

Why We Need Virtual Worlds

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It is easy to dismiss games and virtual worlds as mindless entertainment. When we do so, we are taking an enormous risk, because virtual worlds are becoming an increasingly important part of the next generation's mindset and the skills they are learning may help us better understand how technology may be used in the coming decades. Understanding these game spaces is not about improving hand eye coordination or motor skills (though it may do those things), nor is it about injecting educational content into video games to produce a system of "stealth learning" (though there is ample data to suggest that games can effect exactly that sort of learning). What is happening in the latest generation of games represents a fundamental paradigm shift in how we need to think about knowledge, action, interaction, and, perhaps most importantly, imagination in the 21st century.

Virtual worlds are a specific category of games, which span avatar-based social spaces, such as *Second Life* and *There.com*, to game based environments such as *World of Warcraft* or *Eve Online*. What makes these spaces unique and different from other game environments, such as single player adventure games or first person shooters, is that they are large scale social systems (often times referred to as "massively multiplayer") and they are persistent, meaning that when a player exits the environment the world continues to function in their absence. These two elements taken in concert mean that virtual worlds are spaces where cultures and meanings emerge from a complex set of interactions among the participants, rather than as part of a predefined story or narrative arc. At least in part, the players are the ones who shape and to a large extent create the game world they inhabit. To a large degree, these worlds have emergent properties, resulting from the actions of and interactions among players in them.

In that sense, virtual worlds are very similar to other distributed systems, where the whole ends up being greater than the sum of its parts. The World Wide Web, for example, is more than a collection of web sites. It is also what emerges out of the collection of and interconnections among the sites that constitute it, producing software or web sites that re-imagine what is possible technologically as well as socially. Sites such as MySpace or YouTube are more than just collections of pages or videos, they are communities of interest and they are networks of practice. Shared interests provide a reason for people to come together, while the networks provide the technological means to share and create practices.

Virtual worlds operate in much the same way, with one important difference. While the architecture of a virtual world is distributed across the Internet, the activities within virtual worlds create a sense of shared space and co-presence which make real-time coordination and interaction not only possible, but a necessary part of the world. It is the significance of "being there" with others that

gives rise to an interesting set of properties and motivations that represent the next generation of thinking about life online.¹

The visual component of virtual worlds has re-defined the landscape of online interaction away from text and toward a more complex visual medium which provides a sense of place, space, and physiological embodiment. In doing so, it grounds the experience of the player in a sense of presence with others, allowing for, as we have argued earlier, an opportunity to truly engage in the “play of imagination.”² The element of imagination which most significantly distinguishes virtual worlds from other online media and communities is our ability to step into them bringing many of our physical world attitudes, dispositions, and beliefs into the virtual space, while leaving others behind. There is something both strange and familiar about the acts of embodiment and immersion which characterize the experience of being in a virtual world. The fact that it is a space inhabited by others, who are themselves both distributed (in the sense that their physical bodies are spread out all over the world) and co-present (in the sense that their avatars are in the same space), provides the basis for constructing the world they each inhabit.

These 3D spaces become places which, to a large degree, are culturally imagined and the practices of the participants, their actions, conversations, movements, and exchanges, come to define the world and continually infuse it with new meanings. At its best, we might describe engagement in a virtual world as a group of players “living in a shared practice.”

This moment of transition into a virtual world is profoundly liberating in the sense that it allows for a new class of affordances to emerge. Those affordances directly result from being able to transform and apply old practices to a new situation and the ability to create and develop new practices which apply only to the virtual world one inhabits. Each of these acts is, first and foremost, an act of imagination. As important, however, when taken together and viewed as a shared set of practices, they begin to play out as a network of imagination.

The idea of a network of imagination ties together notions of community, technologically mediated collective action, and imagination, when players begin to act through joint investment in the pursuit of common ground. This kind of collective action is more than networked work or distributed problem solving. It requires that problems be thought of as group problems and that the goals of all actions and practices are to move the group forward.

¹ Virtual worlds represent a step forward in thinking about what Sherry Turkle called “life on the screen.” The work of Turkle and others, notably Julian Dibbell’s *My Tiny Life*, explored the ways in which Multi User Dungeons create virtual societies and what the implications of these worlds are for things like identity.

² Thomas and Brown, “The Play of Imagination: Extending the Literary Mind,” *Games & Culture*, 2007.

To that end, we believe that these games are, at base, learning environments. The kind of learning, as we explore throughout this paper is radically different from what we traditionally think of as the accumulation of facts or acquisition of knowledge. Virtual worlds require us to think about knowing, rather than knowledge, what Cook and Brown have called “knowledge in action.” The problems players face inside virtual worlds, the things that require players to put knowledge into action, are not simply game design problems. While games like *World of Warcraft* do present real challenges that need to be solved, much like puzzles, the real challenge that these games present is the problem of collective action and knowledge in action. They involve the experience of acting together to overcome obstacles, managing skills, talents and relationships and they create contexts in which social awareness, reflection and joint coordinated action become an essential part of the game experience.

