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My Life as a Night Elf Priest

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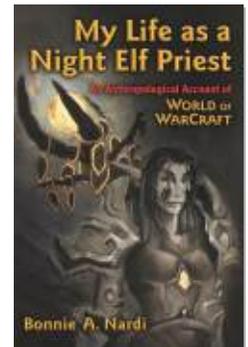Published by University of Michigan Press

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CHAPTER SEVEN

Theorycraft and Mods

This chapter examines *WoW*'s capacity to stimulate participatory activity outside the game, using the materials of the game in novel, innovative ways. Arenas of such engagement include machinima production (Lowood 2008), fan art, fan fiction, and the development of knowledge bases such as Thottbot that compile game statistics and player commentary. These activities are not unique to *WoW;* they connect to a larger movement fostering user-generated content (see Kucklich 2004; Jenkins 2006; Pearce 2006; Yee 2006; Postigo 2007; Ito 2008; Kendall 2008). This chapter investigates two *WoW*-related activities I found particularly fascinating: theorycrafting and modding.

Theorycraft

The encoded rules of video games are known as "game mechanics."[1] Game mechanics specify outcomes as rules are invoked—what happens when you approach a monster many levels higher than your character, which elixirs can be taken in combination, how often Illidan drops the Twin Blades of Azzinoth. Some were discoverable through ordinary play, but others required systematic analysis. "Theorycrafting" is the discovery of rules that can not be determined through play. *WoW* came with almost no documentation, and while Blizzard employees sometimes answered questions on official forums, in general the absence of documentation left many juicy problems for theorycrafters to solve.

A well-known American website, Elitist Jerks, hosted theorycrafters' technical discussions of *WoW* game mechanics (elitistjerks.com). Interested

players explored subtleties of game mechanics, plumbing the depths of *WoW* minutiae. The following is a theorycrafting analysis from the Elitist Jerks that investigated the mechanics of a small temporary helper (or "pet") called the Shadowfiend. Priests could summon a Shadowfiend, which lasted for only 15 seconds. The Shadowfiend did some damage and restored mana, a quantity necessary for spell casting that was depleted as spells were cast.

A poster wrote:

has anyone done a rigorous analysis of Shadow Fiend mechanics?

If so, can someone point me in the general direction?

Known:
(1) Pet does shadow dmg [damage] and is enhanced by shadow target debuffs
(2) Pet returns mana at 2.5x dmg done

Easy to figure out:
(1) How many "swings" per pet lifetime

Hard to figure out:
(1) How does pet dmg scale on target mobs from 68 thru 73?
(2) What percentage of player shadow damage benefits the pet?
(3) What is the crit pct?

The 5min cooldown on the spell makes it very difficult to exhaustively test by yourself.

Is there any interest out there in a group effort?

If we share enough data points (target level, min/max crit/non-crit, player +shadow) we should be able to figure it out . . .

Another poster responded:

I'd be happy to help out, as I'm curious myself . . . There's one thing that really annoys me about Shadowfiend: it seems to spend a significant amount

of time moving when cast on a really big mob (Gruul). It seems to appear near the middle of Gruul's model, then move to the outside before it starts attacking. That's probably 500–800 mana lost while it moves.

And another added:

I guess we need a little more info:

Target Level
Target Debuffs: CoS, SW stack, Misery
Num Attacks
Num Crits
Min/Max for both Non-Crit and Crit
Player Shadow +Dmg

Am I missing anything?

Without worrying too much about the intricacies of the Shadowfiend, the posts demonstrate that players played a game about the game in which they attempted to figure out the game's own machinations. Technically oriented players designed quantitative experiments, performed tests, analyzed the results, published them online, and worked with one another to solve puzzles of game mechanics.

The Shadowfiend analysts were reflexively "remaking the material of experience," in Dewey's terms, by using observations about their own play (such as the movement of the Shadowfiend) to create new experience and understandings. This activity was conducted in a collective context through shared analysis of game mechanics. The first poster invited others to help him conceptualize the problem and collect data. Subsequent posters responded, validating that the first poster had raised an interesting issue, then expanding his formulation by enumerating further necessary variables. All agreed to collect and share data.

