Pepperdine University

Graduate School of Education and Psychology

PRODUCTIVE PLAY: EXPLORING PARTICIPANT MOTIVATIONS OF A MODDING COMMUNITY SURROUNDING A MASSIVELY MULTIPLAYER ONLINE GAME

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by

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Anyone completing a dissertation quickly comes to learn that the exercise is as much one of building a community as it is learning to complete a major research project. The concept of "standing on the shoulders of others" applies not just to the intellectual lineage of the research, but also to the day-to-day process of getting literature assembled, information gathered and words put to paper. For me, the list of those who I owe a debt of gratitude for their assistance with this project is long.

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Abstract

The phenomenon of user-generated content and modification for video games, known as modding, is increasingly common, but why individuals are motivated to engage in significant work for no pay is still poorly understood. Drawing upon the Communities of Practice theories proposed by Jean Lave and Ettienne Wenger, this paper explored the similarities and differences between a community of addon software developers for Blizzard Entertainment's popular Massively Multiplayer Online Game, *World of Warcraft*, and other Free/Open Source Software communities. Through a series of ethnographic interviews, and an online survey of addon developers, research found the addon development community describes itself primarily as devoted game players rather than software developers, motivated primarily by a desire to fill personal in-game needs, and only later, by the more unclear rewards of contributing to the Community of Practice surrounding addon development.

Similarly, though addon developers have a strong affinity with many practices and attitudes toward intellectual property espoused by F/OSS communities, they have ultimately coalesced around shared practices which encourage and honor individual ownership of intellectual property, rather than more "free" distribution models. Considering these findings, a new understanding emerges for a specific type of Community of Practice, termed a *Community of Passion*, that allows future research to more clearly identify and describe a playful and passionate approach to productive activity increasingly seen not only in online gaming communities, but also in other settings such as the emergent *Maker* communities where creativity and democratized production are valued.

Chapter 1. The Problem

Introduction

For much of the 20th Century, the production of cultural entertainment was the domain of large corporate entities engaged in the distribution of mass communication. Whether in radio, television, film, music or literature, newcomers generally needed to find a corporate position or sponsorship that offered them a way to express their creativity, since the overhead needed to disseminate the artifacts of the creative expression – a book, movie, or LP record – was so expensive and cumbersome as to be out of reach of the individual.

It is easy now to forget this was itself a change from the experience of prior centuries. Culture in more rural or agrarian societies was no less vibrant or rich, but it was more limited in distribution. It is the "mass" in mass communication that separates one's understanding of the cultural activity in the 20th Century from what came before.

So too, it seems, will be the distinction as the shift from the 20th to the 21st Century is considered. Certainly, mass communication will not disappear, but the barriers to production that allowed for, and even encouraged, the concentration of production in the hands of a relative few have changed dramatically with the advent of computers and networked communication. The exponential increase in computing power available in computers, smartphones and imaging devices means what previously required expensive tools and significant personnel can now be accomplished by individuals working largely alone, with tools which are both inexpensive and ubiquitous. Once the creative act is complete, only a few mouse clicks, and maybe a minor financial cost, are needed to distribute the final product to millions of potential consumers around the world.

Put another way, the world's experience prior to the mid-19th century was of small populations with access only to a small number of regionally-constrained cultural experiences. The paradigm shift of the 20th Century was for large populations to have access to a relatively small number of shared cultural experiences, but with far fewer regional constraints. The shift of the 21st Century will be the opportunity

for a huge number of smaller populations to have access to an almost infinite number of shared cultural experiences with few or no regional constraints.

How individuals engage with these cultural experiences will change from a passive consumption enforced by financial and technical barriers to an opportunity for more active production, alteration and assimilation of experiences and artifacts than ever seen before. Understanding how and why individuals move from passive to active participation has the potential to impact education, entertainment, and commerce in any number of unexpected and important ways.

Exploring the Emergent Experience of User-Generated Content

Examples of user-generated responses to popular media are, by now, common. The term *mashup* has entered the lexicon, describing situations where consumers appropriate various examples of popular culture to create their own expression. Amateur authors write fan fiction set in the worlds of Star Trek and Star Wars. Musicians sample the recordings of others to create new works. Websites offer tools to allow widespread access to image editing and creation, resulting in such memes as "Lolcats."

These *participatory cultures*, as Henry Jenkins (2006) described them, democratize and broaden the opportunity for individuals to modify, contribute and comment on cultural artifacts and experiences. What has sometimes been seen as *fandom* – a passionate engagement with a media artifact, but amateur nonetheless – is blurring into forms somewhat more significant and productive than previously observed. Instead of producing artifacts purely for entertainment purposes, increasingly communities are observed generating tools which extend and further contribute to the creative and productive experience.

Like other forms of media through the 20th Century, the software for personal computers has gone through a similar transition, albeit at a much more rapid pace. Initially the province of homebrew computer clubs and individual hackers, software relatively quickly became the product of corporate structures and mass distribution. With the Internet's rise, however, individuals began to see that the relative ease of communication between geographically-distributed individuals meant expertise could be shared, and that groups could coalesce and self-organize to accomplish the same sorts of tasks that corporate structures facilitated. The rise of what is known as Free and Open Source Software (F/OSS)

interacted with the Internet in a virtuous cycle, each facilitating and spurring the development of the other.

Accompanying this was the development of communication tools that were co-opted in unexpected ways. Asynchronous communication methods like e-mail and threaded discussion forums helped spur the development of synchronous communication tools like instant messaging, Voice-over-Internet-Protocol (VOIP) telephony, videoconferencing, and Short Message Services. These in turn helped individuals with shared interests find each other, share their passions and practices, and create new communities that span space and time.

The focus of this study is of a community created and facilitated by the Internet, the community of software developers which has formed around the opportunity to develop addon software for *World of Warcraft* (*WoW*), a massively multiplayer online roleplaying game (MMORPG) that currently has more than 7 million subscribers worldwide (Williams, 2014). These developers, most of whom are also regular players of the game, spend significant amounts of time working to extend and change the experience of the game, yet they receive no payment for the work. Indeed, the corporate developer of the game, Blizzard Entertainment (frequently shortened to *Blizzard*), has stated such addon software cannot be sold. Even with the existence of such restrictions, the community of developers appears undeterred – more than 4,000 addons have been developed during the eight years of the game's availability, and more appear regularly (Curse.com, 2014).

The obvious question is why? Why do individuals who clearly possess significant technical skills put those skills to use in service of a game, when they might find more lucrative returns, or more social recognition, in more traditional software development roles? Are they motivated by some notion that the game publisher might notice their work and hire them, or that the tool will be so transformative of the game experience that the features will be absorbed into the game? (This has happened, but very rarely.) Or is there something else at work yet to be fully understand?

The answer, of course, is likely some combination of these questions and more. Understanding of it is still evolving, but it seems clear this is a new form of engagement with media and culture which challenges our previous concepts of work, and play, and learning.

An example: Responses to Upheaval in the *WoW* Glyph Market

For an outsider, the first encounter with an MMORPG like *WoW* can be a bit overwhelming. The language is indexical, the range of player behavior incredibly broad, and the allure of the experience is, quite frankly, hard to see. Player avatars, dwarves and elves and anthropomorphic cow-people roam the landscape, killing computer-controlled opponents for money and *experience points*, while others stand chatting, dancing or simply idle while their owners are AFK – "away from keyboard." It takes time for the various aspects of the game and interaction to become more routine and predictable.

At its heart, the MMORPG is a virtual environment with an elaborate ruleset underlying the visual activity. With its historical roots in paper-and-pencil-based narrative games like *Dungeons and Dragons,* the underpinnings of *WoW* remain a continuous set of statistical computations with a component of randomness included. While there are no dice visibly rolling to cue the player's understanding of the uncertainty of the outcome of their actions, it still occurs behind the scene in the game software and servers. Players make decisions, their avatars appear to carry out their directions, the servers and software generate both the uncertainty and outcomes, and then record the resultant rewards and increases to the avatars' abilities.

Not all in-game activity is controlled by software, however. Much – perhaps even most – of the game experience lies in the human interaction, between players controlling avatars. Some of the shared experience is cooperative, players banding together to accomplish tasks beyond the ability of a single individual. Other aspects are competitive – players can engage in duels, or group skirmish – and yet other aspects are economic; players can produce in-game goods and exchange them for in-game currency. The game developers have facilitated this sort of transaction by creating a persistent market for these goods, called the Auction House (AH), and every player at one point or another visits the AH for gear, weapons and other useful items. Unsurprisingly, a subset of players has become interested in the economic activity

of the AH as a game in and of itself, and spend considerable time trying to amass fortunes through sophisticated buying, selling and production of items.

One such item, or more accurately, a class of items, is known as the *glyph*. Glyphs are items produced by "scribes," players with a specific profession – Inscription – which augment the abilities of an avatar. The number of glyphs a player may have in effect at any one time is limited – currently, the number is six – but the number of glyphs available to choose from is nearly 350. Glyphs can be bought and sold, and their production requires ink and vellums, themselves the product of other professions. The dependencies of the *WoW* professions and economies are designed to force interaction between players, since avatars are limited in the number of professions they can know.

In September and October of 2010, the community of *WoW* players became aware Blizzard had decided to change some of the rules regarding glyphs. Previously, glyphs had been consumed upon use. That is, when a glyph was applied to an avatar, it stayed active, but if it were overwritten by another glyph, the original was lost, consumed. If an avatar wanted to situationally go from using the *Glyph of Frost Nova* to the *Glyph of Frostbolt*, and then back to the *Glyph of Frost Nova*, the player needed to purchase two glyphs of Frost Nova and one of Frostbolt. At the end of the process, two glyphs would have been lost, and only the last would be active.

Because of this rule, glyphs were an item of frequent commercial activity on the AH. Some players, attempting to eke out the maximum benefit of a glyph for a given situation encountered in group activity, "raiding", would purchase stacks of 20 glyphs and consume them like candy. Other players attempted to settle on a broadly optimal set of glyphs and make few or no alterations. Both sets of players generated sales for the scribes plying their trade on the AH.

In advance of new expansions of *WoW*, Blizzard typically offers players the chance to try the new features in a testing environment, and from that much information is gathered and shared on a wide range of websites devoted to the minutia of *WoW* gameplay. Changes and additions are hotly anticipated, and the ramifications of the changes are widely debated. Because Blizzard generally avoids announcing release dates for its software products, the observation of pre-release information becomes much like

palace intrigue – players argue for and against changes, in hope their opinions will sway the final software configuration.

In September 2010, the release date of the new expansion, called *Cataclysm*, (or *Cata* for short) was still unknown. However, Blizzard had begun to announce decisions it considered to be finalized for *Cata*, and one of those changes was in how glyphs would be handled in the future. Rather than being consumed upon use, glyphs would henceforth be learned once into a sort of *spellbook*, and then be permanently available for swapping, on demand, as the player chose. Hearing this, scribes began to consider what this change would mean for their profession in the future.

The speculation centered around how the general playerbase would approach glyphs in the future. Would players decide to purchase and learn every possible glyph and thereby leave the glyph market forever, leaving scribes with a dwindling customer base, or would players buy only the glyphs they wanted now, and leave others unpurchased until the need arose. The likelihood of both outcomes was widely debated, but what was generally agreed was that once the change was introduced to the "live" servers, much about the glyph market was going to be changed. Some scribes began to stock up their inventory in advance of the change, unsure when the new software would be released, but predicting that the initial rush of buying would drive the prices of glyphs, and the materials needed to make them, significantly higher.

As a study in classical economic behavior, the change in the glyph market was an exercise in the impact of information on consumer behavior. Typically, such studies have been of situations where participants in the economy have inequitable access to information – one side knows something the other does not, or cannot. In this case, however, the entire playerbase theoretically had the same information available to them. Blizzard had made it clear they were changing the glyph mechanism, and had clearly explained how they intended to do so. All players had the opportunity to buy and store all of the glyphs they wanted, ahead of the change which would make them a permanent good, rather than a consumable one. Yet, generally, the consensus among players who "played" the AH was that most players would not do so, either because they paid little attention to the information generated from the previews, or because

they had not considered how costs might change. Many of these more seasoned AH players were licking their lips in anticipation of making a virtual killing.

"McG" (2010) summed it up well in a forum post on September 2:

> Blizzard is creating a huge rush for glyphs the first few weeks of Cataclysm. People will buy them all, because that's what people do! There will be a huge mad dash on the AH for glyphs the first few days and people will pay! Just think of it, if you have 20 of each glyph, about 350 glyphs at just 10g each (I bet we could get 20g to 30g for each) is 70,000g. Imagine making that the first week or two of Cataclysm! (McG, 2010)

As September wore on into October, anticipation for the new patch grew. Blizzard had announced that the change to the glyph system would actually precede the release of *Cataclysm*, so players assumed sometime near the actual announcement of the release date would be when the precursor software patch would be released. Blizzard announced October 4 that *Cataclysm* would be released on December 7; the company's practice is to release patches on Tuesdays, when it has regularly scheduled maintenance for the game's server infrastructure. October 5 was a Tuesday; scribes wondered whether the date might be the day of their own personal economic upheaval.

As it turned out, October 5 came and went without a new patch. Forums devoted to inscription were swamped with debate about whether October 12 would be the day. Then news from the Public Test Realm, a preview version of the gameworld, threw things into an uproar – the new version of the game software had rendered inoperable an addon used by many scribes, *QuickAuctions3* (*QA3*) (Simca, 2010).

This was not just bad news, it was catastrophic. As stated previously, addons bring additional features to the game's user-interface beyond the functionality developed by Blizzard. Addons are supposed to avoid automation of game play, but what "automation" actually represents is highly interpretive – unless Blizzard explicitly forbids it through code, or the game's Terms of Service, addons are generally free to do whatever their designers can program. *QuickAuctions3* allowed players, especially those with a wide-ranging potential inventory (such as scribes with 350 different glyphs), to predefine the quantity, duration and asking price for their auctions, and then automate the creation of the auctions. A player who wanted to create 700 auctions using the default user interface faced a task which might take

hours of clicking, dragging and typing; *QA3* reduced it to a single-click process which might take five minutes. The addon was a staple for sophisticated AH players, and the prospect of its loss was serious. To make matters worse, the addon's author, Shadowed (2010, para. 3), announced he had retired from the game and had no plans to continue support for the addon:

> While it was a matter of time anyway since I wasn't maintaining *QA* anyway with Cataclysm:
>
> Blizzard's protected the auction posting APIs with 4.0, meaning any sort of automated posting is broken. Any sort of fix would require pressing a button every single time to post an item, which goes against *QA*.
>
> To put it simply, *QA* is broken come 4.0. (Shadowed, 2010)

The community's response to this news was fascinating. There was dismay at Shadowed's post, but not anger. Rather, people began to propose solutions, and one, Zerotorescue (2010), emerged as a leader:

> I'd love to write a fix for it if the license would get loosened up a bit.
>
> Actually, if that means Shadowed will abandon the project (which would be a real shame since he is a very talented and great (addon) developer), I will write a fix for it for myself, but as long as the *QA* license states "all rights reserved," I can't be sharing it. (Zerotorescue, 2010)

This left the community in a bind. Zerotorescue and others believed they could find a fix for the technical issue that disabled *QA3*, but Shadowed's copyright prevented them from updating the addon and circulating the fix. Shadowed posted he had no intent of changing the license restrictions, further stymying options.

On October 5, there appeared to be progress. Zerotorescue posted instructions on how to modify the code in Shadowed's addon, allowing individuals to make the modifications while still respecting the author's copyright. Then on October 11, Shadowed (2010) announced he had altered his stance. "I'm changing what I said previously on license: You are free to take over and modify the project as you wish, provided it's referenced that it was originally *QA*. However, the addon has to have its own name instead of *QA*, including the folder name". Zerotorescue promptly announced he would release a new version of QA3 (cleverly named *ZA*, for *ZeroAuctions*), and within hours, the addon had been posted for public download.

Several forum threads popped up to sing the praises of Zerotorescue; both ran to more than 15 pages of responses. The threads got significant traffic after October 14, when the new software patch for *WoW* was released. The few serious AH players who had followed the *QA3* developments turned out to have a huge advantage in speed during the first hours of business once the servers became available post-patch, and most posters reported that the frenzy for glyphs exceeded even their wildest expectations. Accounts of making 250,000 gold pieces in a day were common; some posters reported making more than a half-million gold pieces in the first week. In forums devoted to inscription, the event became known as "Glyphmas," where scribes who had prepared adequately walked away with a lifetime's worth of earnings in a few days. Perhaps the community response was best encapsulated in two posts seen just before the servers opened on October 12: McB (2010) wrote "Did i told you you're my hero? OMG imagine the advantage we will have in 4.0.1 with those fix versus the competition .. wow just wow", to which Whitewolf (2010) responded "Just remember that with Great power comes great respon...sib...il....SCREW THAT! WE'RE GETTING` FRIGGIN' SHARKS WITH LASER BEAMS!"

Research Questions and their Potential Ramifications

It is easy to be intrigued by the playfulness of individuals engaged in play. The perceived freedom from negative consequences often associated with games and playfulness is attractive. Yet the above example suggests there is something more at work here. Granted, Zerotorescue was clearly still engaged with the game and addon development with a playfulness, but even so, he remained aware of social and legal conventions which prevented him from infringing on Shadowed's rights as an author.

Likewise, the solution Zerotorescue proposed was heavily tested by peers. Comments and questions on the functionality of his solution were heavy for several weeks, and still continue infrequently. Other addon authors took up Shadowed's code and released competing addons to Zerotorescue's package which extend the functionality in different and innovative ways. At one point in early 2011, it appeared Zerotorescue would sunset his addon and join the competing team's development effort; then a new version of *ZA* was released, and the two addons continued to be maintained simultaneously.

Yet above and beyond the impact of these events on players and developers, there are deeper questions that are compelling. Primary among them is the question of why? Why are so many individuals engaged in the production of media when they are, in all likelihood, not only going to give it away freely, but that by doing so, a larger corporate entity stands to benefit? Somehow, it seems something more significant is occurring.

To understand what that might be, I present the thoughts of three authors whose writings nicely capture the question.

First, Taylor's (2006) consideration of what addons mean:

> Player-produced artifacts force participants to confront their own categories of fair play and indeed may even shift them at times. Rather than just seeing these mods as simply functional overlays, they should instead be viewed as strong agents in reshaping what constitutes the game and legitimate play. And as sociotechnical actors, they are part of an ongoing dialogue within the community (of designers and players) about how the game is changing over time. (p. 334)

Next, Sotamaa's (2004) suggestion that the phenomenon may not be entirely benign, that there are benefits for corporate game developers by encouraging the idea of amateur development as a form of altruistic good:

> While the blurring of boundaries between work and leisure is neither a new phenomenon nor characteristic only to game cultures, the games industry seems particularly eager to discourage their audiences from associating games with boring realities as jobs and working hours. This is an industry that can clearly benefit from a perception that all the activities associated with games can be seen as play and therefore non-profit-oriented. As long as game industry can preserve the situation where mod makers are happy to work for free it can happily benefit from selling the retail titles gamers need to play the modifications. Not surprisingly, alternative ideas more favorable to the commercial aspects have emerged alongside the "free software model." (p. 14)

But it is Boellstorff (2006) who takes the importance of the example to a broader level:

> … Gaming increasingly affects the whole panoply of interactive media, from television to movies to cell phones to the Internet in all its incarnations. Gaming also shapes physical-world activities in unexpected ways, including the lives of those who do not play games or participate in interactive media. Understanding the "gaming of cultures" — that is, how cultures worldwide are being shaped by gaming and interactive media — represents another area of exciting new research. (p. 33)

This, then, is the reason for understanding the motivation of these individuals – they are representative of larger forces which are as yet poorly understood. There have been many studies of *gift economies* through the years, but those were of cultures where the gifts were often of tangible items. These new information-based gifts are gifts of time, knowledge, and cultural engagement. They represent an intellectual action of the author being given to another, for an unclear return – status, or shared experience, or an anticipated reciprocation, or simply the playful exploration of doing the task. What is unknown is the motivation for participating in the community. Similarly, there is little understood about the transformation of personal identity these individuals take away from participating.

These are questions which speak not just to our understanding of so-called "gamers", but of any number of communities now thriving throughout the world, and in places that are nowhere specific in this world. In other settings, there have been examples of communities which have mobilized to save a television show, or protest the death of a beloved character. These were relatively passive engagements, however, petitions of preference from consumers to the (usually corporate) producers of content.

I would argue these new communities are more than just gatherings of practitioners sharing tips and knowledge among themselves, that they are in fact *Communities of Passion*, communities that form around a mutual value for *how* they will interact as much as *what* they will interact about. Their shared passion for the shared experience which binds them expands their understanding and expectation of community membership. Understanding this passion, and the motivations it simultaneously creates and is impacted by, is a task worthy of research, since its potential applications and ramifications are so great.

Chapter 2. Review of Relevant Literature

This study is an exploration of an informal community of unpaid software developers who develop addon software, or *mods* for *World of Warcraft*. Though the addon developer community is much smaller, maybe only several thousand, its efforts are widely used throughout the larger playerbase. Understanding the motivation of this disproportionately influential group offers insight not only on an emergent social phenomenon of user-generated alterations to commercially-developed cultural artifacts such as television, film and software, but also on theories of sociocultural learning practice which have been much discussed for the last 20 years. In developing tools to alter the player experience of a virtual game world, these individuals have coalesced into a Community of Practice (CoP) which offers an intriguing opportunity to explore and contrast against other previously studied CoPs.

Studies of *modders* are increasingly common, but until recently, most explorations of the phenomenon have been largely descriptive. Only recently are linkages being drawn between this activity and other examples of what Jenkins (2006) calls *participatory culture* – a culture where "people who have access to multiple machines consume – and produce – media together, when they pool their insights and information, mobilize to promote common interests and function as grassroots intermediaries ensuring that important messages and interesting content circulate more broadly" (p. 245). Thus, software modding communities begin to look similar to individuals creating mashups of Japanese anime and American rap music, or homebrew rocketry clubs competing to build an entry into a $10 million X-Prize competition (Byko, 2004). Rather than being seen as an isolated example of a small subculture, modding, and the *WoW* addon community in particular, now offers the opportunity to reconsider some larger arguments about learning and knowledge construction.

To this end, three related but separate areas of literature deserve some consideration. Specifically of interest are the sociocultural learning theories which underpin the concept of CoPs, some of the social and organizational practices and values of F/OSS developers, and also the history of videogame modding. The linkage between these three areas, I believe, lies in the questions of identity, motivation and shared

practice – why are these individuals drawn together and motivated to do what they do, and how does the resultant community resemble other groups of F/OSS practitioners?

Communities of Practice: A Sociocultural Theory of Learning

A common component of the cognitive theories that dominated learning research during the second half of the 20th Century was that knowledge represented something held within the individual, and which can be identified, encapsulated and transferred among individuals. As a result of this conception, much effort was devoted toward finding the most efficient ways to encourage and accomplish this transference. There was a focus on developing frameworks for learning, with the assumption that once a framework was in place, discrete pieces of knowledge could be hung on it, much like ornaments on a Christmas tree. Parents or educators were given learning outcomes of specific knowledge in a field with the assumption that they would then be able to methodically pass along predetermined items and processes.

Gradually, however, dissenting views about the effectiveness of this model developed. Objections to the lack of context in the knowledge transfer process were raised. Questions arose about why language, such an important component of our daily interaction, did not seem to be learned well in a vacuum, but instead appeared to be the product of social activity (Brown, Collins, & Duguid, 1989; Brown & Duguid, 1991; Brown & Duguid, 2000). Researchers thinking about these questions went looking for models more situated in the social interactions between people, and in that search, rediscovered the writings of Russian theorists marginalized during the political suspicions of the Cold War. Cultural theories from authors such as Vygotsky and Leontiev were newly translated into English, and their arguments, that learning and knowledge are situated in the activity where it occurs and can not be separated from that context, resonated with an audience looking for model of learning that was larger than an individual's actions (Kaptelinin & Nardi, 2006). As Hewitt and Scardamalia (1998) put it, "understanding is no longer a process of coming to know the entities and attributes that exist in the world, but one of successfully negotiating the meaning of these objects with others" (p. 77).

Lave and Wenger (1991) built on these concepts in their seminal work, *Situated Learning*, when they explored the ways apprentices were brought into a craft. Studying five different examples of apprenticeships – Mayan midwives, Liberian tailors and American butchers, to name three – they recast apprenticeship not as the form of "near indentured-servitude" the term had come to connote, but rather as an entry into a way of life, and individual identity. What they describe is a process where newcomers to the field gradually take greater responsibility as they absorb more of the culture and practice of the field. Normally, this happens under the tutelage of a more experienced member of the craft – an older midwife, or a more established tailor – who either intentionally or organically ushers the newcomer to a more expert role, and importantly, the self-identity of a more expert practitioner.

Lave and Wenger called this entry and learning process "legitimate peripheral participation" (LPP), and described it as process where the learner is gradually enculturated into a greater understanding of the community, negotiating meaning as they progress from novice to practitioner to expert. They took care to point out that there is no negative analog to LPP – participation cannot be illegitimate, nor is there really a *central* participation. Rather, they argue that *peripherality* simply means the degree to which one's participation is relevant to the group – everyone in a community is involved more or less, but that this level of involvement should not be understood as being "in the center" or "on the edge."

This focus on the individuals joined by a common experience of action and meaning - the *community of practice,* as it was termed – meant the analysis had to consider the larger group in which the understanding was negotiated, and that it was shared practice that defined the group. In subsequent writings, Wenger (1998) posited that practice gives three things to a community – mutual engagement which was seen in shared actions, joint enterprise or a set of social ties which lead to a feeling of connectedness and accountability, and a shared repertoire of history and resources. Taken together, these become the glue and boundary of the group. Only in context of that community and practice, it was argued, can an analysis be made of the artifacts produced by the group.

Wenger introduces the concept of *reification* as an explanation of how making meaning can be both a process and an outcome. As a verb, reification is how participants corral, describe and agree upon

abstract ideas – debate students who attempt to articulate *democracy* are engaged in the process of reifying an abstraction into a shared understanding. As a noun, a reification is the container for the shared understanding – so if debate students propose a constitution as a way of articulating the outlines of democracy, the constitution (in printed or verbal form) represents a reification of their meaning-making process. In either setting, reification must be paired with participation on the part of the community members, otherwise there is no one to negotiate the meaning.

Learning and knowledge, then, become the product of negotiating meaning in, and from, the act of practice. Wenger is hesitant to use the term *knowledge*, since the slippery slope of reducing knowledge to a thing or item is so steep, and because sometimes *practice* includes *ignorance*, or not knowing. He finds greater comfort in speaking of *learning*, since changes in practice can be observed. As meaning is negotiated, practice mutates – the participant's engagement ebbs and flows, their social ties with the enterprise shift, and the shared repertoire evolves as new tools and artifacts are produced. A new narrative and history of those items develops, and it is this transformation of understanding about practice within the community we come to understand as learning.

Identity and Motivation in CoPs

As was said before, the unit of analysis within the CoP framework is the community, not the individual. Since individual members of the community come and go, the more lasting attribute of the community is the shared practice which coalesced and formed it: In a real sense the practice <u>is</u> the community. Still, there is an understandable desire to speak of how experience within a CoP is assimilated by the individual, since there must be some individual transformation produced by the experience of being within a larger group. Otherwise, how would the community change in ways other than by the addition or subtraction of individuals?

