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The Realities of Game Development

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By Chris Pruett

An advertisement for an educational institution—Westwood College Online—made the rounds on the Internet a few years ago and it suggests that, by attending the college’s online training course, you can get a job in game development, which, if we are to believe the commercial, consists mostly of sitting around playing games all day [1]. The video is humorous in its obliviousness; it was clearly made by people who have no understanding of video games nor of the people that play them (nor, apparently, of contemporary fashion trends). It was popular enough to spawn an Internet meme based on its script, and a key phrase from the ad—“tighten up the graphics,”—now means “to attempt a feat without knowledge of how it can be done” [2].

As out-of-touch as the Westwood College commercial is, it is representative of many casual misunderstandings about the game industry. “Wow, it must be fun to play games all day!” is a refrain that I often hear when I tell people that I work in video games. It’s not just people unfamiliar with games that make this kind of mistake. At game development conferences I’ve often had conversations with folks from academia who, while experts in a field related to game technology, have absolutely no understanding of the logistics of game creation and are therefore unable to apply their knowledge concretely. Modern game development is an extremely problematic exercise. Though it can be a lot of fun, most games require blood, sweat, and tears to move into production.

Let’s take a look at the mechanics of the industry from an outside perspective. The three major types of participants are publishers, hardware manufacturers, and game development studios. Studios make games to run on machines made by the hardware manufacturers (such as Sony, Microsoft, and Nintendo). The work studios do is funded by the publishers (like EA, Activision, and Ubisoft) who, in turn, manage marketing and physical distribution of video games. There are exceptions to this structure but, generally, games are made when publishers pay studios to develop games for specific hardware platforms [3].

Game development teams employed by studios can typically be broken down into five separate disciplines: testing, art, programming, management, and design. The testers are the people who
actually do play games all day, but not for fun. People in this role must play the same game over and over again for months, looking for and reporting any problems that they find. They are usually the largest group on a game team, but also the lowest-paid.

Artists, who are responsible for textures, 3D models, animation, buttons, fonts, and any other visual data required by the game, normally make up the second-largest group. The programmers build the game but they are also often responsible for the tools the artists need to transfer completed art into the game. Most of their work nowadays is infrastructural: the biggest problems that must be solved pertain to getting data from the art and design teams into a format that is efficient on a specific hardware platform.

Managers of game teams, as in other industries, are tasked with the difficult job of navigating the rest of the team towards a timely and high-quality product while dealing with changing requirements from higher-ups and unpredictable schedule failures. There are a few other miscellaneous roles that some game teams fill such as sound designers and script writers. Game designers, however, are a ubiquitous and unique group.

With a couple of exceptions, most universities do not offer degrees in game design. There is no one set of skills that all game designers employ, and most come to the role from other disciplines in the industry. Game design can involve creating 3D architectural designs, writing dialog for characters to speak, defining variables that influence a game’s physics, programming in a scripting language, or writing technical specs for the programmers and artists to follow. Game designers are tasked with designing the content in the game, specifying how it will all be glued together, and then orchestrating the actual moment-to-moment experiences that exposes that content to the player. Imagine if the same role existed in film; that person would be responsible for directing, set construction, script writing, editing, and cinematography. It’s an all-encompassing creative role. On top of that, a good designer is one who can deal with the constant push and pull from other disciplines to make sure the game is made so that their vision is actually attainable. Despite the difficulty of this role, game designers do not command high salaries unless they have a proven track record of making hit games. Everybody wants to be a game designer, and the surplus of supply relative to demand drives wages down (even though good designers are few and far between).

Here’s how a typical game development cycle plays out. The first part of the project is often spent on prototyping—building quick tests to see if the ideas that the designers have actually translate into something fun to play. At some point a high-level design is decided upon, and the team enters a phase called pre-production. During pre-production the team attempts to create the infrastructure it will need to produce the game: guidelines, methodologies, and software. The goal is to move into the next stage—called production—with the team set up to be a well-oiled game-making machine. During production the primary goal is to generate all of the game content so the team often grows in size during this period. This phase usually takes up the majority of the development schedule. At the end of the process, games go through a few finalization phases to stamp out bugs before being cleared for sale. This cycle can take anywhere
from a few months for a simple handheld game to several years for a PC or console opus.