A softer form of theorycraft utilized game statistics to predict which gear would be most effective. Player-created websites analyzed and recommended gear for each class. At dwarfpriest.com, for example, the Dwarf Priest wrote:

I enjoy that *World of Warcraft* is a game with various dynamics and mechan-

ics. It keeps the game from being too one-dimensional. However, I do regret that there is so much work that has to go in to truly understanding these mechanics. The most frustrating thing for me is how little information Blizzard actually gives us about certain things (such as threat and resistances). Our knowledge in many areas is the product of extensive player testing, and can change at any time, without notice. (Dwarfpriest.com)

The Dwarf Priest (who identified herself as a woman in her midtwenties), found hardcore theorycraft a bit taxing but enjoyed devising metrics with which to measure gear to predict its effectiveness for various priestly activities.

One of her accomplishments was a formula that weighted gear statistics. The formula was applied to each piece of gear to produce a rank ordering of all related gear: For example, the following is a partial list of rank-ordered priest-chest healing gear showing score, name, and where the gear was obtained.

Chest:
201.50 - Sympathy *Naxxramas – Sapphiron (heroic)*

201.20 - Valorous Robes of Faith *Naxxramas – Four Horsemen (heroic)*

196.52 - The Sanctum's Flowing Vestments Obsidian Sanctum –
    Sartharion (heroic)

194.58 - Blanketing Robes of Snow *Eye of Eternity – Malygos (heroic)*

193.66 - Robes of Mutation *Naxxramas – Noth (heroic)*

179.76 - Heroes' Robes of Faith *Naxxramas – Four Horsemen (heroic)*

169.34 - Spellweave Robe *Tailoring BoE*

167.43 - Digested Silken Robes?*Naxxramas – Maexxna (heroic)*

The Dwarf Priest explained:

This list was created using stat weights of all priest-healing stats and summing them to get the item scores. Items were then ranked according to their scores.

The stat weights used were:

0.74 Intellect
0.54 Spirit
0.35 Haste
0.15 Crit
1.00 MP5
0.60 Spellpower

(Dwarfpriest.com)

While players might disagree with certain stat weights (for example, I valued Crit more than the Dwarf Priest), the articulation of the formula enabled players to evaluate rankings and assess how items might work for their play style.

Theorycrafting is pretty serious analytical activity. With real math! Might it have pedagogical value? I have not seen research on this question, but it links to the work of education researchers Steinkuehler and Chmiel (2006). They studied the development of "scientific habits of mind" through game activities in *World of Warcraft*, examining discussion on a Blizzard forum devoted to customizing the druid character class. They found that the top three "habits" used to analyze customization were "social knowledge construction," "building on others' ideas," and the "use of counterarguments." While I see these practices as characteristic of broad critical thinking skills, and not as distinctively scientific, they do suggest ways in which gamers might engage skills very much like those we are supposed to learn in school.

Steinkuehler and Chmiel's list of habits also included "pragmatic understanding of theory," "theory-data coordination," "coordination of multiple results," and "reasoning through uncertainty"—that are indeed scientific.

The gamers in their study did not engage these particular scientific

practices at all. But theorycrafters did. As we saw in the Shadowfiend experiments, theorycrafters conducted analyses in which they coordinated multiple results, used theory pragmatically, reasoned through uncertainty, and coordinated theory and data.

Claims about scientific reasoning in gaming raise the issue of where and how such reasoning is developed. While Steinkuehler and Chmiel (see also Steinkuehler and Duncan 2008) were optimistic about the potential of games to improve "science literacy" in educational contexts, the broad skills engaged by players on the druid forum, as well as theorycrafters' analytical and technical skills, were brought to gaming from other contexts, even if they were exercised, practiced, and sharpened through engagement with *World of Warcraft.* This is not to say that games do not have a role in a school curriculum but to ask whether a student who did not have a sense of, for example, how to use counterarguments, could develop that sense in a gaming-centric curriculum. Are such skills better learned in other arenas and then honed through gaming activity? Can they be directly induced by gaming? In order to establish curricular goals, it is critical to answer these and other questions opened by research on gaming and education.

