

Mastery and the Mobile Future of Massively Multiplayer Games

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ABSTRACT

What game design opportunities do we create when we extend massively multiplayer online games (MMOs) to cell phones? MMOs allow us to create representations of our own increasing mastery, and mobile gives us better access to this mastery and allows us to integrate it more fully into the ways we see ourselves.

MMOs motivate mastery by making that mastery personally and socially relevant, and visibly showing it increase. Virtual worlds that make players feel physically and socially present increase motivation to achieve mastery. MMOs that convince players their avatars represent some aspect of their personalities increase motivation to invest in and experiment with different constructions of self.

I apply these principles to an analysis of two games: *Labyrinth*, a game I helped create, and *World of Warcraft*, the current leading MMO. With *Labyrinth*, I explain the design decisions we made and their impact. With *World of Warcraft*, I described how altering the design could accommodate mobile play and better motivate increasing mastery.

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Chapter 1: Introduction

Massively Multiplayer Online Games (MMOs) are one of the fastest growing segments of the gaming industry. The current leading MMO, *World of Warcraft*, has 8.5 million subscribers (Cohen). The game is a \$600m industry unto itself. Unlike traditional video games that support only one or several players, MMOs involve hundreds or thousands of players logging into a central server so they can all play in the same virtual world. These worlds have their own economies, transportation systems, social networks, and many other features that make them interesting to play, create, and study.

Games on cell phones (I'll refer to cell phones simply as mobile) are growing quickly, too. There are many more cell phones in the world than PCs or gaming consoles. In Japan, there are even more cell phones connecting to the Internet than PCs (Wireless Watch Japan). Almost everyone who subscribes to an MMO also has a cell phone. Most people in major developing countries like India and China can't afford PCs or consoles, yet many of them are getting cell phones. These people will have their first experience of a video game on their cell phone.

My question for this thesis is what game design opportunities do we create when we extend MMOs to cell phones? Briefly, MMOs let players construct selves based on mastery, and cell phones allow players to access and inhabit those selves more fully.

What does extending MMOs to cell phones mean? Many of the first games brought to cell phones were ports (copies) of existing console games. Ports are generally inferior to the games from which they are copied. I'm not suggesting porting MMOs to cell phones. I'm suggesting figuring out what it is about cell phones that makes them the best platform for a certain kind of gaming, and then bringing those strengths to a cross-platform MMO that can be played on at least PC and mobile (and maybe console). Many people happily play existing MMOs on PCs. How can we design mobile windows into those virtual worlds that will entice these players to play differently and on multiple platforms? Many mobile game players won't have access to PCs. They will have mobile-only MMOs (e.g. *Pocket Kingdom* for the *N-Gage*). I'm not focusing on mobile-only MMOs because cross-platform MMOs have more potential, and I think when these developing countries reach a certain point, many people will start acquiring PCs or whatever replaces PCs in the future. At that point, mobile-only MMO players will want their mobile MMOs extended to PCs, or, more likely, will leave their existing MMO for one that's already built for cross-platform play. In other words, in 10 years the cross-platform MMO market will be massive, and at the moment it's merely very large.

MMOs allow us to create representations of our own increasing mastery, and mobile gives us better access to this mastery and allows us to integrate it more fully into the ways we see ourselves. The rest of the thesis will examine what this means and identify the implications. First, consider mastery outside of games and how it serves to motivate.

Stories of Mastery

When I was young, I didn't like school. My dislike stemmed from a feeling that my education wasn't under my control. I couldn't choose my subjects or my teachers or my classmates or when or where I studied. If I got inspired about a subject I was learning in school, I couldn't spend the whole week in that class. These may seem like small sacrifices, but in aggregate I thought of myself as someone who goes to school because

he does what he's told. After years of sitting in history classes, math classes, and science classes, I did not think of myself as a historian or a mathematician or a scientist. I thought of myself as someone who sits in history and math and science classes, and this role of one-who-sits-in-on did not feel good. Needless to say, at the end of the school day, I disrobed that self as fast as I could.

When I entered high school, I got my first computer. I played with the computer, learning how it worked experimentally. I enjoyed learning to do new things with it, because I was curious and because increasing my skill represented visible growth. I couldn't do something before and now I could. If the thing I could now do was useful, friends and family might ask me how to do it. This allowed me to show off my growth in a socially relevant context. I soon became, and enjoyed being, the expert.

Meanwhile, back in school, I was writing five and seven paragraph essay about subjects that lacked personal and social relevancy. The essays only existed so my teacher could grade me. I didn't enjoy writing. However, I did enjoy learning about computer technology, and after I designed my first website I needed some content to put on it. So, I started writing reviews of all of the computer games I played. These reviews had relevancy and an audience. As I realized people were reading the reviews, I wanted to make a good impression. I wanted to become a better writer. Over the next few years I wrote about 100 reviews, and my writing improved markedly. But, something more important happened, too. I began to think of myself as a writer, and I liked that feeling.

Back in French class, all of that relevancy and sense of accomplishment disappeared. Why did I need French? I didn't know anyone who spoke French, and had no ability to go to France. I learned as little as necessary to get through the course and never once thought of myself as a French speaker or even a future French speaker. I wasn't enrolled in that identity.

In college, I studied abroad in Costa Rica for a semester. I went with no Spanish training and lived with a host family that spoke no English. I quickly discovered that when I was hungry, Spanish could get me food. When I was lost, Spanish could get me directions. Now I had relevancy. I studied Spanish every day for hours. I could see myself getting better week by week, and that visibly increasing mastery felt good. Furthermore, I studied with a program of American students who evaluated each other based on Spanish fluency. Now, the way to be cool was to learn. It's been five years since my time in Costa Rica, but I still consider myself a Spanish speaker and a Spanish learner. Because that mastery feels good, I enjoy studying Spanish now for fun.

All learning is an opportunity for mastery, for increased respect within some social structure. The kind of learning that frequently takes place in a mandatory setting lacks relevance to the learners, who quickly disengage. Fortunately, we can create relevancy with games, especially social ones like MMOs. These games hook players with an intriguing story, compelling characters, and an immersive world. Players of these games spend a lot of money and time on something completely optional. Why? Because these worlds offer an opportunity to increase relevant mastery visibly. This visible growth comes in many forms: leveling up, gaining new abilities, increasing social networks, obtaining rare items, and exploring new territories, to name a few. Furthermore, this growth is visible not only to the player, but to the entire game community. In other words, the game decides to a large degree how players judge each other and it makes these criteria transparent.

Mastery and education are closely connected, but I do not mean to give the impression that mastery is only relevant within educational systems. Visible mastery within a social context makes players and learners feel good. Once they feel good, they will devote free time and money to continuing to feel that way. In education, that gives us invested learners. In the entertainment business, that gives us loyal customers. It's clear how the motivating principles of good game design can help learners enjoy learning, but how can we leverage mastery to improve even commercial entertainment games? We can make that mastery more visible. We can give players more opportunities to invest in virtual identities that are quickly becoming as relevant and real as off-line identities. We can reduce the barriers of time and place that sometimes keep players from inhabiting these constructed selves of mastery. We can bring these identities to where the players are, instead of making players isolate themselves physically in their respective homes where their PCs and consoles are before interacting with friends virtually. We can do all of this by extending MMOs from PCs to mobile.

Throughout this thesis, I will use mastery in the context of MMOs to envision new ways of designing games. These new ways will in turn have implications for how mastery can be leveraged in MMOs, education, and many other areas.

Mastery Motivators

These stories of mastery share common themes. The skills I wanted to improve were meaningful to me -- they had **personal relevancy**. I wanted to become a better Spanish speaker. Jenkins identifies the importance of personal relevancy as well, "These kids are passionate about writing because they are passionate about what they are writing about" (2006). But, Spanish didn't mean something to *just* me. It had meaning to a group of people with which I wanted to increase my standing -- it had **social relevancy**. Becoming a better Spanish speaker increases my acceptance into the group of Spanish speakers and Spanish learners. Personal and social relevancy of a skill is frequently enough to motivate me to increase my mastery of that skill, however making my progress towards mastery highly visible motivates me even more.

When I can see my progress, that is, my mastery has **personal visibility**, it is easier for me to *feel* like I'm making progress. In middle school, my soccer coach challenged the team to see who could juggle the soccer ball the most. It provided an opportunity to gain respect within the team. The way to gain that respect was to become more masterful. The way to know I was becoming more masterful was to count how many times I could juggle the ball. Counting made my mastery visible.

When a group to which I want to belong can see my progress, that is, my mastery has **social visibility**, mastering that skill becomes even more relevant to me and my motivation increases. Increasing my Spanish fluency brings visibility of my progress to Spanish speakers who I converse with, who can quickly tell when I'm struggling to express myself or don't understand. In summary, when my mastery has personal and social relevancy and visibility, I am most motivated to improve it. Table 1 (Mastery Motivators) illustrates this relationship.

	Relevancy	Visibility
Personal	My progress only has meaning to me when what I'm progressing to is relevant to me.	The more quantifiable and visible my progress is to me, the more I will feel that my mastery is increasing and the better I'll feel working to increase my mastery.
Social	When I'm progressing toward a goal that has relevancy to a group of people whose opinion is relevant to me, my progress means even more to me.	When a group whose opinion is relevant to me can see that I'm increasing my mastery, my progress has more personal relevancy.