The answer of Wenger and others is to investigate the identity and the participation of the individual as they engage with the CoP. Wenger breaks identity into two components, the identification the individual has with the larger community, and the degree of negotiability the individual feels toward the shared practices of the group.

Wenger breaks both components into aspects he terms "modes of belonging" – engagement, imagination and alignment. For each mode, he proposes how identification and negotiability might be evidenced by an individual's participation (or non-participation) – as an example, an engaged participant might feel the experience of practice within the community was like being within a close circle of friends, and that their own ideas were frequently adopted by the larger group. The emotional closeness speaks to the individual's identification, while the feeling of being able to impact the group speaks to the individual's negotiability. Taken together, the individual evaluation of these aspects get rolled up into a larger assessment of self identity, and it is the change in this self-image, and the associated change in practice, socioculturalists call learning. As Brown et al. (1989) describe it, "Learning and acting are interestingly indistinct, learning being a continuous, life-long process resulting from acting in situations" (p. 33).

The Evolution of CoP Theory: From Observation to Intentional Creation

What is notable in surveying the CoPs literature of the last 20 years has been the shift from what could best be described as ethnographic descriptions of organically-developed CoPs, to descriptions of attempts to intentionally create a CoP for learning or knowledge management goals. Nowhere is that shift more evident than in Wenger's own work (Wenger, 1998). In *Situated Learning*, the CoPs described are found objects, communities described in anthropological terms to propose a theory. In his 1998 work *Communities of Practice*, the focus shifts from the situatedness of the learning to attributes of the communities that learning is situated in, and he spends significant effort working to highlight indicators that a CoP has formed. From such a list, it is only a short leap of logic to think that if indicators can be identified, then structures can be established to foster and develop those attributes, and his 2002 work *Cultivating Communities of Practice* attempts to do just that. Written not for academic audiences, but rather for individuals (business and otherwise) who want build a learning organization, the book concerns itself with the steps and pitfalls of trying to create a CoP.

Other similar studies can be found. Perhaps because of the simultaneously communal and isolated nature of the K-12 teacher's practice, teacher education has been a common CoP study, as well as

explorations of how to reform and restructure how *students* and *teachers* engage in the process of *school* (Barab, Barnett, & Squire, 2002; Barab & Duffy, 2000). Medical studies, where various practitioner groups are organized as CoPs, have also been common (Bate & Robert, 2002). The findings of these studies, like Wenger's, suggest that in some cases CoPs can be intentionally developed, but that in other settings, the communities fail to gain traction and gradually fade away.

Where these previous accounts of CoPs – either descriptive of a found community, or prescriptive of a planned community – seem to have a shared expectation is in their belief that one of two communal attributes will exist: Either there will be some physical proximity among the practitioners, or there will be some organizational sponsor or established power structure which convenes or facilitates communication among the practitioners. Even Lave and Wenger's original studies of various apprenticeships include some aspect of these factors – Mayan tribal midwives, though distributed, still existed within a limited geographic area which allowed cultural practices to travel from town to town – and Wenger's later study of insurance adjusters was framed within the institutional setting where the adjusters were employed.

The relevance of these more recent explorations of Communities of Practice to a study of the *WoW* addon developer community is two-fold. First, it appears the *WoW* addon developer community would be most closely described as a practice-based community, but that in its activities, there are significant knowledge-based efforts as well. The development of *wowwiki.com* by some of the addon developers, for example, was initiated to capture information about the *WoW* programming interface, but has grown dramatically to the point where it is a reference for a wide range of knowledge related to *WoW*, little of it addon-related (Kow & Nardi, 2010). Other online resources about *WoW* like *Thottbot.com*, an online database about game items and quests, were similarly produced by individuals who at one time participated in the addon development community (Thotbott, n.d.).

The second important distinction is that it is a CoP without a specific sponsor or organizer. In this, it more resembles the "found" CoPs of Lave and Wenger, rather than some of the more intentionally established CoPs of Wenger's later writings. It is a community that is emergent, formed without the structural seeds of a corporate sponsor or geographic proximity. The *WoW* modders, developers writing

largely intangible virtual tools for a virtual world, exist in no specific place other than what they create. Likewise, with no formal sponsorship by Blizzard, there exists no organizing power to impose order or formative direction on the individual participants. Yet, a community has developed, websites have been built to distribute the products of their practice, and communication tools routinely pass discussion and argument to locations around the world. Somehow, something other than proximity and power structure has sparked a vibrant and functioning community.

It seems clear the spark in question is that of passion and participation – of a motivation to create, to share the results of that creative impulse, and to be recognized for their individual contributions to others. The members of these communities, of these participatory cultures, are simultaneously consumers and producers, and their opportunity to engage others is enhanced and expanded by the communication tools facilitated by the rise of the Internet. More than that, however, these communities seem to be engaged in a sort of meta-critique of the tools and conditions in which their practice occurs – that within their action, there is an expression of how something can be different, or should be different, and that their own practice is a way of communicating their vision of how that difference should be reified.

It is with this in mind that we turn to the phenomenon of F/OSS development. Because both F/OSS and *WoW* addon developers use and produce software within their practice, are distributed in nature, and seem grounded in philosophical assumptions that community members can and should work to produce commonly-held goods, there seem to be enough commonalities that studies of F/OSS may offer insights into the less-studied modding communities, and the motivations of the community participants.

Free and Open Source Software Development as a CoP

Open source software is generally identified as software which is the result of an open development process, and it is important to understand the emphasis placed on *process*. Distinguishing it from a *firm-based* development where the software evolves under the control of the firm, Eric Raymond (2001) described open source development as “a great babbling bazaar of differing agendas and approaches.” Often the contributors are geographically distributed and rarely meet, instead using a variety

of communication tools to write code, post errors and propose solutions. E-mail mailing lists, Internet Relay Chat channels, concurrent versioning systems, blogs and wikis are all common tools (Yamauchi, Yokozawa, Shinohara, & Ishida, 2000). Changes to the software can be made by many people, and many times a day. Organization is usually done through some sort of loose governance structure where a core set of developers have final say in which changes are committed to the software package, but a much broader group of developers and users can post bug fixes and potential solutions.

On the other hand, the attraction of F/OSS to many users is in its *free-ness* – that is, in the low cost of acquisition. While there is a cultural awareness F/OSS is largely the product of unpaid, volunteer developers, and there are occasionally statements of appreciation for the apparent altruism of the F/OSS community, often what attracts consumers to F/OSS products is that it has no apparent upfront cost. In comparison to firm-based products, a user does not have pay upfront to determine whether the software tool meets their need; they simply download, install and use. Of course, it is not always so simple, but there is an ethos around F/OSS that speaks to empowerment – if one can obtain and install a F/OSS product, there are few other restrictions or requirements (Bessen, 2005).

It is hard now to overstate the impact of F/OSS on modern communication and information systems. It underpins the Internet's basic communication operations, powers cell phones, and is the operating system for consumer and corporate computers (Beavis, 2008; Hars & Ou, 2001). It is largely the work of unpaid contributors throughout the world, though many corporations have found value in contributing the paid efforts of their own personnel to various F/OSS projects. A wide range of individuals and corporations derive significant earnings from F/OSS, but do so without ownership of the underlying software. Instead, they profit from the value they add to the projects, and to the services they provide to other users of the software. It is a dramatic shift from the previously more dominant model of corporately-developed and owned software, which focused more on deriving profit from providing access to the software, rather than assistance in using the software.

F/OSS is not inherently different in its function from software developed by corporate developers. In fact, both flavors of software can co-exist on a shared platform – for example, a Microsoft server can

be configured to run either Microsoft's web server or an F/OSS competitor, Apache (Fielding & Kaiser, 1997). The end user sees no difference in the resulting web pages. The difference is in the software's origin and development, and the ownership of that development process.

Raymond contrasted the open, *bazaar*-style development of open source software with the closed, corporate model which he termed the *cathedral*, where only the initiated were granted access to the inner sanctum of software development. The problem Raymond identified with the cathedral-style of software development was not that users do not have access to the software source code, but rather that no matter how expert and large the development team, it was still smaller than the potential user base. As a result, the range of uses and conditions the user base encountered would always be more varied and complex, and more stressful on the software, than the developers could anticipate.

In comparison, Raymond (2001) observed Linux users reporting the bugs, and taking it upon themselves to contribute fixes. As he termed it, "Linus's Law" is that "given enough eyeballs, all bugs are shallow". Obviously, in order for this sort of bazaar-driven software development to occur, the community must have full access to the software code, and from this fairly pragmatic reality, a much larger philosophical underpinning has emerged.

The Motivations of F/OSS Projects

Lerner and Tirole (2002) ask a question often asked in some form in studies of F/OSS:

> Why should thousands of top-notch programmers contribute freely to the provision of a public good? Any explanation based on altruism only goes so far. While users in less developed countries undoubtedly benefit from access to free software, many beneficiaries are well-to-do individuals or Fortune 500 companies. Furthermore, altruism has not played a major role in other industries, so it would have to be explained why individuals in the software industry are more altruistic than others. (p. 2)

This is especially true since not every F/OSS project succeeds, and not every F/OSS project grows into a large community project. Krishnamurthy (2002) surveyed roughly 30,000 projects housed on SourceForge, a large development repository for F/OSS projects, and found that of them, less than 5000 reached a point where there was a stable software package released, and only 480 had developed into a mature software package. More telling was that when the top 100 mature packages were surveyed, 80

percent had fewer than 10 developers, and 20 percent had only one developer. Clearly, while there are some high profile projects which attract many contributors and significant information, there are many more that are small labors of love, and which may or may not develop to fruition.

Several studies suggest F/OSS projects offer three attractions which motivate participants: An intrinsic development experience similar to scientific discovery, an individualistic programming style which feels like creating art, and the pleasure of a creativity hard to find in the face of deadlines and corporate restrictions (Lakhani & Von Hippel, 2003; Lanzara & Morner, 2003; Scacchi, 2002). In addition to echoing most of these findings, Lakhani and Wolf (2005) also note the positive impact of extrinsic factors such as reputation within a community, career advancement (many F/OSS developers use their contributions as examples of their skill when seeking new employment), and pay, since some firms have made the choice to invest in F/OSS to further their corporate goals. Unsurprisingly, individuals paid to work on F/OSS projects were shown to invest more hours per week on them than unpaid participants.

One motivation which perhaps seems more obvious than it actually is, may simply be the opportunity to contribute. Von Krogh et al. (2003) analyzed what they termed *joining scripts*. Drawing their research from public e-mail archives of developers working on a F/OSS project called Freenet, joining scripts are the introductory statements made by new participants to an open source project. In it, they noted these scripts tended to have some commonalities, including an expression on the part of the new participant that they were joining (often after a period of anonymous *lurking*) because they perceived an opportunity where they could contribute to the project. This suggests an opportunity for software projects (F/OSS and otherwise) and their surrounding communities, that if software is designed to be modular and extensible, it creates a perception of welcomingness which is attractive and inviting, as well as the perception of an opportunity to contribute new work. Likewise, they suggest, if a F/OSS community wants to encourage participation, it should seek ways to publicize its unfilled needs – by clearly articulating current opportunities, as well as the most effective way for newcomers to contribute. This last point is significant: Von Krogh's study found the newcomers who were accepted most quickly were those whose joining script included clear examples of the technical expertise they brought to the

community. As one developer described it, a newcomer who says "'I started working with it. I saw these problems. I fixed them. Here they are.' That person gets in" (Von Krogh, 2003, p. 1229).

Also intriguing are Hertel, Niedner and Herrmann's (2003) findings in a study of the motivations of those working on the Linux Kernel project. In the study, the researchers engaged Linux developers in a two-phase process – first, they solicited input through the developers' mailing list on a survey instrument about motivations, and then followed this up with a request for community members to complete the survey. The researchers used two frameworks within the final survey - one designed to collect general motives and values, while the other explored four attributes (*valence* or emotional value, *instrumentality* or perceived ability to effect change, *self-efficacy*, and *trust*) in an attempt to predict the motivation of those who actually contributed to the Linux project, and in turn, how much time the respondents spent on Linux projects. As it turned out, the strongest predictors of time spent on a F/OSS project was the individual's mental self-concept – their identity – as a Linux developer, and their affinity with particular subsystems of the project. Close behind this were the participant's ability to devote time to developing code, and their expectation that they would use Linux for their own personal benefit in the future. Notably, the study also found those who most strongly reported a self-identity as a *developer* seemed to be least likely to have an affinity with Linux *users* – that they maintained a mental separation between the two populations.

Community as Product, not Byproduct, of F/OSS

It is important to understand that community is not just a byproduct of F/OSS developers, but that it is often a direct goal of their activity. Scacchi (2004) found participants in the F/OSS community enjoy being a connection between multiple projects. As he describes it, "being a central node in a network of software developers who interconnect multiple FOSS projects does not only bring social capital and recognition from peers. It also lets independent FOSS systems merge into larger ones that gain the critical mass of developers to grow even more and attract even larger user-developer communities" (p. 64). Citing a survey that showed more than 60 percent of F/OSS developers participate in two or more projects, Scacchi argues "this effectively interconnects not only independent system projects into a larger

system architectures, but also interlinks their meritocracies, practices, and social control. This enables the collective system and community to grow more robust together" (p. 65).

Lakhani and Von Hippel (2003) found a similar motivation in their exploration of the community-developed resources (website and online forums) to support the Apache web server software. Since F/OSS projects are documented generally in the same fashion as they are developed – collaboratively by volunteers – the question about motivation remained relevant. The researchers reviewed four years of online forums to quantify the rate at which individuals asked questions about Apache (these were termed *information seekers*), and the rate at which individuals responded to these questions (called *information providers*). What they found was that from a population of 11,500 individuals, 57% only asked questions, 21% only answered questions, and 22% did both. More significant was that well over half of the answers came from the 100 most prolific posters. Lakhani and Von Hippel followed up with a survey sent to 200 individuals to explore more completely their motivation to develop F/OSS documentation. Their resulting analysis was that community-driven websites – sites like *LinuxQuestions.org* or *Linux.com* (and in the *WoW* community, *wowwiki.com*) – are attractive because of the personal value the reified information provides to participants, and because participation offers an opportunity to develop a personal reputation:

> The public posting of both questions and answers created a site that potential information providers wanted to visit and study, in order to gain valuable information for themselves. In addition, the public posting of answers with the names of providers attached created the possibility of gaining reputation and related benefits through helping. These specific features of help site design were probably the result of happenstance rather than intent—but they appear to be crucial to the successful functioning of the system we studied. (Lakhani and Von Hippel, p. 940)

F/OSS as Commentary and Communication

In his book *Two Bits*, Kelty (2008) argues that quite beyond simply being developers of software who may or may not be motivated by ideology, F/OSS communities care about protecting the conditions that bring them together and facilitate their activities. Terming these communities *recursive publics*, he suggests they "use technology as a kind of argument, for a specific kind of order: They argue about

technology, but they also argue through it. They express ideas, but also express infrastructures through which ideas can be expressed (and circulated) in new ways" (p. 29). Software, he states, takes on much broader social significance than whether it is "free" or not. Software becomes both artifact and argument, with social and philosophical overtones.

Kling and Iacono (1988) have termed this transition from technological method to social construct as a *computerization movement* (CM), stating "CMs are a kind of movement whose advocates focus on computer-based systems as instruments to bring about a new social order" (p. 228). There is about the concept an important component of macroeconomic scope – someone setting up their own personal computer is hardly a movement, but the penetration of personal computers into households around the world over the last two decades certainly would be a movement.

More than this, however, the very existence of F/OSS represents a critique of some historical assumptions about collaboration and innovation. As Baldwin and Von Hippel (2009) write, governments have historically assumed the source of innovation comes from individual or firms working in isolation, so the natural response has been to establish laws that encourage those individuals and firms by guaranteeing them the right to control and profit from their innovative work. Additionally, they point out that throughout the Industrial era of the late 19th and 20th centuries, most intellectual property was replicated and distributed through mass production. As a result, the infrastructure needed to make innovation productive was quite significant – Henry Ford developed a massive company in order to produce his intellectual property: the mechanical systems represented in a Model T. The sheer cost of developing and operating a large company meant protecting their innovation was of utmost social and economic importance.

For Baldwin and Von Hippel, F/OSS stands that idea on its head – it argues that the more appropriate stance is to protect and encourage the opportunity for individuals to participate, to collaborate and to freely engage with the basic knowledge and tools that underpin innovation. Instead of emphasizing the right to profit, F/OSS emphasizes the right to individually participate and innovate. And, because the Internet has so dramatically reduced the communication and distribution costs for software and

information, as well as reducing or removing geographic barriers to production, the need for massive corporate infrastructures has been largely eliminated. F/OSS represents a new hybrid model of intellectual activity, one which allows for the individual participation and craftsmanship of the pre-industrial village inventor-craftsman, but also mass distribution of the end product (similar to corporate business models), this time through the more frictionless distribution tools of the Internet. As a result, *openness* as a concept becomes more than a methodology, it becomes a tool to benefit social welfare, and within the community, advocacy for openness can take on almost religious overtones.

The writings of Richard Stallman are an obvious example of this evangelistic tone. The founder of the Free Software Foundation in 1985, Stallman has worked consistently, and sometimes stridently, to promote the development of software that did not restrict the rights of the user (Elliott, 2008). The commonly cited phrase is "'free' like 'speech,' not like 'beer,'" but is more specifically defined as four freedoms:

1. The freedom to run the software for any purpose.
2. The freedom to study the program, and through access to the underlying source code, adapt it to specific needs.
3. The freedom to redistribute copies to help those who receive it.
4. The freedom to make and release improvements to the software to the public so that the entire community benefits. (Stallman, 2009)

The distinction (and sometimes the controversy) between software that is termed *free* and that which is only *open source* lies in whether all four of the conditions above are met. It is possible through licensing for a software developer to give away the source code for software they developed, but restrict the user's right to further distribute the software. For Stallman, this would fail to be free – it would be "free like beer," but not in terms of individual liberty.

Not surprisingly, in the bazaar, there will exist a variety of perspectives on how free software should be, both in terms of liberty and cost. For Stallman, the issue gets drawn in stark terms, because the conditions of the software licensure have the effect of advancing a social as well as a utilitarian goal. Not everyone in the community takes as rigid a position. For most end users and many developers, the

distinctions are less important than the basic principle of access to the code, and the ability to draw on the collective intellect of the community.

Tim O'Reilly (2004) is one such user. Publisher of an influential series of guides and manuals to F/OSS products, he has also emerged as an organizer of events for F/OSS developers, and as an advocate for more flexible understanding of developers' ability to choose between free, open, and closed licensures. In a series of speeches beginning in 2003, then culminated in a published article, O'Reilly (2004) worked to identify how open source practices had shifted the software industry's perspective of itself, and on its social impact. The paradigm shift he identified fell into three areas he termed "long-term trends":

1. The commoditization of software
2. Network-enabled collaboration
3. Software customization, or software as a service

These trends, O'Reilly argued (2004), have had long-lasting and deep changes in not only our thinking about software, but also society. The commoditization of software, he suggests, has meant that no longer does it matter whether the web-serving software is Microsoft or F/OSS, since both must adhere to shared, non-proprietary protocols to survive and succeed. This facilitates O'Reilly's second trend, since the closed, proprietary systems represented barriers to easy collaboration – users can focus on their end goals rather than working first to ensure interoperability. And finally, when interoperability is an issue, or new or different functionality is needed, the openness of the software licensure allows for the user to initiate that change – software becomes a malleable tool adaptable to the need, rather than an inflexible assumption to be worked around.

More than this, though, O'Reilly (2004) urged his audience to broaden their understanding of "open-source-ness," and his conclusion is worth reading in its full breadth:

> The open source story is far from over, and its lessons far from completely understood. Rather than thinking of open source only as a set of software licenses and associated software development practices, we do better to think of it as a field of scientific and economic inquiry, one with many historical precedents, and part of a broader social and economic story. We must understand the impact of such factors as standards and their effect on commoditization, system

> architecture and network effects, and the development practices associated with software as a service. We must study these factors when they appear in proprietary software as well as when they appear in traditional open source projects. We must understand the ways in which the means by which software is deployed changes the way in which it is created and used. We must also see how the same principles that led to early source code sharing may impact other fields of collaborative activity. (p. 1)

It is this last point that is most relevant to this study. That is, quite beyond the realm of software development, the practice of sharing (code or otherwise) builds communities where collaboration can occur, and within the practice of those communities, identities are formed and altered. While portions of Blizzard's own code are obscured, by allowing the code of others to modify the game experience, an opportunity to participate was created. Intrinsic to this study is a question of whether or not the oft-stated values of openness (or *opportunity*) seen in studies of F/OSS motivation also appears in the *WoW* addon community, and indeed, whether cultivating that openness is cited by community members as a priority. To explore this, then, it makes some sense to turn briefly to a history of game modding, and understand why modding and F/OSS have some linkages.

A Very Short History of the Rise of Game Mods

The phenomenon of modding is not new, but its practice has greatly increased in the last several decades. Today's mods tend to fall into three general categories: total conversions, user interface alterations, and user-generated narrative content. Conversions take an existing game and remake it into a completely new game. The other two varieties have a less fundamental impact on the ruleset or environment of the game, but instead alter how the player interacts with the game, or augment the narrative experience presented to the player.

Almost all current mods function because of a conscious choice by the game developer to open up the game to user contribution. This has not always been the case. Some early mods were the result of creative but unauthorized alteration of game files (Au, 2002). An early example was a conversion of Castle Wolfenstein, a Nazi-themed arcade shooter, into Castle Smurfenstein, an arcade shooter where players hunted the Smurf characters from the Saturday cartoons.

Game developers in the late 1980s and early 1990s noticed, and in some cases, approved of the mods, probably because they were generally similar in ethos to the videogame culture of the era, which had still a whiff of the underground about it. However, it was not until id Software founders John Carmack and John Romero released *Doom* in 1993 (Kushner, 2004) that the idea of industry-encouraged mods really entered the mainstream.

The request id Software made of mod developers was that the mods only work with fully-purchased copies of *Doom*, rather than the shareware versions released as a marketing tool. Beyond that, the company did not limit the mods' ability to alter the game, and as a result, *Doom* mods proliferated.

The success of the modding efforts on the id games did not go unnoticed in the rest of the computer game industry. Perhaps the pinnacle of the total conversion mod was *Counter-Strike*, a complete conversion of the popular game *Half-life*. A first-person shooter set in a science fiction setting, *Half-life* released to significant success in 1998 (Kushner, 2003). The primary developers, Valve Software, had been heavily influenced by modding, so shipped a game editor with the game. Valve also held "mod expos" to encourage *Half-life* mod developers.

Counter-Strike debuted at one such event. Rather than a single-player game played in the science-fiction setting of *Half-life*, *Counter-Strike* was a multiplayer game where teams of players played as terrorists or counter-terrorists set in a vaguely Middle Eastern setting. Wildly popular, Valve ultimately bought the mod from the developers and sold it bundled with *Half-life*.

In the decade since *Half-life* released, software publishers have increasingly come to expect and allow modding for their games, but with a variety of freedoms afforded the end users. As a result, software publishers now have expanded their business decisions to include challenges akin to those of regulatory agencies – that is, they now must also set guidelines and controls for what others <u>may</u> do inside their gameworlds, but without the ability to tell modders explicitly what they <u>will</u> do. In a study of *Second Life* developer Linden Labs, Malaby (2009a) describes this challenge as one of *authority* – a limited ability to create reasonable controls, but still allowing for creativity and the unexpected outcome.

"Governance in all its forms is best seen as the outcome of a dance between efforts to control and the various and generative sources of contingency, including improvisation, evasion and innovation" (p. 133).

Unsurprisingly, MMOGs have embraced this challenge in differing ways, accepting mods to varying degrees. *Lord of the Rings Online*, for example, does not allow user-generated content. *Warhammer Online* and *Age of Conan* allow for some limited customization. A recent visit to a popular website which hosts mods for download showed less than 600 available for *Warhammer* and 150 mods for *Age of Conan* (Curse.com, 2009).

The same site hosts more than 4,500 addons for *World of Warcraft*. An array of other sites throughout the Internet host guides to *WoW* addon development. *Wowwiki*, a fansite with no official support from Blizzard, maintains the most referenced guide to the *WoW* Application Programming Interface (World of Warcraft API, 2009). There are several active Internet-based chat channels devoted to the development of addons. Developers from all over the world come to these channels to chat, get assistance, solicit feedback, and discuss the intricacies of the game. Clearly, *World of Warcraft* has attracted the largest share of addon development among MMOGs, so the resultant community offers significant opportunity for exploration and research.

Game Modding and F/OSS: Similarities and Differences

It would be a mistake to describe mods as F/OSS – a mod developer or development team can choose whatever software licensing model they choose, and the resulting product can be as open or closed as any other software product. Some mods are sold, while many more are distributed free of charge. Add to this the fact game mods can be deployed in a variety of forms – as easily read scripts, or as compiled executable files – and it is easy to see there is no single kind of mod. Rather, it comes down to decisions made by the game developer, and then by mod developer, which defines how "open" or "free" the mod is.

Instead, as Scacchi (2010) describes it, the similarities between modding and F/OSS are found in the fact the developers are also the consumers:

> Modders are players of the games they construct, just like F/OSS developers are users of the systems they develop. There is no systematic distinction between developers and users in these communities, other than there are users/players that may contribute little beyond their usage,

> word of mouth they share with others, and their demand for more such systems. At F/OSS portals like SourceForge.com, which in December 2009 indicates more than 380K projects are registered in its repository, the domain of "games" appears as the third most popular project category with over 38K projects, after the domains of "software development" and "Internet." … So the intersection of games and F/OSS covers a substantial social plane, as both modding and F/OSS development are participatory, user-led modes of system development, and both rely on continual replenishment of new participants joining and migrating through project efforts, as well as new additions or modifications of content, functionality and end-user experience. (p. 1)

In the case of *World of Warcraft*, the choices made by Blizzard seem to have pushed the addon community to a more "F/OSS-like" model than other games have. In a policy which sparked some controversy when it was released in 2009, Blizzard required *WoW* addons to be distributed for free, in a freely-readable format, and without any in-game advertisements or donation solicitations (World of Warcraft User Interface Add-On Development Policy, 2009). While the question of whether Blizzard could legally prevent an addon developer from selling their own software product has, to date, been untested in court, the addon community seems to have accepted the restrictions. As one forum poster put it, "After reading this I am inclined to somewhat agree with Blizzard after all *WOW* is there [sic] game and other people making money off there [sic] game (while it is done in a number of ways) should be limited by the company that owns the rights to the game" (AsheruWolf, 2009).

However, it is hard to deny that much about the *WoW* addon community, and in the larger game modding phenomenon, resembles F/OSS development communities. Foremost among the similarities is that, even before Blizzard's 2009 policy announcement, the overwhelming majority of addons were distributed free of cost to anyone who chose to download them. Some developers solicited donation, but for the most part, players assumed addons were "free" to use.

Likewise, the ability of individuals to become addon developers is largely unfettered. Addons are written in a F/OSS scripting language, Lua, which can be written in any text editor (Ierusalimschy, De Figueiredo & Celes Filho, 2005). Documentation for the language can be found easily on websites and in books, and because Lua files are text files, there are no barriers to prevent an aspiring addon developer from opening the work of another developer to learn techniques and methodologies. In terms of "free, as

in liberty," Blizzard's choice of Lua as a tool meant the F/OSS assumptions of access to code were generally guaranteed from the start.