Seed, a historian, included games in her undergraduate classroom to teach the history of European expansion in the fifteenth and sixteenth centuries. At first she deployed commercial games with historical themes, but subsequently moved to a method in which students designed their own games (Seed 2007). She particularly liked that game design enabled her to teach students that history is not a set of facts but an interpretive activity concerned with historical contingency. As she said:

> In order to teach students to design games, I had to teach them how to think about contingency, likely alternative outcomes of events. In this way, the students themselves were coming up with alternative paths that history might have taken had a particular path been followed.

Seed's pedagogy, as well as theorycrafters' deployment of scientific reasoning, suggests that at least some curricular uptake of gaming might center not on game play but on activities in and around games such as game design and analysis of complex game mechanics (see also Kafai 1995).

Modding

World of Warcraft is one of many games that allow players to create and install software modules—called modifications, mods, or addons—to add new functionality (Kucklich 2004; Postigo 2007; Whitehead et al. 2008). A famous video game mod evolved into the game *Counter-Strike*, the best-selling game of its genre. Originally a modification of the game *Half-Life*, *Counter-Strike* established that contemporary video games could and should enable modding.

Modding did not start with *Counter-Strike;* it goes back at least to 1961 when students MIT developed *Spacewar!* on the DEC PDP-1. Modding continued into the 1970s with games such as *Colossal Cave Adventure* (Jerz 2007) and may have even earlier roots in activities such as performance tuning PCs (turning up clock speed and the like) or the practices of automotive enthusiasts who rebuild vehicles in configurations such as lowriders or choppers (Willis 1978). Modding in games encompasses a range of activities, including the development of a whole new game (such as *Counter-Strike*); retexturing character models to change their appearance; and, as in the case of *World of Warcraft,* altering the user interface.

WoW modding was limited; the game provided a small hatch through which end user content penetrated the product. Players could not change game terrain, character appearance, the behavior of nonplayer characters, character class abilities, or quests (see Whitehead et al. 2008). But even with these limits thousands of *WoW* mods were available for free download on the Internet.[2] Mods were maintained by their developers, requiring updates as Blizzard issued patches. Most players did not write mods, but there was enough technical mastery in the player community to create mods propagated to millions of players. The black box was thus not wholly closed; it permitted entry of small but significant bits of player experience to be codified and incorporated into the game. Not all players used mods, but those who did had a wide choice; considerable customization was possible.

Mods were created by players who enjoyed games and generated ideas for customizing play. We interviewed Karl Isenberg, a founder of the Cosmos mod website, one of the earliest *WoW* modding sites.[3] He said that he created mods when he had "a good idea."

BN: So where do you get these good ideas?

Karl: I don't know. Either from the community—someone says, "Hey, I wish there was an addon that did this." Or, an addon where I look at it and say, "Oh, I wish it did this." And so either I modify it, or make my own addon that does it. Or just something off the top of my head.

Generally, modders wanted to explore new directions and deepen their connection to the game. Isenberg said that he started creating *WoW* modifications when he attained the first level cap of 60:

So after I hit 60, so after I hit the initial cap, I started looking for even more things to do with the game. And so I got into modding and my first addon was, like, a leet-speak translator [a translator for player-coded words].

Mod authors usually began modding for fun. Some then realized the economic potential of their labors and collected donations or developed "premium" versions of their mods. Sites that compiled and distributed mods generated revenue from advertising and might eventually be sold to larger companies.

Most mod authoring, however, was a labor of love—"an entertainment" in Isenberg's words. Isenberg described a modder he knew:

He's pretty stinking smart and he writes things just because he likes playing with new features. So he does theoretical tests like proof of concepts on various new features or things that haven't been done before.

The authors of some of the most popular *World of Warcraft* mods posted the following on their website.