Virtual worlds such as *World of Warcraft*, for example, provide a space where these affordances can be understood more clearly. The design of the game provides- constant challenges for players, most of which, at the high levels of the game, must be accomplished by groups ranging in size from 5 to 40 players. The world, with its rules and challenges, is designed to constrain players so that different character classes need to fill different roles and engage in different practices. Those practices are all interdependent and there are few cases where players act solely on their own behalf. More often, players’ actions tend to benefit the group. (We will come back to this fact later and show why it is crucial for learning.) These challenges are often constructed with a forced pace, requiring players to continually move forward facing increasingly difficult challenges and monsters, while each stage has clear demarcations of success and failure. The focus on these challenges provides a context in which joint work has a significant and deep meaning. Collective action in these games requires each person to do their job competently and where the most valuable characters are not necessarily the ones who excel in their own right, but the ones who make the greatest contribution to the group.

This paper is an effort to outline some of the things happening in and around virtual worlds which make them more than “just games” and which may in fact point us in the direction of new forms of knowing and acting in virtual spaces and give us insight into what new, technologically mediated worlds may look like in the coming decades.

The Life around the Game

Throughout this paper, the games we are referring to, in particular, are large scale massively multiplayer online games (such as *World of Warcraft*, *EVE Online*, *Star Wars Galaxies*, *Second Life*, *There* etc.). While all games provide players with a context for experiential learning, only a few create a context for learning which is primarily social in nature. Of those that do create this social

context, only a handful have the special property of allowing the players who engage in the space to actually *create* and *change* and *evolve* the world they inhabit.

The games we are interested in are the ones which produce those types of interactive experiences and as games become increasingly sophisticated and increasingly social in nature, those experiences not only affect the player, they also change the game itself. Because the world in which the game happens is constantly in a state of flux, players are forced to continually adapt to changes, whether they be player created (for example, the creation of a new game in *Second Life* which has potential social and economic implications) or changes by developers (such as adding new areas to explore or changing over-powered character skills). As a result, these virtual worlds are spaces which embody a presumption of change and with that a sense that innovation is a constant requirement. As players progress through the game's content, the challenges the world presents redefine the nature of the game itself. Play styles often have to adapt from fight to flight or instance to instance, requiring players to continually redefine their role in the group as well as re-evaluate their abilities in relation to particular challenges. As players receive better gear, for example, they gain new skills, abilities, or affordances. Things they may have been unable to do previously become key skills for their character. Events, such as acquiring particular weapons or armor, may cause a player to completely shift their role within a group, from primary damage dealer to healer for example.

The game one plays today will not exist in the same form it will in three months time and, as a result, a significant part of the pleasure and fun of these games is coming up with new ways to approach problems and creating new solutions. A game like *EVE Online*, for instance, is so radically dependent on the player based economy that activities which may have been extremely rewarding several weeks earlier may yield little or no reward later. Both the rapid pace of change and the degree to which these changes affect the game requires players to continually rethink not only what they know within and about the game, but also to be able to manage a complex network of informational resources (web pages, wikis, databases, add on sites, guild pages, and so on) which can provide critical pieces of knowledge.

When we consider massively multiplayer online games (MMOGs), it is more apt to consider them as virtual worlds than games. Players in *World of Warcraft*, for example, are able to buy, sell, and trade items and by doing actually create an economy within that virtual world, following laws of supply and demand, inflation, scarcity, and even complex strategies for arbitrage, new definitions of "fairness," understanding connections between markets and reputations, and even elaborate scams.³ Guilds, which are formed to tackle complex challenges, often

³ For an extensive analysis of the economic aspects of virtual worlds, see Edward Castronova, *Synthetic Worlds*, Chicago UP, 2006.

evolve into social groups which hold physical world meetings and engage in social activities outside of the game.⁴

In order to understand these more social aspects, we need to understand the difference between the core game dynamics or game mechanics (the actual rules of the game and the things that provide the basis for play) and the “social life” around the edge of the game. The distinction is a tricky one, because the social elements of the game are related to those core game mechanics, often in very direct ways. But our intention is to bracket basic game elements and to examine the various practices, both social and individual, that the game affords or even encourages. In doing so, we can begin to think of our analysis as “studying around the game” or studying the edge of the game.

The space around the game, particularly the edge, is not trivial. From the most basic social dynamics, such as how groups and parties form, the networks of external sites and forums which support guilds, databases, and wikis, or the technological infrastructure that makes a game like *World of Warcraft* possible extends well beyond the boundaries of the gamespace itself.⁵ What we began to understand is that *the game* and *what emerges from the game* are not the same thing. Most importantly, we have found that the dispositions that work well in the spaces of virtual worlds tend to be those which work well in networked publics (such as the spaces characterized by online civic engagement or collective action) providing not only insight into how they function, but also a sophisticated sense of agency and familiarity with net public spaces as well.