Table 1: Mastery Motivators

Mastery motivators feed into each other. Personal relevancy strengthens social relevancy, since a group cares more about mastery when each member of the group cares more. Social relevancy strengthens personal relevancy by giving each group member a social context in which mastery garners appreciation. Personal visibility strengthens personal relevancy, since I can see my progress. Since personal relevancy strengthens social relevancy, personal visibility strengthens social relevancy as well. Social visibility strengthens social relevancy, since the group can see my progress and I can see others' progress. Social visibility strengthens personal relevancy, too, since social relevancy feeds into personal. In sum, these mastery motivators all connect to each other, with visibility feeding relevancy and relevancy feeding itself.

Mastery motivators vary by degrees. What matters isn't just whether a skill has personal relevancy but how much. Increasing any of these motivators raises the overall motivation to increase that mastery.

Mastery motivators will serve as the overarching framework through which I reference and apply theories of presence and self in upcoming chapters. As players feel presence of various kinds, they experienced increased personal relevancy. Self presence, in particular, allows players to feel that the avatars representing them in the game reflect on their personalities and achievements. Without self presence, a player would take little pride in a masterful avatar. Further theories of self-construction describe what players can do, once they experience self presence, to successfully experiment with mixing real and virtual selves. This experimentation with self-construction feeds back into these mastery motivators, strengthening each of them and personal relevancy most of all.

Intrinsic and Extrinsic Motivators

Personal relevancy can come from either intrinsic or extrinsic motivators (Bates 1979, Ryan & Deci 2000). Hobbies are the classic example of intrinsically motivated activity, since people do them for the sheer joy of the activity, and money is the classic example of an extrinsic motivator, since people work to make money in order to get other things that they want. The line between the two is fuzzy, since, for example, hobbies can earn money or be done for other partly extrinsic reasons, and money can become its own reward when people connect it with security, power, and self-esteem. Still, the general distinction remains useful.

Malone and Lepper discuss the elements of games and learning that inspire intrinsic motivation (1987), and they map to mastery motivators easily. Those elements are challenge, curiosity, control, and fantasy. *Challenge* encompasses personal relevancy and visibility, since they describe it as relevant goals that inspire feelings of mastery with obvious performance feedback. *Curiosity* refers to the personal relevancy that comes from sensory and cognitive stimulation the game provides. High production values and certain kinds of presence stimulate the senses, strengthening personal relevancy through curiosity. Challenges of solvable complexity or mystery create cognitive stimulation, and thus personal relevancy. *Control* means players feel agency in the game, helping them feel more vital in their roles in the virtual world. I discuss this further as self presence in later chapters. Finally, *fantasy* creates personal relevancy through making the game world more interesting and emotionally powerful. These are just some of the ways intrinsic motivators impact mastery motivators.

Situated cognition, coming after the introduction of intrinsic/extrinsic motivators, teaches us that all cognition and therefore motivation must be considered in context (Brown 1989). Therefore, I will not label anything an intrinsic or extrinsic motivator, but rather an intrinsic or extrinsic motivator for some person in some context. In this thesis, I will discuss these motivators for players of *Labyrinth* and *World of Warcraft* in the contexts of those games.

In games, the line between intrinsic and extrinsic motivators becomes blurrier still. All activities could be said to be intrinsically motivated, since people play for the joy of it. However, it's useful to think of in-game rewards like points or money as extrinsic motivators in the context of the game, whereas the activity players engage in might be intrinsically motivating. In some games, the play activity itself becomes tedious over time and players continue due to extrinsic motivators like acquiring further wealth. MMOs in particular suffer from this problem, and we call the resulting play pattern *grinding* or a *treadmill*-- tedious activity that gives some reward when completed. Sometimes the most enjoyable activity in a game is not connected to extrinsic rewards at all. Usually that means the game's designers have either forgone extrinsic rewards entirely or have failed to reward players for engaging in the activities they find most enjoyable.

Intrinsic and extrinsic motivators combined can maximize personal relevancy. Throughout this thesis, I will discuss various factors that affect personal relevancy without first labeling those factors as intrinsic or extrinsic. I find the distinction mostly muddies the waters, distracting from more accurate intuition.

Attribution theory does warn against ignoring the intrinsic/extrinsic distinction. It says that whenever people see something happen, they automatically search for an explanation for why it happened. They search for an attribution for their own behaviors, too. If someone has a hobby, for which they earn no pay, they attribute the time they spend on that hobby to enjoyment. If, on the other hand, they do receive pay for that activity, they probably attribute the time they spend on that activity to being paid. Paying someone for an activity he already enjoys could change his attribution for that activity. And, attribution affects motivation. If he decides he's doing that activity for the pay, and the pay disappears, he may cease that activity. He ceases even though he originally performed the activity for the joy of it. The change in attribution causes him to forget why he originally behaved that way.

With attribution theory in mind, providing extrinsic motivators for activities players already find intrinsically motivating could decrease their intrinsic motivation and personal relevancy overall. However, extrinsic motivators in games don't generally carry enough weight (as a salary would) to induce a behavior which players don't find at all intrinsically motivating. Also, games generally don't remove extrinsic motivators after introducing them, so there's little danger of players ceasing play altogether.

Mastery in MMOs

MMOs are good at motivating players to increase their mastery within the game in large part due to the degree to which they address these four mastery motivators. The following examples come from the MMO *World of Warcraft* (*WoW*). To give the game personal relevancy, it must entertain. *WoW* uses stylized, 3D graphics to represent a vast fantasy world that players can explore. It has a detailed and intriguing story that players can uncover and feel part of. It has a professionally-performed orchestral score. It provides players with dangerous situations and gives them the tools to feel heroic. This level of sensory stimulation and dramatic opportunity creates sufficient interest and therefore relevancy for many players. However, *WoW* also lets players take on a specific role in the world and, over time, become more skilled and powerful in that role. Many players see this as an opportunity to grow their mastery (a process that feels good), creating significantly more personal relevancy for them.



If *WoW* were a single-player game but just as many people played it, there would still be social relevancy. Players could talk about the game and their progress through it at school, at work, online, etc. This kind of discussion would solidify players' membership in the *WoW* affinity space (Gee 2004), creating social relevancy. However, *WoW* is not a single-player game. MMOs allow hundreds or thousands of people to play together online. Now, friends and strangers can all see what level of mastery I've attained within the game. Castranova writes that MMOs motivate in part from social validation and the meaning it creates: "All players in a synthetic world will generally share some notions of what is important there, and will therefore deeply validate the emotions that result from the actions one takes" (112). Just as having a website of game reviews that other people read motivated me to want to become a better writer, so too does having an avatar that represents mastery and that exists in a public space motivate me and many others to empower our avatars and increase our mastery.

How does *WoW* create personal visibility of mastery? Every MMO that I'm aware of contains some kind of leveling system. *WoW* started with 60 levels, and then went to 70 with the first expansion, *The Burning Crusade*. Players start with characters at level 1, representing no mastery, and progress toward the level cap (in this case, 60 or 70), representing a high level of mastery. Every time I kill a monster in the game, a frequent activity, an announcement pops up on the screen saying, "+100XP," or some such. This means I've gained another hundred experience points, moving me closer to leveling up (reaching the next level of mastery). Furthermore, there is a bar running across the bottom of the screen that fills with a solid color as I move closer to my next level. When I reach the next level, my character is consumed in a tower of golden light

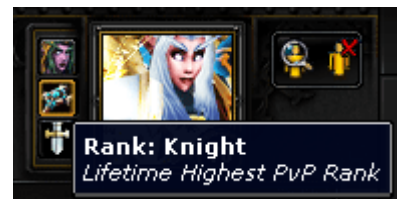
and the success sound plays. It's like a slot machine that rewards the player periodically with lots of flashing lights and sounds. *WoW* makes growing mastery obvious to me.

Because *WoW* puts many players in the same virtual world, everyone's mastery is visible to everyone else. When a party (a group of 2-5 players) goes on a quest together and one member of the party levels up, everyone notices. Even more meaningful, if one player's character is too low-level for the quest, he is excluded from participating with that group. Thus, to be eligible to play with my friends, I must keep up with them in levels/mastery (this turns out to be a real problem for friends who want to put different amounts of time into the game but still play together). Everyone in the game world, even outside my party, can see what level I am, or maybe just that I am a much higher level than they are. As a result, it becomes the quickest, easiest way for players to judge each other. Imagine that I'm a professor, and I have the label PhD tattooed to my forehead. Everyone else in this hypothetical world also has their education level on their forehead. Regardless of how good a predictor education level is of anything, people will likely use it heavily to judge each other, because it's easy and visible. That is the world MMOs create. MMO designers have a responsibility to make sure that visible representations of mastery in the game actually represent something meaningful within the social ecosystem. In *WoW*, level primarily signifies how much time a player has devoted to the game – a missed opportunity to measure something more meaningful.

MMOs with external forums, like *WoW*, often make pieces of players' avatars visible on the forums. *WoW* puts pictures of players' avatars next to their forum posts, along with their level and rank in player versus player combat. Readers can click on the picture of any avatar to take them to a page describing that avatar in detail. Taylor writes about how players use these status symbols to add weight to comments and, "draw continuity between virtual spaces" (104).