If you would be interested in working on some of the most used projects in World of Warcraft, please feel free to contact us . . . Unfortunately this isn't a "job" for us, it's what we do in our free time, so we aren't able to offer monetary compensation. Our primary goal is to get the sites to a self-sustaining state, where they pay for themselves, and don't require us to pull out the checkbook. (ctmod.net)

CTMod claimed over 100 million downloads—an astonishing figure for any software.

Isenberg said that Cosmos generated only about a thousand dollars in the three years he was affiliated with it, which was used for server costs and related expenses. He explained:

> There's a group that is sort of mod-centric and theoretical and analytical about perfect mods and what's the best way to write things. And then there's people that are trying to make money . . . And they are not entirely separate, but sometimes you go from one to another.

Modders sometimes felt ambivalent about users of their mods, finding many woefully unsophisticated. Isenberg said:

> So there is a learning curve to using mods, and if you can't figure that out then I don't really want to let you use them. Like, I'd rather you don't use them because it saves me work . . . My care meter has gone down over the years.

However, he admitted that part of the reason to distribute mods on the Internet, and not just write them for a few friends, was "fame." He began:

> You share because I mean, the same reason the Open Source community shares. You share because you either think it's the right thing to do, or some people liked your mods so instead of responding to a bajillion emails about them, you post it so they can just download them.

After a pause, he said, with perfect comic timing:

> Do you like watching download counts? I love watching download counts.

We laughed about the anonymous "fame" measured in download counts. Many modders cared about the size of their audience and used quantitative tools to count downloads. Isenberg said watching download counts was "a fulfilling thing." (See Scacchi 2004; and Kelty 2008 on similar Open Source dynamics.)

Mods are protected by copyright but not software patents (an expensive, complex process beyond the resources of modders). Blizzard was thus free to incorporate features based on mods, and indeed *WoW* contained many features that first appeared as player-created mods.

We asked modders how they felt about the uptake of their mods directly into the commercial software (Kow and Nardi 2009). On the one hand, modders were deeply flattered, but on the other they no longer had their mods to care for. We did not speak with anyone who felt ripped off or exploited. They simply missed their babies.

What exactly did *World of Warcraft* mods do? Their primary functions were to reduce player effort, make visible invisible parts of the game, enable information sharing, aid players in coordinating with one another, and capture aspects of play history. As discussed in chapter 4, mods did not, in every case, improve player experience. But many mods filled obvious gaps in *WoW's* design and allowed players freedom to customize the game as they wished.

Mods were useful in part because *World of Warcraft* was so information intensive. Players improved performance through knowledge of tiny but numerous facts about the game, the management of multiple character and equipment statistics, and attention to rapid state changes during battle.

Mods enhanced these abilities by displaying information about facts and variables not visible in *WoW's* standard user interface. One of the first mods many players downloaded showed the coordinates of the game geography. Because the geography was huge, it was often difficult to know where to find a particular NPC or an item required to complete a quest.

Mods helped players keep their gear and materials organized, revealing how many empty slots were available in the bags that contained a player's equipment and other paraphernalia. Mods showed how soon equipment would have to be repaired. They allowed players to switch equipment with a single key press (it was common to have multiple sets of equipment for different game activities).

Mods enabled players to redesign the user interface to reflect personal preferences. Some players constructed interfaces with the complexity of airplane cockpits while others chose a minimalist style with a few simple windows and buttons. One player I met described a setup with four monitors that he used to display the output of dozens of mods. (He was playing the interface!)

During challenging encounters, players tracked rapid state changes in multiple variables related to players and monsters. Mods showed the state of variables, such as the duration of temporary magic spells or curses, or the amount of aggro a character was generating. A popular mod displayed the characters that were the current target of a set of monsters in group play—functionality that Blizzard eventually incorporated into the game. Some mods triggered visual or auditory alarms, useful in fast-paced group play.