Rethinking the Boundaries between the Virtual and the Real

The way we are thinking about most games, especially serious games, as teaching tools is akin to showing students the movie *Wall Street* and seeing if they believe “greed is good” at the end of it. The reality of games is much closer to giving a student a job as a Wall Street trader for a week and letting them experience economics first hand. It is like the difference between asking an audience member and the lead actor of the play what *Hamlet* means.

To the audience member, there is an inside and an outside; there is a membrane across which information flows. But for the Wall Street trader or theater actor

⁴ See, for example, TL Taylor’s analysis of Everquest in *Play Between Worlds*, MIT, 2006.

⁵ Games such as *World of Warcraft* have created enormous infrastructures around the game, such as site like *WowWiki.com* or *Thottbot*, an effort to catalog and allow users to comment on every item, skill, and geography available in the world. The sites have become so central to the game that designers now account for them in updates and future game design and rely on them for the dissemination of crucial information and strategies, allowing much more complex and sophisticated design.

there is only the experience and the performance. Is the trader inside or outside of the market? Is the actor inside or outside of the play? Or are they, like players and the characters they create, somewhere in between, both inside and outside at the same time?

The games we look at, virtual worlds in particular are far more complicated than other genres of games simply because of their scale. Imagine *Hamlet*, or perhaps more appropriately J.R.R. Tolkein's *Lord of the Rings*, but instead of one actor or a dozen or even a hundred, you now have 9 million (the current size of *World of Warcraft* as of our writing this).

Our goal then is nothing short of re-imagining how games and education can be understood simply by doing away with a simple premise. Assuming there is no inside and outside and no boundary for knowledge to cross, nothing to be transferred so to speak, how are we to understand what is happening in these new learning environments?

One of the basic premises of teaching is that information can be transferred in a direct and measurable way. Grounded in that premise is the notion that education is the process of crossing a barrier, where information moves from (or is transferred from) a person (such as a teacher) or even an object (a book, for example) to a knowing subject (a student). Testing, in whatever form, is a measure of how successful the process is at overcoming that barrier.

At first blush, this presents a good model for assessing learning in games: there are skills learned inside the game which are translating to behaviors outside of the game and, of course, some learning can stay completely within the game itself. Accordingly, the gap between the virtual and physical appears to be a barrier which is being successfully navigated by players, transferring lessons or experiences from inside the game to experiences outside of the game.

Games designed to provide simulations of real world skills or events can be very effective at this. Because they are capable of situating the player inside a set of experiences, games which aim to teach in this way can provide a context to help those experiences transfer from the character to the player. That model, however, breaks down in the context of virtual worlds. How do the lessons learned by a Blood Elf Paladin in Azeroth translate to the "real world?" Anyone who experiences interactions in a virtual world environment will recognize the dichotomy immediately. In most games, characters are designed to be something that does not exist in the physical world (e.g. a Night Elf Hunter), but playing with others requires interactions which have their norms and values set in everyday interactions from the physical world. One set of affordances that virtual worlds provide is the ability to bring some physical world dispositions into the space. Another set of affordances is the ability to leave other ones behind.

The difficulty with virtual worlds comes when one tries to connect the two phenomena, the physical and the virtual. There appears to be no correspondence between one realm and the other. Equally important, while the resulting behaviors in the physical world may be similar (e.g., successful business management) the experiences in the game world are often times radically different based on play style, group management, and choices of class, race, or affiliation.⁶ There is, at base, very little to map from the inside to the outside. There is no single, repeatable experience or phenomenon that is producing effects or behaviors in the physical world. If something is transferring directly, it is different in each case and unique to each player.

More problematic for a theory of direct transfer is the distinction we make in talking about these games between *learning about* and *learning to be*. Where *learning about* lends itself to a direct transfer model, *learning to be* does not.

Take for example a different kind of game: soccer. One can easily learn about soccer. There are rules and regulations, leagues and players, histories and cultures. Knowing these things may at some level help you be a successful player (such as knowing the rules) and all of them may be tested to see to what degree information has transferred. In contrast, learning to be a goalkeeper is an experiential process. It is difficult for a skilled player to articulate why she makes particular choices, because many of them are internalized and the result of practice and experience. The direct transfer model doesn't help us understand the processes of internalization and reflection that players engage in when they are confronted with a particular situation (such as a penalty shot). How the goalkeeper knew to dive left to block the shot, rather than right, is something that would be difficult to articulate and equally difficult to "teach," but it is undeniably the result of learning.

What we see in virtual worlds problematizes the situation even further. Players cannot agree on exactly what the game is, what it is about, or even what the purpose and goals of playing it are. If you quizzed each on the institutional rules, they would, more or less, tell you the same thing. They share a set of rules, a world geography, and even an strong narrative about the history and purpose of the world. One player, however, might see World of Warcraft as a role playing space where he could be a Night Elf in Azeroth. Another is a member of a high end raiding guild who sees the purpose of the game to be the accumulation of the very best gear and exploration of high end game content. Another spends almost all of her time playing the auction house, looking for goods priced below market value which she could purchase and "flip" making a nice profit. Still others see their roles as crafters, tailors, leatherworkers, and potion makers.