Players enjoy inhabiting these identities because they feel the identities give them status and credibility in a social context. Whenever they can extend those effects beyond the limits of the core game, they do. If *WoW* didn't automatically include this information with players' posts on the forums, players would include much of this information themselves in a signature at the bottom of their posts. These signatures are, in fact, to what Taylor refers. *WoW* and other MMOs smartly identified this player desire and accommodated it in the design, increasing social visibility of mastery.

The words *personal* and *social*, as I'm using them, exist on a continuum. In particular, social could mean my three closest friends in the game, or my guild of 50 or 100 players, or the whole server, with hundreds or thousands of players, or all servers, with millions of players. Clearly, there is a meaningful difference between my three closest friends seeing my progress and that progress being potentially visible to millions



of players. My closest friends likely know how far I am from the next level and exactly when I level up; my guild mates can see my name in the guild roster and see my level go up over time; people in my server can run past me and see my level, or look at a list of all players; and, any player of the game can look up any other player's profile on the web, but in practice they are not likely to do that unless they know the player or are looking through a high scores list.

	Relevancy	Visibility
Personal	<p>My progress only has meaning to me when what I'm progressing to is relevant to me.</p> <p>I want to be a high-level player in the game, and therefore powerful and respected (relative to other players), so I'm happy when I level up.</p>	<p>The more quantifiable and visible my progress is to me, the more I will feel that my mastery is increasing and the better I'll feel working to increase my mastery.</p> <p>When I see "+100XP" every 60 seconds, I feel like I'm making progress. As a counter example, it's hard for players to see my guild leadership skills increase, since MMOs don't generally measure this directly, so I will feel less motivated than I could to progress along this dimension of mastery.</p>
Social	<p>When I'm progressing toward a goal that has relevancy to a group of people whose opinion is relevant to me, my progress means even more to me.</p> <p>When I'm looking for a group of players to go on a quest with and they decide whether or not to include me based on my level, I care that I have the right level. Also, players progress in ways that let them help or hinder other players more effectively, adding even more social relevancy to mastery.</p>	<p>When a group whose opinion is relevant to me can see that I'm increasing my mastery, my progress has more personal relevancy.</p> <p>My close friends and teammates can watch me as I progress (level up, get new skills and equipment, etc.), and anyone can see what level I am.</p>

Table 2: Mastery Motivators in MMOs

Mastery motivators are dependent upon each other. In fact, every motivator has the potential to affect every other motivator. For example, increased personal visibility of mastery increases personal relevancy as well. Castranova writes, "The fact that the archery skill is an observable rating makes it a more fun skill to raise -- how do I know that I personally am a better archer, after all? (178). Therefore, when we think of the contribution one mastery motivators makes to players' overall motivation, we must think also of its effect on every other mastery motivator.

For all the praises I've sung of mastery in MMOs being highly visible and relevant both personally and socially, they still have much room for improvement. MMOs do a bad job right now of allowing and encouraging meaningful forms of mastery. Leveling up requires mainly time, saying something but not enough about creativity, resourcefulness, leadership, or any other more meaningful quality.

MMOs also fall short with inadequate social visibility, too. This past year, *Facebook* introduced a feature to allow people to track every change, no matter how minor, anyone in their social network made to her profile. MMOs, which are basically games about tracking progress, should make it much easier to track the progress of everyone in a social network. Who leveled up, who created a new character, who joined or left a guild, who completed a raid, who ranked 3rd out of 12 in a player versus player competition, etc. Status updates should be automatic. Boyd warns that this change that *Facebook* made was a “privacy trainwreck” (2006). Basically, information that people knew was public but thought went unnoticed through obscurity suddenly became easily trackable. However, this argument doesn't apply fully to MMOs. Most status changes in MMOs are actually players advancing in mastery. The main way that could be seen as embarrassing is if someone is progressing too quickly or too slowly and doesn't want others to know how much time he spending in the game. Designers can prevent this, in part, by ensuring that increasing mastery is not simply a function of time. Now, his friends are free to think that if he's progressing quickly he's simply very good at the game. And, they'll be right, because if he isn't very good at the game he won't advance as quickly and the time he invested in the game will be less noticeable to others. On the positive side, players get much more social visibility for their progress, about which they probably want to brag (or have the game brag for them). Boyd herself agrees: “Gossip is addictive. There's a voyeur in most of us,” and, “I have no doubt that strong ties can be maintained through these systems, provided that other forms of synchronous engagement complement the gossip feed” (2006). Since MMOs already provided other forms of synchronous engagement, they now would benefit from the gossip RSS feed.

MMOs haven't learned from social networking sites like *MySpace* and *Facebook*, which know that the best way to create relevancy is to get a critical mass of people onto the site. Everyone who is not on the site must feel he needs to join just to keep up with his off-line social network. I don't know whether an MMO will ever achieve that critical mass, but one could certainly interface with those social networking sites to further integrate real and virtual identities and take advantage of all of the profile propagation features those sites offer. If both the MMO and the social networking site had open APIs (programming interfaces) for exchanging data, avatar status could easily be integrated into personal profile. Otherwise, a corporate alliance could ease the data exchange.

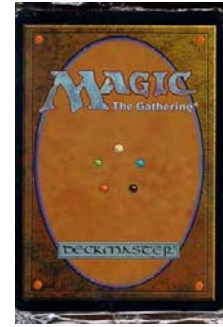
Extending MMOs to mobile can help reduce those second and third deficiencies (increasing social visibility of mastery and achieving critical mass of relevant people in the player's social network to whom this mastery is visible). Extending to mobile can help by bringing information about players' progress in the game through the mobile device and into the players' real-life, face-to-face social network.

Mastery in PC-Mobile Cross-Platform MMOs

All of the mastery motivators discussed in the previous two sections still apply when we extend MMOs to mobile. How does mobile enhance personal and social relevancy and visibility? Mostly, enhancements come from the opportunity to play the game more frequently and in new situations.

In seventh grade, I played the collectible card game, *Magic: The Gathering*. It was social, competitive, collaborative, strategic, fun, and expensive. The game motivated my friends and me to think hard about how we constructed our decks. Half of the fun of

playing against a friend was seeing how my deck would perform and half the fun was seeing all of the thought and strategy my friend had put into his deck. Our growing mastery was visible and relevant, and it made us feel good about ourselves. The game gained more relevancy through portability, since we took it with us and thought about it everywhere. It elicited thinking from us that made us feel smart, and that kept us coming back.



How does extending an MMO to mobile enhance its personal relevancy? Anything on my mind frequently becomes more relevant to me. Because I carry my mobile with me everywhere, it is frequently on my mind. It gets more attention than it deserves sometimes, because there is nothing happening then or there that's more compelling. In other words, it doesn't always have competition for my attention. Even when I am currently occupied, I frequently glance at it to check the time or read a text message. If my mobile let me access a compelling MMO, that MMO would become something I frequently look to when I'm partially or totally unoccupied. The more I play the MMO in this way, the more invested I become in my progress in it -- that is, the more personal relevancy it has for me. I allow the game to take more mindshare, driving me back to it more frequently. It stays on my radar. Mobile helps set up a cycle of increasing personal relevancy for the MMO. If the game doesn't drive me away with poor design decisions, it could take a very large percentage of mindshare. Warning: it will then be up to the game designers to push players out of the game when they have put enough time in, so they don't overdo it. MMOs that require and allow less time from players will become more popular. There will doubtless still be MMOs that encourage obsessive play. But, that is always the case with design improvements, and I don't shy away from better designs simply because they could be applied in excess. (Trying to nail down exactly what "in excess" means is beyond the scope of this thesis.)

How does mobile enhance social relevancy? When the MMO goes mobile, I'll play it in many new situations. People will see me playing it, or I'll see them playing it. It will become the first topic of conversation after greeting between me and my friends who play the game. Because of this pattern, we will all suspect that the game will be discussed when we meet in the future. When a single topic becomes something a group of people invest in (invest money, time, and identity) and talk about frequently, both online and face-to-face, it gains social relevancy. Also, if meeting face-to-face and talking about the game leads us to sit down and start playing together, the encounter increases social relevancy further. Finally, these encounters provide plenty of opportunities to interest other friends in joining the game (viral marketing). The designers simply need to give us something interesting to do and talk about when we meet up. As a positive example, *Magic: The Gathering* gives players a wonderful social interaction. Even when the game wasn't on my mind, if I bumped into a friend I would certainly remember that I had acquired an interesting card recently and wanted to show it to him. So, I would show him the card, which would remind him that he wanted to show me his most recent cards. Then, if we had time, trading might ensue. If we had even more time, we would take out our decks and start playing. At any point during this interaction if anyone walked by who knew us or played the game, he would be enticed into the activity as well. It was brilliant. Ito calls this kind of interaction *hypersocial*:

“When Yugioh players get together (hyper)social exchange involves both the discursive sharing of stories and information, as well as the material exchange of playing cards and virtual monsters” (7). Mobile can bring this quality to MMOs, if they're properly designed. Of course, this whole dynamic works best when people are in a situation where they are likely to bump into each other. School is a likely candidate. The workplace could be, too, with the right atmosphere, people, and game.

How does mobile increase personal visibility? Because I can access the game at all times, I log into the game to make some small amount of progress frequently. Even better, the game could train me to expect some interesting update to my status or the virtual world if I simply log in to check. This would drive me to the game to check whether I *have* made progress inadvertently, and I would likely stay in the game long enough to make a bit of progress deliberately. Because I'm focusing so much attention on the game so frequently, every update to my status becomes even more visible. The game could even reach out to me, texting me when something especially important happens to my character or the game world. There is a danger of reaching out to players too frequently, annoying them and encouraging them to opt out of that feature or the game. “Too frequently” will be different for different players, and will also depend on how interesting (relevant) the interruption is.