At least, that’s how it is supposed to work. In reality, game development almost never goes that smoothly. The problems seem to be similar across studios and publishers. The pages of Game Developer Magazine are consistently filled with the same laments about “what went wrong” during development. Perhaps the prototype phase ended too soon, or the production phase was started prematurely. Or maybe the publisher changed their mind about a core component of the game and the well-oiled machine had to stop and change course. Very often the initial plan is simply too complicated and requires more work than can be completed in the time allotted. Many games suffer from the inability to cut content back early enough to save the team from unnecessary work. All of these problems boil down to a basic challenge that is intrinsic to modern game development: scheduling the amount of work it will take to turn an idea into a fun experience is close to impossible.

Many games today get mediocre or bad reviews from game journalists despite being built out of reasonably high-quality components. There are a huge number of games that, despite excelling in art or graphics, technology or story, fail to “gel” and are consequently boring or frustrating to play. This generally means that the game was not given “enough time to bake,” before it was released. In other words, not enough time was spent polishing the core systems that make up the moment-to-moment experience. This is a common issue because it is very hard to predict how much polish a game will require before it “clicks.” Should Mario jump ten pixels in the air or eighteen? Should the player have reduced control over his lateral velocity while in the air? Until the results can be tested and compared within the context of other game systems (which requires much of a game’s core production to be complete), it’s impossible to judge. And by the time these things can be decided upon, the team is probably already working overtime to meet their pre-determined end date and is barely going to be able to get all the content in, let alone go back through and polish it.

Some companies in the game industry are experimenting with non-traditional development methods in an attempt to avoid this time crunch. One of these methods is called “SCRUM” and it involves working furiously in short bursts (called “sprints”) on short-term goals. The idea is to remove the traditional “waterfall” method’s need for a “big design up front” and instead deal with a list of feature requirements that are expected to change dramatically throughout the development process. The jury is still out on whether or not this method is applicable to game design; many companies have had success with it but it often does not fit the traditional publisher milestone schedule and some managers find the change difficult to make.

Whatever the methodology, game development is frequently hectic and chaotic. It’s a large-scale, multi-disciplinary endeavor set to a schedule that often cannot sustain any sort of major revision or setback. The highest quality games are usually built by companies that have enough financial or political clout to set their own schedules, but for the rest of the industry, development can be a Sisyphean task. Though the phrase “tighten up the graphics” is funny because it betrays a serious lack of understanding about how games are made, as an Internet meme it has
come to describe exactly how games are made: they are attempted without complete understanding of what will be required to finish the job.

Endnotes

[1] The commercial can be viewed at GameSpot (http://www.gamespot.com/users/Jeff/video_player?id=IiMzwjGt5bsF), as well as YouTube and similar video sites.


[3] It is worth noting that alternative game platforms like the iPhone may challenge the traditional mechanics of this market.

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7 THOUGHTS ON “THE REALITIES OF GAME DEVELOPMENT”

Ruby
 on September 4, 2013 at 11:14 AM said:

This page certainly has all the information and facts I needed about this subject and didn’t know who to ask.

headlines
 on January 30, 2014 at 1:55 PM said:

I did finally watch A Mighty Wind! Excellent stuff!

plotka
 on February 1, 2014 at 1:49 AM said:

Hello! I just wish to give a large thumbs up for the excellent details you have the following on this post. I will be coming back for ones blog for additional soon.
sensacja  
on February 1, 2014 at 3:39 AM said:

Good work…

nigeria  
on February 3, 2014 at 1:39 AM said:

I have mastered some essential elements via your website post. A single other subject I need to talk about is that there are many games available on a marketplace created particularly for toddler age children. They include pattern acceptance, colors, household pets, and shapes. These typically focus on familiarization as an selection to memorization. This keeps modest kids engaged with no sensing like they’re studying. Thanks

temat  
on February 3, 2014 at 1:57 AM said:

While you are driving a personalized jet, it’s extremely significant wear shoes which are comfortable and just removable. It is likely it is advisable to consider them off after undergoing security checks. Sandals or flip-flops are footwear that is well suited for traveling.

nigeria entertainment news  
on February 4, 2014 at 10:38 AM said:

Be excellent to each other is 1 of my popular quotes. I nearly wrote a article about that last week! Party on, dude.