One heavily used mod, Gatherer, remembered where a player had collected herbs and mineral ores, marking the player's world map so he could return to the same spots on future gathering expeditions. Another popular mod, Auctioneer, collected data about Auction House transactions, allowing players to quickly scan prices, suggesting which items were under- or overpriced and proposing reasonable minimum bids and buyout prices. I did not use this mod, but I usually knew when I had underpriced something as it sold immediately, almost certainly to someone using Auctioneer. Mods, then, affected not only players who used them but players who did not.

Auctioneer software supported collaborative information practices; its information was partially accessible to all players in a guild, even those who did not have Auctioneer downloaded. A player could type, for example:

? Mystical Mantle of the Whale

into the guild chat window and Auctioneer would scan guildmates' Auctioneer databases and whisper information on the pricing of the item. If a player needed only pricing information (and not the other services Auctioneer provided), he could take advantage of collective information without having to download, troubleshoot, and reinstall the mod after a patch. Guild use of Auctioneer generated an efficient collective resource, removing the necessity for reduplication of software management effort.

This innovation strikes me as potentially valuable in many contexts, a possible adaptive potentiation, in Sutton-Smith's terms, that may prove useful outside the arena of play. Small increases in productivity scale—across employees or members of an organization—to measurable effects. Labor is divided so that instead of every individual managing many software modules each manages a few, sharing the information they produce. The labor of software management is stretched across the collectivity, resulting in time savings.

Auctioneer was not an isolated instance of such information sharing. Gatherer had an option to mark the player's map with the locations of minerals and herbs collected by others in the player's guild. In this case the player needed to have Gatherer downloaded but did not need to actually visit each of the nodes to mark their locations.

Gatherer announced when a guildmate visited a node—an interesting form of mutual activity awareness. Awareness mechanisms have been identified as critical for effective collaboration (see, e.g., Heath and Luff 1991; Gutwin and Greenberg 1998; Tang et al. 2001; Begole et al. 2002). Gatherer offered occasions for light conversation ("Illy is stealing my flowers!"); such moments engendered social bonding and supported collaborative work (see Nardi 2005).

Certain *WoW* mods, then, were distinctively communitarian, ideologically shaped to assert the primacy of information sharing, making available information logged into databases, and opening group members' activities to the gaze of others. While the discussion of certain mods in chapter 4 was somewhat critical, the communitarian mods seemed to move the player community toward generous sharing.

As players added mods, a feeling of empowerment grew, a sense of styling the game to personal tastes. Zaq and Jacquii, both rogues, conversed in guild chat:

> Zaq: Jacquii, LazyRogue is a Mod i use. U can write ur own script to attack certain ways and react to certain situations. I use it because i find it fun to tweak my script and troubleshoot what doesnt work and what works for me. I dont have much script writing skills, so this is a fun way to learn something and understand how things work.
>
> Jacquii: cool ty [thank you]

In everyday life, Zaq was a bartender. He learned to write simple scripts that he could "tweak" and "troubleshoot," gaining a sense of the possibilities of computational technology in a way that he described as "fun." Zaq modified his play experience according to his own personality, discovering how he liked to play his character through experiments with LazyRogue. He shared his knowledge and enthusiasm with Jacquii, enabling her to learn more about how to customize and empower her character.

When I discovered mods, I was surprised that Blizzard allowed such experimentation with its software. Wouldn't it break? Wouldn't players be able to hack *World of Warcraft*? How could such a complex software system be opened to absolutely anyone who wanted to write a mod?

The game was opened through a narrow, regulated channel.[4] Mods did not include programs working outside the *WoW* folder in which they were installed, nor did they run on their own outside the folder. Human governance was also in effect; Blizzard monitored mods, assessing whether they were consistent with its philosophy of play. Such oversight enabled players to freely experiment without altering the game in ways that would distort player experience as Blizzard had codified it.

An instance of oversight occurred on December 6, 2006, when Blizzard issued a patch that disabled many mods to which *World of Warcraft* players had become accustomed. One such mod was Decursive, used by certain classes to remove "debuffs" including curses, diseases, and disempowering magic spells. Decursive automatically looped through afflicted players, requiring only a single key press to cure everyone in a party. Blizzard felt this made decursing too easy and that such mods were changing the nature of *World of Warcraft*, improperly diminishing its challenge.

