips allow the player time to enjoy their victory over a boss and give them a heightened sense of mastery in the afterglow of the encounter.

Of course, the player isn't a static component in all of this. They become better at the game as time goes by, learning skills and techniques that they can use to progress. In fact, we bank on them getting better, if they didn't then the jumps and shoot-outs later in the game would be a source of instant frustration. If you put these challenges at the beginning of the game then controllers would be thrown, rooms would be stormed out of and the game would go unloved. We also

equip the player better in many games, giving them faster cars, more lethal weapons and upgraded version of their avatar.
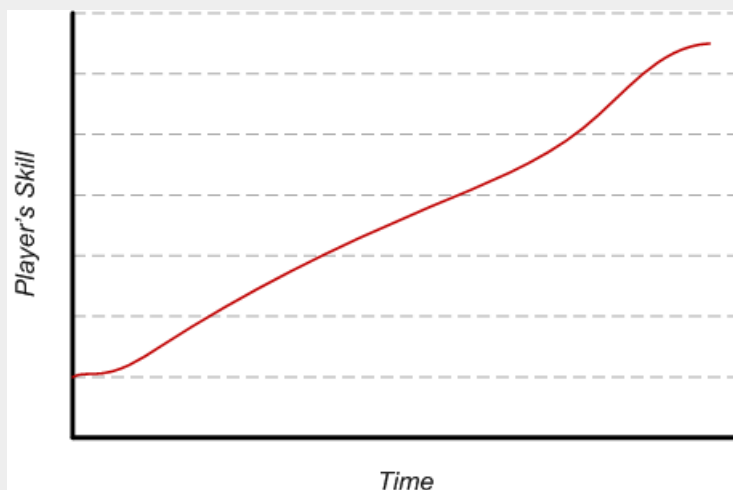
This is part of the balancing process and if we subtract player ability from the game's challenge then we see that the difficulty curve that we are really aiming for is like this:
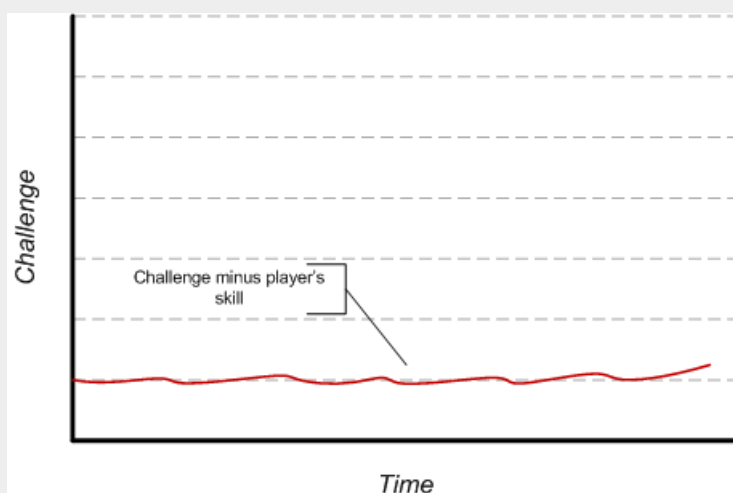

What we're aiming to accomplish is an experience where the player is always challenged just enough for the tools they have been given and the skills they have learned. If we don't increase the complexity of the game then the player will soon gain the upper hand and have total mastery of the world. And lack of challenge equals boring to a great swathe of the vocal hardcore gamer types.

However, there is one part of the game where we often load a considerable amount of challenge, and its the worst place to put it; at the beginning. This would be fine if the challenge was a result of a flash bang James Bond beginning, but the cause is the most mundane and dull part of picking up a new game - the controls. At the beginning of every console game there is the Satterthwaite Peak (SP) - named after Andy Satterthwaite, who pointed out that my challenge over time graph was missing it.

The SP is the point at the beginning of a game where you know none of the controls. The height of the peak will depend on how similar the controls are to something else you've played, how well the buttons are mapped, whether things operate the way you would expect and, most importantly of all, how many buttons there are to learn. Learning is tough and takes time to accomplish, it's not an activity that most people associate with entertainment.