Finally, how does mobile increase social visibility? Continuing the example of *Magic: The Gathering*, when different segments of my social network see me throughout the day interacting with the game, and especially when we all interact with the game together, everyone's progress becomes more visible. If we're all playing in the same physical space, my character levels up, and I express excitement, everyone nearby can see and hear that excitement. Human excitement may be the best way to increase social visibility beyond the existing flashing lights and sounds.

	Relevancy	Visibility
Personal	<p>My progress only has meaning to me when what I'm progressing to is relevant to me.</p> <p>The game is accessible to me when I want to play it, no matter where I am. I end up playing it more often, because I can. Because I play it more, I become more invested in it.</p>	<p>The more quantifiable and visible my progress is to me, the more I will feel that my mastery is increasing and the better I'll feel working to increase my mastery.</p> <p>The game is accessible to me when I want to play it, no matter where I am. I end up playing it more often, because I can. Because I play it more, I see my avatar and the progress it represents more frequently and my mastery becomes more visible to me.</p>
Social	<p>When I'm progressing toward a goal that has relevancy to a group of people whose opinion is relevant to me, my progress means even more to me.</p> <p>Because my friends can see me playing the game, the ones who don't know what it is and see it and perhaps join. The ones who do know what the game is see me playing and start up a conversation with me about the game. Either way, social relevancy increases.</p>	<p>When a group whose opinion is relevant to me can see that I'm increasing my mastery, my progress has more personal relevancy.</p> <p>Because I play in many different places and settings, many segments of my real-life social network see me play. They see me react when I level up, and they see the game and my avatar when I show them my mobile. My close friends and I can all play on mobile and be in the same space, increasing the visibility of everyone's progress.</p>

Table 3: Mastery Motivators in Mobile MMOs

There are even more effects of extending MMOs to mobile, some of which I'll address in the next chapter. In particular, mobile changes the way we experience presence in the context of the game.

Chapter Summaries

Chapter 2: Mastery Motivators in *Labyrinth*

In this chapter, I take the concept of mastery motivators and apply it to *Labyrinth*, an educational game still in development in The Education Arcade at MIT. *Labyrinth* is a limited multiplayer, cross-platform web-mobile, adventure/puzzle game. I've worked as a designer on that project over the past year and a half, so I can write in-depth about the design decisions we made and their intended outcomes.

Chapter 3: Presence in *Labyrinth*

In this chapter, I explore the concept of presence and relate it to *Labyrinth*. Presence helps me think about how the physical, social, and self-construction aspects of the game strengthen or weaken mastery motivators.

Chapter 4: Self in *Labyrinth*

In this chapter, I think about how players use games, and *Labyrinth* in particular, to construct different selves. Each self provides a fresh opportunity for players to experiment with the ways they see themselves. This self-construction is a primary motivator in MMOs and in *Labyrinth*. I connect the concept of self to presence and mastery motivators.

Chapter 5: Extending World of Warcraft to Mobile

In this chapter, I take the concepts of mastery motivators, presence, and self and apply them in a discussion of design possibilities. I take the immensely popular *World of Warcraft* and address the key opportunity areas for creating a mobile extension to it. I discuss everything from player versus player combat to auction houses to communication. I say how each component of the current game design could be improved with mobile with respect to the theories laid out in this thesis.

Chapter 6: Conclusion

In this final chapter, I compare *World of Warcraft* and *Labyrinth* to see which fosters self-construction around mastery better. I also look predict the evolution of mobile and suggest areas for future research.

Terminology

Throughout the thesis, I will reference *World of Warcraft* because it is currently the most popular MMO and therefore the most likely to be known by readers of this thesis and designers within the game industry. *World of Warcraft* is an MMORPG, or Massively Multiplayer Online Role-Playing Game. MMORPGs are currently the largest subset of MMOs, but MMOs do exist in other genres, including action and strategy. All of my thinking in this thesis applies to MMORPGs, and most of it applies to MMOs in general. Neither MMO nor MMORPG is a very appealing term. Acronyms are unfortunate compromises, since a better term, if widely adopted, could be much more memorable and easy to say. Even so, I have picked these terms because they currently have the widest usage. I hope we can all move to better terms in the future, but I don't expect everyone would follow me if I introduced a new term now. Sorens likes the term Persistent Entity Game, but he seems to be the only one using it:

The reality is that the MMO as we know it is primarily about advancing a “secure” persistent entity (character, team, vehicle, country, etc.) in a multiplayer environment of any size. My term to describe these games, then, is Persistent Entity Game, or PEG. (2007)

I think his term is as good as any other, though it's still an acronym. There is a growing trend to use MMOG (Massively Multiplayer Online Game), since MMO is technically an adjective, not a noun. Yet, you'll still see MMO much more frequently.

Castronova looks at the options for labeling these worlds: “Virtual world, MMORPG, cyberspace, metaverse, proskenion, hyperstage, or synthetic world” (2005). He settles on his own terms, synthetic world. “Synthetic world” carries with it a lot of intuitive meaning. On the other hand, it has the disadvantage of not actually being used by players. Doing Google searches for both terms yields 15 million results for MMO and 34,000 results for synthetic world (as of August 26, 2006). MMOG, 6 million. Metaverse, 1 million. Virtual world, 9.5 million. MMORPG has 24 million results, but is restricted in applying to only role-playing games. Cyberspace has 51 million results, but, as Castronova mentions, is now too general for what we are discussing.

Conclusion

In summary, mastery is motivated by personal and social relevancy and visibility. MMOs are play spaces for mastery, and players enjoy the relevancy that the entertainment context gives them as well as the visibility of the way the games help them track their progress. Mobile, furthermore, enhances these mastery motivators by giving players a persistent access to their identities of mastery and bringing the game into real-life social situations.

Chapter 2: Mastery Motivators and *Labyrinth*

Labyrinth is the working title for a game for learning still in development at The Education Arcade at MIT, for which I have been a designer for more than a year. I've chosen this game as my case study because of my familiarity with the game and the reasons behind the design decisions we made. Also, the game has many of the features this thesis is focusing on, including clearly increasing representations of mastery, Web and mobile components, a system of reputation, and multiplayer collaboration.

First, let me describe the game. *Labyrinth* aims to help middle school students learn math and literacy. The game is meant to be played with a small group of classmates, though not necessarily in the classroom or during school. There is little or no time pressure during any of the game's challenges, so two or three players could sit

together at the same computer and discuss strategies without fear of needing fast reflexes or running out of time. Players engage with the math component of the game through solving puzzles. They improve their literacy skills through the in-game message board, where they read and write to share strategies with teammates. They also improve their literacy skills by reading the story within the game, which is presented in comic book style. The game



includes a dynamic difficulty system, matching the challenges it presents to players' skill levels. How do the design decisions made for *Labyrinth* affect mastery motivators?

Personal Relevancy in *Labyrinth*

Labyrinth aims to create personal relevancy in a number of ways. There are 12 puzzles in the game, each with four levels of difficulty. *Labyrinth* gives players a range of choices about which puzzles to play at any given time. If a player finds a particular puzzle boring or frustrating, she can simply choose to spend time with other puzzles. If she finds the puzzle especially interesting, she can spend more time with it, working through each of its four levels of difficulty. This freedom of choice allows players to maximize personal relevancy. True, the game requires players to achieve some level of mastery with all of the puzzles, but since teams play together, someone else on the player's team will probably solve each puzzle eventually and contribute strategies to the rest of the team. So, any individual player who dislikes a particular puzzle can simply wait for other teammates to tackle it and benefit from their strategies. Players hoping to achieve a competitive personal score, though, will have to contribute strategies of their own for at least some of the puzzles, so the game doesn't encourage them to simply sit back and let teammates do all the work.

Labyrinth also creates personal relevancy through *avatar* choice. Players can't customize every aspect of their avatar, as some games allow, but they are able to choose a mask that uniquely identifies them within their team. Even this small level of customization makes players more attached to their avatars. This representation of them shows up in the gaming world, in the story comics, and in the message board. They become more attached to their avatars for two reasons. It represents a choice they made. If the game requires them to use a particular avatar, even if it was the same one they would have chosen from a list of options, players don't feel as much ownership unless they can make the choice themselves. They also likely choose an avatar that appeals to them more than a default avatar would. We have chosen not to represent gender or race through the avatar. The masks available to players all look like different creatures or monsters, so race and gender are largely irrelevant. This simplifies the design, reduces production requirements, blends well with the story, allows us to target a wider age range, and helps the game keep from going out of date as fashions change. Playing an unfashionable or too-young character reduces personal relevancy tremendously, so we aimed to avoid that.

The *story* also helps create personal relevancy. It helps entertain players, convincing them that the game is worth their time and attention (relevant to them). However, if the story fails to entertain some players, it may reduce personal relevancy. It also situates them in the game world in a heroic role, adding significance to all of their actions. Finally, it creates mystery, leveraging players' curiosity to drive them forward in the game.