⁶ As we will argue later, it is precisely this difference that allows for the exercise of imagination and the ability of the player/character to create dispositional stances that are neither inside nor outside the world(s) they inhabit, but co-extensive with each.

Even within guilds, the specificity of roles can largely determine how one views and values different aspects of the world.

In the traditional sense, there is learning going on. Potion makers learn recipes for items, auction house players have an encyclopedic knowledge of the prices and market values for thousands of items, and high end raiders know sophisticated strategies for raid instance boss fights as well as what bosses drop which pieces of loot. But none of that information translates into anything meaningful in the real world. The best we can surmise is that some of the skills (e.g. team building for raids, math skills for crafting, reading social cues for buying and selling) might be useful for translating into action in the world.

At this level, there is a strong component of direct transfer. Players in the real world know a lot about their characters and the world of Azeroth. They can give you directions from city to city, tell you where things are located and what they mean. The game itself and its institutional structures do, indeed, transfer. But this explanation seemed to us to be whole inadequate for two reasons. First, it seems to miss an entirely new phenomenon. The way players relate to their avatars. And second, and perhaps more importantly, the meaning of the game, which is to say *why* people are learning these things remains unexplored.

Perhaps most significantly, though, these worlds are giving us insight into a new form of learning, one which embraces change, adaptation, and innovation; one which takes advantage of distributed forms of action and cooperation; one which rethinks problem solving from the perspective of knowledge in action. These are all the skills we believe will be essential in the coming decades and they are all skills which are impossible to measure through a model of direct transfer.⁷

The Learning Inversion

Research on situated learning provides some insight into the power of learning to be and does an excellent job of explaining what happens inside the game space. For example, in *World of Warcraft*, situated learning can tell us a lot about how players learn to become their characters and how they develop particular skill sets and deploy them in useful ways, what it fails to tell us is how those practices and even dispositions move from the virtual to the physical. The focus on the “situated-ness” of the learning doesn’t necessarily allow us to focus on the transition that players make from one realm to another. The power of this situated approach is in its ability to help shape notions of identity in relation to the institutions or infrastructures of the game space.

⁷ This critique begs the question “what is the right way to measure learning in this environment?” While an adequate answer is beyond the scope of this paper, methods such as ethnography, historical analysis and textual analysis are all capable of providing insights into these phenomena, as well as to account for the emergence and unexpected properties of virtual worlds.

The idea of the game as an institution can help us understand how it functions in a broader the social context. Institutions provide structure and meaning to the game world and set the parameters for what is possible in the space. To that end institutions include things like the rules of the game (both structured by the game dynamics and mechanics and created and enforced normatively by players) and the challenges, quests, and spaces provided by developers, such as instances, NPCs, raid dungeons, and game lore.

What situated learning provides is a framework for understanding how players come to develop a sense of identity and belonging in the world. Knowledge within this context is not simply about what one knows or even how one knows, but it is a level of being situated where one learns what the right things to know are. They do so by negotiating their in-game sense of agency with the game-based institutions which are provided for them by the developers. The situation is determinative insofar as one's identity is defined and constrained by the "rules of the game" or the structure of the world. As such, situated learning can provide some insight into how games can be used as powerful teaching tools providing a strong institutional grounding to define a player's sense of agency and identity. This is true, to varying degrees, for most games that are created. The more social the game is and the more opportunity for agency the player has, the more likely it is that they will begin to create their own practices which come to define the social and cultural parameters of the worlds they inhabit. Games which provide experiences can help determine and define identity, but games which change as a result of those experiences (such as MMOGs) become rich learning systems where something more is happening.

The idea that practices tell us something about culture is not a new insight. It remains, however, a critical one. In particular, when one considers the way in which participants enter virtual worlds, it is important to note the need to amass a large number of practices very early on to both make sense of the world and be an active participant in it. Those practices, however, are rarely explicit and must be understood within the context of the world itself. In that sense, virtual worlds constitute an entirely new learning environment, one which challenges many of the basic assumptions about a more simplistic form of learning and the simplistic models of transfer of culture and ideas.

Most traditional models of learning suggest a two step process in the movement from *learning about* to *learning to be*. Initially, people learn the basics or fundamentals about a topic or context through "scaffolding," or acquiring enough information to make sense of the languages, ideas and practices which constitute a specific domain of knowledge. At that point, as one becomes immersed within the culture or sets of practices where one starts "learning to be," engaging in the practices and absorbing the tacit knowledge that forms the cultural and social underpinnings for a community.

Virtual worlds invert that process. Instead of “learning about,” participants in virtual worlds engage with the world by learning to be. The experience and immersion of entering a virtual world is often times so radically distinct from the physical world that the practices one needs for simple behavior such as movement and communication are untranslatable. They are, however, easily picked up through experiential engagement. The first few “newbie” levels of *World of Warcraft*, for example, provide the player with introductory quests which lead them through a series of tasks or missions, each requiring an additional skill or activity. By the time a player gets to level 10 (two to three hours of game play) they have learned everything they will need to know about ‘combat’ movement, inventory management, quests, and communication. In the traditional sense they have been *taught* nothing. They have engaged in an initial process of learning to be (learning to be their character in this case) and have been shown mechanisms from getting assistance should they need help in learning about a particular task or ability.