Factor in the SP and we end up with a difficulty curve like this.
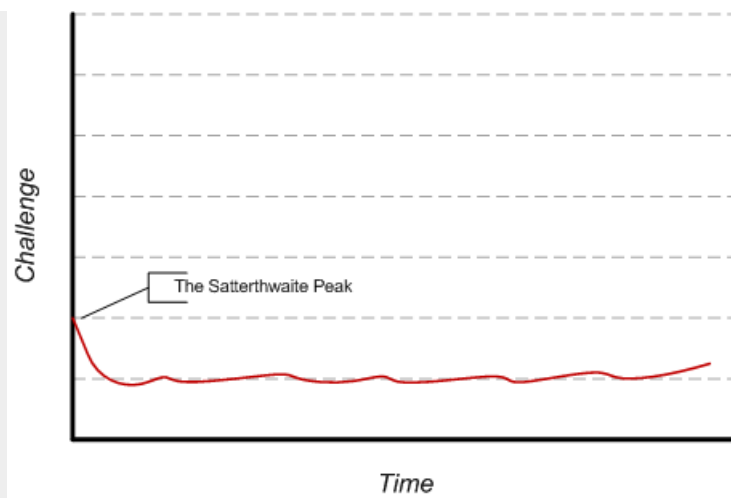
Obviously, most teams do their level best to ease the learning experience but many still make the fundamental mistake that their control schemes are too complicated, with too many buttons to remember in the first place. Not only that but the real joy of many games is tied to learning and wielding these controls with a good level of skill, which is hard to do when you can't remember what all the buttons do. Driving games have long been popular for the simple fact that they offer considerable depth of play with relatively few controls.

However, a new kid arrived on the scene recently and made driving games look like the fat kid with glasses (me) when the sports team was being picked. These are social games, of course. These games manifest all their challenge in the form of grinding, so there is little in the way of texture to their difficulty curves and the only real balancing to be done is making sure that the player can accomplish tasks regularly enough to keep them interested.

But it's the controls that make these apps killer. If you stumble upon a browser based game then you already know how to click on things, otherwise you wouldn't have got there. That means you already know all you need to know to control the game. There is no SP:
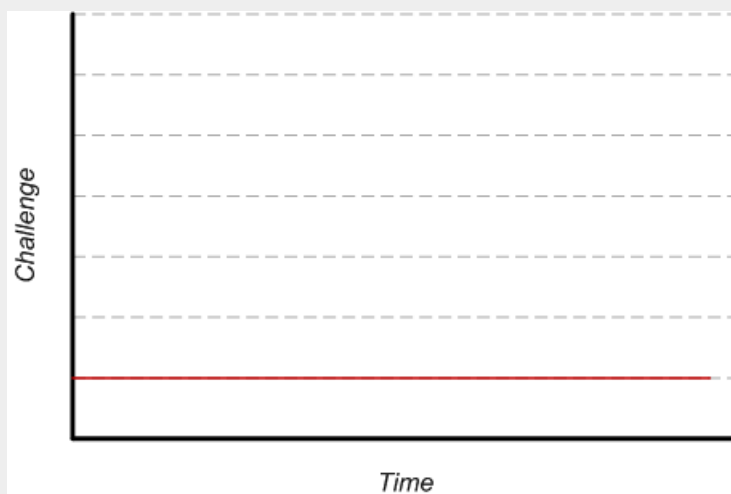
Looking at the graph you are probably thinking two things:

Firstly, why isn't challenge at zero? As I have already stated, social games have considerable challenge built into them, the challenging of playing the game regularly. If you think there is no challenge to this then get a garden and keep it tidy. Although there is certainly some skill in gardening if you go for tricky plants to nurture, the majority of gardening is grind, and many folk find this fulfilling.

Secondly, you might regard the lack of undulation as a lack of excitement. Well, this isn't a graph of excitement over time, it's a graph of challenge over time, a graph of excitement would show many, many peaks as players clear tasks and acquire various items they have been gunning for. What you can infer is a lack of frustration in the system, as there quite definitely aren't any snag points on a flat difficulty curve.

Do not, for one minute, think that I am being patronising or condescending to social games here. I like social games, I play social games and most importantly, I think they're games. This graph does not represent boring, it represents optimised, they are games that deliver an experience of the utmost smoothness. Players can glide into these games and start playing them with the skills they already have. At no point is their progress barred by a jump they just can't make or a race they can't quite win. Their challenge is to keep coming back.

However, I am not suggesting that all games should be like social games, there's enough money, talent and players floating around for us to make all kinds of games. What I am saying is that the more complicated your controls are, the harder your game will be at the beginning. So why not cut out a few of those buttons, save yourself time and money on your tutorials, and spend it on the rest of the game?