The Culture of Deep Learning in eSports: An Insider's Perspective

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This article is written in the first-person, from the perspective of Steven Canning, a SUNY Potsdam instructor of educational technology and part-time professional gamer, with contributions from Anthony Betrus, Professor of Educational Technology at SUNY Potsdam. The author delves deeply into the world of professional online gaming, or eSports, and tells his story while referencing his experiences with the game *Tribes: Ascend*. The article highlights the cultural elements and implications of eSports, as well as discusses the hardware and peripherals necessary to compete, particularly at the professional digital gaming level.

Introduction

This article is written in the first-person, from the perspective of Steven Canning, a SUNY Potsdam instructor of educational technology and part-time professional gamer, with contributions from Anthony Betrus, Professor of Educational Technology at SUNY Potsdam, to help translate some of the concepts into language more familiar to instructional designers. The article delves deeply into the world of professional online gaming, or eSports, and as such it contains a number of terms that may be unfamiliar to the reader. We have done our best to define the terms throughout the article, but you may also benefit from using the Tribes Wiki (*http://tribes.wikia.com/*). We will begin with a narrative of a particular game experience, followed by a description of what goes into preparing for this level of competition.

"Tribes Ascend": A Narrative Sequence from the Player's Perspective

My fingers fly over the number keys as I select the loadout for my custom character, built to be light and fast. I appear on a hilltop. Nearby sits my team's flag, open for the taking. The game mode is Capture the Flag, where each team must defend their own flag as they seek to capture the enemy flag. The game is **Tribes: Ascend**, a fast-paced first-person shooter game wherein the players move by "skiing" down hills and jetpacking up them.

Normally teams use a player with a heavily armored loadout to defend their flag, like a goalie; we call him the heavy on flag or "HoF." He is the last line of defense, but is nowhere to be seen. Suddenly I hear him excitedly scream into his mic "BACK in 5!" An enemy "capper," or flag carrier, whose job it is to "cap" the flag, was on route to our flag from somewhere behind it. He would be there in 5 seconds on the dot, not 4 or 6—our HoF was rarely wrong about this. In Tribes, "cappers" spend most of their time along the edges of the map, using the terrain to build up their speed and set up a "route" to the enemy flagstand. These routes are often difficult to learn, and they need to be memorized. They are timed to the very second so the capper can be in sync with the rest of his team while attacking. Our HoF spotted a capper on a route he recognized and was able to communicate (comm) the information as he battled the enemy out of his position.

With him out of position I am the only one who can stop the enemy from grabbing our flag. I slam a key on my keyboard to activate a thrust pack, launching my character towards the flag stand. I manipulate my mouse to systematically scan the horizon for the incoming enemy capper, all the while counting down from 5 in my head, knowing that if I fail the enemy will make off with our flag. Three seconds later I spot a tiny dot in the distance moving in a blur towards me. I position myself to block him from grabbing our flag, knowing my team is counting on me to make the play. Two seconds later I see my character flipping lifelessly up in the air, eliminated by an enemy who had been moving so fast I didn't see him.

For a moment after my death my in-game camera stays centered on the flag, as in frustration I watch as the enemy capper, moving fast, grabs it and is gone. Nearby our sniper slides down a large hill, attempting

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to outrun an enemy attacker. With his long-range rifle he is our only hope to stop the enemy from scoring; both he and his attacker know this. As he is peppered by enemy bullets, he tracks the quickly moving enemy capper, focused on his task. With his last breath he snaps off a shot and nails him, and the enemy rag-doll drops to the ground, along with our flag.

As my team scrambles to position themselves to return our flag, I respawn on the original hill and propel myself to the enemy flagstand. My new job is to prevent a capture by stealing the enemy team's flag. In **Tribes** a team can only score, or "cap," if they bring the enemy flag to their home base while simultaneously securing their own flag at their home base (both flags must be at one base to score). At these moments one has to have faith in his teammates, as everybody knows their jobs without speaking, and skill and practice is put to the test. Moments before the enemy could score I grab their flag and deny the capture; my heart races as I accelerate back towards my base.