The experience of playing or otherwise engaging with the world, literally, learning to be a participant in the world, is both the most productive way to learn and the easiest in games. As participants engage more fully with the world, it is only then that they are likely to turn to “learning about” to fill in gaps in knowledge or further their understanding about very specific topics.

The experiences players have are not individual or solipsistic; they are social in nature, which many quests in the game requiring group participation to complete. The choices players make will have an impact, then, not only on their own characters, but also on other characters in the game. These learning practices, then, are not just things characters do in the world; they are constitutive of the world itself. As groups of players progress, they gain new affordances through gear, skills, and tools provided within the game. Play is literally a progression where, as you advance, you are able to do entirely new things, visit new areas, and overcome new, complex challenges.

In one sense, situated learning helps us get past the immediate problem of direct transfer, by opening up a useful explanation for how learning to be could be understood within the context of games and game worlds. It leaves the underlying assumption of direct transfer, however, intact, by maintaining the distinction between the physical and virtual. Even though situated learning is able to explore the virtual in its own right as a valid and important learning environment, it still begs the inevitable question, “how does any of this transfer to the ‘real world’”? As we have argued above, that question still misses what we feel are the crucial insights that these virtual worlds provide.

From our point of view, one of the most central insights emerge from the application of situated learning to virtual worlds was what we have called a “learning inversion.” In the traditional model of “learning to be,” the acquisition of tacit knowledge and cultural practices emerge following a basic period of

“scaffolding.” In that progression, learners, it is assumed, first learn about something and then evolve into learning to be. What we see in games inverts that process, making learning to be central to the process of education in games. An inversion suggests that there is a following phase of learning about.

As a model for understanding the kind of learning that occurs in World of Warcraft, situated learning provided a good start to thinking through the basics of learning as learning to be, rather than learning about, but we still needed a better sense of how to navigate the boundaries between the physical and virtual worlds. Part of the solution to that problem rests with the idea of how imagination is transformed within the context of games. In what follows we put forth a model for describing and understanding the different components of virtual worlds and how they interact.

The Networked Imagination

When someone enters a virtual world, they enter a space which is more supplemental in nature than binary. In other words, virtual worlds provide the opportunity for participants to be *both/and*: both inside and outside, both player and avatar, both character and person.

Thinking beyond such constructions, however, forces us to examine the mechanism by which these worlds function. Because they are persistent (the worlds continue even after a player logs off) and because they are logically consistent (every world has its own rules to follow), these worlds take on a character of their own. The primary motor that drives virtual worlds, however, is not the rules, code, or graphics, or even the players themselves. It is the imagined reality, which is partially shared and partially unique, that is constructed among the players that gives the space its power.

What participants construct is based on the principle of a networked imagination: the rules, structures, and persistence of a network, which forms the stability of the connections among people and the freedom and agency of imagination, which allows not only invention, identity play, and experimentation, but also the shared sense of co-presence required to engage with the virtual world as a shared cultural and social space.⁸

⁸ This provides an interesting twist on the traditional tension between structure and agency examined in the work of Pierre Bourdieu and his notion of the habitus and Anthony Giddens work on structuration as the interaction between practice and material structure. Virtual worlds complicate both of these ideas by replacing a material structure with a more abstract, continually shifting, set of rules. In many ways, the breakdown of the subject/object binary in both Giddens and Bourdieu’s work is a useful precursor for thinking about the problem of transfer and boundaries in virtual worlds as well as the issue of affordances in relation to materiality.

The most basic example in *World of Warcraft* is the notion of a guild. While there are two basic mechanisms within the game to support the existence of guilds, the guild tag (which identifies which guild you are in) and guild chat (an in game chat channel for guild members), the bulk of what allows guilds to function as effective organizations is created outside the boundaries of the game itself. Programs such as ventrillo or teamspeak, which provide voice over ip communication channels are required by most guilds and nearly all guilds have their own websites, complete with forums, wikis, and specifically designed software to measure raid attendance, division of loot, and event scheduling. Guilds can range in size from a few dozen people to more than a hundred and are often required to experience any of the end game content that Blizzard has designed.

Most important, however, is the ways in which guilds manage the experiences of the groups of players who form them. The structure of a guild depends almost entirely on the needs, desires, and dispositions of the players that compose it. Some guilds may be small in size and primarily social in nature, while others are large and may require players to commit as much as 40 hours a week to the guild for high end raiding. Most guilds are somewhere between these two extremes, requiring some basic commitment of time, particularly for scheduled raids which may require up to 40 people to complete and which can take as long as eight to ten hours, often times spread over several days.