After the patch, Decursive no longer worked. But the author rewrote it so that, while it could not remove debuffs with one key press, it was still easier than *WoW*'s standard user interface which required players to select each affected player with the mouse and then click on the appropriate decursing spell. The new Decursive cut this work in half, combining selection and removal of the debuff.[5]

With Decursive, the modding community had disrupted *World of Warcraft*, taking it in directions Blizzard deemed unsuitable. Blizzard responded to protect the core gaming experience in conformance with its vision, eliminating mods that failed to preserve what it conceived as desirable play experience. Such a model of governance arguably calibrated diverse elements, taking account of user experience while at the same time forestalling potential difficulties of more sweepingly democratic approaches. The very term "addon" suggests the relative contributions of player community and designed product; mods were "added to" an existing world. Both Blizzard and modders used, and accepted, this term.[6]

Having a vibrant modding community was an asset for Blizzard. Over time, Blizzard acknowledged and appeared to appreciate the modding com-

munity. However, initially there was little support for modding, although mods were permitted (Kow and Nardi 2009). In 2004 the Blizzard website contained a post that read:

> There is no official support for modifying the *WoW* interface. If you break it, you get to keep both pieces :)

This lack of support suggests that Blizzard did not view modding as a source of free labor (see Postigo 2007). Blizzard slowly warmed to the modding community, in part due to the efforts of an employee named Sam Lantinga (better known by his alias, Slouken), who took it upon himself to participate in the IRC channel inhabited by *WoW* modders (Kow and Nardi 2009). In 2004, modders were told they could "keep both pieces," but by the time of BlizzCon 2008 Blizzard and the modding community enjoyed cordial relations. At the "UI and Mods" session, a panelist addressed modders in the audience, saying:

> This is a really great community that you guys are part of.

He commended the contributions of modders in extending the game in ways that Blizzard could not:

> We can't make hundreds of options, but you can.

Another panelist said:

> We'd like to thank the addon community for everything they've done.

Modding is part of a larger movement of participant production on the Internet in which people create content simply because they want to. Ito (2008) detailed the activities of amateurs, including the production of online comics, music, videos, and anime. Like modders, purveyors of these arts sometimes transformed their efforts into paid work, although generally their activities centered on creativity and sharing as end rewards (Ito 2008).

   Modding establishes an ethos that allows for a more open relationship between people and technology. While sustained by a great many techno-

logical features and processes beyond the reach of players, *World of Warcraft*
represents a family of technological artifacts that open the black box at
least partially, trying out alternative principles of human engagement with
technology that enable the incorporation of direct user experience. *World
of Warcraft,* and, more broadly, a range of video games, allow players to
intervene and modify some of the ways games are played. In this respect,
games such as *WoW* are to some degree reflexive, allowing the experience
of playing to feed back on the game and aspects of the software through
which it is enacted.

Theorycrafters and modders approached *World of Warcraft* as an occasion
for opening up new play experiences, for moving beyond reproducing play
in predictable ways. They discovered the freedom to alter play, to dwell in
what Dewey called "an attitude of freedom." Mods were reshaped as play-
ers responded creatively, engaging a readiness to "look at an addon and
say, 'Oh, I wish it did this.'" Theorycrafters were roused to action when
pondering such enigmas as the puzzling movement of the Shadowfiend.
Remaking the material of experience began with an idea for a mod that
occurred to a player or a theory question that piqued interest. It blossomed
in a social context as discussions took place in chat channels and Web
forums. The invitation to enrich and deepen experience through reflections
on play enabled players to find satisfactions in doing "even more things
with the game." Theorycrafting and modding are embodiments of Dewey's
articulation of aesthetic experience as recursively generating new aesthetic
experience:

> Works of art that are not remote from common life . . . are . . . marvelous
> aids in the creation of such a life.

The game itself is the "work of art not remote from common life"; its rules
ensure that overall artistic excellence is not compromised while at the same
time the capacity to alter rules in controlled ways is designed into the sys-
tem.