Whether addon developers consider their product to be *open* is of some interest to this study, primarily as an indicator of how newcomers to the community are to demonstrate expertise or enculturation. As was described earlier, a commonly expected way to enter F/OSS development is to propose, or even deliver, alterations to existing software code as proof the newcomer knows something about the field. Considering the addon community, one question is whether this same sort of joining script is assumed to be the norm.

What little research on the question exists suggests it is not. In their research into the addon community, Kow and Nardi (2010) found while addons are freely downloadable and could be modified by anyone and redistributed, this has not been the practice. Instead, *WoW* addon developers have observed a practice of assuming an addon can have only one owner; others may offer bugfixes and suggestions, but ownership is still individually held. Abandoned projects presented an interesting challenge – a waiting period of an indeterminate time was observed before another addon developer would attempt to resurrect the project.

The rise of ethical conventions of this sort is fascinating to our evaluation of this community. The fact addon developers have come up with their own social convention which seems to represent a hybrid copyright makes their community seem something other than a clear F/OSS community. By their actions, they seem to have negotiated a sort of relationship which simultaneously makes the reified knowledge – the produced software - open and free (as in "liberty") to all, but is also respectful of the contributions of individual members.

Kogut and Metiu (2001) argue that in this nature, F/OSS communities, and perhaps the *WoW* addon developers, are strongly similar to academic research communities:

> Open source software appears as less puzzling when its production is compared to the production of research in an academic community. Science has often been described as a conspiracy constructed to provide incentives to researchers to invest their time for the production and public dissemination of their knowledge. To support these efforts, there are strong norms regarding the public ownership of knowledge and the importance of public validation of scientific results.

> Scientists are rewarded by status and prestige that can only be gained by the public dissemination of their research. In effect, the norms regarding research and its publication are aimed at rendering scientific results into a public good that can be accessed by one party without diminishing its consumption by another. (p. 250)

Likewise, Lerner and Tirole (2002) offer an argument which creates a comparison between F/OSS and academic research, by proposing that many in F/OSS communities further their own professional opportunities by participating. Contribution to the F/OSS projects, they suggest, signals a level of merit or expertise that participants use to generate future career options, as well as ego gratification from the recognition of peers.

Ye and Kishida (2003), however, do perhaps the best job of making explicit the linkage between the F/OSS experience and more traditional learning communities:

> We argue that learning is one of the driving forces that motivate developers to get involved in F/OSS projects because it provides the intrinsic satisfaction for F/OSS developers, and the role transformation in F/OSS communities that go along with learning offers the extrinsic motivation.
>
> Software systems are cognitive artifacts whose creation is a process of knowledge construction that requires both creativity and a wide variety of knowledge about problem domains, logic, computer, and others. In this sense, software systems, like books, are a form of knowledge media. … When the source code become accessible to users, the knowledge and creativity therein also become accessible, providing the initial learning resource that attracts users to form a community of practice around the system. By participating in the community, developers and users learn from the system, from each other, and share their learning with each other. (p. 425)

Two Perspectives on the Motivation of Modders

As was stated at the outset of this chapter, the number of studies that look at the motivation of modders is small. To date, the explanations for why individuals would do such complex work, and then give it away, seems to fall into two general but distinctly different categories. The first category I would describe as the *Conscious Modder*, an image that describes the modder as motivated by personal reasons of creativity, or play, or the possibility of future employment options. Studies of this variety all seem to be derived from direct contact with modders in some way. The second category I would term as the *Unconscious Modder*, and these studies have an image of a modder with much less personal knowledge of what their true motivation is. These critiques tend to have a Marxian perspective of modders' place within the world as laborers being directed (overtly or otherwise) by capitalist forces. These two

perspectives are so opposed in their picture of the modder's agency that it makes sense to explore them in some detail.

The picture of our Conscious Modder has been shaped by a variety of descriptive studies which, in general, have not asked directly about motivation. Instead, these studies have focused on describing the phenomenon and the contexts where it has been observed. As a result, there are a variety of studies which are valuable in their descriptive content, but leave the question of the motivational "why" largely unaddressed.

Kow and Nardi's study (2010) of the differences between American and Chinese *WoW* modders is an example of this. In interviews with 19 Chinese modders and six American modders, the researchers identified significant differences in the cultural approach to modding. American modders, they found, felt more equality in their relationships with other modders in the community – it was viewed as peer-to-peer – while Chinese modders developed a more hierarchical community structure. Entry to the American community had low barriers, while access was more tightly controlled and vetted in the Chinese community.

Interestingly, trust within the communities was found to be inverse to the control of access – American websites which aggregate *WoW* addons displayed little suspicion or concern of sabotage from other websites, and the modders who developed the sites met often, online and in person. Their Chinese counterparts, challenged perhaps because of issues around the ownership of intellectual property and the spread of malicious software, had little contact outside trusted circles. The authors argue it is perhaps because of these trust questions and cultural power structures that the Chinese modders focused less on the creation of new mods, and more on the localization and distribution of existing mods. This is not to imply Chinese modders are less creative, but rather that they found their most important function to be one of providing their constituent playerbase with quality control and filtering. American modders, on the other hand, were seen to focus on the more individualistic pursuit of personal solutions to personal problems. Put another way, the Chinese modding experience described by Kow and Nardi (2010) was much more one of governance, while the American experience focused on innovation and production.

Still, within this study, there is very little concrete about motivation. The one exception is a statement made by an American mod developer who stated "Do you like watching download counts? I love watching download counts ... it's just kind of a ... fulfilling thing" (p. 7) Clearly, for this developer, visible adoption of his efforts was a powerful motivator – that in the absence of feedback from users, the sheer number of potential users became a source of satisfaction. Seen this way, modder motivation has strong analogs to other expressions of communication and creativity – authors watching their Amazon sales rank, or Twitter posters trying to differentiate their authority within the community (Ridley, 2010; Sukernek, 2008). Motivation, in this setting, is described in terms of an individual search for meaning and satisfaction – or *identity*, in a term that resonates with our previous CoP discussion. It is also important to note that Kow and Nardi's work shows motivation can be affected by culture; what is true of Western modders might not be seen as strongly in modders from other cultural traditions.

The other most explicit exploration of modder motivation is found in the work of Hector Postigo. Beginning with research that explored the community of volunteer moderators at America Online in the early late 1990s and early 2000s, Postigo (2003, 2007, 2008, 2009, 2010) has turned his attention to a variety of examples of user-generated media. It is within several of these studies that the best and clearest firsthand examples of individual motivation of modders can be found.

The first study is Postigo's 2007 exploration of modders working on the first-person shooter game, *Battlefield 1942*. In it, he interviewed a number of modders (the exact number is unclear), and from those interviews emerged three themes: that modding can be an artistic endeavor, that modding brought the player-authors closer to the game and deepened their knowledge and appreciation of the game experiences, and finally, that modding represented a way for an individual to enter the game development industry.

The last theme is an important one. There is considerable mythology surrounding modding as an entrée to more professional game development positions. The example of *Counter-Strike* is obviously most frequently cited, but other more nebulous examples are often seen across the Internet – for example, a blog by a game developer, which argued

> Perhaps the best way to get a job in the industry in today's market is to make modifications or "mods" for popular games. More than 1/3 of Raven Software's employees were hired straight out of the mod communities for Quake or Unreal engine games. More often than not in this business, it's "not what you know, it's what you can show." Keep that in mind... (Hoekstra, 2004)

Yet this wisdom is often debated. "How many modders get jobs in the industry, though - is it like musicians getting signed to labels in terms of percentages?" (Karmafan, 2007), while another argued

> It's easier to gain EXPERIENCE through modding than trying to produce your own standalone game to ship, which is what a majority of dev jobs require. It's also cheaper. I agree that people who go into modding hoping to be the next <insert CS, DoD or TF team member here> are stupid however :P .(Wraiyth, 2005)

Clearly, there is an awareness among modders that no single path leads to professional employment.

Postigo followed up his 2007 study with another (2010) where he evaluated two community-generated surveys of modder motivation. One of these, a survey initiated by a forum moderator at moddb.com, a large modding community website, asked specifically "Why do you mod?" The answers are sufficiently telling that looking at the original source is enlightening.

The initial post was made by Stringed_Evil (2005):

> This is a discussion about mods, and particularly why you guys are doing it.
> What is your primary motivation for working hard for a year or two on a project?
> The two basic categories I'd put the majority into would be:
> 1. Looking to be a pro: Gaining experience or building media content for a portfolio, to hopefully land you a paying game dev job.
> 2. Hobbyist: you want to create your favourite game in your spare time, modding rocks.
>
> Or another reason? I'm just wondering about the main driving force behind this whole community and "interest".

Obviously, the survey itself presents some limitations, since the author so clearly circumscribed the potential answers by defining only two potential motivations. Even so, the responses hold interest.

In total, there were 52 responses to the thread, 24 of which cited hobbyist motivations, while 12 listed aspirations to work in the industry professionally. Throughout the thread, however, there was an awareness that modding and game development had differences, and this was brought most into focus when BMRLiquid (2005) posted several days into the thread:

> I mod for the fun of it and to express my game designs.
>
> I am also a level designer in a games company, and I've got a few tidbits of info to share related to all of this.

> I would not have got the job had I not been a modder.
> Being a successful modder (mapper, whatever) shows you have a lot of self-motivation as well as the talents required to do the job.
>
> I still feel the need to mod because the work I do cannot satisfy my creativity in the same way, and won't ever until I get into a senior position where my opinion will form parts of the game in significant ways.
>
> Modding allows me to express my ideas in their purest form - no publishers changing things or people above me in the chain of command saying "yay" or "nay" about my work.
>
> Also, you guys might find it interesting to know that a couple of people in the games company where I work have been attracted to modding AFTER getting their jobs, simply because they too feel like they have no real creative work to do in their day jobs, no real satisfaction....

Two posts later, CGApollos (2005) made what might be the prototypical pure "modder" answer:

> I do it for the fun of it, and I would just love to be a game designer. Modding is great because it requires little money, and it's just great to show your talent to the world around you. The only downside is that it takes time, and you don't get a good profit from it, or a profit PERIOD. But in the end, it's all worth it when you are playing a game, on a good game engine (Good developers did it.), and the gameplay/story and everything is the way YOU want it, not everyone else's. … That's what started me into this, I had no modding talent until June 2004 when I joined some forums and asked questions. I wanted to have a USA Infantry General on Zero Hour. Everyone was so nice to me, and I thought it was so cool I could do it myself! I then kept working on it and working on it, and I just gave it up because I was noobish and got too many bugs ... I now brought back the idea in January of this year, studied hard on EVERY step on making a mod, all the code, how to do EVERYTHING, and now I am making The Combine Conspiracy. I started in May 2005. Mods have made me want to be a Game Developer, because you get all the fun of being one through modding. That's my reason.

Clearly, Postigo (2010) says, there are overlaps in these responses. "For modders, the notion that drives modding is its power as a creative form; its power to communicate ideas and to channel the self. For the designers … it seems the same." For both groups, however, it seems fair to characterize them as willing agents, individuals acting of their own volition in pursuit of their own goals. That is, as I describe them, they are conscious modders, intentional participants in a CoP.

Playbour: An Alternate Image of Participation

There is, however, another lens through which to consider this phenomenon; one which suggests *WoW* addon developers are unwittingly being manipulated to contribute to the financial gain of corporate game developers, but receiving no financial benefits for their efforts.

Here, too, Postigo's work (2003, 2009) provides some of the clearest examples, in studies of volunteers who worked for America Online (AOL) in the mid-1990s. In this case, the volunteers functioned as peer mentors and experienced guides for newcomers to AOL. Because the World Wide Web had not yet penetrated the public experience, the company had a significant need for assistance in teaching novices how to navigate through what was a graphically-enhanced online bulletin board system. Volunteers who spent an hour helping newcomers had their own personal account credited with two hours of service. For individuals intrigued by the new online world, the arrangement significantly defrayed the costs of their own personal habits, especially since AOL at that time billed an hourly rate for its services.

Then in 1995, AOL announced it was moving to a flat $15.95 monthly fee, and simultaneously, converting the status of the volunteers from quasi-employees, to unbilled accounts with no administrator rights. Volunteers suddenly saw their time massively devalued, and several filed suit for back pay. What had been a social activity with some accompanying rewards of personal prestige and satisfaction, was converted overnight to a much-devalued and more constrained participation.

A similar relationship is described in a study of Auran, an Australian game developer who produced a train simulator, *Trainz* (Banks & Humphreys, 2008). Auran actively cultivated fan content by sharing tools which allowed players to import three-dimensional models of locomotives, and to make rail layouts, and then share them. Seeing the quality some players were able to create on their own, Auran allowed players to sell their creations, and also enlisted some to help add content to their own commercial release.

What Auran failed to plan for was that, by enlisting player-creators to work on their commercial release, they were suddenly creating a huge additional, but informal, development team which needed technical support. Unable to respond to the increased number of requests from player-creators, the developer's reputation with their most passionate players fell. Influential creators became disillusioned, and what had been a hobby became less playful and more worklike.

In the analysis of both descriptions cited above, the authors point to several notable works and argue that this phenomenon of user-generated content – whether it is a *WoW* addon or a virtual train locomotive – is in fact a new labor relationship unlike any we've seen before.

The first work cited is that of Terranova's (2000) Marxian critique and approach to describing user-produced content. While not exactly the same as an industrial laborer manufacturing Model T automobiles in Henry Ford's factory, Terranova argued the gift economies surrounding fan websites, or F/OSS projects, or game modding contests are no less a form of labor, and unpaid at that. This *social factory* is where passionate participants in one knowledge-based activity or another are put to work for what Marx would have called capital. As she writes, "free labor is the moment where this knowledgeable consumption of culture is translated into productive activities which are pleasurably embraced and at the same time shamelessly exploited" (p. 37).

Kücklich (2005) takes this concept directly to game modders, coining the term *playbour* to describe a type of activity where gamers' leisure is being commodified. That is, when leisure activities suddenly take on some form of extrinsic value beyond what it meant to the individual, that leisure suddenly becomes *productive* and takes on some aspect of labor. If the product is given away within a gift economy, but leads to financial gain for a game developer, then the relationship between player and company takes on more exploitive overtones.

Importantly for this study, Kücklich (2005) argues specifically that modding is treated worse than F/OSS development because of the lower standing gaming holds in the social awareness:

> The most important distinction, however, between open-source software development and modding are to do with the cultural status of these activities rather than the intellectual property regimes they fall under. Partly due to the commercial success of open-source software such as Linux and StarOffice, the development of "free" software has come to be seen as a valid, if slightly eccentric, form of work. Modding, on the other hand, still has to struggle to free itself from the negative connotations of play: idleness, non-productiveness and escapism. And while the digital game industry increasingly acknowledges the contribution of modders, they have no incentive to contest this view: the perception of modding as play is the basis of the exploitative relationship between modders and the games industry.

Kücklich (2005) further expands on this thinking when he considered the entire genre of the MMOG. Rather than thinking of MMOGs as a product, he suggests, we should think of them as a service where gamers pay for the right to create the social activity which gives the service value. It is the player themselves (in a macroeconomic sense) who provides the social justification. As Kücklich describes it, the situation is analogous to one where a taxpayer paid a government not for the social services it provided, but rather "for the packaging of the goods in the form of mythology, ideology and history."

The perspectives Kücklich and Terranova bring to the discussion are compelling but can ring strident, especially seeming unnecessarily harsh to those who engage freely in "playbour-ish" activities. The challenge to their analysis is not with the conclusions they draw – it is difficult to argue there are not significant benefits for a corporate software developer who cultivates an active modding community around their game – but rather with the linkages they draw between modders and laborers in a 19th century industrial firm. The stereotypical worker in a shoe factory presents a far different model of motivation, and exploitation, than an individual who sits down to develop a different way to approach the pleasurable task of slaying a demon, or selling a virtual item in a game bazaar. While it may appear both are largely giving away their time and effort for little monetary reward (and that someone else draws significant profit from the individual's work), it is hard to deny that what information we have seems to suggest that modders find their work pleasureable, and that some of their pleasure is derived specifically from the fact the product is shared freely with others.

How should such disparate perspectives on modding be reconciled? It seems Banks and Humphreys (2008) are making an attempt to strike a closer balance when they write:

> In trying for a more nuanced account of labour in a networked production environment, we are not seeking to deny the uneven power relations that exist between enterprise and user creators. However, if there is to be any chance of evening up the power relations, users must be understood as having agency, and the characteristics of that agency and the forms of power it generates must be articulated in order to be mobilized. These forms differ from those of traditional labour relations in industrial-mode economic production. Rather than understanding these relations always through the lens of commercial and monetized property markets, we also want to engage with the legitimacy of social economies. (p. 415)

Likewise, Postigo (2010) suggests something similar when he argues "to learn from modders, we must think more broadly about modding. We must see it not just as a highly technical practice carried out by a select few, but as a category of media consumption that is becoming ever more prevalent." What seems to be lacking, however, are studies where the question is put directly to the modder: "Why do you do what you do?" From the resulting answers may come some greater ability to evaluate the agency of the participants, and how much or little they feel their labors are exploited by others, or are instead personally consumed and valued.

Closing Thoughts: Passion, Practice and Communities

In their essay *Why Virtual Worlds Can Matter*, Thomas and Brown (2009) make a powerful statement for understanding our actions in and around virtual worlds as acts of *networked imagination*, arguing:

> 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. It is also more than an online community, where common interests unite people at a distance. (p.38)

It is a powerful concept, and one which ties neatly into a discussion of *WoW* addon community. As a group, they appear to be a community which highly values innovation, or put more lyrically, imagination. This value must surely be tested also by the reality that the developer community continues to modify their addons in the face of changing game conditions that are outside of their control. With every software patch released by Blizzard for the game, addon developers must spend significant time troubleshooting and updating their own software. The underlying question that springs from observing this behavior is not, how does this work get done, but why?

To my mind, the answer lies in the developers' basic motivation to engage – it seems that rather than practice which attracts and unifies the community, it is passion. That is, it is the emotional characteristics of avocation, rather than a more calculated concern for professional vocation, which drives

the community. It is in this distinction (on the part of the community participants) that this study will be interested.

I suspect we will find real truth in an argument articulated by Malaby (2007; 2009b) that suggests researchers (and society) have to-date drawn too narrow a perimeter around what is and is not play. Drawing on the work of a number of anthropologists, Malaby proposes we understand play not as a separate experience, walled off from work or some other state of activity, but rather as a "mode of experience". He argues games are not places where meaningless activity takes place during a period of wasted time, but are instead domains where we construct the opportunity for semi-predictable, semi-random experiences to happen, which we can then interpret and give some personal meaning. Citing Phillips Stevens, Malaby's argument is we cannot simultaneously consider play as a form of activity, and an approach to activity. Play is how we approach the game experience anticipating a somewhat unknown outcome, and play is how we take meaning from that contingency. Play does not render the activity meaningless – indeed, we can imbue play with great personal meaning – but play (or playfulness) sets the tone for our engagement. Play also becomes a form of consumption (as Postigo or Jenkins might describe it), that changes dramatically our assumptions about any number of media – that instead of being a process of finding and accepting a videogame or movie as something finished and complete, we approach it as infinitely malleable according to our own personal preferences.

It is this understanding which gives a critical insight into how an addon developer might approach their craft, and enter the CoP surrounding addons. That is, they enter into the act of developing an addon because at some level, they are intrigued to see the results of the social contingency their action functions within. Will the addon alter the game in a way the developer finds personally pleasurable, and will others see similar benefit? Will their addon be adopted widely? Will people provide feedback? Will their peers recognize the technical skills the addon reifies?

These questions are unknown, contingent, gamelike. They also seem to create the foundation for a CoP – a Community of *Passion* – which is bound as much by a *playful* approach to a shared practice as it is by the developer's tools or technical skills. It seems possible the addon developer community offers a

new way to consider our understanding of CoPs – rather than being a community coalesced around a specific task, or a shared goal of knowledge generation, or the shared practice of software development, it is a community drawn together by an emotionally curious, meaning-seeking state of playfulness.

This, however, is the hunch that spurs inquiry. What remains to be explored are the actual perceptions of the participants. To that end, the guiding question of the research is this: What are the similarities and differences between the community of addon developers for *World of Warcraft*, and other Free/Open Source Software CoPs?

Chapter 3. Methodology and Procedures

The intent of this phenomenological study is to explore an emergent phenomenon, the informal communities of software developers which have coalesced around the production of addon software for computer videogames, and question whether these new communities are sufficiently similar in nature to previously described theories of motivation and identity transformation within learning communities that the comparative frameworks remain relevant.

That there are similarities seems clear, but previous models have generally focused on areas where practitioners have been drawn together by more formal organizational structures – shared corporate structures, or vocational practices associated with paid employment. Now we observe numerous examples of communities where the shared experience which binds the group together is the opportunity to collaborate in a shared unpaid avocation. Participants put significant effort into these communities, effort which seems to closely resemble the work of paid laborers in other settings, but their products are generally distributed freely, apparently with an intent to further playful goals. Something about this behavior seems distinctive, or unusual, but exactly what participants identify as their motivation and rewards is poorly understood. It seems an exploration may offer some insights into collaborative work, learning, and a form of participatory culture not experienced before.

With this goal in mind, the research seeks to answer the following question:

What are the motivations of addon developers for *World of Warcraft*, and how do these motivations compare to those for other Free/Open Source Software Communities of Practice?

Research Paradigm

The phenomenological research approach is commonly linked to the German philosopher Edmund Husserl, though there are also ties to the writings of Kant and Hegel. At its simplest, phenomenological research attempts to describe objects or events as they are perceived by the subjects of study. Husserl rejected the notion that objects existed separately from the observation of them, and that it was in the personal consciousness of the observer that the object's true nature was found. The key to understanding objects, then, is to be found in how we describe them (Giorgi, 1997; Wertz, 2005).

Husserl called the procedure of phenomenological research *intentional analysis*, where a situation is taken from its experienced location and described in the perceptions of the participants. He argued there were three steps to such analysis:

1. The *phenomenological reduction*, in which a researcher works to identify the objects of the participants' experience, and then tries to describe how the objects are perceived. This can be a subtle distinction – for example, the difference between the statement, "this rock is solid," and "I perceive this rock to be solid." The second construction is the more phenomenologically correct, since it acknowledges both the object and the observation.
2. *Description*. Again, this term has specific meaning in this context; it connotes *neutrality*, and would be distinguished from *explanation*, *construction*, or *interpretation*. The latter terms are the product of the analysis, but description precedes them in the process.
3. Lastly, the interpretive act is the search for the most *essential* or durable interpretation of the observed phenomenon. In other words, analysis becomes a *reductive* act of finding the most basic and commonly expressed interpretations of participants' lived experience, looking behind the first blush to a deeper and more lasting description.

What Husserl and others grappled with, however, is how to acknowledge the reasons for researchers to ask questions instead of simply observing, especially when the objects of the experience are more conceptual than concrete. In this study, the objects of the *WoW* addon community are assumed to be as much emotional gratification as the software addons or personal skills. As a result, it is necessary to acknowledge the research framework which has provided the context for the research, as well as how this did not presuppose an interpretation or expected perception on the part of the participants.

Research Framework

As described by Lave and Wenger (1991), and further developed by Wenger (1998; Wenger, McDermott & Snyder, 2002) in later writings, CoPs are simultaneously a description of situated learning as well as the generation of individual identity. Conceptually, it is *practice* that is central to the relationship of the participants in the community – that in common activity participants create meaning.

Some of this meaning is captured in the artifacts created by the practice, but also in the emotional impact the participants take away from the experience.

There are three components Wenger (1998) suggested are critical for a CoP to develop and sustain itself: mutual engagement, joint enterprise and shared repertoire. These three aspects are understood both as an attraction for the individuals already in the community, and for those considering entry. Though not the sole motivation for participation in the CoP, they serve as both location and impetus for engaging with the community, so are the basis for the analysis of the gathered data:

1. *Mutual engagement*: This focuses the analysis on issues of how participants enter the community, and what behavior helps or hinders that entry; how relationships develop; how roles within the community are identified, how individual expertise is learned; and how individual personalities are made.
2. *Joint enterprise*: This explores what participants believe their shared experience is. In this study, a particular interest is whether the participants are drawn together because of their mutual enjoyment of a specific MMOG, or because of an interest in software programming and development for games, or for other reasons of sociability.
3. *Shared repertoire*: This addresses the negotiation, and renegotiation, of meaning surrounding various elements of the community – creating or adopting tools, recording events, inventing or redefining procedures or routines, and reifying experience and learning into forms that can be drawn upon in future interactions.

Planned Data Collection

At the outset of this research, the intended approach for addressing the research question above was to conduct two qualitative cycles to gather participant impressions and opinions about these three aspects. The first cycle, anticipated to be approximately 10 semi-structured interviews, was designed to directly ask participants about their personal experiences around addon development for *World of Warcraft*. The information gathered in this cycle was used in turn to inform the development of a survey instrument which, as a second cycle, was returned to the original participants, as well as posted in several

online forums where addon development is discussed. The intent of the survey was to gather triangulating opinions and additional perspectives on the analysis of the interview cycle from a broader population.

Concerns for Ensuring Research Validity

All qualitative research is challenged to generate enough triangulating data to provide assurance that the findings are, if not replicable, at least generalizable because of the process used to develop them. Bogdan and Biklen (1998) proposed five characteristics of qualitative research:

1. That it be conducted in natural settings, and be primarily gathered by the researcher;
2. That it be descriptive, gathered in language or images rather than in numbers;
3. That the focus be more on process rather than specific data;
4. That it be understood as inductive and emergent, rather than structured as a test of a prior hypothesis;
5. That it value most the sense-making of participants, and the meaning they draw from their experiences.

The product of these characteristics, they state, is research which allows the construction of explanatory theories and narrative, rather than a systematic testing.

Ethnographic Methodologies for Interviewing and Analysis

As a result of this more broadly understood expectation for theory guiding research, I approached this study aware I was engaging in research that could have been described as ethnographic in origin, if not in the strictest sense of the term. As both player and researcher, I utilized the products of the *WoW* addon development community, and I have had some contact with individuals in the community. The most rigid construction of ethnography envisions research conducted from an *emic*, or internal, perspective, by an active participant in the observed culture, rather than from a more removed point of observation. Not being an addon developer myself, however, this research instead was located in a somewhat more removed, or *etic*, location than a pure ethnography would be.

Still, the underpinnings of ethnography influenced the design of the interview cycle. James Spradley's seminal work *The Ethnographic Interview* (1979) generally provided a roadmap for the

considerations given to selecting the interview participants. Spradley lays out five desired characteristics for study informants:

1. Informants should be thoroughly enculturated, and knowledgeable about the community.
2. Informants should be current participants in the community under study, and not retired from the shared experience.
3. Informants should be selected who have adequate time to meet with researcher.
4. The studied culture should ideally be unfamiliar to the researcher, since this tends to allow the researcher a greater perspective and distance for viewing the culture. Questions which might have been overlooked by an insider are more likely to bubble up for a more removed researcher.
5. Desirable informants tend to be those who are of the culture being studied, but who are not themselves also researchers.