For our purposes, guilds also represent a new kind of institution that has emerged in the context of managing large networks of imagination. Our thinking here both mirrors and goes beyond Benedict Anderson's notion of an "imagined community." While Anderson's exploration of nationalism and community provides a basic understanding of how communities/nations may form through acts of imagination, we are interested in how smaller microcosms may also develop in the context of groups and guild who may similarly share an *imagined* connection which is ultimately grounded in a world and an identity that is grounded in a set of shared experiences, actions, and interactions.⁹

We can see the guild as a bridge between two poles: The institution of the game itself (the rules, structures, and mechanisms which allow for play), which has particular goals challenges or rewards and the agency of the players who have individual needs, desires, and constraints which have to be balanced with the other players in the guild. While there are rules and clear game mechanics which make things both possible and impossible in virtual worlds, MMOGs present players with an unprecedented degree of agency within virtual spaces. Games like *World of Warcraft* not only allow players to develop different characters and play styles, they also evolve based on the collective actions that players take. As a result, the game world changes from day to day, continually responding to player actions which may be as trivial as the price of raw materials

⁹ See Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, Verso, 1991.

on the auction house or as significant as the opening of gates revealing a new part of the game for players to explore.¹⁰

Unlike MUDs, which preceded MMOGs and virtual worlds and which were purely text based and therefore unconstrained in almost any way, these games have a heightened sense of agency precisely because players are forced to negotiate the institutions of the game itself. In a MUD you could be whatever you could type, but within the space of virtual worlds, you must work within the limitations of a visual and mediated space, which requires players to use their imaginations, not only to create their place within a fictional universe (much as MUD players needed to do), but by finding creative and alternative solutions to the problems that the game itself presents.

Successful guilds require what Sherry Turkle called a “culture of flexibility,”¹¹ needing to reshape themselves into whatever best negotiates the tension between the players (agency) and the game’s rules (institution). But guilds are more than just cultures of flexibility, they are sites of productive tension, where the continual flux of both agency (players’ needs and constraints are constantly changing) and the institution of the game (which also changes on a continual basis, both as a result of developer changes, patches, and expansions as well as the impact that the players themselves have in shaping and defining the world some of these must be in response to unintended consequences of designer changes) produce the need to constantly re-invent the structure and management of the guild itself.

Guilds start to give us a glimpse into why games provide a new and powerful way of understanding flexibility in organizations and management as well as a system for thinking about how the productive tensions between institutions and agency constitute the grounding for a new theory of learning. The agency which emerges from the constraints of the world produce and players’ reactions to them define and shape the environment in which learning happens. The tensions between the constraints of the world and the freedom of the player, motivates players to see problems and solutions in new and, often times, unexpected ways. When learning is seen as the means to identify and manage productive tensions among institutions and agency, it begins to take a whole new shape and begins to point to a new set of values for what constitutes *effective* learning.

What guilds (and a number of other practices common to MMOGs) reveal is the ways in which these moments of productive tension afford the abilities to respond

¹⁰ While these two cases are the polar extremes, something as trivial as a monster dropping a particular item or the discovery of a new combat technique can cause widespread and near immediate changes in the game, including places people visit, how and where they spend their time, and what goods and items can be crafted or created.

¹¹ Sherry Turkle: *Life on the Screen: Identity in the age of the Internet*, NY: Touchstone, 1997.

to institutions and, along with it, create new *forms* of institutions as well. In some cases, for example, guilds are forced to create new rule sets to decide who participates in raids and who does not, usually in response to game changes or the development of new strategies.

One of the new institutional structures that has emerged, and which perfectly describes the way guilds function, is the idea of the “networked imagination,” where the idea of the network (and the virtual connections among its members) provides a flexible, yet powerful, institutional structure, while the imagination taps into the wellspring of agency that virtual and digital spaces present. The concept of a networked imagination is more than communication or shared practices or values, it is the ability of people who are physically disconnected from one another to *invent* and *share in* a mutually constituted reality.

In one case, there is a guild tradition that the first time a boss monster is killed in a raid instance, the group that successfully brought the monster down gather around its slain body and pose for a group photograph.



Guilds in *World of Warcraft* or other MMOGs have such a strong presence in players' lives that they frequently talk about their guilds as homes or families, even though most of the players may have never met one another face to face and could not recognize each other in person. Understanding the richness of the experience of play and the complexity of problem solving that occurs in guilds and around games, leads us to what we feel may be one of the most pressing

issues for the 21st century. How do people learn how to create and participate in networks of imagination and how can our theories of learning adjust to account for this rich and powerful phenomena?

What is essential is understanding the process that gives rise to solutions and practices, to determine the *networks* which provide the means for *imagination* to take root, to grow, and to flourish.

The primary function of the network is institutional, to provide and pass on certain pieces of knowledge that are essential for the functioning of the group. In guilds, for example, web sites and event calendars can provide the means to organize a raiding party. But once a group of players set foot in Gruul's Lair (an end game raid in *World of Warcraft*), the imagination takes over. Defeating the bosses and claiming the reward is a function of certain institutions (character classes and rolls, weapons and armor, game mechanics and combat) which give form to a set of practices, which in turn harness the collective imagination of that group of players, who, for the moment, believe they are co-present in Gruul's Lair participating in an event.