The *physical space* of the game world creates personal relevancy for players in much the same way the story does. It entertains them and convinces them that the game is worth their attention. It makes the context in which their avatars exist seem more believable, adding weight to any actions and accomplishments in that context. It supports the story, letting players interact with the same characters and space they see in the comics. It supports the avatar choice, letting players see their characters in action. And, it supports puzzle choice, anchoring the existence of puzzles in a physical space and representing completed puzzles as obliterated (crumbled, overrun spaces). Seeing obliterated puzzle rooms in a physical space rewards prior successes with puzzles and motivates future successes.

Mobile and online access to *Labyrinth* creates personal relevancy through accessibility. The more accessible *Labyrinth* is to its players, the more they will keep the game in mind and the more it will become relevant to them. That's why the game will be playable from any computer with Internet access. Players can log in sometimes from school and other times from home or a friend's house, whatever his most convenient. To make the game even more accessible, we are designing a way to play the game on mobile devices as well. We haven't finalized the mobile platform for *Labyrinth*, but for the sake of this thesis, let's imagine it being implemented on the Nintendo DS. The DS is a portable gaming device that folds in half. Each half has a screen, and the bottom screen is touch-sensitive (it comes with a stylus). The console also has a microphone, speakers, a direction pad and several other digital buttons, and a wireless network connection (802.11b WiFi). The device is small enough that middle school students could easily keep it in their backpacks at all times. They could then play the game whenever they had a few free minutes, such as bus rides, lunch breaks, after school, and at home. All of the

preset game data would be kept on a cartridge in the DS, including artwork, puzzles, etc. Communication with the online game server would happen whenever the player was within range of a wireless hotspot, at which point the game would synchronize data like the player's progress and messages to and from teammates (which would also be saved locally on the game cartridge). The asynchronous design of the connectivity elements allows this kind of play style, being online sometimes and off-line other times. Having access to the game from any connected computer as well as from mobile allows players to time their play to best fit their mood and schedule. Knowing that *Labyrinth* will always be there encourages players to think more about the game and develop more of an attachment to it

Finally, players' *individual scores* increased personal relevancy. There are several ways that players can increase their individual scores in *Labyrinth*, including freeing pets by solving puzzles, solving puzzles at higher levels of difficulty, writing strategies that teammates find helpful, and completing the game. In addition to the more precise representation of individual mastery within the game, this score gives players a general sense of increasing mastery. Players can use this score to compare their performances with others in an online leaderboard. They can also ignore the leaderboard, if they're only interested in their own progress relative to before.

There are a few themes from all of these examples of heuristics for creating personal relevancy. Giving players meaningful choices increases their attachment to the results of those choices. Simply entertaining players motivates them to take the game seriously and want to succeed within its rules. And, making the design coherent allows features to support each other and enhance personal relevancy (as adding the physical space did for the other features).

Social Relevancy in Labyrinth

Labyrinth creates social relevancy for players in many of the same ways it creates personal relevancy. It's a multiplayer game. Simply having others there to notice what the player does adds consequence to his actions. The *team score* represents this directly. Each team member contributes to the team score, so if one player doesn't pull his weight he will drag the whole team down a notch. Conversely, a strong contribution to the team score could make him a hero. The weight of the consequence for any particular contribution to the team score depends upon whether the team takes its score seriously. It's possible that no one on a particular team cares about score. Ignoring score is a form of choice that can increase personal relevancy, even if it decreases social relevancy. Team scores will be entered in the online leaderboard, so the team can see how it compares to other teams. We envision there will be some teams that want to compete directly with each other, such as different teams in the same class or school or teams at rival schools. The team score will support this kind of play, which enhances social relevancy.

Mobile and on-line access to *Labyrinth* create social relevancy through accessibility and by bringing play to different social situations. Since players can connect to the game from *mobile* devices or *any connected computer*, they can frequently play together. They can play on the same computer or the same mobile, or they can play side-by-side on different devices. Either way, they become more interested in each other's status and progress by virtue of being within sight and therefore within mind of each

other. The primary side effect of social relevancy that we are trying to encourage in addition to increased motivation for mastery is encouraging players to discuss their strategies with each other. This process of discussion helps players solidify their own thinking, figure out how best to communicate their thinking, and become stimulated by others' thinking. In our weekly play testing sessions with middle school students, we noticed that some students who played together did discuss and share strategies, and others took turns to see who would solve the puzzle first on his own. Players who solved the puzzle on their own or with the group seemed to experience the satisfaction of increasing mastery, but players who sat by and watched as a teammate solved the puzzle seemed to have reduced personal relevancy. For the successful players, at least, the social relevancy and visibility strengthened personal relevancy.

Allowing players to choose which *puzzles* to focus on and in which order creates social relevancy. Since one of the main ways that players can contribute to their team's success is by solving a puzzle first and contributing a written strategy for that puzzle to the in-game message board, being able to choose which puzzle to play is important. As teammates branch off and solve different puzzles first, each can feel valuable by contributing strategies. If there were a fixed order to all of the puzzles, teammates would feel that they were more in competition with each other to solve the next puzzle first. Competition within the team can create social relevancy as well, but we are actively trying to diminish anxiety about math among students. Therefore, having at least the team unit be as cooperative as possible is an opportunity to create a supportive atmosphere where players feel comfortable asking questions. We essentially want to create an *affinity space* (Gee 2004) for the game that's also in the game. We want players of different skill levels to share the space, engaged in a common endeavor, all bringing their unique knowledge and skills and contributing in the ways they prefer. That cooperative environment is important for supporting both the math and literacy goals of the project.

By contributing strategies to the team message board, players create an opportunity to build a positive *reputation* within the team. Each strategy contribution can be rated by other team members as helpful or not helpful, à la product reviews on *Amazon*. This discourages players from contributing unhelpful or incomplete strategies. If a strategy makes sense but is poorly explained, it may be rated as helpful by some team members and not helpful by others. All of these ratings affect a player's individual score and reputation within the team on the message boards. If a player contributes useful strategies and gathers a handful of positive ratings, team members will probably pay closer attention to that player's strategies in the future. Since we only planned for six players per team, though, every message board post may get plenty of attention anyway. Regardless, a positive reputation given to a player by the team will be respected and valued by that team as well. That's social relevancy.

There are a couple of features that have the potential to both increase and decrease social relevancy. First, the counterpart to contributing strategies is *asking for help*. Different teams will respond differently to players who ask for help. Some teams will be supportive, supplying answers and encouraging further questions. Other teams will likely be critical, making fun of the perceived ignorance or incompetence of players who ask questions. In the supportive example, asking and answering questions becomes part of the cycle that builds a supportive atmosphere within the team and increases social

relevancy. Additionally, contributing a strategy feels more socially valuable when a teammate has requested that strategy than when it comes unsolicited. In the negative examples, players may perceive the team as not worth impressing and disengage, decreasing social relevancy. We think that most teams will be supportive, but certainly not all.

Another feature that could either increase or decrease social relevancy is the game's support for *paired play*. We designed the game without strict time pressure or need for reflexes, in part because we wanted more than one player to be able to play the game together at the same computer. We expect that most of the time, especially outside the classroom, players will play one to a computer. However, in the cases where the game is used in the classroom, there is a high probability that there are more students than computers and the teacher may assign two or three students to a computer. This kind of play generally increases social relevancy within the small group of players sitting at the computer. If there are two players at the same computer and one of them figures out how to solve a puzzle, she has another person sitting next to her who she can immediately impress. On the other hand, neither player now has full control over the choices of which puzzles to play, which avatar to use, when and how to contribute strategies, etc. Neither player feels completely responsible for progress through the game, and therefore may not feel that the individual score, the number of pets freed, or the message board reputation accurately reflect her contribution, decreasing personal relevancy. This is a fair compromise, because of the opportunity for players to discuss strategies back and forth vocally and make better progress in the game and potentially in their thinking.

What themes or design heuristics can we draw from these examples? Simply adding other players into the mix increases social relevancy. Cooperation increases relevance anymore for some players and competition increases it more for others. In *Labyrinth*, we chose a hybrid model, players collaborate with each other to form teams and then compete as a group with other teams. All competition is automatic but can be ignored.

Personal Visibility in Labyrinth

We've put a number of features into the game specifically to help increase personal visibility of mastery. Most obviously, the player's goal is to free as many of the trapped *pets* in the factory as possible, and as the player achieves more success in the game, she frees more pets. She can see the number of pets she has freed so far in the upper left corner of the screen. She can see this number of pets increasing as she makes progress within a puzzle. However, due to constraints on the number of art assets we could produce for the game, we have chosen not to animate pets being freed. That's a missed opportunity for personal visibility of mastery and an area we could have improved with a larger budget. The player can also visit a room in the factory where all of the free pets have gathered, visually representing success within the physical space of the game world.

Once players successfully solve a puzzle three times, they graduate to the next highest level of *difficulty* for that puzzle. When they solve all difficulty levels of the puzzle, they obliterate it. Both are made visible in the game to indicate progress to the player. When a player graduates to the next difficulty level of a puzzle, she receives a

key and a clue about where the room containing that puzzle is within the factory. That key and the search for the next room both reinforce for the player that she is making forward progress in the game. When she finally obliterates a puzzle, she will feel the same progress to an even greater degree. The danger of making all this so visible is that players who are unable to obliterate one or more puzzles will be fully aware that they have not overcome all of the challenges presented. This visibility of the lack of complete success will motivate some players to invest more effort and will frustrate some players and encourage them to disengage. Frustration will probably occur more frequently if a person is playing alone, because those with a team to support them will likely progress faster. Some of the players going through the game alone who become frustrated will then seek out a team experience, and that's good.