As it happened, the interview process illustrated that some of Spradley's characteristics are easier to control than others. First, it is unclear how Spradley squared his expectation that researchers would unfamiliar with the studied culture prior to the data collection – it seems unlikely researchers would identify a culture or practice to study without some level of familiarity. Also, such a requirement seems guaranteed to place the researcher at a disadvantage in their interaction with members of the studied culture: the lack of experience on the part of the researcher would present a barrier to reaching more than a surface understanding of the cultural practices being researched.

In any case, while I have had no experience in the actual work of addon development, I have had enough exposure to the basics of software development that the interviews with the participants did not need to dwell on the mechanical processes of software development, but moved to some of the deeper questions of motivation and practice. Similarly, as someone who had used addons extensively in the play of World of Warcraft, I had at least some common understanding with the addon authors about the sort of modifications to gameplay they were seeking to accomplish. Rather than a weakness in the design of the research, I instead believe it served to focus my attention on making sure the questions were generally open-ended and free from bias, but from a position of knowledge rather than ignorance.

This was especially important in light of Spradley's fifth point, that the subjects not be researchers themselves. While it was true none of the interviewed participants were researchers, they all function within a knowledge domain which places a high premium on intellectual rigor and systematic thinking. As a result, most were highly analytical about their practice and the community they had observed. During their interviews, there were several occasions where they questioned the structure or validity of an interview question; there was an awareness on the part of participants of the components of good research practice – one survey respondent (Dridzt, 2013) commented after taking the secondary survey, "Decently structured (judging by the relatively low proportion of questions I had to make use of the 'other' option)." Spradley's vision seems to anticipate research subjects who are generally unaware of research practice, but certainly in this study, the participants hardly appeared unexposed to research methodologies. It is possible Spradley spoke to this in later work, but if the experience of doing this research is representative, it seems clear the general exposure of individuals today to analytics throughout their life (Internet surveys, high-stakes testing in schools, etc) makes it harder to anticipate that individual participants will not make at least some attempt to look beyond research instruments to see the researcher behind the curtains.

Identification of Key Informants for Initial Phase of Interviews

From the outset, this study has been focused on what was perceived to be a distinct community, the developers of addon software for *World of Warcraft*. From initial exploration, it appeared the community was multi-generational – there was evidence addon authors entered and exited the community over time, and that some who had ceased playing *WoW* still continued to participate socially. Similarly, there seemed to be evidence some individuals who were not addon authors had other important community roles, facilitating communication and doing other coordination tasks. The intent of this research was to include as many of these disparate perspectives as possible, thus to get as complete a description of the community as possible.

As a result, the study was broken into two phases. The first was a cycle of semi-structured interviews with community members, followed by a second phase in which a web-based survey was made

available to addon authors with the intent of generating triangulating feedback to help illustrate (rather than to explicitly confirm or deny) the themes found in the interview phase.

For the interviews, there were several subgroups identified which seemed to speak to specific aspects of relevance to the CoP framework:

- "Elders": Community organizers who may or may not be active developers. It was hoped they would be able to speak to the more historical patterns of the community, and its enculturation practices of newcomers. These individuals are prominent in the maintenance and mediation of several websites devoted to addon development, as well as being frequent commenters on the addon development forums maintained by Blizzard at the official *WoW* website.
- "Popular Developers": Initially, this was defined as developers whose addons had been downloaded more than 500,000 times. The logic for this threshold presumed a significant amount of downloads would correlate with a greater level of community expectations from the addon developer in terms of development and feature requests, and in turn, a broader experience in supporting end users. This turned out to be a flawed assumption. Download counts are distorted by the fact that each time a new software version of the underlying game of *WoW* is released, players must update their addon software as well, and so an individual might download the same addon multiple times during their play career. Add to this the iterative development of addons, and significant download counts become common: some of the most popular addons have been downloaded more than 14 million times, but clearly this is not the result of 14 million users adopting the addon. Further, addon developers in their interviews noted that some of their least downloaded addons produced the most passionate responses from a smaller niche userbase. At least one developer said his least popular addon (in terms of downloads) gave him the greatest sense of pride in terms of its impact on players, and in the interactions it had generated with end users. Future researcher looking for ways to quantify community engagement

with software developers should probably deprecate sheer download quantity in favor of other metrics (where available) such as frequency of revision, perceptions of project complexity, and end-user bug-fix submissions and feature requests in public forums, as these seem more likely to help identify software, and developers, which have been engaged in an iterative development cycle.

- "Team Developers": Developers who have participated in the development of multi-module addons. Such addons generally require multiple authors working together to address the range of software development challenges such complex products involved.
- "Solo Developers": Active developers who develop addons as an individual project, working alone rather than as a part of a team. Including representatives of this group offers a contrast with the previous group, presumably both in terms of project scope and social interaction.

At the outset of the research cycle, I hoped to gather 10 interviews from the four subgroups listed above. The desired distribution of interviewees was roughly two "elders," three "popular developers," two "team developers," and two "solo developers." In the end, however, I found myself unable to reach this number of interviews. Understanding why this happened has some bearing on the outcome of the final findings, so bears some discussion.

My approach to gathering these interviews primarily revolved around reaching out to potential interviewees by e-mail through contacts found on various websites that host addons. This is the electronic equivalent of cold-calling individuals using the phone book. The challenge is that my methodology was the same as someone trying to contact someone to send "spam" email, and websites everywhere have had to come up with increasingly sophisticated methods to combat this behavior. As a result, most websites obscure end-user e-mail addresses in favor of private messaging systems which require the end user to come to the website to check their private messages, rather than being delivered to a personal e-mail mailbox. In at least one situation, I received a response from a potential interviewee several months after my initial contact. I also ran afoul of one website's administrator, who reacted negatively to my e-mail as

an invasion of privacy of the website users. Both scenarios suggest that without some personal entré to the community (and here again Spradely's admonition against being too closely involved with the community being researched seems questionable), our social experience with unsolicited communication (e-mail, junk mail, robo-calls) has led to technical systems and behavioral suspicions that make the researcher's task significantly more difficult.

In the end, it was outreach to an "elder" through the entre of another individual – someone who had been a member of a *WoW* guild with me while I was a player – which ended up yielding the most effective outcome for getting individuals to grant me interviews. From that initial referral, I garnered five interviews, while only one of about 50 "cold" e-mail outreaches yielded an interview; four other "cold" contacts ultimately declined to be interviewed.

These six interviews represent the totality of the first phase of data collection, and one of the obvious initial findings to come out of the interviews was to understand that the initial groupings described above was poorly conceived – while there are "elders" within the community, they also appear to cross into other groupings. As a result, it seems appropriate to offer a description of each interviewee, all of whom have been assigned a pseudonym:

- Interviewee "Fili": This individual helps operate one of the websites which host addons and provides tools for addon authors to develop software. This individual has never developed addons, but instead focuses on building the community for the authors to operate within. In general, this individual falls solely into the previously identified "elder" category.
- Interviewee "Kili": This individual helps operate another website which hosts addons. This individual has also developed addons, including an influential framework for addon libraries widely used by other authors. They also participated in writing one of the earliest books devoted to addon development. As a result, this individual falls into all four categories above.

- Interviewee “Dori”: This individual helped produce significant documentation of Blizzard’s addon API, contributing significantly to community websites such as www.wowwiki.com. They also were identified by Blizzard for contributions to the developer community on the official game forums such that they were invited to become an “MVP” – an unofficial moderator of the official forums identified by a special color of text. This individual generally fell into the “elder” and “solo” categories, but by their own description, were more of a community-builder than addon author.
- Interviewee “Ori”: This individual developed a number of widely downloaded addons, and now has gradually begun to work for Interviewee Kili as a maintainer of some of the web-based tools supporting addon development. Their own development work has primarily been solo, but several of their addons now are maintained through the assistance of several other (un-interviewed) developers. This individual generally would be classified as a “solo” developer, but with some more recent experiences as “elder” and “team” developer.
- Interviewee “Nori”: This individual developed a number of widely downloaded addons, and also is the lead author on the book on addon development (in collaboration with Interviewee Kili), as well as co-authoring another book on addon development. They would be generally considered as a “Popular” developer, but also certainly has displayed behavior characteristics of an “elder.”
- Interviewee “Bifur”: This individual developed only one addon, but it has been heavily downloaded, partially due to the continued advocacy of a popular *WoW* blog. Of the six interviewees, this individual was the only one generated through my “cold-calling” e-mail outreach, and they had had no contact with any of the other interviewees. They would generally fall into the “Popular” and “Solo” categories.

Considering the distribution of the successful interviewees, it became clear the initial categories used to anticipate the distribution of interviewees were poorly conceived – addon authors do not necessarily display only one style of development, and the distinction of "popular" versus "niche" seems to be disconnected from development style (solo versus team). Were I to conduct this research again, it would make more sense to categorize interviewees along two axes – one describing the extent of involvement with the community versus personal projects, and the other describing the preferred style of addon development (individual versus team).

Demographic Descriptions of the Interview and Survey Participants

In addition to interviews, there was also a survey phase to the research. Taken together, a total of 51 individuals – six interviewees and 45 survey respondents – form the studied sample of addon developers for this research. Understanding a bit about the characteristics of the participants offers some useful insights into their larger perspective on the practice of developing addons for *World of Warcraft*.

Unsurprisingly, results from both interviews and survey reveal all of the participants contacted had played *World of Warcraft* during at least a portion of the time they were actively engaged in addon development (Table 1), and that most continue to play in some way or another – combining the six interviewees and 45 survey respondents, all 51 played, and 40 continue to play – a retention rate of 78%. It is difficult to do more than guess at how this retention rate compares to the larger playerbase, but a recent blog post on the Blizzard website states 100 million accounts have been created during *WoW*'s history, yet there are only 8 million current players. It seems reasonable to say developers seem to have a longer, more loyal play career than the larger playerbase.

Table 1
Descriptions of Addon Developers

Interview Code 04: Current commitment to World of Warcraft and/or other MMORPGs		
Code	Description	Count
04a	Only MMO played was *WoW*, still playing	1
04b	Only MMO played was *WoW*, but not currently playing	2
04c	Has played multiple MMOs, still playing	3
04d	Has played multiple MMOs, but not currently playing any	0

(continued)

Survey Question 1: Have you developed or programmed an addon for World of Warcraft?

Option	Count	%
Yes	45	100
No	0	0

Survey Question 5: When you began developing addons, did you also play World of Warcraft actively?

Option	Count	%
Yes	45	100.00
No	0	0.00

Survey Question 6: Do you play World of Warcraft now?

Option	Count	%
Yes	36	80.00
No	9	20.00

The interviewees who did report continuing to play (Ori, Dori, Fili, Kili) all noted their playstyle has changed over their time as a player, and as an addon developer. While one – Ori – reported he continues to spend 20 or more hours a week in the game, the others describe their playstyle as more "bursty" or "spiky" – "What will happen is I'll suddenly either get hooked on it, or other things will run out, or there'll be a friend who suddenly gets into it again and we'll play together and I'll be playing it very regularly again, and I'll drop back again" (Dori).

Indeed, this play pattern seems to be a hallmark of the maturing addon developer. For Nori, who no longer plays actively but still maintains addons, "I still have an account. To say I still play would be inaccurate. I simply don't have the time for it, and I think the more enjoyable bits of the game you still need to commit a fair amount of time to it." Kili echoed this. "It's one of those things where when you work around something so much, eventually it loses some of the appeal as a leisure activity. So, I go through spurts of not playing, and then spurts of playing."

Table 2
Historical Practice of Developers

Survey Question 2: Do you still develop or maintain addons?

Option	Count	%
Yes	42	93.33
No	3	6.67

(continued)

Survey Question 3: How many addons have you developed?

Code	Description	Count
More than 10	22	48.89
2 to 4	13	28.89
5 to 7	5	11.11
1	3	6.67
8 to 10	2	4.44

Survey Question 4: Have you made the addons you developed available for others to download and use?

Option	Count	%
Yes	42	93.33
No	3	6.67

Survey Question 7: Have you ever developed addons, maps or mods for another videogame?

Option	Count	%
Yes	24	53.33
No	21	46.67

What emerged from both the interviews and survey, however, is that there is little linkage between continued play and the continued maintenance of the developer's addons (Table 2). All four interviewees who identified themselves most strongly as developers, as well as 42 of 45 survey respondents, stated they continue to develop or maintain addons, a 94% rate of persistence. When asked how this is accomplished, interviewees said either they still maintain a paid account in order to do testing (Bifur), or depend on others to do their testing for them.

> Some people have developed little stubs that they can run the code through that can simulate a great many of the things – of course it doesn't give you an accurate representation, so it's not really a complete test, but it does allow you to test syntax, make sure all the API calls are valid, that kind of stuff. So there is some of that.
>
> And then I've known some guys that would literally make the change, put out the alpha file, and say, "Hey, can you guys test this?" There's a term now, dry coding, I don't know if you've ever seen it passed around on IRC, like "this is dry coded." People saying stuff like that, and I can't find any reference to that term before the *WoW* addon community and *WoW*Ace in particular but, um, it's a term that means basically, "I wrote this, I don't know if it works, I didn't test it, but here you go!"
>
> I've seen some people that literally, they would get a bug report, they would dry code a fix, they would put it out there and say, "hey, can you test this?" If it didn't work, "hmm, let me try it again. There, test this. I forgot a comma, here test this one." Just repeat until it started working again." (Kili)

Another notable finding in the survey results is the number of respondents who report having developed more than 10 addons – 49% - with another 16% reporting they had developed between five and 10 addons. Only 7% reported they had developed only one addon, while the other 29% stated they have written two to four addons.

It is also notable just more than half of the respondents (53%) answered "Yes" to the survey question "Have you ever developed addons, maps or mods for another videogame?" This seems to lend some credence to Nori's description of addon developers:

> I think we're all universally tinkerers. Um, to give you an idea, I think there's ten of us … who went straight to Minecraft pretty heavily as we all drifted off of World of Warcraft, because of the tinkering you can do there, with creating circuitry and building machines, that's something that very much attracted us… they're definitely the same sort of people that I am when it comes to trying to solve a problem. We solve the problem through different ways, but the fact is, we all have this desire to work on and solve a problem, and to tinker.

And, while almost all developers (93%) reported they had made their addons available to others for use, it is also clear from interviewee comments that not all addon projects had the same level of complexity or personal importance.

> "Some of them were basically; there was a need that I found... There was nothing at the time that did that, so I developed that one. Other ones, some of them were written just to make fun of friends of mine, so I named it after him, stuff like that. Others are just utilities that I use, that there may have been similar projects out there, but I wanted something a little custom-made for myself, that did everything that I needed." (Ori)

Taken in total, then, the picture of the participants in both cycles of the research emerges of an author who has written five or more addons, most of which have been made available to others, and who continues to play World of Warcraft in some fashion or another.

Developing the Interview Instruments

Two interview instruments were developed for the interview cycle; one for interviewees who were primarily addon developers, and the other for those considered to be community organizers. These two instruments are included as Appendices A and B, respectively. The distinction between the two tools was in the focus – one included questions which explored the culture and facilitation of the community, while the other looked more at the experiences and practices of the community.

Spradley suggested an ethnographic interview should contain some specific attributes that distinguish it from other conversations or behavioral observations. Among those characteristics are:

- Interviews should have a clear, explicit purpose that is articulated by the interviewer. The purpose should be framed with descriptions of what the project is about, what the interviewer intends to do during the interview (record notes, audio- or videotape the interview, etc), and how the interview will proceed – what sort of questions, whether there will be clarifying questions, etc.
- Interviews should include questions of three types: descriptive, structured, and contrast. Such questions push the subject to offer a narrative about the topic of research (for instance, "How do you come up with an idea for an addon?"), structured answers about what falls within the research ("Do addon developers also develop macros for players?"), and clarify distinctions within the topic ("What is the difference between addon development and other software development?").
- The interview is generally assumed to be asymmetrical in that the subject generally speaks more than the interviewer. To encourage this, the interviewer's tasks are to express interest throughout the process to encourage the subject to participate, to repeat and restate information for clarity, to encourage the subject to expand responses, and to incorporate the terms used by the subject in respectful ways.

Spradley argued with the above caveats in mind, the interviewer's questions should be designed not to elicit the explicit meaning a subject took from a specific situation, but rather to encourage them to describe something in ways that makes their personal meanings apparent. The reason for constructing the questions in this fashion, he argued, was that when presented with a question where they were asked to explain their own meaning, informants might feel pushed to justify their position, or somehow make their position more palatable. Instead, Spradley suggests the construction be more neutral, and generally falling into five categories:

- *Grand tour*, or broadly explanatory. “Can you describe what it takes to develop a successful addon?” is a grand tour question.
- *Mini tour* questions are similar, but more focused. “How do you upload an addon for distribution to the Curse website?” is more mini tour in nature. Such questions may be useful for clarification or expansion of the “grand tour” questions.
- *Example* questions are intended to elicit specific information. “What is an example of an addon you use?” would generate an example answer.
- *Experience* questions are narratives of specific recollections that may be less linear than “tour” questions. “What are some experiences you have had with individuals in the IRC channel?” is designed to open the response to broad set of potential answers.
- *Native language* questions are clarifying, designed to capture the idiomatic terminology of the observed culture. “How might an addon developer refer to ‘programming’ an addon?” might generate terms like “scripting,” or “writing,” or “kludging together.”

The two interview instruments were constructed with these considerations in mind, and with the original research question in mind, which incorporates both Community of Practice and Free/Open Source questions in its construction. As a result, the questions on the interview instruments were grouped into four general categories – Mutual Engagement, Joint Enterprise and Shared Repertoire (CoP characteristics) , and Open Source/Playbour (F/OSS) – and though they were not presented explicitly to interviewees in this fashion, the flow of the instrument generally progressed from exploring CoP aspects to those of F/OSS.

The interview instrument questions were generally constructed with a primary question and one or more follow-on questions to be asked if the interviewee’s initial answer seemed to need further elaboration. Each of the questions has been generally assigned one of Spradley’s categories (Grand Tour, Mini Tour, Example, Experience, Native Language); the following table shows the distribution of the questions and their coding.

Table 3

Instrument Codings

Appendix A – Addon Developer Interview Instrument, Coded by Spradley's Categories

Spradley Category of Question	Primary Question	Follow-on Question
Grand Tour	3	0
Mini Tour	8	1
Example	4	9
Experience	1	2
Native Language	0	0

Appendix B – Community Interview Instrument, Coded by Spradley's Categories

Spradley Category of Question	Primary Question	Follow-on Question
Grand Tour	4	0
Mini Tour	6	3
Example	7	7
Experience	0	1
Native Language	0	0

What is notable about this analysis is that the interview instruments were clearly skewed toward the "tour"-type questions in their initial questions, and frequently asked for examples within the optional follow-on questions. The lack of explicit questions designed to elicit experiences was unintentional, and in practice, the responses to the "tour"-type questions seem to have brought out many of the interviewees' experiences, in any case. Likewise, lack of questions explicitly considering native language may be the product of a personal familiarity with the domain of the addon developers and/or *WoW* in general. This may be a weakness in the design of the instrument – the language of *WoW*, and addons, can be highly indexical, but this instrument failed to explore much of that specific information.

Data Collection During Interview Cycles

The interview cycle was conducted over a six-month period from May to November 2012. The majority of this time was devoted to the identification of participants willing to consent to interviews, and the logistical negotiations needed to complete the interviews.

The interview were conducted using the Voice-Over-Internet-Protocol (VOIP) system provided by Skype, and recorded using a software addon to Skype (Pamela) which saved the conversation to an .mp3 audio file. These audio files are easily played back using a variety of devices and software, which

allowed multiple options for transcription. Ultimately, the most effective software for transcribing the interviews was one that allowed for easy pausing and rewinding – in this case, a F/OSS product called Audacity. The transcripts were typed in Microsoft Word for easy incorporation into the final document.

Participants were read a preamble to the interview instrument which described the intent of the interview, that it would be recorded, and the option for the interviewee to stop the interview at any point. Each participant was explicitly asked for their permission to record the interview and their consent to proceed. Over the course of the six interviews, there was only one instance where I asked the interviewee if they wanted me to stop the recording during the conversation, and in that instance, they directed me to proceed, but asked me to take special care characterizing that section of the conversation.

All interviews were conducted under the guidelines of the Pepperdine University Institutional Review Board regarding research involving human participants. Pseudonyms have been used throughout the transcriptions, and the original recordings of the interviews, along with field notes and the resultant transcripts, have been stored to CD-ROM media for archival and reference purposes.

Development of the Second Phase Survey Instrument

The second phase of data gathering was begun once the transcription of the six interviews had been completed, but before the interviews had been completely coded. Even so, there were enough thematic similarities observed in the interviews to provide guidance for the development of the secondary survey, which is attached as Appendix E.

In general, the notable themes observed included:

- Addon developers did not describe their software as “Free” or “Open,” but described processes and personal values in ways which suggested some incorporation of F/OSS principles into their personal thinking.
- Most developers reported working primarily alone on addons; team development was described as adding an undesirable additional layer of social coordination to the development tasks.

- Most developers reported a commitment to maintaining their addons even after they ceased actively playing *WoW*.
- There was no particular agreement about who benefited the most from addon development, though most developers identified themselves highly among the beneficiaries.
- Most interviewees stressed that successful developers were (or should be) motivated initially by addressing a personal need, rather than for other more impersonal reasons.
- There were varied answers when interviewees were asked to describe where they directed newcomers for basic information on addon development, perhaps understandably, since three of the interviewees had contributed significantly to documenting aspects of the Blizzard API.

The secondary survey was constructed with these themes in mind, as well as the CoP and F/OSS groupings of the interview instruments. There was some overlap in how the questions were grouped, but in general, the 22 questions fell into the following categorizations:

- Nine questions explored Joint Enterprise
- Five questions explored Mutual Engagement
- Three questions explored Shared Repertoire
- Two questions touched on aspects of F/OSS, specifically on issues of ownership and free access to code.
- Two questions address the topic of a developer's relationship with the end users, during the development cycle and afterward.
- Two questions explore aspect of who benefits from the developer's efforts (the "playbour" question).
- Four questions address aspects of motivation.

- Two questions try to further illuminate what resources were most valuable for developers looking for assistance.
- One question explored specifically the question of solo versus group development.

The survey was submitted to Pepperdine IRB for approval (Appendix F) in October 2013, and approval was received early in November 2013. Following this approval, the survey was posted to four specific web forums for addon developers:

- http://www.wowinterface.com/forums/showthread.php?t=48457
- http://forums.wowace.com/showthread.php?t=20823
- http://forums.curseforge.com/showthread.php?p=327320#post327320
- http://us.battle.net/wow/en/forum/topic/10490239520#1

These forums are public to view, but require membership to post, and some are more heavily moderated than others; the post on Curseforge was removed with no explanation, but the other three postings remained. Both the posting on *WoW*interface and *WoW*ace drew several comments from other users. These forums are active – the *WoW*interface.com addon forum currently has more than 55,000 posts in its *Addon Help/Support* section alone, and other forums have more than 10,000 posts. Without access to the administrative functions of these websites, it is difficult to quantify the number of potential participants, and it is likely some addon developers participate on multiple websites with different anonymous nicknames, so ensuring uniqueness in the participant population is equally difficult. However, based on the search tools available to the public, it seems reasonable to assume there are more than 5,000 potential participants who may have seen the postings for the availability of the survey instrument.

Relying on self-selected respondents to a public survey offers no statistical validity, but the intent was only to gather additional triangulating qualitative data. While this method of delivery did allow for non-developers to participate, no responses from non-developers were received. The goal for response from this survey was for 30 completed surveys; in the end 45 were gathered.

The survey results were collected after it had been available for submission, and publicized, for a month. Reminder posts were made on the original forum posts, and on the post made in the Wownterface.com forum, the conversation ran 29 posts long; additionally, several private e-mail conversations were initiated by the posts, as several authors reached out to discuss additional questions prompted by the survey.

Evaluating the Credibility of this Research

There has been considerable time and effort devoted to discussion of whether qualitative social science methods can produce the sort of credible research assumed to result from more traditional quantitative research methods. The controversies surrounding this discussion seem largely resolved by now, and instead, authors such as Creswell (2003) and Silverman (2001) focus on advising potential researchers to follow checklists of generally assumed and expected best practices.

Generalizability and reproducibility are both common concerns for researchers – they give comfort that findings are supported by the data gathered, and that approved collection methods were used. However, findings from qualitative studies challenge to these assumptions. Where a quantitative study might be repeated multiple times to test the verifiability of the findings, it is much less possible to repeat qualitative data gatherings and assume the findings will be the same. Instead, the evaluation of reproducibility becomes an evaluation of the rigor of the data collection and analysis – that if the methodology can be shown to be adequately careful and precise, then confidence in the findings is increased (Charmaz, 2004).

For a reader, then, the evaluation becomes at least a judgment on the authority the researcher brings to the subject matter studied. Silverman (2001) cites a warning in the writings of Mehan, who said the strength of the ethnographic study can also be its greatest weakness; that its "ability to give rich descriptions of social settings" (p. 356), can also be a pitfall of reducing the study to anecdotalism. That is, qualitative descriptions gathered by participant observers can sometimes focus on just a few examples to the exclusion of broader perspectives, or the researcher's criteria for including some examples but not

others, may be unclear or unsaid. Also, in the abstraction of findings from qualitative data, the original form of the data can be lost, limiting reviewers' ability to draw alternative interpretations.

Silverman (2001) attempts to speak to this challenge by presenting 10 criteria for evaluating qualitative research:

1. Are the methods of research appropriate to the nature of the question being asked?
2. Is the connection to an existing body of knowledge or theory clear?
3. Are there clear accounts of the criteria used for the selection of cases for study, and of the data collection and analysis?
4. Does the sensitivity of methods match the needs of the research question?
5. Was the data collection and record-keeping systematic?
6. Is reference made to accepted procedure for analysis?
7. How systematic is the analysis?
8. Is there adequate discussion of how themes, concepts and categories were derived from the data?
9. Is there adequate discussion of the evidence for and against the researcher's argument?
10. Is a clear distinction made between the data and its interpretation?

To provide some insight to the first four questions, it may help to offer a brief account of my personal experiences as a researcher within the social spaces of *WoW*.

I entered into *WoW* in October 2004, during the first year of my doctoral studies, on the advice of an instructor who suggested the communities surrounding MMOGs were sufficiently new and emergent to present an opportunity to inquire whether existing theories of learning and identity had continued validity in a new social space. Prior to this, I had extensive experience with videogames, but only as an individual experience – slow dialup connections to the Internet, and a lack of experience with multiplayer games had generally limited me to single-player games. What little I knew of the MMOG space was limited to an awareness of their titles, and several anecdotal reports of individuals becoming "addicted" to the games – beyond that, it was an unknown.

What I found has been described above – a somewhat bewildering mashup of game and social interaction, where at least as much time is devoted initially to learning the language and norms of the space as to the mechanics of killing beasts and gathering treasure. Perhaps the most memorable moment of my early gameplay was when, as a warrior out for a particularly difficult quest, I happened to encounter a stranger, a healer priest. Paused before the mouth of a cave full of monsters, the priest directed me to go ahead and take on the beasts – "I'll heal you," he said. Quite to my amazement, my brutish avatar smashed through more monsters than I'd ever been able to kill by myself – just when it appeared my health might fall to critical levels, my anonymous partner's healing spells would rejuvenate me. I remember being astounded, and the faint amusement which came through in the chat from the other player when I thanked them for healing me. Clearly what was a blinding illumination for me – that the structure of the game was designed such that social behavior was clearly rewarded – was so normal as to be beneath notice for others. Shortly after, I created a new avatar – a healer – and dove deeply into the game and community.