It is not only the narrow sense of imagination (such as finding imaginative solutions to problems), but the general and broader sense of imagination, which allows players to participate in the game, the guild, and the coordinated collective action that make success (overcoming the obstacles the game presents) possible.

Every instance of raiding is an exercise in learning how to be an effective member of this networked imagination. What it means to coordinate in an imagined space with others, how to read social and contextual cues, how to make decisions and deploy particular practices as the situation demands.

This kind of learning is born out of a tension between the agency of the individual player and the demands of the institutional structures that the player engages with as part of the experience of play. These institutions are neither fixed nor external. They are game elements, communities of practice spawned from groups of players themselves, and social and cultural institutions that imbue actions with meaning.

Communities such as guilds or external web sites structure the meaning of activity within the game world. They also serve as the primary conduit of information between and among players, determining what has value and providing contexts for puzzle solving, organization, and social and task interaction.

Games with low degrees of agency (e.g. games in which you want players to do certain things or act in certain ways) require a strong game based institutional

structure. For example, most games that are structured around learning objectives have strong institutional ties. A game which intends to teach students about disease, for example, would be grounded in the institutions of medicine or public health. In order to learn particular content, players must follow pre-designed paths (even if they are complex, they are usually following prescribed pathways). In general, such games, will privilege a narrative structure to convey certain information. That narrative serves as an institutional structure determining what they player must do to progress. While this provides a sense of interactivity, it restricts the player's agency. As a learning environment, it also provides a very clear set of learning objectives. You must learn X to accomplish task Y. In the most basic sense, such games are teaching systems, designed to teach rules or information, the experience of play is a mechanism or activity to teach.

Allowing players agency means you reduce the role of the game-based institutional structure, recreating it as a set of affordances for players to adapt, create or evolve their own institutional structures. Players then adopt as much or as little of the game-based institutions as they deem necessary to create and develop their own institutions to manage their agency. In short, the difference is that games which have strong institutional purposes are necessarily limited in terms of player agency, while games which provide a strong sense of agency for players, cede control of their institutions to the player communities which engage with their content.

For education, this provides a dilemma. Creating games with clear content based learning objectives (which is to say games that are tied to discourses with strong institutional content and an underlying pedagogy, which presumes a model of direct transfer) achieve their goals at the expense of player agency. Making games useful and employing what is unique, new, and powerful about them requires us to change our thinking about what games afford. If we are to see a new set of possibilities for games as learning environments, we need to shift our thinking away from content specific learning objectives toward thinking about games as systems that afford new types of agency and new ways of looking at the world. These games are fundamentally social systems where people learn how to become part of new, often rapidly shifting institutions and to organize socially and solve problems quickly on a short-term basis. They learn to build institutions which are necessary to deal with and manage agency (at the level of the group), while being the product of that agency itself (at the level of the individual).

The games we focus on are ones which provide a high degree of player agency and have a significant network of emergent institutions which define the nature and scope of the game experience.

The Play of Imagination: A New Epistemological Frame

While direct transfer, situated knowledge, and collateral learning provided pieces of the puzzle, it is the work of Mark Turner on the notion of conceptual blending can help us understand the means by which dispositions can be understood not as moving from the virtual to the physical, but as a simultaneous product of both spaces as once (the way starring in *Hamlet* is bound to change the dispositions of *both* the actor *and* the character).

Our notion of conceptual blending extends Turner's notion to demonstrate that the dispositions don't really move (in the sense of transfer) at all, but the spaces in which we create them collapse, forging dispositions which are meaningful in both the virtual and physical worlds at the same time. *World of Warcraft*, for instance, is what Turner defines as a "blended space," a space where conceptual transformations occur as we take non-conflicting frames and put them together to create meaning.¹² Conceptual blending provides an extremely powerful tool for understanding how meaning is generated in virtual worlds for two reasons: First, the frames which define the virtual and physical are so completely distinct that they have almost no point at which they conflict with one. Secondly, because these frames don't conflict our minds have no difficult in fusing them, deploying the richness and vividness of each in complete detail. The entire point of a conceptual blend it to *remove* the barrier between inside and outside, to blur figure and ground so that one no longer is forced to choose between them, but can see and imagine both at once.

In many ways, such conceptual blends can be defined by a sense of fit. Take, for example, the case of guild mates who know one another outside of the game in a professional or personal context. The players know enough about each other to have a sense of the person independently from the game. At the same time, they play the game together often enough to know and recognize each other's characters as well. The process of blending occurs when I start to think of my friend as *both* the person I know outside the game *and* as a Tauren druid. There may be a certain absurdity to it, but there is no fundamental conflict, because she can be both at the same time. The disposition of the player will determine, in large part, what character they pick, and the disposition of the character will tell us a lot about what they will (or will be likely to) learn from the game.