Behind me my team battles over our flag. A few seconds later somebody shouts triumphantly "Got it!" into his microphone. My teammates must have won the fight for our flag, and in confirmation bright green text pops up on my screen "Your flag has been returned!" At this point I am about halfway across the field, speeding towards my flag stand and weaving through the hilly terrain. Thunderous sniper shots from the enemy wiz over my head leaving little white trails. I spam (rapidly press) my "a" and "d" keys to wiggle my player model around to make myself harder to hit.

My screen suddenly lights up and flashes red as I take a sniper rifle shot to the back. Despite my best efforts, players of this level rarely miss. I am wounded badly, but not out of the picture yet. Anticipating this, my teammates each "k out" (hit their "k" keys to instantly kill their own characters), forcing them to respawn back on our side of the field. I see them appearing ahead of me, so I move my mouse slightly up to make my character do the same. I hit a button that throws the flag out ahead of me, wait hardly half a second, and left click with my mouse to shoot an explosive projectile into it. This sends it flying through the air directly towards my spawning teammates, and simultaneously blows me up. This is known, not surprisingly, as a "punt," and is more-or-less like punting a football, minus the blowing yourself up part.

The flag flies into the arms of one of my teammates, who immediately spins around and yells, nearly out of breath, "punting to stand!" He performs a similar series of inputs and launches the enemy flag towards our flagstand. The punt is a bit high, however, forcing our HoF to jetpack himself up to snatch it out of the air. He then turns off his jetpack and triumphantly slams the enemy flag down to score our 7th and final point.

The match being over, I took a second to listen to the familiar sound of my heart pounding in my ears. I have been competing on and off at PC shooters since I was about 16, so I am used to that adrenaline rush. That rush is really what got me hooked on competing at video games, and if you were to ask any competitive gamer they'd likely say the same. The intensity of the rush isn't unlike competition in a traditional sport, something I've done a great deal of as well.

Along with being a former athlete, I teach college courses as my primary job. This gives me a unique perspective on competitive gaming, an activity that is quickly becoming mainstream. Instructional designers do not have good documentation of the nuanced first-person experiences of competing in eSports at a professional level, and the learning and skill development that goes along with it. In some ways what I will be talking about might seem embarrassing to share, and may be perceived as pretty "nerdy," but that is kind of the point. Let's get started with the basics.

eSports as Part of Mainstream Society

It is common for eSports community members, like myself, to feel the need to justify our passion to others. Even though many people have grown up with controllers or keyboards in their hands, and generally accept games as integral to our culture, there is still a stigma that some people (especially older generations) place on people who play games. I have a much easier time explaining what I do to my cousins, for example, than I do to my parents, uncles, or grandparents.

And like many other forms of culture, everything is predicated on the use of the Internet, which allows for near instantaneous movement of information of all kinds. The cultural fabric of the eSports community depends on it, as does most business, education, and entertainment. For film and video entertainment, streaming services like *Netflix*, *Amazon*, and *YouTube* are now mainstream. Being a gamer and having a lot of friends online is a bit less mainstream, but is slowly and steadily being accepted as a new "normal." To put it in perspective, in 2015 people *watched* 3.7 billion hours of online gameplay, and 27 million viewers tuned in to watch the *League of Legends* championship alone, surpassing the viewers for the US finals for Baseball, Basketball, and Hockey (see **Table 1**).

Gaming is the second most popular category on *YouTube*, and *Twitch*, a video game streaming Website, boasts 55 million plus users (Casselman, 2015). Lastly, it is estimated that by 2017 pro-gaming will be a $465 million industry, having tripled in value since 2014, and that by 2018 it is estimated to be in the billion dollar range (Newzoo, 2016).

The viewership of eSports as an entertainment

Table 1. Viewership for 2015 major sports championships.

League of Legends (eSports):	27 million viewers
NBA Finals:	16 million viewers
MLB World Series:	14 million viewers
NHL Stanley Cup Finals:	5 million viewers

medium is undeniable, and with viewership comes revenue, allowing many people to make a living off of it as well. Just like traditional sports, the largest eSports organizations offer salaries to their players, and hire coaches, managers, and marketing people. There is also the production end of it, which involves shoutcasters (commentators), analysts, statisticians, production crews, marketing researchers, and many more support positions. Many of these people are able to support their families through these ancillary positions, and no longer exist on the fringe of society.