The metaphor of immersion is an apt one; over the next five years I logged more than the equivalent of a year's time in the game world, and a similar amount of time outside it looking at various aspects of the game community. Initially my research interests steered me to consider MMOGs as an emergent area for developing personal leadership, as I watched myself and others navigate the fluid challenges of small group and ad-hoc leadership in "pick-up group" dungeon runs. Later, as I joined a larger guild of players, I began to observe some of the dynamic nature of guild leadership, and the challenges of facilitating and curating the social life of a group of geographically-distributed individuals as they played together. Mediating the disparate goals of a guild of more than 50 individuals largely through tools of text and voice communication deepened my appreciation for other communities which managed their activities without the benefits of proximity or some sort of corporate structure, and I began to consider other communities which seemed similar, including those of open-source software developers.

It was in early 2009 when the current direction of this research began to crystallize. By this time, I was routinely participating in, and then organizing, 25-man raid events. As a healer, I was responsible

for being aware of the health of 24 other raid members, as well as the organizational challenges of giving directions for the group activity. Gradually, I began to turn to the addons developed by the *WoW* modding community, and in doing so, began to explore what made tools effective. I began to read and research the community of players who were also addon developers, and found they maintained a regular and persistent Internet Relay Chat (IRC) channel where they gathered for social and technical reasons. After learning how to join the IRC channel, I took to lurking there just to observe the discussion. For the most part, the technical aspects of the conversation exceeded my prior experience with computer programming, but the conversation around how the tools were developed and used by the players revealed a community of players who were engaging with the game at a deeper and different level than most of the playerbase. As I began to chat with some of the regular participants in the channel, there were linkages I saw between the addon developers and the F/OSS development communities described by other research. In order to capture a greater picture of the conversations than I could actively participate in, I configured a computer to log the IRC chat to text files, and let it run continuously.

In March of 2009, that decision yielded unexpected fruit when Blizzard announced a major policy shift regarding the guidelines for addons and their function within the game. Over the course of three days, what had been a relatively quiet IRC backchannel became Ground Zero for a community convulsed with a decision about how, or whether, to engage with the corporate owner of a game they had invested significant energy to support. It was in reviewing those conversations – and watching some of them unfold – that convinced me there was something worth studying here.

Then, in 2010 as I worked to find a way to refine the research questions of this study, an additional shift within the game specific to my playstyle helped clarify my thinking. By this time, though I was still participating in raiding, my focus in the game had shifted to focus on the in-game Auction House. Having set a personal goal of amassing the maximum amount of in-game currency – reaching the "gold cap", in game terms – I had begun to use addons which specifically existed to facilitate this sort of game play. Intended to assist players in the production and sales of in-game items, these mods took on increased importance for me, but also began to be more widely known throughout the game, as their

capabilities began to improve. Authors and users of these addons began to congregate at a website, justmytwocopper.org, which was run by Marcko (2009), a player-entrepreneur selling gold-making guides distributed as e-books. Marcko introduced a podcast devoted to making gold in *WoW*, and his advocacy of the addons saw their popularity and development increase dramatically. I listened to the podcast, frequented the website's forums, and dramatically increased my in-game sales. Research and play overlapped and informed each other. The culmination of both goals came when I reached the gold cap during the "Glyphmas" events described earlier (p. 6); like many others, I sang the praises of Zerotorescue when he released the updated addon which allowed glyph sellers to result bulk sales.

Evaluating the authority of any qualitative researcher almost always involves a judgment of their personal engagement with the subject studied. Denzin and Lincoln (2011) speak of the qualitative researcher as a *bricoleur,* or as a quiltmaker, producing "a pieced-together set of representations that is fitted to the specifics of a complex situation" (p. 4). In this setting, the calculation of any reviewer of the proposed research will be faced with assessing both the assemblage of linkages I have made and will make, as well as the personal journey which brought me to this research. The authority I bring to the research comes from the context which it was found, in my own gameplay and experience, and I trust this experience, combined with serious attention to Silverman's final six questions, have yielded a narrative description sufficiently rigorous for others to rely upon in their own research context.

Chapter 4. Results

This study's research question – What are the motivations of addon developers for *World of Warcraft*, and how do these motivations compare to those for other Free/Open Source Software Communities of Practice? – is framed using the CoP theoretical framework proposed by Lave and Wenger (1991), and so there is some benefit to quickly recapping the core concepts which will be used during the analysis of this study's research cycles.

Central to the CoP theoretical framework is the concept that self-identity and shared practice are of equal importance to participants, that wanting to *be* a practitioner, or to perceive oneself as a participant in the practitioner community, is as strong a motivation as the act of *doing* the practice. Lave and Wenger capture this in three concepts – mutual engagement, joint enterprise and shared repertoire – which try to describe the development of personal identity, the shared understanding of what the common experience is, and how the communal experience is recorded and shared among generations of participants. These three ideas often blur and blend within the descriptions offered by participants, so creating clear distinctions is difficult. The sections which follow attempt to identify the primary aspect of CoP framework discussed, but with reasonable caveats that multiple aspects may be present.

Mutual Engagement: Descriptions of Addon Developers' Personal Identity

One of the most basic questions at the root of CoP analysis is a question about who the community is, and how they describe membership in the group. This shared personal identity represents the initial focus for the group to coalesce around, even as the practice becomes the shared focus. In this study, Codes 02, 03 and 05 of the interview analysis, and Question 20 on the survey instrument (Table 4), give the clearest picture of how addon developers describe their personal identity, and also how they describe the community (or multiple communities) they operate within. While the surface review of the findings appears to give a reasonably unsurprising picture, there are some subtle points which bear discussion.

Table 4
Developer Role and Identity

Interview Code 02: Description of Respondent's personal role within CoP

Code	Description	Count
02a	Description of being an addon developer (Practitioner)	4
02b	Description of contributing to the developer community (Community Builder)	5
02c	Description of documenting practice (Documentor)	6

Interview Code 03: Description of personal identity

Code	Description	Count
03a	Personal description as a coder/programmer/addon developer	5
03b	Personal description as a game player	6
03c	Personal description as a hobbyist or amateur	3
03d	Personal description as an earner or money maker as a result of practice	5
03e	Personal description as a community builder	3

Survey Question 20: Which is a more accurate description of you? (N=35)

Option	Count	%
I am a gamer who got interested in addons because of the chance to change the game to my tastes	32	91.43
I am a programmer or software developer who got interested in a game because of the chance to use my technical skills	3	8.57

In both the survey instrument and the individual interviews, addon developers describe themselves as gamers, or game players. All six of the interviewees described themselves in some way as a gamer, and 32 of 35 survey respondents agreed with the statement "I am a gamer who got interested in addons because of the chance to change the game to my tastes" instead of "I am a programmer or software developer who got interested in a game because of the chance to use my technical skills." This was by no means an exclusive label; the codings for "programmer/addon developer" and "money-maker or earner" both gathered five notations, and "hobbyist" and "community builder" both scored three. But it would be hard to avoid characterizing the participants as gamers first, and all other roles secondarily.

While this finding may seem obvious and expected, it is notable primarily because in interviews, developers give descriptions of their practice and activity that seem to suggest that actual game play has taken a secondary place to other activities such as working on addons, developing documentation for others to use, or facilitating the social life of the community. While this impression may be the

unintended result of design within the interview and survey instruments, it is clear that at some level, addon development becomes a competitor for the developer's time and attention:

> "My weekend mornings used to be my add-on time. I would get up, my wife would go off to do whatever she did in the mornings, and I would happily spend a few hours dabbling with the APIs or going through the forum posts … If people were on that I play with, I'd play rather than code, and otherwise, I would code and do the community thing." (Dori)

Another possible explanation for the somewhat simultaneous self-description as game player and developer may lie in the somewhat unique nature of addon development as a form of software development. In order to observe most addons in action, either as a "player" or "developer," it is still necessary to log into the game and engage with the game world and user interface in order to observe the impact of the addon. Contrast this to the experience of someone programming non-game software – a Linux project, for instance, or some aspect of web server software – and the software's operation is the experience. The software works or fails, but the evaluation of the development process is largely confined to the development process and functional outcome of the software's performance.

Addon development, on the other hand, has the additional performative social overlay of contributing to individual or shared achievement within the game structure. An addon that helps 10 or 20 people successfully defeat a complex boss encounter may not get specifically identified as a critical component of the group's success, but it will certainly be evaluated in light of the larger outcome. Looked at this way, it may be easier to square the seeming contradiction between developers' self-description (Code 03b) as "game player," and their described behavior (Code 02a) as "developer."

The other two codes of Code 02 – those of contributing to the developer community (02b) and documenting practice (02c) – are also notable, but may represent a somewhat skewed picture because of how the interview participants were gathered. As discussed earlier, five of the six interviewees have some interlocking social connections, and they all have had some prominence within the addon community for a variety of reasons. As a result, it is perhaps unsurprising all five described behaviors and actions that could be construed as "community building" – operating websites that host addons for developers and end-users, moderating forums where developers discuss issues and assist each other, or interfacing with

Blizzard employees to improve the addon programming interfaces. It seems certain that the much larger community of addon developers have less prominent or specific roles in the care and feeding of the community, so it is dangerous to extrapolate too greatly from this set of individuals.

However, the code 02c regarding documentation is important because all six interviewees, not just the five interlined individuals, described having contributed to community resources in some fashion or another. Consider this passage from the interview with Bifur:

> Interviewer: Is there a community of addon developers?
> Developer: There might be. I'm probably not much of a part of it. I do try to contribute a little to *WoW*pedia. If I notice something out of date, or if I have some information that I think might be handy to people …

This is critically important because of its relevance to later discussions about the community's comparison to other F/OSS communities – that is, if even more peripheral participants in the addon community report a personal contribution to the reification of community practice through documentation and knowledge transfer, it seems reasonable to characterize this as a common and shared value within the addon developer community.

Table 5
Description of Community

Interview Code 05: Description of perceived community members

Code	Description	Count
05a	As a community of developers/programmers, broadly interested in addons	5
05b	As a community of game players	2
05c	As individual users/maintainers, more narrowly interested in specific addons/frameworks	5

Interview code 05 was a grouping of descriptions by interview participants that attempted to define what they meant when they used the term "community" (if they used it). Notably, unlike their description of themselves as game players, only two interview respondents described the community as one of game players. Instead, the descriptions were evenly split between a more general categorization of developers or programmers interested in addons, or individuals who are/were more narrowly aligned with specific addons or addon frameworks. Several examples may help to illuminate the distinctions respondents drew between the two options:

> Interviewer: Ok. So, would you say that there is a community of addon developers, or is it something different?
> Developer: I would say there's multiple communities of them.
>
> Interviewer: Ok. Can you, can you identify some of the different kinds of communities for me?
> Developer: Ok, well, the big two, are the difference between Curse and *WoW*Interface, but there's a lot of overlap between the two of them, but there are some people that are exclusive to each category. And then there are some specific UI packs out there, or specific mods, like Auctioneer, Norganna's addons, which Auctioneer is part of, that also have their own little community following. Atlas Loot Enhanced has its own community following, NUI has its own community following. So there are a lot of their own communities to specific addons or group of addons, and then there's a larger community… (Ori)

Here the identification is very clearly segmented to specific affiliations, most around identified addons or programming framework methodologies. Contrast that with the description of Kili (ironically one of the most prominent developers of an addon framework):

> Interviewer: Is there a community of addon developers, or is it something else? Would you describe it differently?
> Developer: Yes and no. There are all kinds of analogies you could make. It is definitely a community in some form or fashion. You could get all existential about what a community is – I know some people think of them as a family. … But it really is – community is probably the most benign way of saying it. There are probably some groups in that community I feel closer to, some people who don't want to be part of the community. It's kind of an interesting thing. And inside that community, there's a small group of people, kind of an inner circle, that have worked together for many years, very closely. It's a lot of different analogies.
>
> Interviewer: Do you feel like, at this point, the community that you see exists primarily to talk about add-on development, or is it more of a, "that's why you came, but it's a larger social experience" that really, addons are only kind of tangential to the conversation?
> Developer: I don't know I'd say completely tangential, but it definitely is "come for the add-ons, stay for the community" or whatever. We're … all of us have made and still make add-ons, we're all current and former *WoW* fanatics to some degree or another, and you have some people in here that haven't had accounts for years and still stick around and chat. Just watching IRC right now, there's people talking about *WoW* in general, various quests, bitching about headaches – we have one guy saying "I have a migraine." So it's not a sterile environment. I know that if it wasn't for the people I don't know if I'd have stayed around as long as I have. Because as great of a game as it is, and as cool of a platform as it's been to work with, if it wasn't for the people involved, there's nothing really to do it for, in some ways.

Dori's answer, too, focused on the perceived personal similarities he identifies as an underpinning of the community:

> Interviewer: Is there a community of add-on developers, or is there a better way to describe the group?
>
> Developer: If you'd asked me that question four years ago, I'd have said absolutely. There's absolutely a community of add-on developers. But it's kind of changed. I think now there's a

> community of like-minded people who have an affinity for the sort of things that add-ons do. But the community that I think of, that I picture when I think of what it was I got involved in, and what I'm still kind of engaged with now, a whole bunch of them don't play *WoW*. A whole bunch of them don't write add-ons. But there is a definite common thread about the kind of way they like to see these games and these systems, the kind of games they like to play and why – there is still a breadth of motivation, a breadth of interest … I think it was that sort of thing that brought everyone to *WoW* and *WoW* addons, because when that was young, it was so different, in a way, and it was so thoroughly done compared to other games in terms of customization … that I think it sort of picked up people who had a common appreciation for that kind of thing.

Clearly, there is a lack of clarity which remains after coding the interviews (no such question was included in the survey instrument) about what might be the dominant construction of the term "community" among addon developers, and it may be that the distinction would be one that the participants would find unproductive. Still, it is clear that most (though not all) respondents saw some larger social organization they could identify, and determine whether they wanted to participate in.

Joint Enterprise: Descriptions of the Practice of Addon Developers

One of the clearest themes to emerge from the research is a description of the arc of an addon developer's progression from newcomer to full participant in the practice, and how developers first get interested in participating is critically important. Table 6 contains the results of Survey Question 8, which specifically explored the developers' first motivating reason, and the responses were lopsided - most newcomers were drawn either by a desire to fill a personal in-game need (71%), or an interest to learn more about the technical tasks involved in programming an addon (20%). Relatively few respondents reported their initial motivation was external: 4% wanted to fill an in-game need for someone else, 2% wanted to improve the game for all players, and 2% report taking up the task in order to meet others interested in addon development. Strikingly, no respondents stated their initial motivation was to pursue addon development as a strategy for building job skills or to seek employment in the games industry; though this is a commonly posited explanation for participation in other F/OSS communities, it was not seen in this study.

Table 6
Developer Initial Motivation

Survey Question 8: When you began developing addons, would you say your PRIMARY reason was: (N=45)

Option	Count	%
Trying to fill a personal in-game need	32	71.11
Wanted to learn more about programming addons	9	20.00
Trying to fill an in-game need of someone else I knew	2	4.44
Wanted to improve the game for all players	1	2.22
Wanted to meet other people interested in addons	1	2.22
Hoped to develop job skill or get a job in the games industry	0	0.00

The descriptions Ori and Nori gave for their motivation to pursue addon development directly aligns with the survey results. For Nori, who began working on his first addon only four months after *World of Warcraft* was released, the desire was to facilitate a specific style of healing within a group raid.

> Developer: I was probably raiding, it wasn't too far after the game was released, probably December of 2004, I think, and there was an addon I used, called *Watchdog*. It was based off an addon called *Kept Party*, which was basically the first addon that introduced click healing, where you could click on someone's bar directly to heal… *Watchdog* took that and made it a bit more customizable. It was a pretty nice unit frame. And then there were some problems with *Watchdog*, and there were some user requests, and the author of *Watchdog* disappeared, so I kind of took up maintaining *Watchdog* after that, and released a few versions. He eventually came back – he'd been released from military service, and he liked what I had done with it, so I continued doing that.

Ori described a similar situation which took place several years later.

> Interviewer: Was it the raiding that led you into addons, or was it something else?
>
> Developer: Basically, I was off work for a period of a year and a half, during the Burning Crusade … on disability, so I had done basically everything in the game that I could possibly do, so I started collecting recipes. I started looking for an addon that could help me with recipes. And I found one, but it was really out of date, and pretty basic. So I started off with the idea that I'll just update that one, and get it current with recipes, and so I started updating it, and one thing led to another, and it became a rewrite, and another rewrite, and became this whole monster of itself. So, I found a need for something that I wanted and it just, uh, blew up from there.

This scenario of entering the practice – or joining script, as Von Krogh et al. described it (2003) – appears to be so prevalent, and so understood as the best path to lasting engagement with the practice, that it has become part of the advice passed along to aspiring newcomers. Fili's description of her admonition to newbies neatly encapsulates this:

> Interviewer: So, then, what do you think motivates [a new developer] to get involved in developing addons?
>
> Developer: Nine times out of ten, they're doing it for themselves, and that's something I always say to someone starting out. Program for yourself … otherwise you're going to burn out, and you're going to hate it.
>
> That's my advice. I think that for the majority of people, that's where they originally start. Because if you make something that is of no use to yourself, and you have no interest in it, you're never going to use it … you might do it, but you're not going to love it. You're not really going to care, so it becomes another job, it's another chore, it's something you have to do, not something you want to do. And that's what I was meaning by the whole "burnout" thing. It's really hard, and especially if you get 50 other random Joe Blows that you don't know going "Well, why doesn't it do it this way?" And "well, add this and add that, and haven't you got it updated for this new patch yet?" And, "Oh my God this has been out of date for, like, three hours, you've got to get it updated now, oh my God, what is the holdup?" How much are you are you going to want to keep going with that? You're going to burn out. You're not going to care about it.

Joint Enterprise: Addon development evolves as a social experience

It is important to note here that in none of the preceding descriptions is there a description of a new addon developer joining an existing team of other developers. While this may have occurred in some addon development projects, and it is certainly a common occurrence described in studies of other F/OSS projects, this research found no examples of this sort of entry to the community. Instead, the norm is for new developers to cut their teeth on personal projects, and then begin to branch out into greater social connections, though not necessarily into shared or joint development of addons.

Table 7
Developer Description of Sociability

Interview Code 11: Developer description of addon development as a social activity

Code	Description	Count
11a	Done as an individual task	4
11b	Done within a formal group or team	1
11c	Done within an informal group or team	3

Survey Question 10: Do (or did) you primarily develop addons by yourself, or as a part of a group? (N=45)

Option	Count	%
By myself	44	97.78
In a group or team	1	2.22

In fact, results from the survey instrument (Table 7) showed only one of 45 respondents reported primarily developing addons in a team setting, and though several of the interview participants reported having spent time working in informal groups, all reported their primary work style initially was to work alone. When asked to elaborate on why this was, responses on the developer survey instrument fell generally into four categories:

1. The size of the addon project was too small to warrant the efforts of multiple authors. – "Addons are quite simple and small in comparison to other software, so that the need to form a group never really arises, and since most addons start out of a personal need and no big global strategy, it's only pure coincidence if you find someone wanting to work on the same thing at the same time."

2. The author did not know other authors who they might work with: "I don't know anyone, directly, who both plays *WoW* and can program."

3. The author prefers to work individually: "I don't enjoy working as part of a group. I think and work very quickly, and rarely find others who are able to keep up without me having to stop and explain what I'm doing and why. In my experience, working with a group means I'll do most of the work myself anyway, and then I'll have to re-do most of the work done by others because they either didn't do it right at all, or didn't do it well enough for my satisfaction. For a project as small as a *WoW* addon, there's just no reason to deal with a group."

4. A distrust of others' ability: "I don't trust others enough to let them mess with my code."

Gradually, however, it appears developers begin to reach out to others (Table 8) – 88.1% report they had communication in some form with another addon developer, and 97.7% reported they assisted another developer, whether through bugfixes, feature suggestions or other programming assistance.

Table 8
Developer Communication Behavior

Survey Question 13: Have you ever had direct communication (e-mail, chat, personal conversation) with another developer of addons? (n=42)

Option	Count	%
Yes	37	88.10
No	5	11.90

Survey Question 14: Have you ever assisted anyone else with addon development, either with bugfixes, feature suggestions, documentation or programming questions? (N=44)

Option	Count	%
Yes	43	97.73
No	1	2.27

What exactly precipitates the transition from solo developer to community participant was not well identified in the interview responses, nor did respondents describe at what point they deemed their own work sufficiently polished, or potentially useful, that they decided to share it with others. Possibly the now-common practice of F/OSS communities in other arenas of software development is such that making addons publicly available was just a logical extension of the creative act, or perhaps the fact that Blizzard had made the addons API an integral part of the game from an early date led naturally to an expectation of a gift economy growing up around it. Regardless of its origin, it seems clear from the interview respondents that the act of making privately developed addons publicly available is a significant transition for the addon developer. Suddenly what was a personal project becomes a public artifact, subject to adoption, critique and proposed modification.

Table 9
Developer Attitude toward Community

Interview Code 17: Description of personal responsibility resulting from practice of addon development

Code	Description	Count
17a	Responsibility or obligation to player community	4
17b	Responsibility or obligation to developer community	4
17c	Responsibility or obligation to personal goals or principles	2
17d	Responsibility or obligation to the reification or product of personal practice	4

Survey Question 18: Which best describes your attitude to incorporating user suggestions into your addons? (N=43)

Option	Count	%
I'm willing to consider suggestions, but it's unlikely I'll incorporate too many suggestions	27	62.79
I like suggestions, and try to incorporate as many as I can, even if the suggestion doesn't really fit a need of mine	13	30.23
If my addon fits their playstyle, they're welcome to use it as-is	3	6.98

Determining how they intend to respond to the suggestions, or even expectations, of non-developer end-users seems to be a decision point of how much the developer wants to engage in a collaborative development process. Perhaps more importantly, it forces the developer to develop something they may not have considered previously: a personal philosophy about whether they value more their personal vision for the addon, or whether they prioritize more a feeling of interacting with, and incorporating, end-user desires for the software. Bifur's response very clearly put him into the first camp:

> "I tried to keep it very simple. I get tons and tons of feature requests. People want to add this, and they want to add that, and I try to add … very rarely do I go, 'oh yeah, I can integrate that without making it more complicated' so I worry that if somebody else took it over, y'know, their first impulse - I think the first impulse of many programmers - is 'well, I'll just add all these features that people will want,' when in fact that winds up making it more complicated."

Responses from the survey instrument (Table 9) suggest Bifur's concerns and attitude toward feature suggestions are widely shared – 62.8% stated they would consider suggestions but incorporate few, while another 7% said they released their addons "as-is" and without much interest in player suggestion; only 30% of respondents suggested they would be willing to incorporate a suggestion even if it did not fit a personal need of the developer.

Perhaps the last stop on the maturation of an addon developer is an evolving sense of connection to the end-users, a responsibility and even obligation to both the work and to the continued ability of others to play using the addons. For Nori, who developed an addon that simplifies the act of triggering certain spells, the feedback from users with limited mobility was powerful:

> "I feel an immense obligation to my users, to at least provide a minimal level of functionality. Some of them are really important – [Addon name] is probably the most important, because the number of e-mails that I've gotten from people who say that they could not play the game without my addon because of some disability or some handicap, that means a great deal to me, and I feel like I have to continue to make that happen. There aren't very many addons that do it – there are some individual packages that allow you to do some click-cast healing, but none that are as general as [Addon name], so that's probably the one that I feel is the most important."

Similarly, for Bifur whose addon simplifies transactions at the in-game Auction House, the work left a lasting impression of having improved the game experience: "I'd read comments by people going "Oh my God, this has changed my life," that's always satisfying. I started to see articles appearing on people's blogs, people started making YouTube videos about how to use it… those are all validation that yeah, you've solved a problem."

Shared Repertoire: How the Practice of Addon Development is Learned

The interview and survey responses which describe how the practice of addon development is learned also offers an intriguing look at the iterative nature of a community reifying its knowledge over the course of several years. Interview Code 13 and Survey Question 9 (Table 10) show the predominant resource for those learning the practice of addon development are a collection of a small number of

community-generated websites – probably less than 15 – which became the locus of information on the practice. Included in the list are several sites (curse.com, wowinterface.com) which host addons for distribution to end-users, but also host developer forums, as well as several large wiki sites (wowwiki.com, wowpedia.com) which are completely user-generated. The official UI forums on the Blizzard's WorldofWarcraft.com also figured into the mix, though comments from several interviewees suggest these forums declined in usefulness and popularity over the course of time, and were replaced by other locations that catered more specifically to the addon developers than to the larger playerbase.

Table 10
Developer Description of Learning Resources

Interview Code 13: Developer description of how the practice of addon development is learned

Code	Description	Count
13a	Through the study of code in the game client written by Blizzard Entertainment	3
13b	Through the study of code in addons written by other developers	4
13c	Through the use of online resources (websites, forums, wikis, etc)	5
13d	From other addon developers (IRC chat, e-mail, other communications)	4
13e	Through the use of books on addon development	2

Survey Question 9: When you worked on an addon and found you needed technical assistance or information, where would you go? (Multiple selections allowed)

Option	Count	%
Websites that host addon development forums (Curse, *WoW*Interface, etc)	37	82.22
*WoW*wiki/*WoW*pedia	35	77.78
Search engines such as Google or Bing	17	37.78
Other internet resources	15	33.33
IRC channels devoted to addon development	14	31.11
Printed books on addon development or software programming	11	24.44
The official Blizzard UI forums	9	20.00
Other personal contacts	4	8.89
Email to other addon developers	3	6.67

All of these resources significantly lower the barriers to entry for newcomers, said Dori. The sheer volume of the community-created knowledge, he said, has reduced some of the need for the official UI forum, and gives newcomers a surplus of information to use to teach themselves.

> "You don't need the [Blizzard UI] forum like you used to. When I got started, if you wanted to know what you were doing, you had to read the forum, find the [*WoW*wiki], probably Google a couple of links, and then be prepared to invest a fair amount of time just to try it out and figure out what was going wrong. Now we've got great community sites to tell you what to do, we've got published books on the API, we've got two Wikis, both of which are very thorough, plus the reference book, a brand new offering, the *WoW* programming book, and an IRC channel, and

> forums and tons of history. You don't need the community help to get going, you can just move off on your own.
>
> Ori essentially confirmed this with his own account of learning the practice:
>
> Interviewer: Ok, so, when you were beginning to work with addons, where did you go for the information, or for assistance with your own problems?
>
> Developer: Well, the first thing I did was that I looked at existing code, so I based off of what someone else had wrote, and I kind of looked at what they were doing and kind of followed through similar things. I have a computing science background, so I was able to pick up on that. As I got to more advanced problems, I, uh, eventually got onto the IRC channel, so the *WoW*Ace and *WoW*UIDev IRC channels, and then the wikis were a big help to me, so *WoW*wiki was a big one. And then also, Blizzard's own code. Because they have examples, they do certain things that are similar, so you can base it off of theirs.