Physical exploration helps players visualize progress in the game as well. Each puzzle exists in a room, and players will have to traverse a physical space to find the correct room before and during any puzzle. Exploration of the physical space makes players more familiar with possible room locations and helps them make educated guesses about where puzzle rooms might be. Exploration is its own kind of mastery, visually represented, but in this case we have also linked it to mastery of the puzzle. When players successfully complete key challenges (finding which door a key goes to), they actually leave one space (the hallways linking all of the puzzle rooms) and enter another space (a puzzle room). Each puzzle has its own interesting set of artwork, so the game rewards the player immediately with a new scene they haven't seen before (or at least a variation on an old scene).

Increased accessibility of the game through *mobile and online* play keeps the game and mastery within it visible to players. Because the game is so accessible, players will interact with it more frequently. By interacting with it more frequently, they will focus more on the game and what it emphasizes, namely their growing mastery.

Finally, individual and *team scores* help players instantly and quantifiably identify progress in the game. Because individual scores are entirely the result of a single player's actions, players will likely look to that score first for confirmation of growing mastery. The team score likely won't carry much significance except in comparison with the scores of other teams. Thus, if a player is tracking her team's progress compared with a rival team or a leaderboard, she may check the team score during play, but otherwise may not care until she finishes the game. At that point, likely someone on the team will check how the team performed compared with others and there's a good chance that player will report the team status to the team. Some players may also use the team score and individual scores together to get a general sense of what percentage of the team's progress they themselves have contributed. This method isn't foolproof, as some scoring elements go into the individual scores that are not counted for the team score (like positive ratings from strategies contributed on the message board). Overall, scoring in *Labyrinth* is an additional, optional way for players to track their progress.

Can we generalize from these design decisions that promote personal visibility of mastery to identify general design heuristics? Scores are good, but are abstract and can be ignored. Something tied to story like freeing pets is better, because the number of freed pets is quantifiably tied to player action in an obvious way. Finally, the game should not just notice but also celebrate player accomplishments. In this case, showing

pets being freed (scurrying away) would have been an improvement over simply showing the number of freed pets increased.

Social Visibility in Labyrinth

How does *Labyrinth* create social visibility of increasing mastery? First, the game is designed to be played with a group of students from the same class in school. So, likely the whole school is aware of the game. Second, *teams* are aware of members' progress and contributions on the message board. If one player contributes a strategy on the message board that the rest of the team finds helpful, that player's mastery is clearly visible within the team. That player's reputation, visible on the message boards, becomes a lasting reminder to the team of her contributions and her understanding. Also, the whole class playing the game knows what it takes to overcome its challenges. So, when one player progresses significantly, her team will see, and when one team progresses significantly, the class will probably find out.

The *mobile and online* accessibility aspect of the game again increases social visibility. If people play the game on the bus, in the library, in the classroom, and at lunch, they will also be seen playing the game in all of those situations and by different people. The game becomes a focal point for conversation, and examples of mastery will more frequently receive attention. Groups of people playing together become even more visible socially and more interesting for passersby to come investigate.

Choosing an *avatar* also creates visibility for a player and her mastery within the team. Like the player's reputation from contributing strategies, the avatar becomes a visual shorthand for identifying the player and her accomplishments. Conversely, if a player contributes unhelpful strategies or doesn't pull her weight, her avatar and *reputation* identifier become easy tools for her teammates to remember and generalize from those negative details. Of particular concern is any negative judgment attached to a player who asks questions that teammates may consider ignorant or unintelligent. In those instances, we would prefer not to help these team members easily remember and generalize from these perceived negative details. On the other hand, if a player is contributing willfully unhelpful strategies and comments to the message board, a negative reputation is more useful and appropriate.

Leaderboards for individual and team *scores* also create social visibility for mastery. Players can see their own performance measured against the performance of others. They can say things to each other, if they so choose, like, "I'm number 236 on the high score list. What number are you?" Teams can measure themselves against other teams. Players and teams can always play the game again to try for a higher score, if that interests them sufficiently. All of this activity takes place within a socially visible environment, increasing social relevancy.

Too much social visibility can intimidate players, discouraging self-exploration. The fear of failure only increases with social visibility. Games should provide a range of activities with less or more social visibility, so that players can choose their preferred level of risk based on their moods and personalities. Additionally, any opportunities the game provides for *failure* should, if possible, have reduced social visibility for that failure. With many players, highlighting a winner generally doesn't embarrass all of the players who didn't win. *Labyrinth's* leaderboards should publicly only show the top players, while allowing every player to see their true ranking privately. Games like

labyrinth can more easily keep failure (or lack of success) private, because social visibility is generally asynchronous. In MMOs with real-time interactions that could result in failure, it can be harder to hide.

What design heuristics can we use to increase social visibility? Create easy ways to compare performances, and make that comparison easily visible and accessible in a public place that most players will visit frequently. In this case, leaderboards for individual and team scores serve this function. Create ways for players to contribute to the greater good and then help players remember those contributions over time. In *Labyrinth*, writing strategies for teammates on the message board and receiving ratings to add to a reputation serve this function.

Chapter 3: Presence in *Labyrinth*

Presence is a concept used to describe the feeling of “being there.” I will use this concept and its derivatives to help understand how we become immersed in MMOs and how to best strengthen mastery motivators in MMOs. Different authors have described presence using different terms. Kwan Lee writes:

[This paper] first compares various types of presence-related terms (e.g. telepresence, virtual presence, mediated presence, copresence, and presence) and suggests that of those terms the term presence works best for the systematic study of human interaction with media and simulation technologies. [...] Presence is newly defined as “a psychological state in which virtual objects are experienced as actual objects in either sensory or non-sensory ways.” Three types of presence -- physical, social, and self presence -- are defined. (28)

Several terms have been used to describe this concept of presence over the years. The concept started with Marvin Minsky in 1980, when he used *telepresence* to describe a sense of physical transportation through a computer. Though Minsky was thinking of computer terminals showing only text and containing no dressings of entertainment, his concept still applies today to MMOs. Controlling an avatar that exists simultaneously on one's PC, on the game server, and in a fictional, virtual world is an outgrowth of the activity Minsky describes.

Why use presence to understand experience of mastery in MMOs? Players use MMOs to have virtual experiences that feel real. As Lee explains, presence seeks to understand virtual experience, not real experience or hallucination. Lee writes:

Human experience can be categorized into three types -- real experience, hallucination, and virtual experience -- according to the ways of experiencing (sensory vs. nonsensory) and the objects that are being experienced (actual vs. imaginary vs. virtual [para-authentic vs. artificial]). Real experience is the sensory experience of actual objects. Hallucination is the nonsensory experience of imaginary objects. Virtual experience is the sensory or nonsensory experience of virtual (either para-authentic or artificial) objects. Presence research is about virtual experience and has nothing to do with real experience or hallucination. (Lee 37)

MMOs are all about virtual experience. They are neither real (as defined here) nor hallucination. What does Lee mean by virtual experience? He defines it in terms of virtual objects. What are virtual objects? They can be something we normally think of as an object, such as a chair, or they can be places or even people. Para-authentic objects exist in virtual space but have real-world counterparts. For example, the imagery in a videoconference is a digital reproduction, and therefore virtual, but it realistically represents real objects -- the space and people on the other end of the videoconference call. Artificial objects, on the other hand, are virtual objects with no real-life counterpart -- most objects in MMOs fall into this category. Even people in the game space are not represented as they would be in the real world, making them the artificial brand of virtual. Thus, while Lee spends much of his time discussing para-authentic objects and comparing them with artificial objects, I will focus only on the artificial.

Presence Overview

In rest of this chapter, I will use the following terms to refer to the different kinds of presence. I will analyze them in more depth in their respective sections of the chapter, but let this serve as an introduction.

- *Physical presence*
 - *Transporting physical presence* refers to the phenomenon of players' feeling located in a virtual world.
 - *Non-transporting physical presence* refers to the player's belief in the validity of the virtual world and the objects within (i.e. not focusing on their artificiality).
- *Social presence*
 - *Copresence* refers to the player's feeling of having other social entities available for interaction in real time.
 - *Asynchronous social presence*, on the other hand, refers to the sense that other social entities are available to be interacted with, but not in real time.
- *Self presence* refers to players' focus on their avatars as valid representations of themselves.

After explaining each concept, I will explore how we can apply it to game design in the context of *Labyrinth* and how it affects mastery motivators.

I will use three different kinds of presence: physical, social, and self presence. Physical presence, or the sense of being physically located in a virtual environment, helps us think about what makes MMOs immersive. When and why do we feel we are walking through a medieval forest or down the hallways of a spaceship? Social presence, or the sense of being with others, is useful for distinguishing a social experience where others matter. Some MMOs make players feel alone even with thousands of others nearby, so social presence captures more than just virtual location. Finally, self presence helps us think about what makes players feel as though it is them in the virtual world, allowing them to see in-game events as reflecting on and impacting them. Lee attributes these concepts to Biocca:

Biocca (1997) identified three types of presence: physical, social, and self presence. Physical presence refers to the sense of being physically located in a virtual environment. Biocca emphasized the feeling of transportation into a virtual environment from the real physical environment as an integral part of physical presence. In a recent article, Biocca and colleagues (2001) defined social presence as “the sense of being together with another and mental models of other intelligences (i.e., people, animals, agents, gods, etc.) that help us simulate other minds.” Self presence refers to a user's mental model of himself/herself or simply the awareness of self-identity inside a virtual world. (Lee 42)

Biocca's definitions are the easiest to understand, and prove useful to my analysis, but they alone are not sufficient.