Advanced Skill Development and Strategy Mastery Are Part-and-Parcel of eSports

Nobody uses a keyboard and mouse like a pro-gamer. Most of us can type somewhere around 110 wpm, but also manipulate a variety of different avatars (characters that represent us in the game) in ways that are hard to explain. In games like *Starcraft 2*, for example, players can perform up to 10 actions per second (Lejacq, 2013). The best analogy I can make for this level of multitasking is mixing playing a musical instrument with mastering a traditional sport. Multitasking at this level requires a mixture of muscle memory skills, and consistent, precise execution of complicated inputs, all woven together through dynamic improvisation. The number of decisions and corresponding use of the keyboard and mouse to position oneself on the virtual playing field is akin to the real-time decisions a hockey player makes in the rink, or the fine-motor skills a musician would implement on-stage during a live jazz performance.

Each game has its own unique mechanics, and while they are often similar from game to game, there are subtle differences. In *Tribes* players hold down the spacebar to give themselves "frictionless boots" so they slide down hills, and hold and tap right click with the mouse to use a jetpack. The maps are huge, and filled with hills, so the normal way to move around is to "ski" and use the jetpack while going up hill to gain more altitude and ensure a landing on a downward slope. It is known by the competitive shooter community as the "fastest shooter on Earth."

Transferrable Core Competencies

While each game has its own unique characteristics, many skills are transferable from game to game, and

mastery of a core set of common skills is foundational for all professional gamers. To be an accepted teammate in this competitive community (an "insider"), you must be able to communicate and relate to others about executing complex inputs. For example, earlier I mentioned spamming the "a" and "d" keys rapidly. "a" is normally "strafe left" and "d" is "strafe right," and in most shooters alternating quickly between the two causes the character to "wiggle," or maybe "dance" around, making one harder to shoot. Add in moving forward, backwards, jumping, and crouching, and a player can become incredibly hard to hit. At the same time the player needs to precisely manipulate the mouse to track targets, compensating for the keyboard movements all the while; imagine it like how a gyroscope works to stabilize a camera.

In regard to "tracking" (manipulating a mouse to smoothly follow objects around a screen), imagine tracking a thinking human controlling the target, purposefully making himself very hard to hit, someone who knows what you are trying to do. He'll try to feint one way or the other, all while using the abilities of his character to return fire in your direction. Often the game will boil down to mini-chess matches between highly skilled players, and as one climbs higher up the skill ladder, expertise is no longer defined by how well one uses a mouse and keyboard, but by how well one plays and interprets these little mind games.

But before one even gets to the mind game level, practicing mechanics extensively is critical. There are all sorts of ways to do this, and everybody is different, similar to how people learn to play a musical instrument. If I were to explain to a "noob," or beginner, I'd say to start by emulation. Identify what the pros do and try to mimic them, just like one would learn "Smoke on the Water" when learning guitar. After identifying these mechanics, repeat the same inputs over and over again until they become muscle memory. Pay attention to what works and what doesn't, and try not to repeat mistakes to avoid picking up bad habits.

The Role of Practice Sessions

It helps to use specific games to practice specific things. For example *Quake* has a gamemode called *Instagib*. Basically meaning "instakill" or one shot, one kill. While unforgiving, it forces players to be precise in their use of the peripherals. I often use the game as a warmup for competitive matches in other games. Another game for this is called *Curveball*, which is an old school Flash-based game played in a browser. It helps practice a mixture of tracking and "flick aiming." Do a Google search for it and check it out; see if you can beat level 10.

Beyond practicing mechanics, players need to develop tactics and strategies for each game. This

takes a lot of time on task and isn't limited to just in-game practice. Teams often record their scrimmages and matches and will rewatch the videos together, much like coaches do with their players in traditional sports. Teams also use "whiteboard apps," which are available online for free. Essentially somebody can upload a top-down view of an in-game arena and draw all over the board as teammates look on.

The idea is to build both individual game sense and chemistry between teammates. I mentioned in my narrative "having faith" in my teammates to do their jobs. Like sports, things happen so fast in competitive games, there is no time to communicate. Everybody needs to know their roles in any particular situation. At the highest level each player needs to consider not only what he and his teammates should be doing, but also what the other team is doing, and he must assume they are thinking the same. Practice sessions allow for both individual honing of skills, as well as enhanced coordination among teammates.