Bifur echoed this in his own account:

> Interviewer: Okay. When you were beginning to work on [Addon], where did you go for information or assistance?
>
> Developer: Well, of course I just went to the web. I think eventually I found *WoW*… it was called *WoW*wiki, at the time, and now they have had some sort of weird split, and it became *WoW*pedia. I didn't get caught up in the politics of that, but it sounded like there was some. So, that's my main go-to site. Otherwise, you're just looking up stuff on the web, seeing whether others have run into the same issues you've run into.

Interestingly, the interview respondents seem to represent two generations within the addon developer community in this regard. Four of the six (Dori, Nori, Fili, and Kili) were prolific in their contributions to community knowledge – Dori through the official UI forums, Nori and Kili through the authoring of one of two widely-cited reference books on addon programming, and Fili through the creation and maintenance of a website and IRC channel devoted to addon developers. Looking at their interview responses to Code 13, it is clear they looked more widely, and had more interpersonal contact, during the formative period of learning their practice, than perhaps the other two developers, who relied more heavily on reified knowledge located on the websites. In a very real sense, the first four were heavily part of a generation which built the knowledge infrastructure for those who followed afterward. It should be also noted that the impact of this work was seen beyond just the addon developers' community – it also touched Blizzard as well:

> One of my biggest accomplishments is the fact that my book is used internally in Blizzard for training people to do addon development, at least in part, and there are copies of my book in the

> Blizzard library, and people check them out. I couldn't sign the copy the last time… they asked me to sign the books that they had, when I was there, and I couldn't sign it because it was checked out. And that's kind of neat, y'know? (Nori)

Joint Enterprise: How the practice of addon development is experienced by developers

Reviewing the interview responses, a critique that emerges is that respondents were not explicitly asked how they approach the practice of developing addons; as a result there is a gap in understanding what the mechanical processes are – do they develop documentation to define the scope of the project, or do they engage in a more free-wheeling software coding process? Similarly, it is unclear what tools developers use, or how a coding session unfolds. A clearer picture of what it looks like to actually do the work of addon development will have to come from other research.

Table 11
Description of Development Practice

Interview Code 16: Developer description of how the practice of addon development is experienced

Code	Description	Count
16a	Generally like "fun", a positive connotation	5
16b	Generally like "work", a neutral or negative connotation	2
16c	Generally like "intellectually challenging", a positive or neutral connotation	5
16d	Generally like "giving" or "public service", a positive connotation	3
16e	Generally like "creative", a positive connotation	4
16f	Generally like "transformative" or "life-changing", a positive connotation	2
16g	Generally like "frustrating", a negative connotation	1

Survey Question 21: Which is a more accurate way to describe your opinion of developing an addon? (N=42)

Option	Count	%
It's like a game itself, that I play for fun or relaxation	22	52.38
It's a way to learn new technical skills	11	26.19
It's a way to give something to others to improve their game play	6	14.29
It's a job, or work, that I do for reasons other than fun	2	4.76
It's a way to gain the approval of others by showcasing my technical skills	1	2.38
It's an opportunity to meet others socially	0	0

Nevertheless, the descriptions observed among the interviewees, and in the results of the survey instrument (Table 11), present a reasonably consistent picture – the top two choices for characterizing what it feels like to do addon development center around "fun" or "game-like" (52.4% in Survey Question 21), or as an intellectually stimulating learning experience. (26.1%). This mirrors the coding of

Code 16 of the interview responses, where both "fun" and "intellectually challenging" were described in five of the six interviews. Several comments help illustrate these:

> Addon writing is a minigame, almost one of the biggest minigames in existence for World of Warcraft – if you don't like something, you can change it. And even if you can't, you can do things that are stupid and mindless, and y'know … you can still do them, and change something in the game. Y'know – make it so your player frame shakes every time you get feared, or something like that. Stupid things that nobody would ever want, but it's fun to figure out how to do it. (Nori)

And from Ori:

> Interviewer: If you had to come up with one or two terms to describe your feelings about developing addons, what would they be?
>
> Developer: Challenging. Fun. Those are the two that would come up. I'm not sure how to put this into a term… Rewarding, I guess would be one as well, because it's really nice to see something when you're done with it, and accomplished with it, you have something to show for your efforts.

Somewhat less clearly reported in the survey responses, but seen more prominently in the interview responses, was the thread of public service, or possibly shared purpose. In addition to Nori's experience hearing of disabled users being enabled by the functionality of his addon (page 77), Dori's description captures this aspect of group accomplishment nicely:

> I like being involved with groups of people who are motivated towards something that's interesting, and are all about making something better, learning how something works. It's a very positive thing ...
>
> I find it's very satisfying. There's a bit of pride occasionally, there's some of that, kind of – it's a whole satisfaction thing. If you can do something and it helps someone else, and they can then build something neat with it, to be able to say, even, I had some small part of that, is cool.

Shared Repertoire: How are the Rewards of Addon Development Described?

There are two ways to approach the question of (essentially) "who gets what from addon development?" – one can focus on the rewards identified by the developers coming to them personally as a result of their practice, or one can consider instead the larger question of who else besides the developer derives some benefit from the developer's labor.

Table 12
Developer Description of Rewards

Interview Code 14: Developer description of where the rewards of addon development are seen

Code	Description	Count
14a	In personal evaluations or satisfaction	6
14b	In feedback or communication received from others	6
14c	In monetary payments or donations received from others	4
14d	In emotional responses from continued interpersonal friendships/relationships	3

Considering the rewards which come to addon developers, interviewees reported both extrinsic and intrinsic benefits. An obvious one, but one which was downplayed in importance by all who mentioned it, was financial. There have been a variety of ways developers have received financial payment for their work – for a while some addon developers attempted to create software licensing system that would allow them to require payment; others, like Nori, offered opportunities for end-users to donate, but soft-pedaled the linkage between development and financial revenues. "I refused to put up donation links for quite some time," he said. "And then eventually after enough people asked, I said 'I'll put a donation link up, but if you want to give a donation, that's an individual decision that's up to you.' – I will continue to support the addons to the best of my ability, as I can."

There have also been attempts on the part of some addon hosting websites to return funds to developers. Kili's addon hosting website has implemented a profit-sharing system where a portion of its revenue from a premium subscription system is handed back to addon developers.

> The rewards program is actually a revenue share... We wanted to do this because, you know, [website] would have been nothing without these guys. People like myself or Ori, or any of the hundreds of authors that have come and gone. So as of this month, [website] has given out over $850,000 back to add-on authors.
>
> What this has led to is - I know add-on authors who have literally supported themself and their families through some tight spots, going to school, or whatever else. I know one guy who was able to pay for his rent every month, as a result of this. And another guy I know, he was one of our top authors, he was able to literally pay his rent. He stopped playing *WoW*, he had no interest in playing it, but actively maintained his add-ons. So in his case, I have no doubt that he probably would have left *WoW* if it hadn't been for that money coming through.

For most developers like Ori, however, the financial rewards appear to remain secondary. “I feel that I’m rewarded nicely for what I put into it, so I don’t feel like I’m giving up anything. But the reward wasn’t the reason why I wrote the addon in the first place, it’s just a nice bonus.”

Another form of reward appears to be somewhat more subtle – that of feedback, including support requests and bug fix submissions. While it might seem somewhat counterintuitive to describe support requests as a reward, for Nori, the contact with the enduser is vitally important.

> I said earlier I stopped posting on [website]. The reason I stopped posting there because they didn’t have a mechanism to notify me by e-mail when someone posted on one of my addons. That for me was absolutely unacceptable. I need to know when someone is posting on one of my addons so that I can support them, otherwise you get this – my addon page on [website] where people have been asking questions for the past month and a half, and no one’s been there to answer them. That’s unacceptable for me. I’m not … I’m not okay with that. That somehow factors into what’s important about this to me.
>
> For me, it’s all about comments. I’m very big into commenting on my addons. … for me, I try to respond to e-mails a quickly as possible, and it’s even worse with addon comments, for some reason. The moment I get a comment, I’m responding to it. I don’t know why I’m providing customer support for people who don’t pay for a product that I don’t really use anymore, but I do, and that’s important to me.

Lastly, several interviewees noted their addon work had actually led to some small notoriety in real life. “I was at a Best Buy, and I was talking to a guy about video games,’ Kili recalled, ‘And I said ‘yeah, I work on [website],’ and he literally said ‘Wait right here.’ He ran into the back and grabbed a co-worker, and dragged him out to meet me. I was like, ‘That’s really weird.’”

Similarly, Bifur, who is in his fifties, said encountering other younger *WoW* players has been fun for how his background in addon development has challenged their mental conception of what older individuals might be interested in:

> Interviewer: Have you encountered other addon developers in other settings than in an online setting?
>
> Developer: Uh, no, I’ve never run into, and I’ve never gone to a Blizzcon or anything like that. I’ve never run into anybody. It is funny, sometimes, when I run into other World of Warcraft players and tell them that I’m the author of [addon], they are often suddenly intimidated because, they’re often young, too. They’re like, I just completely changed their image, there was this old guy to, like, whoaaaa.
>
> Interviewer: That’s got to be gratifying at some level or another.

Dev: At a very minor level, yeah! (laughs)

These descriptions, however, do not really address the question of how developers perceive their work being valued – whether it yields more to others, or to themselves. The question put to both interview and survey respondents framed the question as "Who get the most value out of the work you do?" – in the survey, respondents were asked to rank five options, while the interview respondents were given the query as an open-ended question with no pre-determined options.

Table 13
Developer Description of Benefits

Interview Code 15: Developer description of who primarily benefits from addon development

Code	Description	Count
15a	The addon developer	3
15b	Other individuals known personally by the addon developer	3
15c	Other individuals not known personally by the addon developer (*WoW* players)	5
15d	Other organizations supporting addon developers, (Addon websites, blogs, etc)	2
15e	Other organizations supporting *WoW* players (fansites, blogs, etc)	1
15f	Corporate entities (Included, but not limited to, Blizzard Entertainment)	3

Survey Question 16: If asked to rank who gets the most value out of the work you do in addon development, how would you rank them? (1 is the most value, 5 is the least) (N=42)

Code	1	2	3	4	5
Me	28	4	3	2	5
Other players of *WoW*	7	24	5	5	1
Websites that host addons	3	6	16	15	2
Other addon developers	0	5	16	12	9
Blizzard Entertainment	4	3	2	8	25

The results (Table 13) from the survey respondents fall generally into three groupings. The option "Me" garnered only four more votes (28) than "other players of *WoW*" (24) to take the top spot; "websites that host addons" and "other addon developers" finished in a tie for third (16), and lastly "Blizzard Entertainment," with 25 fifth-place votes. The relative strength of the first, second and fifth place votes seems to suggest a reasonable clarity about those placements (though the Blizzard option did receive four first-place votes, third most among the options), but less clarity in distinguishing between other developers and addon-hosting websites. It would be difficult to explain this – perhaps these two options are not commonly considered as potential beneficiaries, or it is possible that they are more commonly lumped together.

For the interview respondents, on the other hand, their first answer was the larger community of *WoW*-players. After that, there was little clarity – "Me," "Other individuals known by me" and "Corporate Entities" all received three mentions.

Here the answers get somewhat more elaboration. As Ori considered it,

> "I would say the end user, the people that use them. They get the most out of it, because they have a utility they can use in *World of Warcraft*. … Curse and *WoW*Interface benefit to an extent … I think that's how Curse got off the ground, with addons, hosting addons, however, they've expanded their market so much that, it's not just that anymore… I would say the companies do get a little bit out of it, but I know with Curse, I feel that I'm rewarded nicely for what I put into it, so I don't feel like I'm giving up anything."

Similarly, Nori identified the end-user as the primary beneficiary, but noted the benefits to Blizzard:

> I think ultimately, the addon user gets the most out of it. … Users get to truly customize just the aspect of the game that they want, and hopefully without having additional crap, which is obviously a good thing.
>
> I think addons made *World of Warcraft* popular – not the sole reason for the popularity, but a massive reason for the popularity. Any new video game, people criticize the user interface or some aspect of the gameplay, and you can't change it on those games. The whole point is, maybe you don't like this game, or the way that it works, but you can change some of that. You can't change all of it, but you can tweak it and make it good, so I guess there's a triumvirate of people getting things. I think [Blizzard Entertainment] got a lot because it helped make the game more popular, by making it more accessible to different groups of people.

Interestingly, Kili and Fili, both employed by websites which provide hosting services for addon developers, identified themselves (not their websites) as the primary beneficiary of their involvement with addon developments. Rather than identifying the benefit as a financial evaluation, both described how their involvement had had a transformative effect on their life. For Fili, who at one point took a year-long hiatus from her role with the website out of frustration, the time away helped her see the value in her work:

> Our sites are something that I'm good at, even though that surprises me. I'm good at it. It helps keep me grounded. It helps … yeah, okay, I'm talking to people. It's not face to face, but it still is getting out of the house. It still is outside communication. It still is, you know, being seen.
>
> When I came back, I realized just how much I had missed it, over the better part of that year, and that it really does help me. I really do, I'm good at it. I'm surprised I'm good at it, but I am. And I really, really love it. I love the sites. I love the community building. And we do. We don't just offer addons for people to download, we build community. And I love it. So, who gets the most out of it? I do. Without the sites, I'm lost.

For Kili, the addons that led to managing websites completely changed his career path.

> There's a few other people that fall into this category, I guess, but add-ons literally changed my life. I went from being a hobbyist developer that had no professional experience, no college degree, and add-ons has catapulted me into a situation where I run one of the largest web infrastructures on the planet. We're in the top 200 or 300 now. That's not a story many people can tell. I don't say that to be arrogant or sounding cocky, and I hope nothing I've said sounds that way, but you know, I, it has just changed my life.

Joint Enterprise: How Developers Use Intellectual Property of Others While Learning Practice

As has been discussed previously, because of design decisions made by Blizzard within their API for addons to the game client, addons use a scripting language called Lua, and by Blizzard policy, addons are required to be distributed in an unencrypted fashion. As a result, addons (and much of Blizzard's game client) are literally open for anyone to review and study. The following sections explore how addon developers use this access to build their own skills, as well as how they describe the ways they negotiate the formal and informal subtleties governing intellectual property within the community.

Table 14
Developer Description of Learning Practice

Interview Code 13: Developer description of how the practice of addon development is learned		
Code	Description	Count
13a	Through the study of code in the game client written by Blizzard Entertainment	3
13b	Through the study of code in addons written by other developers	4
13c	Through the use of online resources (websites, forums, wikis, etc)	5
13d	From other addon developers (IRC chat, e-mail, other communications)	4
13e	Through the use of books on addon development	2
Interview Code 21: Developer description of using others' intellectual property		
Code	Description	Count
21a	Others' intellectual work used freely without payment, permission or reciprocation	4
21b	Others' intellectual work used only after payment, permission or reciprocation	3
21c	Others' intellectual work avoided or not used	1

Survey Question 11: Have you ever read the code of another addon to understand how it accomplished some task or behavior?(N=45)		
Option	Count	%
Yes	44	97.78
No	1	2.22

As was discussed previously, Code 13 of the interview analysis showed that, though online community resources were the most commonly identified by developers as their go-to source while

learning the practice of addon development, close behind were descriptions of studying Blizzard's *WoW* game client (3) and the study of other developers' addon code (4). Similarly, 44 of 45 survey respondents stated they had reviewed the code of others. Bifur's description ably captures this behavior:

> Developer: The other place I go is that I look at other addons, because the addon source code is all visible, so a lot of times, if I have an issue, I'll try and think of another addon that does something similar, or find another addon that might do something similar, and um, I'll download that and look at the source code and see how they did it.
>
> Interviewer: And how often would you say that you needed to, or wanted to do that sort of thing?
>
> Developer: Um… I'd say it comes up fairly often. I'd say it's come up half a dozen times.

Similarly, Nori described this behavior turning into a more social activity, almost like a book club, where multiple developers would analyze another developer's code to understand some aspect of an addon's operation.

> What you did get a lot in World of Warcraft addon development - I think the things that brought us together the most - was discussing other people's addons. So, someone created an addon, and we downloaded it to see how it did something, or what it did, and we said "oh, that's a neat trick, I hadn't seen that before. Are there other applications of that?"
>
> And I think that that definitely made the… it gave us a more rapid pace as far as development and innovation. I think what you see in the *World of Warcraft* is a lot of front-loaded innovation – there hasn't been a lot of innovation after the first three years, since about 2007, 2008, nothing new has come out. Maybe that's because Blizzard has locked things down so we can't, although I don't think that's been the case - I just think there's a limited design-space for what can happen, and to see truly innovative addons to come out these days is pretty difficult. I think part of that is because we were so rapid in the beginning, we ramped up pretty quickly, and we said "what can we do with this? What can we do with this?" And for every idea that one person had, three other ideas split off and made something different, and the results came back and were all very interesting.

Shared Repertoire: How Developers Change Perspective on Intellectual Property

As a community, the developers of *WoW* addons have been exposed to a number of interesting questions regarding intellectual property. Five of the interview respondents (Table 15) were able to offer very specific descriptions of how their personal understandings of intellectual property had formed, and the resultant impact on their choices of what licenses they release their own addons under.

Table 15
Developer Description of Intellectual Property

Interview Code 23: Developer description of their intellectual property beliefs and practices

Code	Description	Count
23a	Little personal exploration or involvement with intellectual property concerns	1
23b	Personal intellectual property beliefs developed through personal experience with others	5
23c	Personal intellectual property beliefs developed through conceptual/theoretical research	3

Code 22: Developer description of how personal intellectual property is offered to others

Code	Description	Count
22a	Offered freely without licensing restriction or limits on alteration	2
22b	Offered freely but with licensing restrictions or limitations on alteration	4
22c	Offered with required payment, and restrictions or limitations on alteration**	1
22d	Not offered in any form to others	0
	** Code referred specifically to a book, not addon, authored by several respondents	

Prominent among the identified experiences came early on in the life of *WoW* when a software product called *WoWMatrix* gained prominence. *WoWMatrix*'s function was to serve as an automatic updater of a user's addons. The controversy came from two primary areas – *WoWMatrix* had problems ensuring it selected and delivered the most recent addon to end-users, and also, the company did not host most of the addons it updated. As a result, users paid *WoWMatrix* a fee to automate the updating process, and *WoWMatrix* turned around and generated significant bandwidth costs for the websites actually hosting the addons. A backlash ensued against *WoWMatrix*, and hosting sites ultimately banded together to limit *WoWMatrix*'s ability to access the addons. More importantly, many addon developers aware of the issue realized they had to more carefully define their personal software licensing decisions; a result reflected in the way interview respondents described how they now choose to distribute their software (Table 15, Code 22). As Nori described it, the episode forced him to move from a more open-source license to a restrictive license.

> *WoWMatrix* had an enormous impact on the licenses that were used in addons. All of my addons right now are All Rights Reserved. … what *WoWMatrix* was doing was really great, I think, making an easy way for people to update their addons … it was a well written system, and it worked really well and that's why it got popular, that's why people were using it.
>
> It was the support issue that caused the problem for me. It was not being able to provide support for my addons, and a secondary part of it is, as an addon author, I have power to direct the ad revenue for my addons to certain website. I should have the right to choose where people get my addons. … So I guess, it just introduced a lot of really interesting copyright and licensing issues.

> The license I had before was one I stand by, as far as a programming license – the MIT BSD license, which allows you to do pretty much anything with the software, as long as you include the copyright, and include the software license I've given you. So for an intellectual person, that's the perfect license for me because it gave anyone the freedom to do things. … I ended up having to change my license to all rights reserved because the license I had granted gave them the ability to redistribute my addon as long as they included that license. So, it's definitely given me a new perspective on copyright licensing and intellectual property,

Ori, too, described how the *WoWMatrix* episode changed his approach:

> Developer: Most of my addons are All Rights Reserved. That was mainly because … were you around during the issue with *WoWMatrix*?
>
> Interviewer: Yes.
> Developer: Yeah, so that was really done to combat that. I didn't mind *WoWMatrix* hosting my addons, that wasn't my big issue. What was the issue was people would update from *WoWMatrix*, they would get an out of date version, and then they'd be coming to me for technical support on that, that I'd fixed a month ago, so it was wasting my time. So that's what really irked me and annoyed me.

Shared Repertoire: Competing Perspectives on How Open Addons Should Be

Seeing that the vast majority interview and survey respondents have accessed the code of other developers' addons, several obvious questions proceed from this situation – what are the values that addon developers identify in this openness, and what are the social norms that developed around protecting that openness, since it appears to be co-exist with some of the licensing concerns referenced previously. The findings in Table 16 speak directly to these two questions.

Table 16
Developer Attitude to Code Access

Code 24: Developers' identified reasons for open access to addon code

Code	Description	Count
24a	Code of addons should be open so that others can learn from it	4
24b	Code of addons should be open to ensure addon behavior is benign	3
24c	Code of addons should be open to ensure addons do not infringe on code of others	2

Survey Question 12: If you found a section of another addon that contained code you wanted to use, would it be acceptable to take that code without the permission of the original author? (N=44)

Option	Count	%
No	31	70.45
Yes	13	29.55

First, it should be noted again that the formal rules surrounding addons have been established wholly outside of the addon developers' community structure. While Blizzard's policy was greeted with

some controversy, none of the interview respondents questioned the viability of its rules. Instead, most supported the policy because it created a situation where addons were available for all to learn from (4 responses), where the community could quickly evaluate whether an addon was attempting to conceal behavior that was less than benign (3 responses), and where the community could easily self-police itself against infringing use of others' intellectual property (2 responses).

Dori's comments on this provide a good picture of all three perspectives:

> As for the obfuscation … I think the motivations behind that [policy] are sort of the pure ones, which is, it's all about trust and safety, more than anything else. … Obfuscation was being used to protect the people, to protect their intellectual property. But the reality is if you're trying to, … Say you are an informed user, and you want to see if this add-on is safe, then obfuscated code is very hard.
>
> It escalates up a couple orders of magnitude if you are Blizzard, being told that customers are complaining that some add-on is doing something bad, and they are then in this position where they have to go, 'hang on, we here can't understand what this does,' and they don't want to necessarily send one of their developers to spend a week essentially reverse-engineering an add-on, just to go either, 'oh, yes, that's bad, we should stop it,' or 'no, that's not bad.' So my guess is that part of the motivation was to make it so the community could continue to self-police, because that's the sort of thing we always would do, if someone posted, "this add-on's stealing my passwords," it would usually be pretty quick that someone would take that down and go, "no, if you look inside, all it's doing is this, it's fine." … Keeping it clear, it's like we're all playing on the same playing field, we can look over each other's shoulders to make sure no one's doing anything bad, I think is kind of good. Because ultimately, if I'm putting an add-on on my machine, I have to trust that the code I'm putting there does what it says it's going to do. And if I can't see what it's going to do, then that's bad.
>
> A secondary benefit is that it helps the community become, continue to be self-sustaining. … I want people to see my code to figure out how it works if they want to do something similar, and I think the community benefits from that kind of sharing.

Yet, cultural norms around what is and is not an appropriate use of another's code clearly exist. Asked on the survey (Table 16) whether it would be appropriate to take a portion of code from another developer's addon without permission, 70.5% answered No, and throughout the interview responses there are clear statements which align with that position, but there are also examples where the line gets close to being blurred – as one survey respondent who answered "no" put it, "I never take code wholesale from other addons without author permission. However, I have been known to adapt or modify code to suit my

needs. In those cases, I put 'inspired by' or 'borrowed from' as comments in my code." Notably, a "yes" respondent said something very similar:

> AddOns are designed to benefit the entire community; and should not be a source of income or advertisement. Using someone else's code -- and crediting them objectively -- is a fair way to improve the entire AddOn environment. I agree that using someone's code with intent to profit should not be considered permissible, but you aren't allowed to profit from *WoW* Addons either way.

Finally, another survey respondent provided a response that seemed to most closely capture both sides of the question: "Maintaining goodwill is important to me. At a practical level, if I knew an addon was under such a restrictive license, I wouldn't be looking there for help to begin with; 'secret' addons are as a rule not developed by skilled authors." Embedded in this comment are several intriguing beliefs – first, that goodwill (respect to and from the community) matters, and second, that licensing is itself a marker of skill – that if a developer is truly worth emulating for technical reasons, they probably also are worth emulating because of how freely they offer their code back to the community.

Joint Enterprise: How Property Rights are Observed After Developers Leave Community

A unique issue associated with addons (and other modifications to other videogames) has to do with the fate of the addon when its author becomes less connected to the larger game. As previously seen in Nori's description of how he came to begin developing addons, (page 73) there is a tradition of current players and addon developers drawing inspiration from the work of others, even if that work has been abandoned. An aspect of the community's attitude to openness is its practices when an addon is perceived to have been abandoned; another is how addon developers anticipate disposing of their intellectual property if they cease development (Table 17).

Table 17
Developer Expectation of Intellectual Property

Interview Code 25: Developer intent for their intellectual property if they end active development

Code	Description	Count
25a	Addon code will not be offered to others maintain or take over	3
25b	Addon code may be offered freely to others to maintain or take over	1
25c	Addon code will be offered freely to others to maintain or take over	0

(continued)

Survey Question 19: What best describes your plan for providing long-term support for your addons: (N=38)

Option	Count	%
I'll support the addon, and if I stop playing, I'll give the addon to someone else if they want to take it over	14	36.84
I'll support the addon, and if I stop playing, I'll still continue to support the addon with only bugfixes and patch compatibility	12	31.58
I'll support the addon, and if I stop playing, I'll still continue to support the addon and develop new features	7	18.42
I'll support the addon as long as I'm playing; if I stop playing, that will stop the addon development too	5	13.16

The response from both interviews and survey seems consistent. While a significant percentage (36.8% in the survey) do say they would offer the addon to others to take over, the majority say either they would continue to maintain the addon (in some fashion) even if they stopped playing, or that the addon would cease active development, but in either outcome, the code would remain under control of the developer. That said, two comments received on the survey suggest these findings are more malleable than the numbers make them appear:

> If I stopped playing, I would want to cut all of the chains, but if I had a user base, I would feel some obligation to them. I'd try to secure a maintainer and do bug fixes and compatibility releases until then.

and

> I'll support the addons so long as I'm playing, and still find enjoyment in supporting them. While I will not give the addon to somebody else, they are all open sourced, and people can continue, or create a new addon with the code if they feel like it.

Clearly, there are contradictory feelings which exist, and co-exist, within the experience. This is probably unsurprising, given the personal, non-intellectual-property, motivations which drive individuals to become addon developers. Even as the experience of functioning within the addon developer community has helped refine individual philosophies of software development and licensing, it has also presented developers with unusual questions of support and obligation once their initial curiosity and passion has waned.

Conclusions: Answering the Research Question

Accurately describing the motivation of anyone doing anything is challenging – interests and actions always spring from multiple origins, and it is dangerous to ascribe too much certainty to any one factor. Still, reviewing the results discussed above, there are several strong possible motivators for individuals to enter into the practice of addon development – a self-identity as an expert within the *WoW* player community, an affinity for the company of other developers, and ultimately, the social connections made with the larger playerbase through the distribution of addons. From these we can propose some similarities and differences from those seen in other F/OSS communities.

The first, most obvious motivator for addon developers is the chance to be an active co-creator in the game experience. As several interviewees pointed out, there is a shared thread among addon developers of "tinkering" and "tool-making" – they are not passive consumers of content developed by others. They are opinionated about how *they* wish to see the game world, and they strongly believe realizing that vision will lead to a better game experience; the idea others might see similar utility seems consistently to be a secondary development.