Physical Presence

Lee starts with Biocca's definition and offers some important adjustments. Lee redefines physical presence as “a psychological state in which virtual (para-authentic or artificial) physical objects are experienced as actual physical objects in either sensory or nonsensory ways” (45). The important thing for physical presence is that “technology

users do not notice either the para-authentic nature of mediated objects (or environment) or the artificial nature of simulated objects (or environment)” (45). Lee does not necessitate a sense of transportation. Ignore the para-authentic side of physical presence, as the artificial-virtual applies best to MMOs. According to Lee, physical presence occurs when players don't notice the artificial nature of various objects in the MMO. However, players do notice, and if one asks them whether objects are artificial, players will answer that they are. While immersed, players simply don't focus on the artificial nature of MMOs. Claiming they don't notice the artificial nature is like saying they are confused about what is real. Players aren't confused. They simply choose to suspend disbelief and focus on artificial objects as if they were real. Unlike Biocca, Lee claims that no sense of transportation is required for physical presence to occur. Players don't need to feel that they have left their computer rooms in order to focus on the virtual world and perceive objects therein as valid. As Lee says, “this approach makes it possible to encompass virtual experiences created by low-tech media.” In particular, accessing a virtual world from a cell phone, while actually quite high-tech, may not engender the same sense of “being there” that comes from logging in from a PC. Therefore, compared to the PC experience, the outdated processing, graphical, and auditory capabilities of mobile seem low-tech.

Lee intends his definition of presence to override Biocca's, but both have merit. I want to use physical presence to get at a sense of transportation when it's appropriate, as with aspects of MMOs on PCs, and I want to use physical presence to get at a sense of players focusing on the validity of artificial objects, as with aspects of MMOs on both PC and mobile. Thus, I will refer to Biocca's definition of physical presence as **transporting physical presence** and Lee's definition of physical presence as **non-transporting physical presence**.

Physical Presence in Labyrinth

How do *Labyrinth*'s features support transporting and non-transporting physical presence? What kinds of experiences create a feeling of physical presence? Physical presence can come from an activity like reading a book, which usually just describes a physical space and the activity within. Film can create physical presence as well, by stimulating the imagination, as books do, along with senses of sight and hearing. Games strengthen physical presence further by allowing interactivity. Simply walking around in a virtual world makes it feel more real, and then anything a player can do to affect the state of the virtual world increases that feeling further. Fan fiction authors can achieve this interactivity with books and films by imagining and crafting their own extensions, but games make interaction more easily accessible by integrating it naturally into the first experience of the primary text (the game). Clark describes the feeling of being able to look around a space, at a distance, mediated by a video camera, as creating significantly more presence than watching video of the space without being able to look around. The interactivity makes the difference. Clark writes, “Our sense of personal location has more to do with this sense of an *action-space* than with anything else” (93-4). Clark's **action-space** helps us understand what differentiates the experience of passively viewing and interactively viewing. When we feel that a space supports and reflects our actions, we feel increased non-transporting physical presence. The space seems more valid and believable, even if it is also fantastic and unrealistic. This increase in non-transporting

physical presence also strengthens transporting physical presence, as we can't easily feel located in a world we don't recognize as valid. Both kinds of physical presence strengthen personal relevancy as well, since players care more about progress in worlds that immerse and entertain coherently.

In *Labyrinth*, we have created a physical space in which players can walk around and interact with characters and objects. By walking around, players can explore the physical space of the game world. *Exploration* helps players get to know a space, increasing its coherence and validity. Exploration also helps players feel located in a space, as they can affect what they can see of the space. By affecting what they can see, players create a tight loop of input and output between themselves and the game. They frequently click on the ground in the virtual space to move their characters and their fields of vision. This minimal but frequent input yields frequent and highly visible output from the game: players observe and lead their characters through new spaces. This continual interaction helps players feel their own agency within the game world. The flow and frequency of this interaction encourages players to focus on the output from the game, namely the moving and changing virtual world. Simply focusing on changes within the physical, virtual world and possible actions within that world creates transporting physical presence. With infrequent or no interaction, players feel less transporting physical presence. *Labyrinth* has less interaction with the physical space than some other kinds of games, especially ones that emphasize movement timing as challenges. *Labyrinth* uses movement to enable exploration, but it has no jumping puzzles, for instance, nor does it require dodging bullets. It also has only two dimensions representing the world with a top-down view, so players can't move their fields of vision to peer into the horizon. These restrictions have some negative impact on transporting physical presence.

The somewhat reduced transporting physical presence in *Labyrinth* reduces personal and social visibility of mastery. Players are less likely to look to the physical space for cues about mastery (e.g. avatar appearance). However, players still look to *interface* elements (e.g. score) for cues about mastery, so we have included those in the HUD (heads-up display) and The Personal Communicator (and interface device that includes the message boards). The Personal Communicator also has records of all monsters the player has encountered, encouraging the sense of mastery that comes from collecting and complete knowledge of a semiotic domain (Gee 2003). Records of monsters encountered are only visible to the player, so they increase personal visibility of mastery but not social visibility. Still, players will communicate more intelligently with teammates about the semiotic domain, increasing social visibility of mastery and directly.

In addition to exploring the physical space in *Labyrinth*, players can affect the world in permanent, visible ways. When they complete a puzzle at the highest level of difficulty, players can obliterate that puzzle. *Obliterating* the puzzle means physically changing the way the puzzle room looks permanently. In addition to obliterating puzzle rooms, players plant seeds for a vine that will eventually overtake the entire factory. This vine also creates a permanent, visible state change in the physical space. As players continue to move through and explore the physical space in the future, they observe obliterated puzzle rooms and vine growth. This creates a sense that they are affecting the world. This kind of permanent state change, brought about by player interaction, increases both kinds of physical presence. It emphasizes the validity of the world and the

player's place in it as well as the physicality of the world. Reduced transporting physical presence reduces personal visibility of mastery if represented in the physical space (e.g. avatar appearance). Increased personal visibility of mastery increases both kinds of physical presence. There is a feedback loop: increased personal visibility of mastery in the physical space increases transporting physical presence, which then increases personal visibility again.

Players experience increased physical presence through *Labyrinth's* story. The comic book style of the *story* represents the physical space of the game world visually differently than players see it as they move about that world. This double representation of the same space helps players suspend disbelief about the world, as both representations seem to corroborate each other in players' imaginations. Reading the story, then, directly increases non-transporting physical presence by validating the game's fiction. It also increases transporting physical presence by priming player's willingness to suspend disbelief when they later reenter the physical space with which they can interact and move around.

Players occasionally see each other's *avatars* in the game space, increasing physical presence. All interaction with other players is asynchronous, but the game will periodically take other players avatars and insert them in the games of their teammates. As a player, I might see my teammate rounding a corner and vanishing from site. I can't interact with that teammate, and in fact that teammate may not even be online, but it helps me think of the entire team as existing in the same physical space, increasing non-transporting physical presence. A rise in non-transporting physical presence increases transporting physical presence, so that gets strengthened too. This technique has diminishing returns, because when players first observe teammates they may not realize that those teammates are not actually there. They may never realize, and that's okay. If they do realize, though, the effect may lose its power for them. The effect increases personal relevancy early in the game, when players have the least attachment to the game. If the effect later loses its power, players will likely already have solid personal relevancy from their increasing mastery in, and progress through, the game. It gives a small but quick boost in personal relevancy when it's needed most.

Technical and artistic visual cues affect physical presence, too. Higher screen and art asset resolution helps players suspend this belief, as do color fidelity, screen size, animation smoothness, and frame rate (the rate at which the game screen gets redrawn). Since we are developing the game in flash, players may experience it in a web browser window, surrounded by non-game interface elements. All of these factors positively or negatively effect immersion, entertainment value, and ease of entering and exiting play. Our polished, atmospheric 2D imagery increases physical presence and personal relevancy. Polished, 2D imagery propels adventure games to success in the 90s, but the genre fell out of favor as the cutting edge of graphics moved to three dimensions. The right 3D environment could have helped strengthen presence and relevancy further, but not within our budget. All of this applies to play on a PC.

On *mobile*, the technical constraints become almost insurmountable. Players feel significantly less transporting physical presence due to the smaller screen size alone. This decreases non-transporting physical presence as well. Since players can jump in and out of the game world at any time on mobile, physical presence decreases even further. To some extent, players recall the high-resolution imagery from play on a PC and have

that in mind during mobile play, but this isn't as strong as seeing it on the screen. Of the two kinds of physical presence, transporting physical presence suffers most from the transition to mobile. Non-transporting physical presence still receives significant support from personal relevancy, since players try to see the world as valid if they care about it.

Finally, the game's controls affect whether players can forget the *interface* or struggle with it continually. When playing on a PC, players will use the mouse, and when on a Nintendo DS, players will use the stylus. Both of these controls have a high degree of familiarity for almost all players, so they don't disturb presence.