Equipment

Equipment is as important to gamers as musical instruments are to musicians, or sticks and skates are to hockey players. Using quality equipment consistently is important for a few reasons. It helps build consistent and efficient muscle memory habits, and in some cases good equipment gives a player an edge over others. It is also important to know the "lingo" about the latest equipment; it helps one fit in and relate to others. See *Table 2*, which describes basic equipment.

Table 2. Gaming equipment.

Computer: A computer capable of running any game extremely efficiently, usually composed of recent hardware and powerful cooling systems.

Gaming Monitor: The monitor refresh rate is high enough to complement the computer. This allows the player to see more, and it causes less strain on the eyes.

Mechanical Keyboard: Each button is called a "switch," and they function as small machines themselves. These special switches provide "tactile feedback" to the user. Basically a slight "bump" feeling, which tells the user he pressed the button. Switches can be interchanged for different feedback.

Gaming Mouse: These are made of high-quality materials, with a very fast laser to allow precise control. They come in all shapes and sizes; it is important for one to identify a shape and grip that they like.

Mousepad: These come in all shapes and sizes as well; normally pros use fairly large pads at around 14x14, which allows for a lower mouse sensitivity and more control.

Headset: These are designed to work with a sound card and game engine to tell a user directional information. Audio queues are placed into games to help players make decisions. Every footstep or gunshot can give a player information about how to proceed. The mic is used for communication between players.

Relationships

Like real-life, socializing on the Internet offers different "places." Various VoIP (Voice over IP) servers, chat clients, in-game server spaces, and forums provide different ways to communicate. Each place takes on their own sort of traditions and unspoken rules for behavior. I hang out in two different VoIP servers with different groups of friends, both of which I can call "home." Within these VoIPs there are different channels for different things. There is a space allocated for competitive gaming, and other spaces for more laid back sorts of discussion.

One could say that these VoIP spaces are sort of sub-communities of the larger eSports community. They serve as places for people to meet and game together. Part of being accepted as an insider in this space is having a decent mic and knowing how to use it. Most people use "push-to-talk," meaning one presses a key to activate voice, sort of like a walkie-talkie. Often times these sub-communities form around a particular game, the game dies off, but the players stay together and go into a new game together. There they pick up more players who end up sticking around as

well, and so on. The interaction of the players' roles, communication strategies, and relationships with the game itself form together in a type of balancing act, or, as described by Steinkuehler, an "interactively stabilized mangle of practice" (Steinkuehler, 2006).

Each VoIP or sub-community has its own culture, usually stemming from the core members of the group. However, in most cases, when it comes down to it, everybody is there for the same reason, and that is to have fun competing at video games. Gameplay serves as the catalyst for developing relationships, much like one might find in a community orchestra or a Sunday-night hockey league. And even though in the game world an individual comes to life in the form of the avatar they control, the players share the same authentic experiences, develop camaraderie, and bond as peers, just as we have for centuries in "the real world."

Final Thoughts

People who spend time gaming in the evening are not anti-social, unathletic, or any different than anybody else. Rather, they are there to challenge them-

selves mentally and physically. While many people come home from work or school and settle in with *Netflix;* others, like me, are training our hands and eyes, developing and testing strategies, and battling with our minds' in visceral games of wit against people all over the world. We are making friends, learning about technology, and developing effective communication strategies. And there is real value in cultivating these sorts of relationships and skills, as they are applicable beyond the gaming realm, in normal everyday life, and even in business settings. It is not uncommon for organizations to poach top-level gamers to do what they do in games for their company (Russell, 2012). Gaming culture continues to play a leading role in defining how we interact as a culture, and by its very nature lends itself to developing efficient strategies for skill development, communication, and leadership.

For me, competing in *Tribes,* is now a memory, but the relationships I developed remain. I have since competed in several other shooters (*Dirty Bomb, Firefall, Natural Selection 2, Supraball,* etc...), and recently I have been gearing up to compete in Blizzard's new hig-profile title *Overwatch.* I will be calling upon all the contacts I've made over the years to put myself in a position to be as competitive as I can, or to perhaps compete as a coach.

I hope you have gained some insight into the nuances of competitive gaming, and what it has to offer for the players. While it was never my intention to unpack all of the various theories of learning, instructional design principles, or cognitive strategies involved in competitive eSports, my narrative describes that deep and complex learning is taking place (Squire, 2008), and we as instructional designers should pay attention to this emerging space. ☐

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