Addon developers describe themselves as gamers first, even though it is clear that for many, engagement with software development gradually (or quickly) becomes *the* game – to the point that actually gameplay within *WoW* takes a secondary position behind the challenge of optimizing and improving the addon. Interestingly, in a transition not fully identified in this study's research, at some point developers begin to see themselves as something other than "just an end-user," and they begin to describe their community as one of experts, centered around addons rather than gameplay. Several interview respondents describe having been dedicated "raiders," players devoted to the most demanding aspects of group play in *WoW*, yet it is also clear in talking with them that the self-identity of an addon developer includes a component of having seen behind the curtain – that their understanding of the game exists at a deeper level than most participants. This shared knowing, and the associated distinction from others, forms a natural foundation for community members to coalesce around.

It also allows the community to split and recompose itself in new and different ways. As Nori put it, the fact addon developers have gone through separations, and to see those separations still in place years later, is evidence of the existence of a community with some longevity and memory, rather than random mixing. Being a member of a community – identifying with a software framework, or website – these have become not just markers of personal identity, but also motivations for continued participation.

Addon developers do not identify social interaction with other developers as an initial motivation for pursuing expertise in the practice, but for most, continued engagement with addon development appears to have led rather directly to interactions with others. The most commonly identified reason for this was the shared artifact that addons represent. For unclear reasons, Blizzard mandated addons be distributed openly and without cost (and indeed, distributed much of its own game code in the same open fashion); as a result, addon software became both dialogue and reified knowledge. Addon developers studied the work and methods of others, and leveraged it into their own practice. Interview and survey respondents overwhelmingly report having explored the code of others, and also of having provided feedback through comments, bug reports or even proposed fixes. The ferment of intellectual exploration and improved software performance because of the community's social interaction clearly became a powerful motivation for developers to stay engaged with the practice. In the research, it was not uncommon for developers to describe their preference for working on projects alone, because doing so removed the additional overlay of social negotiation and communication, yet more than one developer echoed Ori's sentiment, "I prefer doing it myself, but having access to the resources of others."

Many addon developers also cited the feedback they received from end-users as a powerful motivator for continuing to support their software addons, even after the developer's personal engagement to the game had lessened, thereby reducing the direct utility of the software to developer. Feature requests, bug reports, download counts, financial donations, forum comments, and mention in social media all were identified by developers as ways they could see the impact of their personal practice on the lives and gameplay of others; financial payment was identified only as a secondary benefit, and was never described as a particularly powerful motivator (though several individuals did come to make some or all

of their livelihood from activities associated with addons). The word "obligation" was used more than once by interview respondents to describe their feelings regarding continued maintenance of their addons – an identified duty both to maintaining the integrity of their personal vision for the addon, and to a continued ability to facilitate the gameplay experience of others who had come to depend on the software. Only a few respondents stated their willingness to cease work completely on addons once they had been shared publicly – most suggest they would either continue to personally maintain the software, or seek someone to continue the work if they could not do so themselves.

How, then, do these experiences seem to match up with those seen in other F/OSS communities? Surprisingly, quite closely, though with some crucial distinctions in several areas.

First, it must be acknowledged as a gross simplification to lump all Free/Open Source Software projects into one comparative group – there is no doubt similar variation exists project-to-project in, for example, the Linux kernel and the Apache web server, as exists between *WoW* addon communities and "other F/OSS communities," so it is dangerous to overstate the perceived similarities and differences. With that said, it appears there are three major similarities, and two primary differences, between the experiences of *WoW* addon developers, and those in other F/OSS communities.

The three primary similarities are:

- The practice satisfies a personal need, or an affinity, that the software developers have. Hertel et al (2003) found the strongest predictors of time spent on F/OSS were first the individual's self-concept as a developer, followed closely by the anticipated personal utility the developer anticipated receiving from the time invested in the F/OSS project. This study did not attempt to create a correlation between self-identity and time devoted to addon development, but it did find clear evidence that the significant majority (Survey Question 8, 71.1%) of respondents were initially motivated to fill a personal in-game need. In this, addon developers mirror their F/OSS counterparts.
- The reported experience of working on F/OSS development strongly incorporate terms such as "discovery," "creative," and "personal" (Lakhani & Von Hippel, 2003; Lanzara & Morner,

2003; Scacchi, 2002). Common terms used by addon developers to describe their experience include "challenging" and "experimental," "puzzle" and "brain teaser," and "personal." As one survey commenter put it, "There's nothing better than being able to fix/change something so it's just the way you want it." While the words do not create exact analogues between the F/OSS and *WoW* addon experience, the linkages are easy to see. Perhaps the most important addition seen in the *WoW* research was the word "fun," which appeared in nine of 31 responses to the question "What term, or terms, would you say best describe your feelings about addon development?" (Survey Question 22).

- The value of software as reification of knowledge and practice. Kelty's discussion (2008) of F/OSS communities' recursive use of software to comment on what is the best way to develop software is also seen in addon developers' routine review of each other's code. Kelty describes argument about, and through, code; Fili observed similar ongoing conversations in the IRC channels populated by developers as they discussed addons, both their own, and those of others:

  > They hold their opinions very strongly. There have been times where I have actually had to mute channels and go, "okay, guys, we all take a deep breath, step back, calm down, go ahead and disagree if you want, but do it constructively and politely. Don't be a jackass." … If someone comes up with something really great, … someone will say "that sucks!" some will go, "that's really clever, I didn't think of doing that" or "I didn't know you were able to do that, thanks for sharing that with us." So, if they like it, it's just going to be a very positive, "that's really great." But there aren't too many ways of saying, "That's really great." … It's when they really disagree that you see a lot more of the personalities come out.

The two primary areas of difference between *WoW* addon developers and other F/OSS communities were identified as:

- Different willingness to engage in shared or collaborative development; *WoW* addon developers appear to be far more individualistic and likely to work by themselves than the F/OSS developers studied elsewhere. Several reasons for this were proposed by addon developers – first, they identify the very personal utility of the addon project, and second, they cite the very specific and circumscribed scope of the typical addon project. Several

survey respondents explained their decision to work solo primarily because there was not enough work demanded by the project to need more than one individual. It should be noted Krishnamurthy (2002) found at least 20% of F/OSS projects were solo projects, and 80% had less than 10 contributors, but results from the addon research seem to suggest something like 95% of addons are solo projects. As a result, the number of projects that represent collaborative development in *WoW* addons is much smaller than other F/OSS communities.

- A fundamental difference in the "freeness," though <u>not</u> in the "openness" of the shared intellectual property between addon development and other F/OSS software. There are many potential reasons for this – addons function solely within a closed software environment governed by a corporate entity, rather than in the more varied environments (some open, some closed) that most F/OSS projects function within. Also, addons seem to more often begin life as a purely personal project than larger F/OSS projects do, so perhaps there is a greater likelihood of an individual addon developer expecting to retain ownership of the code than a F/OSS developer. Lastly, it appears several unique experiences of addon developers with other entities distributing the addons in a way which was imperfect and troublesome caused many developers to seek more restrictive licenses as a way of protecting themselves. Many addon developers who experienced the *WoWMatrix* scenario pulled back from some of the F/OSS values they otherwise held. Whatever the individual reason, while addon developers distribute their addons both freely ("as in beer") and openly, there is a much weaker formal commitment to distribution free of restrictions on use, alteration or redistribution – in that sense, where F/OSS communities have these assumptions generally baked into their licenses, the addon community still maintains a much greater variety of licensing, much of it closed.

Taken in totality, these findings make for some interesting conclusions about not just the addon developer community, but for other communities increasingly observed coalescing around videogames and other artifacts of popular culture that have been either intentionally or accidentally designed to foster

participation and collaboration among their userbase. Among those which bear some discussion – creating the opportunity for consumers to develop passionate expertise that augments the original cultural experience; navigating the question of governance in the relationship between corporate and amateur participants in the development of the artifacts; and understanding the importance of how participants describe their personal identity on how they will ultimately describe the meaning they make from their participation in the community. Taken together, these observations will help flesh out a term previously proposed in Chapter Two – "Community of Passion" – and what distinguishes it from a CoP.

Chapter 5. Discussion

Several days after the survey that represented the second phase of this project's research was closed, I received an e-mail from an addon developer (hereafter referenced as "Balin") who was interested to learn more about the reasons for the survey. Over the course of several weeks, Balin and I exchanged e-mails about the research question and design, and about the process of being a doctoral student. It was a pleasurable discussion, but not one which would have been particularly notable, until Balin responded to a conversation I described having had with a non-Blizzard game developer who argued *WoW* addons had created an antagonistic relationship between players and Blizzard because the addons accelerated the rate by which players consumed the game content. Balin's response, though lengthy, is such a rich and complete statement of the addon developer's perspective on the practice and experience that it helps serve as a natural summary, as well as a jumping off point for future research:

> The Blizzard/addon developer relationship is almost certainly a symbiotic one. Looking at addons as "antagonistic" strikes me as the refuge of programmers and designers without the requisite amount of vision to properly integrate the kind of "feedback" that addons give to a game and its systems (or even, and I know this is a bold claim, with a proper understanding of game theory or of proper sandboxing and API design).
>
> Blizzard often takes ideas that were in addons and integrates them into the game. Almost always, their version is a simpler one that provides the highlights of the features the addon provides, and does so with Blizzard's characteristic aplomb. In implementing their version as they do, they *also* don't defeat the purpose of the addon that inspired it. Nobody would replace *Mik's Scrolling Battle Text* with Blizzard's, as one is a crayon and the other is a fountain pen. What they do is allow players to see these features and these enhancements to their experience and when they finally say, "Wow, I'd really like to be able to see ___ in the scrolling text." Then, the addon community awaits!
>
> Addons *challenge* Blizzard to self-examine. This ability that they have proven they have, time and again, is what is lacking in companies that would describe an addon community as "antagonistic". It is hard to have someone take *your* API, in *your* walled garden and use it to create something that points out *flaws* in your own game. As a student pointing a finger at his master -- full of truth and scathingly accusative; regardless of the student's intention, it is *so* easy to perceive it as such.
>
> Blizzard has proven that they are able to see what the addon community is doing and take the topic for internal debate, return with a response that is confidently: (a) yes, there's a deficiency in our game and here's what we're doing or have done to improve it; or, (b) what the addon has figured out is creative, but it breaks things that we have assumed in order to design quality content -- we've disabled this portion of the API that should have little to no effect on the rest of the addon community but which neuters the addon that we don't like.

> They almost never pull the "kill switch" that they've built into the game that allows them to block addons by signature or name. … The one they decided to neuter using the surgeon's touch was *AVR*. Very interesting story there, and some very creative addon developers. The addon actually used three properties of the camera that used to be exposed to the API to literally perform on-the-fly perspective transformations of two-dimensional shapes to make them appear to be part of the 3D world. Blizzard's response to that was absolutely classy: they made un-readable one of the attributes of the camera that maybe 0.05% of addons were using -- except AVR, which depended on it.
>
> At the end of the day, one of Blizzard's strengths is that they can differentiate between something that is democratically *designed* and *information* that is democratically gathered. They know that they own the game and that it is absolutely, at the end of the day, a dictatorship. A dictator can certainly value the feedback of his citizens; all "dictatorship" means is that, ultimately, the Dude makes the choices. At the end of the day, it's their game. No company that has a sense of its own identity can possibly look at an addon community as a threat. What threat could a mortal pose to a god? They made the system and its parameters, what could an addon do?
>
> If the content designed for a game is consumed at an accelerated rate (greater than what was intended by the game designers) and they pin it on addons, either: (1) the content was poorly designed or (2) the API was poorly designed. If I gave you a hammer and you built a house with it and came back to me and my reaction was, "Fuck, you were only supposed to be able to make a birdhouse." "Well, uh, I made a house. Wut?" You can't blame the *consumers* of a system you create for how they use the system. They're working, by definition, within the parameters *you* established. It's actually laughable to consider that anyone would take that position **:)**.
>
> I have a lot of respect for Blizzard, as a company. I just wish that having such a good example in the industry would have a more inspirational effect. (Personal communication, November 26, 2013)

There are many observations which spring from this remarkable statement, and though not all necessarily represent avenues for future research, they certainly do offer a compelling picture of addon developers as members of a particularly passionate community of practice.

First, it is clear addon developers are an intelligent and critical set of individuals. While it is possible to play *WoW* without investing much effort or time into questioning the underpinnings of the game, it is far less possible to be an addon developer and do so. The technical nature of the work self-selects for individuals with an affinity for complex systems and multivariate solutions. As Kili's previous description acknowledged (page 96), intelligent does not necessarily mean moderate in opinion, or empathetic – like other arenas (academic settings, for example) populated with highly intelligent participants, discussions can easily turn acerbic or cutting. Still, Kelty's description of a recursive public is apt for *WoW* addon developers – design decisions are seen as communication, and in the case of Balin's

account of Blizzard's choice with *AVR*, there is an admiration for design decisions that are specific, measured and limited. Disabling one addon while avoiding all (or most) others is not seen as punitive, but instead as "classy" – it is an expression of a very clear design vision.

Second, addon developers aggressively distinguish the user interface and its design decisions from the game and its design decisions. This may seem obvious, but until this separation is established, it is impossible to see the game experience as something malleable and open to re-interpretation. While a slight majority (57.9%) of the survey respondents said they were more likely to consider playing a game if they knew it supported addons or mods, the comments associated with the survey question made it clear a good game can overcome a user interface which is not exactly to the addon developer's taste, but that addons alone cannot rescue a game if it is intrinsically flawed or uninteresting. As one survey respondent put it:

> The UI is generally my least favorite part of any game, and the more complex the game's controls, the less likely I am to like the UI. Part of this stems from the fact that my vision is absolutely awful, and most UIs seem to be designed by and for young people with perfect vision -- tiny text, unreadable fonts, horrible aliasing, etc -- but there's also the issue that I just don't enjoy "flavorful" or "artistic" UIs -- I just want the functionality, with no more ornamentation than is necessary to make it look decent and unified.

Third, addon developers are inevitably forced to grapple with, and come to some acceptance of, the distinct inequity between themselves and Blizzard when it comes to governance in the game. Balin's description of the relationship as a benign dictatorship is not unusual, nor is the admiration he expressed for the company – similar comments were seen in other accounts during the interview phase. Obviously, someone bothered by this inequity probably would not persist long enough to become an addon developer, but this should not be interpreted to mean addon developers are instead uncritical of Blizzard's decisions. Quite the contrary, Balin suggests a sort of legalistic attitude develops, that all rights not explicitly reserved by the game company - through its design decisions or terms of service - become an arena for players and addon developers to explore. This they do, even as they describe an understanding the game company still holds the final right to alter its design decisions after observing the emergent

behavior of players. This could be described as a sort of fatalism, but more often it seems to be described by addon developers as just another contingent component of a larger game-like system.

Finally, it must be said addon developers perceive their work to be the direct result of an invitation to participate in the improvement of the game experience, and that on occasion, their work will be co-opted by Blizzard to make game-wide improvements. Balin identifies several responses to the critique an addon poses - 'Yes, our game is flawed" or "the addon does something we did not intend." A third response probably also exists, something like "Oh, interesting. That's not a decision we would have made, but you're welcome to make it for your own personal playstyle." Having this conversation, as Balin (and other developers) seem to see it, is the mark of a confident and mature game developer interacting with empowered end users in a virtuous circle of designed experience and resultant feedback.

A Brief Comment on Research within Virtual Communities

The conversation with Balin that yielded the commentary above came at the end of my research, too late to dramatically impact the design or actual data collection cycles. That said, in retrospect, I have come to see that it highlights certain shortcomings in my approach to research within the addon community, and hopefully identifying these will offer some insights for future researchers.

First, the difficulty of reaching out to participants in a virtual community of any sort should never be underestimated. As previously described, the technical systems of today's virtual communities are designed first and foremost to provide a level of insulation and anonymity that is extremely difficult to penetrate in non-invasive ways. This is unfortunate; the impact of forum "spam", "internet trolls", and other anti-social online activity has led to the development of screening and anonymizing systems which are both inherently suspicious and generally autonomous, operating without the intervention of human moderators.

There are two ways to view the resulting difficulty in reaching out to the members of a virtual community. One is to focus on the difficulty of the task; the other is to recognize the burden it puts on the researcher to genuinely engage with the community being studied.

Without a doubt, the technical systems prevent a timid or ambivalent researcher (and at times I was both during this process) from simply sending a mass e-mail to multiple recipients and depending on the kindness of strangers to see the validity of the research, see themselves as legitimate participants in the research, and be willing to devote the time necessary to participate. It is hard to know whether such an approach would ever have been particularly effective, but in today's environment, researchers should expect to invest considerably more time understanding the norms and social connections of the studied community.

Which is not to suggest researchers should believe they must become functional experts in the studied field – I do not think, for instance, I was significantly hampered by not knowing how to write an addon for *WoW* – but they should expect to invest time building social connections with the members of the community being explored. In this, I should have been more assertive and less self-conscious; I was aware of the IRC channel for addon developers and observed it for several months, but I did not *participate*, even though there was no barrier to doing so. Similarly, the online forums at the addon-hosting websites are open to anyone, and had I invested some time building a small social presence before seeking out potential interviewees, it seems much more likely I would have been successful.

What researchers considering today's virtual communities should understand is that the seeming ideal researcher envisioned by theorists like Spradley, who seems to visualize a clear separation between expert researcher and a set of research subjects uncontaminated by exposure to research methodologies, does not exist. Individuals are too exposed to research and data collection throughout their daily lives for them to have no pre-existing impressions about academic research, and we are all too familiar with apocryphal stories of researchers arriving with predefined expectations to accept invitations to participate in research without a certain cynical expectation that we are being used to confirm expected outcomes.

Instead, it seems to me the model for researchers to consider is to emulate the learner's arc of a newcomer to the community. Bring legitimate questions to the community, participate authentically in the social life of the group, and be honest about the limits of your experience in the shared. I attribute my success in generating responses to my survey instrument primarily to the conscious effort I made to

answer every post made on the forum thread I started to solicit participation. When questions about the research were posed, I answered them as best I could. When jokes about the research topic were made, I tried to respond in tone. As researchers, there is a fine line between appearing knowledgeable of a community and overstating what we believe we know of the norms – my advice to be conservative in one's estimation, but not so conservative as to appear detached or straitlaced. More than anything, however, regular unself-conscious continued engagement, which appears at least somewhat cognizant of the social norms, seemed to yield the most positive response from community members. Much as I might have wished it to be otherwise, there are no shortcuts in creating the social connections necessary to facilitate the request for participation – simple "fire and forget" requests are ineffectual and unlikely to yield many positive results.

Another minor point for researchers considering virtual communities is to remember to look for the opportunities to leverage the physical gatherings of the community. In the case of the addon developers, the annual Blizzcon conference in California serves as a social gathering that many attend, less to hear the latest and greatest news from Blizzard, than to see and socialize in person with friends from around the world. Unfortunately for my research, while I did attend several Blizzcons, I did so before I had fully settled on my research question (and well before I had IRB approval to do any formal data collection), so I failed to meet many addon developers in a setting where I might have been able to create lasting connections or conduct interviews. Were I to conduct this sort of research again, I would work to ensure my data collection cycles overlapped in some way with non-virtual community events like Blizzcon, and I would do my best to arrange as many social interactions with the potential research participants as possible – not necessarily to conduct data collection, but more to build interpersonal connections and lay the groundwork for future conversations.

Ramifications for Other Communities and Videogames of the Future

The landscape of videogames has been changed dramatically by *World of Warcraft*. Especially for publishers considering developing a new MMOG, *WoW* stands as an unofficial standard other games are measured against, even if their target audience is not as broadly drawn as *WoW*'s was. Rightly or

wrongly, not only have new games been evaluated on whether their subscription numbers reached the same astronomic heights as *WoW* did at its peak, players also seem to consciously or unconsciously compare new games against *WoW*, even if they no longer choose to play the original game. There has been some discussion within gaming circles whether *WoW*'s success has, in fact, stunted innovation and growth for the larger videogame industry. Blizzard's recent announcement of their fifth expansion to the game suggests they have no intent to abandon what remains a startlingly large playerbase, but clearly, there is a question of what might be the next innovation to energize the industry.

The findings of this research do not answer that question, but considering the experience of *WoW* addon developers, a key finding is to understand two aspects of Blizzard's governance decisions – to emphasize "smart players, not smart buttons", and encourage openness through technical and policy decisions. These two concepts appear to have formed the foundation of Blizzard's approach to managing addons, and so offer opportunities for others to consider.

It was Nori who foregrounded the distinction between "smart players" and "smart buttons":

> The thing that we got from [Blizzard employee] early on was "we want smart players, not smart buttons." So you can give the player as much information as you have available to make the appropriate decision, as far as making things blink, glow - do whatever you want - but anything that automates or makes decisions for you, such as moves … is a big mistake.

What is particularly elegant about this construction is how clearly it describes where the decision-making authority should reside within the game experience: With the player. The addon developer can do all they wish to gather the appropriate information for whatever situation the player is currently facing, but in the end, there can be no pre-established decisions or automation coded into the addon that removes the player's individual decision-making expertise from the game experience. Preserving the agency of the player, then, seems to have been a critical design decision that flowed out to addon developers and became a foundational assumption.

The other decision remains somewhat less clear as to its motivation, but early on Blizzard determined it would distribute its own game client with much of its code exposed, and later it issued the

policy requiring all addons to be similarly open. This continues to be a turning point for the addon developer community, and by extension, for the larger playerbase.

From the developers' perspective, the decision jumpstarted the community by delivering a library of working code that could serve as a reference source for the nascent addon developer community to study and leverage. In a very real way, Blizzard's choice echoes the actions of other corporate entities (for example IBM, Red Hat, and Google) who have invested significant employee time and effort into open source software projects such as Linux or Android; where Blizzard's actions varied was in the ownership they retained not only over their own product, but the governance over the code of others.

Strikingly, the authority Blizzard retained appears to have been reasonably accepted by addon developers because the company was able to cast their interest largely as one of protecting the trust between the playerbase and Blizzard. That by enforcing an openness within addons, Blizzard encouraged the addon developer community to self-police itself, and retained an ultimate authority to protect itself (reasonably easily) if it needed to review and disable the processes of an addon if the peer review processes failed to weed out a bad actor. That Blizzard also prohibited addon developers from charging for addons seems to have been accepted as a further strengthening of the "open" ethos, and also helped limit its corporate exposure to potential complaints of economic damage if they did have to disable an addon. For most of the developers interviewed in this research, there was at least tacit acceptance of the policy as the price of admission in exchange for the opportunity to develop addons, and for several, their primary complaint was that the policy was introduced too late in the game's development – that had it been a foundational policy at the time of the game's initial release, it would have gone largely unnoticed and unquestioned.

Taken together, it seems the experience of the *WoW* addon developers offers the following lesson for future videogames: Establish early on the extent to which user-generated content will be allowed to be incorporated into the player experience, and how open the code, both corporate- and enduser-developed, will be. Codify all of these expectations into clearly articulated policies. Doing so will help passionate

endusers see opportunities for contribution, while avoiding some of the resentment seen around Blizzard's iterative governance decisions early in the history of *WoW*.

I think it is important, too, to understand that the ramifications of "modifiability" reach beyond the arena of the videogame; there is much in the experience of the *WoW* addon developers which speaks to questions of teaching and learning in other arenas, especially those in the Science, Technology, Engineering and Mathematics (STEM) areas that so many in our society point to as being critical for future students to master.

Perhaps foremost among the benefits I see is the concept of modification as a sort of "halfway" entry point for newcomers to complex domains of knowledge and practice – that is, modding an existing game allows a newcomer the opportunity to engage with the practice of software development, or programming, in an arena where the conditions for success are already established. Creating *any* game (or other software application) is a huge task – rules must be set, player environments and behavior have to be coded and tested, software has to be developed and debugged – and a newcomer can decide anywhere at a thousand points in the process that it is too hard, or too complex, or simply not compelling enough to complete. If everyone who wanted to hear Beethoven's Ninth Symphony first had to develop and manufacture all of the musical instruments, then train the musicians in their use before they could attend a performance, only the incredibly dedicated (and well funded) few would ever hear the first note, let alone an entire symphony. Yet is not uncommon for us to assume that students in a Computer Science program will be required to spend significant time and effort learning one or more programming languages before they ever develop a finished product of their own design. Using game modding as an entry point into the larger practice of software development seems like a commonsensical way to lower some barriers which otherwise might exclude some newcomers.

Of course, the idea of engaging with forms of programming where certain components of the experience have been simplified or removed from the learner's initial experience is hardly a new concept. Seymour Papert's work to develop and popularize Logo as an educational programming language is an obvious example; the Mindstorms building kits and associated programming environment produced by

LEGO, are another. I would not argue *WoW* addons are necessarily a superior or more accessible learning tool than either LEGO or Logo, simply that an equivalence exists, and for some individuals already inclined to play videogames instead of building robots, modding or addon development may be a more effective "gateway drug" to engagement and learning.

Of course, I think there are limits to this advice. While numerous studies exist where videogames, computer simulations and other playful experiences have been shown to increase student engagement in various subjects, there remains a deep suspicion of game-players of anything that smacks of "educational" intent. For individuals of a certain age, *Math Blaster* still comes to mind when we talk of educational gaming, endlessly solving math equations for no particular reason. Not only does "drill and skill" lack any of the contingence intrinsic to playful experience, it also fails to understand what the *WoW* addon community so clearly articulates in its advice to newcomers: Fill your personal need first.

It is this point which I think gives modifiable videogames a power, but also some limits. Within the experience of the *WoW* addon developers I interviewed, there is a powerful picture of expert learners. Many, if not all, were largely self-taught, and the tools the community has built to help others learn the practice should spur envy in every educator trying to spark exploration and reification of knowledge in their students. I think, however, it would be a mistake for anyone to confuse the outcome of deep learning, or the arena in which it occurred – the videogame – with the deeper motivations of play. In other words, while videogames and modding may be powerful knowledge domains for exploration and learning, if we lose sight of the playful motivation - the construction of personal meaning within contingent situations – that precedes passion, then the opportunity to alter or augment videogames is no more effective an educational intervention than endlessly blasting "3x4" or "6+4". Anyone considering introducing videogame modding as potential venue for educational outcomes should understand play necessarily precedes any deeper engagement, but does not inevitably lead to any predetermined outcome – the very same contingency which gives play its allure can also lead to a failure of engagement. Not all who are exposed to chess become grandmasters, or even continue to play in the future; the same is true of modifiable videogames. Skillful educators may find situations where modding makes sense as an option

to engage students, but skillful educators also know no single prescription exists to create genuine engagement.

Communities of Passion: A Framework for Future Exploration

> I didn't feel that any of the answer choices accurately reflected my opinion on the addon development process. I don't look at it as a job, but I don't look at it as a game either... a good analogy might be cooking a complicated meal so I can enjoy eating it and take pride in sharing it, though I admit sometimes it's more like cooking something just to show by comparison how awful someone else's cooking was, or to spite the thoughtless kitchen designer. :) (Dridzt, 2013)

Throughout the course of this study, the organizing framework has been the Communities of Practice theories developed and elaborated by Lave and Wenger (1991). It is a robust theoretical understanding – many studies have successfully used it to describe various communities and forms of practice, and legitimate efforts have been made to transition the theory from one of observed communities to intentionally created and curated communities. Indeed, in this study much of what Wenger (1998) encourages us to consider continues to hold validity: there is generationality in the membership, there is shared practice that produces reified knowledge, and there is clear evidence of changes in individual self-identity based upon the participants' interaction with the larger community.