¹² Turner's work examines how our minds are easily able to process and combine radically different ideas (such as speech and animals, to produce a talking rabbit, such as Bugs Bunny), as long as there is no direct conflict between the ideas. He calls this ability "conceptual blending" which turns out to be an enormously complex, often pre-conscious and effortless activity that in many ways defines how imagination functions. See, especially Mark Turner: *The Literary Mind: The Origins of Thought and Language*, Oxford UP, 1996

Rather than asking how dispositions move from the virtual to the physical, conceptual blending defines the spaces as both virtual and physical simultaneously.

The dispositions being developed in World of Warcraft are not being created in the virtual and later moved to the physical, they are being created in both equally. Just as the decisions made in the game world affect the player's disposition in the physical, her disposition in the physical world influences her game play and style. The two are mutually reinforcing.

What the game world opens up, that the physical world does not, is the opportunity for experimentation and exploration. Because one is able to maintain the vividness of each domain, within the mental construct of the blend, the possibilities for learning and engagement are magnified. Coupled with the radical contingency of the game space, World of Warcraft is also a social and cultural space where players are able to examine and explore a variety of subject positions, identities, and cultures.

Conceptual blending provides for us further insight into the role of imagination as well. The most direct is the ways in which conceptual blending ties into the idea of the networked imagination. One of Turner's most surprising findings is that there are blends of enormous complexity and incongruity (but not contradiction) that our mind has absolutely no trouble producing, accepting, embracing and treating as completely natural. The classic example is a talking animal. No one has any difficulty accepting the premise of a talking donkey in *Shrek*, of Bugs Bunny quipping "What's up, Doc?" or of Babe the pig chatting with barn mates, even though we know such things never happen in reality. It is an easy conceptual blend for us because there is no fundamental contradiction. It is not that animals can't talk; they just don't talk.

The same is true for the networked imagination of a guild or raid group. Players have no problem accepting that they are both sitting at home playing a game and killing a boss monster in a dungeon in Azeroth. Why? Because there is no fundamental contradiction between these two ideas. Our minds, which is to say our imaginations, not only don't have difficulty processing this idea; our minds are particularly good at it. Moreover, the richness of these blends is only fully understood once one reflects on them. The pre-conscious processing required to create a conceptual blend is actually rather extensive.

So in the first sense, playing in virtual worlds is already a kind of conceptual blend, as are all acts of a networked imagination. They embrace the idea of a both/and, rather than an either/or and embrace the ideas of simultaneity and co-creation, rather than transfer.

But there is a second sense in which these blends are incredibly powerful tools for reflection. These are moments when institutions and agency bump up

against each other and the blending reveals not only a co-creation, but also a set of affordances opened up by a moment of critical reflection. There are rare moments where the acceptance of a particular conceptual blend produces a trigger, which invites or even demands a player to reflect on how things fit together.

When trying to complete a difficult task, players may fail repeatedly and then, much to their astonishment, find that on their next attempt things go smoothly and they finish the task with little or no difficulty. What changed? Were they doing something different? Had the situation changed? Had they unwittingly stood in a special place or cast their spells in just the right order?

At these moments, players engage in a kind of reverse projection or reflecting backwards to try to understand either how things have fit together or, as often, what blending has appeared so natural that it has obscured some crucial piece of information or data. That reflection calls forth the player's agency, engaging their imagination in order to have them do something with it. This is frequently the moment where this exercise of imagination leads to the possibilities for new practices, which themselves can become institutionalized or become part of the network.

One can very easily imagine a chain of events where a player discovers that a trinket that only occasionally fires has certain powerful effects. Through experimentation, or even accidentally, she triggers it in combination with a spell which then produces greater damage. After the fight she checks her combat logs and realizes the effect the trinket has had and immediately tries it in combination with other spells. Ultimately, she writes a macro to automate its use, timing it to fire only with the spells that produce the maximum benefit. She posts that macro to her guild message forums and soon all of the guild's mages work to loot that same trinket and use the macro.

In this case, the conceptual blending of the player and avatar, engaged in routine combat, requires an act of agency and imagination to establish a new practice, which becomes part of the networked imagination of the guild.

Conclusions: Learning in the 21st Century

Games such as *World of Warcraft* and other virtual worlds are illustrating a shift in the way learning is happening. The goal of this paper is not to suggest that it is the only way in which learning occurs, or even that it is the best way to meet pedagogical needs at present. Instead, we believe that this new mode of learning is indicative of something else.

These players are learning to create new dispositions within networked worlds and environments which are well suited to effective communication, problem solving, and social interaction. Accordingly, the things they are learning, as well

as the ways they are learning them, can tell us a lot about what the future of communication networks may look like as well as how they may be used. The possibilities for the network of imagination extend beyond distributed work and embody a basic and fundamental principle of collective action for a civic or group good. This coupling of collective which focuses on the group overcoming a shared challenge makes the search for common ground the overriding concern. Moreover, the coupling of networks of imagination to the idea of conceptual blending gives us new ways to think about how to conceptualize “knowledge in action” in a virtual space.

What is happening in the games of today is, we believe, a fair predictor of what will be happening in the workplaces and societies of tomorrow.