However, there are aspects of the addon developers' community which seem to challenge the traditional CoP description, and which warrant being identified as a something distinct – not completely CoP, but not completely removed either. Where the term falls short, in my opinion, is in how it deals with a community which forms first around one interest – in this case, a game – and then evolves its focus – to producing alterations (software or otherwise) to the game. Traditional CoP structure does not seem to accommodate the reality that addon developers continue to describe themselves as game players, even though in observation, their shared practice seems to be focused as much or more on software development.

Additionally, the traditional CoP description suggests as a player leaves *WoW*, and ceases addon development, their participation in the CoP would lessen or cease. Yet participants report plenty of "emeritus" addon developers continue to participate in the IRC chat channel, and continue to interact with others still actively engaged in *WoW* addon development. Somehow, the idea that *practice* is the

coalescing focus of the community is challenged by the reality of what is observed. Instead, I would argue it is *passion* which serves as the binding glue of the community, and I believe as researchers consider disparate communities such as those around the videogame *Minecraft*, or the social gatherings of inventors and creators called *Maker Faires*, we will need a new construct to describe these communities – a construct I term *Community of Passion.*

The characteristics I believe mark a Community of Passion are four:

1. Members of the community describe their self-identity first in terms of expert play and contingency, and only secondarily in terms of shared practice;
2. Members of the community describe production as the indicator of legitimate participation in the practice; simply being passionate consumers is insufficient;
3. Members of the community maintain a nuanced relationship with intellectual property. While openness is an integral assumption, the agency and intellectual property of individuals is honored and protected. Importantly, "freeness" is not required for community participation, but free contribution to the group's reified knowledge becomes a marker of membership;
4. Members of the community identify themselves as the primary beneficiary of participation in the group's practice, and by extension, reject the "playbour" critique posited by theorists such as Terranova (2000) and Kücklich (2005) that would describe them as unwittingly donating their labor to other corporate organizations.

Drawing on the research findings from the *WoW* addon developers, my reasoning for the characteristics above are as follows:

First, addon developers do not identify themselves primarily in terms of being software developers. Partially, I attribute this to the fact addons themselves are useless until placed in context of the larger game of *World of Warcraft*, and so developers make a logical distinction seeing themselves first as players, and only secondarily as programmers or software developers. Yet they also do not call themselves "just" players – they clearly see themselves as more expert and more knowledgeable about the

game than those who have not developed addons. While this might be externally interpreted as arrogance, I think this would be a mischaracterization. Instead, it is a level of engagement with the game to an extent that the individual developer has altered their focus from the ostensible rewards of the game – loot or performative achievements – in favor of understanding and interacting with the structural rules and obscured information which are used to create the game's contingency. Whether we term them as "superusers" or "experts", members of the Community of Passion engage more deeply with a domain of knowledge than the general consumer does.

In a correlated attribute, it appears one of the clear identifiers of members of a Community of Passion is the actual *production* of content which display a personal vision for how the shared experience should be altered. *WoW* addon developers certainly welcome the suggestions and feature requests they receive from players, but their comments suggest it is their personal vision for the projects which determine their ultimate direction. An undercurrent running through many of the developer comments is that player suggestions lack enough of a holistic perspective on the technical restrictions (and Blizzard's governance rules) to result in an elegant or functional addon. Only through the experience of actually producing an addon does a developer come to truly understand all of the design and technical challenges that have to be overcome.

A consistent theme among addon developers is the regular and extensive use of the code of others to leverage their own learning, and accomplish their own development project. None of the participants described any hesitation to allow the same opportunity to others – indeed, most of the interviewees described some sort of collaborative behavior where they had offered their own expertise to others, and none expressed a desire to limit or obscure access to their own personal code. Likewise, though almost all developers reported having freely distributed their addons, interview and survey results consistently showed developers also maintained a strong personal ownership of their intellectual property. While they were perfectly willing to give away the product of their practice, and indeed, saw this as the ultimate expression of contribution to the developer community and larger playerbase, this was not seen as lessening their own personal agency and ownership in any way. What seems contradictory on the surface

is in fact a sophisticated balancing of the rights of individuals with the need for consistent contributions from participants to keep the community vital and active.

Finally, addon developers convincingly argue against any portrayal of themselves as unwitting dupes of external corporate entities, whether those entities are Blizzard, or the websites which have developed to host and distribute addons. In both interviews and surveys, addon developers described themselves as the primary beneficiaries of their labor, followed by the larger playerbase. They acknowledge the obvious benefits that also flow to the external corporate entities, but subsume those benefits to their own. An obvious counter-argument would suggest addon developers do not understand how effectively they have been encouraged to undervalue their contributions to others in comparison to their own benefit, but I cannot find these arguments credible. Addon developers as a group are too self-aware when they describe their relationship to Blizzard to be effectively described as dupes or catspaws. It seems disingenuous for a researcher to ask developers "who gets the most benefit from what you do?" and then second-guess the response.

What, then, does it mean to have proposed a new sort of CoP, this Community of Passion? For me, it helps maintain a lineage with the sort of CoPs observed by Lave and Wenger, but without the sort of monocultural overtones seen in their early descriptions of CoPs. For Lave and Wenger, a member of a butchers' CoP is a butcher, first, last and always – they are described and circumscribed by the dimensions of their practice. Yet the *WoW* addon developer community coexists with individuals at various levels of commitment to addon development, and at various levels of commitment to playing *WoW* – including those people who now do neither – and the community is vibrant and persistent. Pulling back from an exclusive focus on Practice, and instead incorporating the observed mutual values of openness, inquiry and creativity – that is, Passion – seems to me to represent the real finding of this research.

Of course, proposing theory takes one only halfway to validation; there needs to be some method for verification, and this still somewhat eludes me. Here, I think, are directions future researchers should explore.

First, the conversations around "Serious Leisure" found in the writings of Robert Stebbins (1982) hold some important insights for Communities of Passion. Stebbins proposes three categories of serious leisure – amateurism, hobbyist pursuits and career volunteering – which certainly might be seen in a Community of Passion, but which seem to leave out the intrinsic value placed on productive practice observed in the *WoW* addon community. Also, the line between "professional" and "amateur" within the addon developer community is a slender one. Stebbins' definition of amateurism depends on whether the participants depend on the remuneration they receive from the activity; people who do not depend on the activity are amateur, while those who do are professional. While this would certainly be a convenient criteria, I am hesitant to set it as a hard and fast rule. Sseveral individuals within the *WoW* addon developer community reported receiving significant financial rewards from their work (and more might have, save for Blizzard's policy changes in 2007), but even so, they continue to identify motivations other than money. In the end, I do not think financial activity, or Stebbins' definition of amateurism, necessarily defines a Community of Passion, but I would agree it is more likely that a Community of Passion deprecates financial remuneration as a primary motivator for participation.

On the other hand, I do think that playfulness and an interest in uncertain outcomes is a hallmark of the Community of Passion, though I do not believe the arena of the practice must have codified rules or established "victory" outcomes. The playful question "Can I build better?" seems as valid as "Can I beat it?" even though the latter question seems to imply a more defined understanding of being successful in a game system. Researchers considering Communities of Passion should look for communities where expertise in service of playful goals is prized.

Likewise, openness in the intellectual approach to production is critical. As evidenced in the *WoW* developer community, there are differing ways of describing how the product of practice can be shared, but an underlying willingness to share and describe the learning process, and the methods used, seems to be a hallmark of the group. My expectation is Communities of Practice will devote considerable effort to developing community resources that reify the knowledge and practice in ways that allow newcomers to adopt and adapt the methods for their personal needs.

So, taking all of these attributes, where should we look? While I am sure my list will be incomplete, I would suggest the following areas as productive possibilities:

- Obviously, other computer games modifiable through APIs. *Minecraft* is a popular and obvious example of this – the game has creation as an intrinsic component, and mods already exist, as do web-based forums devoted to supporting modding.
- Arduino, an open-source electronics prototyping system, allows individuals to program and control lights, motors and sensors. A brief perusal of a wiki (Arduino Playground, 2014) devoted to Arduino project shows a range of projects from a simple automatic night light to a chicken coop that automatically closes its door in the evening once all the hens have entered; source code for the coop-management system was prominently available for download (Reed, 2012).
- The emerging community around three-dimensional printing appears to have elements of a Community of Passion – the company which makes a popular 3D printer, Makerbot, hosts a website which serves as a community repository for designs which can be downloaded, replicated and "remixed" (Thingiverse, 2014). What is unclear from a cursory inspection of the site and community is whether the playful aspect exists in the community, or if it is deprecated in favor of other goals.
- The entire "Maker culture" phenomenon seen at regional "Maker Faires" where individuals display the products of a do-it-yourself ethos which usually involves a technological component. Again, there appear to be significant online resources which complement the physical gatherings, and many of the articles seem playful in nature; what is unclear would be how participants describe their motivations and approaches to intellectual property.

These are just a few examples, but I fully expect additional Communities of Passion will be identified as examples of participatory culture proliferate. While in many cases there will be an obvious practice the community coalesces around, it will also be the case that how participants arrive in the

community will be much more varied than the stereotypical “apprentice to journeyman to expert” journey described in older CoP analyses. In these situations, an underlying passion will flow like a thread among the participants, and there we will say, “see, another example of Communities of Passion!” This, I hope, will be both the lasting outcome of this study, and the potential gift to future researchers for further exploration.

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Appendix A

Addon Developer Interview Instrument

My name is Eric Ellis. I am a doctoral student in the Educational Technology program of Pepperdine University. This interview is being done as part of my dissertation research, and your participation in the interview is completely voluntary. Your real name will not be recorded or used in the study, and all of your responses will be held confidentially. If we come to a question you'd prefer not to answer, just say so and we'll move to the next question. If, at any time you wish to end the conversation, you need only say so, and I will end the interview.

The reason I've asked to interview you is to learn more about the developers of addons for *WoW*. I am interested in learning more about your experience as a developer, and about your experience with other developers, and the larger player population of *WoW*. I hope this research will add to an understanding of how people become interested in going beyond being a player to actively producing additions to the games they're playing.

There aren't any right answers to these questions – I'm interested in your opinion. I've had the opportunity to speak with some addon developers before now, but I'm not an expert in the field. Feel free to explain if you think I might not understand, but I'll ask follow-up questions if I need a term clarified.

I have mailed to you a document previously which covers the rule and procedures which will guide this interview. It's titled "Consent to participate in the Research Study: Interview Portion." Did you receive that document and have a chance to review it?

I would like to record this interview rather than attempt to take notes. It will help me pay better attention to you, and I'll have an accurate record to refer back to later. If you would prefer to answer a question "off the record", I can stop the recording, and then resume it later. During my research, the recordings of this interview will be held securely, and then the research is complete, the recordings will be held for a period of five years, and then will be destroyed.

If you fully understood the statements on that document and are willing to continue with the interview portion, please indicate so by stating "I, <Developer nickname here> agree to be interviewed and recorded for research."

Mutual Engagement questions

1. **Question:** Before we talk about addons, can you describe a little about how you came to play MMOs?
   Follow-on question: Do you still play *WoW*, and do you play any other MMOs?
   Follow-on question: How much time do you spend during a week in MMOs?

2. **Question:** How did you start working on addons?
   Follow-on question: How many addons have you developed?

3. **Question:** When you were beginning to develop addons, where did you go for information or assistance?

4. **Question:** Can you give me an example of when you really felt satisfied with something you'd done on an addon? Why was it satisfying?

Joint Enterprise

5. **Question:** Is developing addons similar to work you do in other settings?
   Follow-on question: What is your job outside of the game?

6. **Question:** Is there a "community" of addon developers, or would you describe it differently?
   Follow-on question: Have you spent any time talking or chatting with other developers? What did you talk about?

7. **Question:** Do you develop addons in partnership with anyone else, or is it something you do only by yourself?
   Follow-on question: Can you describe how you came to prefer this style of development?

8. **Question:** Are there personal similarities among addon developers that you have observed?

9. **Question:** If you had to guess, what would you say motivates most people to get interested in developing addons?
   Follow-on question: How would you say your own reasons for getting involved were similar or different?

Shared Repertoire

10. **Question:** If you are working on an addon and need some assistance with a problem, where would you go for assistance?

11. **Question:** If I came to you as a newcomer and said I wanted to learn more about writing an addon, what would you suggest I do first?
    Follow-on question: If there were a mistake that you know I SHOULDN'T make as a beginner, what would that be?

Open Source and Playbour

12. **Question:** Who gets the most out of the work you do on addons?
    Follow-on question: Is there a way that you measure or track what impact your addons have on others?

13. **Question:** My understanding is that Blizzard requires addons to be distributed for free, and that the code has to be open for anyone to read. What do you feel about that policy?
    Follow-on question: Have you ever read the code of another addon to understand how it functioned?

14. **Question:** If you found an addon that you really found useful, but there was an improvement you saw that would make it better, would you make the change yourself, or do something else?
    Follow-on question: If you made the improvement, would it be appropriate for you to share the modified addon with other users?

15. **Question:** If there were a job, full or part-time, where you could get paid to develop addons, would you take that job?
    Follow-on question: Do you think you would spend more time on development than you do now?

Conclusion

16. **Question:** If you had to come up with one or two terms to describe your feelings about developing addons, what they be?

17. **Question:** I've come to the end of my prepared questions. Considering what we've discussed, is there any additional information I should know about your experience with developing addons, or about people who do similar work?

Appendix B

Addon Community Facilitator Interview Instrument

My name is Eric Ellis. I am a doctoral student in the Educational Technology program of Pepperdine University. This interview is being done as part of my dissertation research, and your participation in the interview is completely voluntary. Your real name will not be recorded or used in the study, and all of your responses will be held confidentially. If we come to a question you'd prefer not to answer, just say so and we'll move to the next question. If, at any time you wish to end the conversation, you need only say so, and I will end the interview.

The reason I've asked to interview you is to learn more about the developers of addons for *WoW*. I am interested in learning more about your experience as a developer, and about your experience with other developers, and the larger player population of *WoW*. I hope this research will add to an understanding of how people become interested in going beyond being a player to actively producing additions to the games they're playing.

There aren't any right answers to these questions – I'm interested in your opinion. I've had the opportunity to speak with some addon developers before now, but I'm not an expert in the field. Feel free to explain something you think I might not understand, but I'll ask follow-up questions if I need a term or a process clarified.

I have mailed to you a document previously which covers the rule and procedures which will guide this interview. It's titled "Consent to participate in the Research Study: Interview Portion." Did you receive that document and have a chance to review it?

I would like to record this interview rather than attempt to take notes. It will help me pay better attention to you, and I'll have an accurate record to refer back to later. If you would prefer to answer a question "off the record", I can stop the recording, and then resume it later. During my research, the recordings of this interview will be held securely, and then the research is complete, the recordings will be held for a period of five years, and then will be destroyed.

If you fully understood the statements on that document and are willing to continue with the interview portion, please indicate so by stating "I, <Developer nickname here> agree to be interviewed and recorded for research."

Mutual Engagement questions

1. **Question:** Before we talk about addons, can you describe a little about how you came to play MMOs?
   Follow-on question: Do you still play *WoW*, and do you play any other MMOs?
   Follow-on question: How much time do you spend during a week in MMOs?

2. **Question:** Describe to me what you do in relation to addon development?
   Follow-on question: How did you come to this role?

3. **Question:** Do you develop addons now?
   Follow-on question: Have you developed addons in the past?

4. **Question:** Can you describe a typical workday for you?

Joint Enterprise

5. **Question:** Are there others who have a similar role to yours?
   Follow-on question: Do they work with you in the same company, or in a different company or setting?

6. **Question:** Is there a "community" of addon developers, or would you describe it differently?
   Follow-on question: Does this community exist primarily to talk about the work of addon development, or for other reasons?

7. **Question:** Are there things which you would say are similarities between addon developers?

8. **Question:** If you had to guess, what would you say motivates most people to get interested in developing addons?

Shared Repertoire

9. **Question:** If I came to you as a newcomer and said I wanted to learn more about writing an addon, what would you suggest I do first?
   Follow-on question: If there were a mistake that you know I SHOULDN'T make as a beginner, what would that be?

10. **Question:** Is there something you feel distinguishes a good addon from a bad one?
    Follow-on question: Is there a way that the community shares this judgment, or makes these values clear to newcomers?

11. **Question:** How does what you do change or facilitate the experience of the addon developer community?

Open Source and Playbour

12. **Question:** Who gets the most out of the work you do?

13. **Question:** My understanding is that Blizzard requires addons to be distributed for free, and that the code has to be open for anyone to read. What do you feel about that policy?
    Follow-on question: Do you feel the addon community is helped by this policy?

14. **Question:** Do you make a portion, or all, of your paid employment from your interaction with the addon community?
    Follow-on question: Does any of the work you do result in individuals in the addon community receiving a financial benefit for their work?
    Follow-on question: Do you think feel the community appreciates the work you do, either directly or indirectly, on their behalf?

Conclusion

15. **Question:** If you had to come up with one or two terms to describe your feelings about developing addons, what they be?

16. **Question:** Is there an addon developer you feel is a particularly supportive member of the community that I should contact to interview about their experiences?

17. **Question:** I've come to the end of my prepared questions. Considering what we've discussed, is there any additional information I should know about your experience with developing addons, or about people who do similar work?

Appendix C

Consent to Participate in the Research Study: Interview Portion

"PRODUCTIVE PLAY: EXPLORING PARTICIPANT MOTIVATIONS OF A MODDING COMMUNITY"

The following information is provided to help you decide whether you wish to participate in this study. The purpose of the study is to understand how participation in addon development for World of Warcraft affects members' attitudes and practices in the following areas:

- Learning about their experiences, both as game players and software developers
- Social interactions with others involved in addon development
- Motivation to participate in addon development

The study will be conducted for a period of three months. Members will be contacted via the public contact links listed on distribution locations (website) for World of Warcraft addons. Interviews should take between 20 and 40 minutes. Participation in the study is strictly voluntary.

Confidentiality

All interactions will be recorded on computer and saved as part of a password-protected database accessible only to the research team. No identification will be asked for or recorded for surveys and interviewees will be identifiable only to interviewers by their addon developer nickname or alias. In reporting, all identifying marks will be removed from the data and, if names are used, they will be pseudonyms different than their developer names, e.g., Participant #1, Partcipant #2.

Risks and Benefits

The only foreseeable risk associated with this study is the imposition on the participants' time. The study will be beneficial in that it will help researchers understand what makes strong online communities.

Contact

If you have questions at any time about the study or the procedures that are being used, you may contact the research supervisor, Dr. Linda Polin, by telephone at 310-568-5641, or email at Linda.polin@pepperdine.edu. For any other general information regarding your rights pertaining to this study, please contact Dr. Doug Leigh, IRB Chairperson at Pepperdine University's Graduate School of Education and Psychology at 310-568-5600.

Consent

Participation is voluntary; refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled. I understand I may discontinue participation at any time without penalty. I have been e-mailed a copy of this agreement before participation.

Phone/VOIP Interviews:

If you fully understood the statements above and are willing to continue with the interview portion of the study, please indicate so by stating "I <developer nickname here> agree to be interviewed and recorded for research."

_____ _____

Signature Date

Appendix D

Sample E-mail Requesting Participant Interview

Hello

My name is Eric Ellis. I am a doctoral student in the Educational Technology program of Pepperdine University, and I'm writing you today because I'd like to request an opportunity to interview you about your experience with the development of addons for World of Warcraft.

The interview would be part of my dissertation research, which is looking at the experiences and opinions of individuals in the community of addon developers. I anticipate the interview taking no more than 30 to 45 minutes, and I'd like to conduct the interview using Skype, so that I can record the conversation. Your real name will not be recorded or used in the study, and all of your responses will be held confidentially.

I am very interested in learning more about how you came to develop addons, and how you see your work adding to the gameplay experiences of others. I will make all results of my research available to the interview participants. If you are willing to participate, I'll forward to you an informed consent form that we would discuss at the start of the interview, and then work with you to set a time that would work with your schedule.

I look forward to hearing from you, and hope that I will have the opportunity to learn more about your experiences as an addon developer.

Regards,
Eric Ellis

Appendix E

Secondary Survey for Addon Developers

Research into WoW Addon Developer motivations

Informed Consent

The purpose of this survey is to provide additional insight into the experience of those who develop software addons for the World of Warcraft MMO. While the opinions of non-developers are welcomed, the primary population of interest are those individuals who have developed, or attempted to develop, addons for World of Warcraft.

This survey is undertaken as part of research for a doctoral dissertation by Eric Ellis, a doctoral student in Pepperdine University's Graduate School of Education and Psychology.

Participation in this survey is completely voluntary and anonymous - no personal information such as name, address, age, ethnicity or gender, will be collected. Participants in the survey will receive no payment for their time or participation. The survey consists of 22 questions, primarily multiple-choice or yes/no in nature - the estimated time commitment to complete the survey is 10 minutes. There is no risk of personal physical injury for participants providing responses; the primary potential risk may be boredom with the survey questions or topic.

This research is guided by the guidelines for human research overseen by Pepperdine University's Institutional Review Board; any questions or concerns about this study may be forwarded to Dr. Linda Polin at lpolin@pepperdine.edu. Participants with additional questions or concerns may contact the Pepperdine IRB at http://community.pepperdine.edu/irb/graduate/.

By clicking the "Next" button below, you signal your understanding and agreement to the information described on this page.

Research into WoW Addon Developer motivations

1. Have you developed or programmed an addon for World of Warcraft?

◯ Yes ◯ No

2. Do you still develop or maintain addons?

◯ Yes ◯ No

Research into WoW Addon Developer motivations

3. How many addons have you developed

- ◯ 1
- ◯ 2 to 4
- ◯ 5 to 7
- ◯ 8 to 10
- ◯ More than 10

4. Have you made the addons you developed available for others to download and use?

- ◯ Yes
- ◯ No

5. When you began developing addons, did you also play World of Warcraft actively?

- ◯ Yes
- ◯ No

6. Do you play World of Warcraft now?

- ◯ Yes
- ◯ No

7. Have you ever develop addons, maps or mods for another videogame (For example, Minecraft, Everquest, Starcraft, Skyrim, etc.)?

- ◯ Yes
- ◯ No

Research into WoW Addon Developer motivations

8. When you began developing addons, would you say your PRIMARY reason was:

- ◯ Trying to fill a personal in-game need
- ◯ Trying to fill an in-game need of someone else I knew
- ◯ Wanted to improve the game for all players
- ◯ Wanted to learn more about programming addons
- ◯ Hoped to develop job skills or get a job in the games industry
- ◯ Wanted to meet other people interested in addons

Other (please describe your primary reason)

9. When you worked an addon and found that you needed technical assistance or information, where would you go?

- ☐ Wowwiki / Wowpedia
- ☐ The official Blizzard UI forums
- ☐ Websites that host addon development forums (Curse, WowInterface, etc)
- ☐ IRC channels devoted to addon development
- ☐ Email to other addon developers
- ☐ Search engines such as Google or Bing
- ☐ Printed books on addon development or software programming
- ☐ Other internet resources
- ☐ Other personal contacts

Other (please specify)

Research into WoW Addon Developer motivations

10. Do (or did) you primarily develop addons by yourself, or as part of a group?

◯ By myself ◯ In a group or team

Why?

Research into WoW Addon Developer motivations

11. Have you ever read the code of another addon to understand how it accomplished some task or behavior?

◯ Yes ◯ No

12. If you found a section of another addon that contained code you wanted to use, would it be acceptable to take that code without the permission of the original author?

◯ Yes ◯ No

Why, or why not?

Research into WoW Addon Developer motivations

13. Have you ever had direct communication (e-mail, chat, personal conversation) with another developer of addons?

◯ Yes ◯ No

14. Have you ever assisted anyone else with addon development, either with bugfixes, feature suggestions, documentation, or programming questions?

◯ Yes ◯ No

15. If you could get a full-time job developing addons, would you take such a job?

◯ Yes ◯ No

Why, or why not?

Research into WoW Addon Developer motivations

16. If asked to rank who gets the most value out of the work you do in addon development, how would you rank them?(1 is the most value, 5 is the least)

	Other addon developers
	The websites that host addons
	Other players of WoW
	Me
	Blizzard Entertainment

17. When you consider other computer games, are you more likely to try them out if you know they have some sort of addon or modding functionality?

- ◯ More Likely
- ◯ Less Likely
- ◯ It wouldn't impact my decision to try out a game

Why?

18. Which best describes your attitude to incorporating user suggestions into your addons?

- ◯ If my addon fits their playstyle, they're welcome to use it as-is
- ◯ I'm willing to consider suggestions, but it's unlikely I'll incorporate too many suggestions
- ◯ I like suggestions, and try to incorporate as many as I can, even if the suggestion doesn't really fit a need of mine

Research into WoW Addon Developer motivations

19. What best describes your plan for providing long-term support for your addons?

- ◯ I'll support the addon as long as I'm playing; if I stop playing, that will stop the addon development too.
- ◯ I'll support the addon, and if I stop playing, I'll give the addon to someone else if they want to take it over.
- ◯ I'll support the addon, and if I stop playing, I'll still continue to support the addon with only bug fixes and patch compatibility.
- ◯ I'll support the addon, and if I stop playing, I'll still continue to support the addon and develop new features.

Other (please specify)

Research into WoW Addon Developer motivations

20. Which is a more accurate description of you?

- ◯ I am a gamer who got interested in addons because of the chance to change the game to my tastes
- ◯ I am a programmer or software developer who got interested in a game because of the chance to use my technical skills

Other (please specify)

21. Which is a more accurate way to describe your opinion of developing an addon?

- ◯ It's like a game itself, that I play for fun or relaxation
- ◯ It's a way to give something to others to improve their game play
- ◯ It's a way to learn new technical skills
- ◯ It's a job, or work, that I do for reasons other than fun
- ◯ It's a opportunity to meet others socially
- ◯ It's a way to gain the approval of others by showcasing my technical skills

Research into WoW Addon Developer motivations

22. Lastly, what term, or terms, would you say best describe your feelings about addon development? (for example, "challenging" or "experiment")

Research into WoW Addon Developer motivations

Thank you!

Thank you. This concludes the survey. I am extremely grateful for your time and willingness to participate!

Eric Ellis

Appendix F

IRB Exemption Notice

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

October 21, 2013

Eric Ellis
[redacted]

Protocol #: E1011D01
Project Title: Exploring Participant Motivations of a Modding Community Surrounding a Massively Multiplayer Online Game

Dear Mr. Ellis:

Thank you for submitting your application, Exploring Participant Motivations of a Modding Community Surrounding a Massively Multiplayer Online Game, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Linda Polin, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(2) states:

> (b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:
>
> **Category (2) of 45 CFR 46.101**, research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: a) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

In addition, your application to waive documentation of consent, as indicated in your **Application for Waiver or Alteration of Informed Consent Procedures** form has been **approved**.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the

Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual (see link to "policy material" at http://www.pepperdine.edu/irb/graduate/).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact Michelle Blas, Director of Student Success at gpsirb@peppderdine.edu. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,

Thema Bryant-Davis, Ph.D.
Chair, Graduate and Professional Schools IRB

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives
Ms. Alexandra Roosa, Director Research and Sponsored Programs
Dr. Linda Polin, Faculty Chair