Physical presence increases personal relevancy directly. In *Labyrinth*, it increases social relevancy only by increasing personal relevancy for each player. Teammates don't actually interact within the virtual space, as they would in games with real-time, reflex driven interactions like sports and action games, so social relevancy remains detached from physical presence. Likewise, social visibility in *Labyrinth* remains detached from physical presence when each player has his own computer. Teammates don't see physical representations of increasing mastery unless they play together at the same computer. If they do play at the same computer, physical presence exists and increases social visibility. However, the gain is offset by reduced personal relevancy (since both players can't equally experience direct control of the game and since one avatar poorly represents two or more players).

To increase physical presence beyond what we've done with *Labyrinth*, maintaining a similar budget, we should have added synchronized, space-dependent interactions between teammates. This would increase both kinds of physical presence, as well as all four mastery motivators. For example, if two players needed to collaborate to distract a guard and free some pets from the guarded room, one player could get the guard to chase him around the factory while the other escorted the pets to safety. Perhaps the player leading the guard around the factory could only escape by hiding in obliterated rooms, emphasizing the importance of prior mastery.

Social Presence

Next, let's unpack social presence. We've already begun to think of it as the feeling of being together with another. Goffman describes copresence as the feeling of being together, with mutual, concurrent awareness. Lee defines social presence as the experience of virtual actors as real, so he can incorporate asynchronous interactions. Lee writes:

Social presence is different from copresence [...] in that copresence requires sharing of a space with other humans (Zhao, 2001). The emphasis of copresence on co-location of self and others requires mutual awareness in which individuals become "accessible, available, and subject to one another" (Goffman, 1963, p. 22) as a necessary condition for copresence. Therefore, it cannot explain well a possible social experience occurring when users engage in one-way communication (e.g., reading a letter, hearing a prerecorded voice message) in which no mutual awareness is involved. (45)

Both the concepts of copresence and social presence add value when thinking about social interactions in MMOs. I will use **copresence** when I want to emphasize the importance of co-location or real-time interaction with another. Lee uses social presence to encompass both copresence and asynchronous, interpersonal interactions. However, I

want to distinguish between copresence and those asynchronous interactions. Therefore, I will use **asynchronous social presence** to get at this subset of social presence.

Social Presence in Labyrinth

How do *Labyrinth*'s features support copresence, the feeling of being located in the same space and time as other players, and asynchronous social presence, the feeling of having other players available to interact with, but not in real-time? The example in the previous paragraph generates copresence. Two players collaborate in real-time and in the same space. Each feels that the other player is focused on the game at that time, and each feels that location has relevancy (one player tries to draw a guard away from the other in physical space). *Labyrinth* doesn't support much copresence with players each at their own computers. MMOs like *World of Warcraft* traditionally create copresence very well by making travel somewhat cumbersome and providing hubs of travel and commerce that encourage players to congregate. *Labyrinth* creates copresence differently, encouraging players to play together at a single computer. They know that each player is available for real-time interaction, because they are sitting at the same computer focused on the game. They have a different sense of location than they would in the example from the previous paragraph. In the real world, their bodies occupy nearby space, so they are copresent in the nonvirtual sense. They feel co-located in the game space as well to the extent that they identify as the common avatar in the game. However, one avatar representing more than one player leads to very little identification as the avatar from any player. Thus, having multiple players at the same computer creates a sense of real-time availability but not virtual co-location. This partial copresence represents a missed opportunity for *Labyrinth* to strengthen social presence and all four mastery motivators. Taking advantage of this opportunity would have required extensive redesign, though, because if players can meet in virtual space, they expect activities there as well. *WoW* gives players many activities to do together in virtual space, including trading, dueling, exploring, and questing. Adding this type of activity to *Labyrinth* would have changed the game entirely and probably diminished the focus on puzzles and math thinking. Not having shared virtual space is therefore justified, even if it's also a missed opportunity.

Labyrinth creates asynchronous social presence through many of its features. Its communication system, a message board, supports mainly asynchronous communication. Players could use it as a real-time *chat* system, but the interface and conventions of message boards will lead them to use it more sporadically and asynchronously. If players want real-time communication, they will probably communicate face-to-face in the real world or through an instant messaging program. The combination of instant messaging and playing *Labyrinth* increases copresence, but reduces physical presence by decreasing immersion and suspension of disbelief about the integrity of the game world. The increased social relevancy and visibility from instant messaging counteracts the decreased personal relevancy from less physical presence.

Labyrinth creates asynchronous social presence through *strategy writing* as well. When one player solves a puzzle, the game encourages her to write a strategy for solving the puzzle for the benefit of her teammates. Her teammates likely won't see that strategy until much later, when they either brows the message board or get stuck on that particular puzzle. When they do come across that strategy, though, they experience asynchronous social presence. That is, they feel that what they are reading was written by another

player, by a teammate, and they feel that player's presence in the game. Furthermore, if they've experienced any sort of frustration with that puzzle, they will likely feel impressed and appreciative or jealous of the other player's accomplishment. This asynchronous social presence gets partially codified in the reputation system. As players contribute strategies and rate those contributions on the message boards, they gain awareness of other players' progress and efforts in the game

Both kinds of social presence increase social relevancy and visibility. Copresence increases social relevancy and visibility because players feel they have an audience and feel pressure to perform. Of the two kinds of social presence, copresence creates more social relevancy through the immediacy of the performance and response. Asynchronous social presence also creates social relevancy, because players know their teammates will see their strategies on the message board eventually. It creates social visibility of mastery because those teammates do indeed see strategies on the message board. However, it is much less visible to players that their increasing mastery is visible to their teammates. In other words, social relevancy of mastery feeds into personal relevancy, but personal visibility of increasing social status does not increase much. To illustrate this problem, consider blogging. Bloggers enjoy checking who links to their blog, who comments on their blog, and even who visits their blog. Linking and commenting and visiting all increase social relevancy, but that doesn't translate entirely into increased perceived personal relevancy unless bloggers can see it. Tools like Technorati let bloggers see who links to them, and it becomes a way that bloggers estimate their own worth and contributions, sometimes compulsively. David Carr writes:

“We are living through the largest expansion of expressive capability in the history of the human race,” said Clay Shirky, an adjunct professor in the graduate interactive telecommunications program at New York University. Even as Mr. Shirky is saying this, I peek at the comments section of my blog, and he goes on, “There is an obsessive, dollhouse pleasure in configuring and looking at it, a constant measure of social capital.” (2007)

People enjoy measuring social capital. Nothing inherent in the asynchronous social presence reduces social relevancy, but because *Labyrinth* does not have many features for observing how teammates experience a particular player's contributions (aggregated reputation system aside), players can't easily measure their social capital. Copresence allows players to see how they are being experienced through features like real-time chat, which *Labyrinth* doesn't have integrated into the software. Players will probably prefer to play *Labyrinth* at separate computers but in the same real physical space, so they can tell teammates or competitors of their successes in real-time and judge responses through cues like body language and tone of voice. Playing on the DS allows teammates to congregate in the most convenient location while still maintaining the face-to-face communication that makes social relevancy personally visible.

Social presence can go too far and begin to feel like a burden to players. In MMOs, players sometimes think the burden of social interaction obstructs entertainment. Taylor writes: “Experienced players also can feel that they sometimes spend more time helping out guildmates or working to keep guilds together than they do actually playing. This can sometimes result in people creating new anonymous characters [...] to allow them to play without the burdens their social networks may bring” (50). This is an issue both inside and outside of games. I sign off of instant messaging programs when I really

need to work to stop the interruptions. Sometimes, I won't pick up the phone if I'm in the middle of dinner or my favorite game/TV show/movie. Designers should ask themselves: does my game allow players to disconnect from their *social burdens*? *Labyrinth* avoids this problem by keeping team size small and interactions asynchronous. Requests for help come through the message board, going to all team members instead of one individual. The message board medium also reduces expectations of prompt responses, so even if a player logs into the game and sees some questions posted he can more easily choose to respond later or not at all. As a negative consequence of this design, players won't log into the game to see who's online or hang out, reducing positive social presence.

Self Presence

Finally, let's review self presence. Self presence will interact with other theories of self, coming in the next chapter. Lee says ourselves become virtual when we experience or construct them through technology. Lee writes, "A virtual self thus can be defined as either the para-authentic representation of the technology user, or an artificially constructed altar-self (or selves) existing inside a virtual environment" (40). "Artificially constructed altar-selves" matches up well with how players experience their own existence in MMOs. This is just one way of describing an avatar. A "para-authentic representation of the technology user," is more like seeing oneself on the screen during a video conference call. When I refer to **self presence**, I mean feeling at home in an artificial representation of self that could be described as an avatar, not the para-authentic representation. Lee formally defines it as, "a psychological state in which virtual (para-authentic or artificial) self/selves are experienced as the actual self in either sensory or nonsensory ways" (46). He also emphasizes that players don't notice the virtuality of their avatars, but I again want to rephrase this to highlight that they simply suspend their disbelief and do not focus on that virtuality.

Self Presence in Labyrinth

How does *Labyrinth* help players construct a sense of self presence, believing that the in-game representations of themselves are valid? *Labyrinth* lets players choose *avatars*. Players use avatars as hooks on which to hang identities. When given the chance, players spend large amounts of time, energy, and money customizing avatars. As Goffman says, performance of self is central to how we view ourselves (1963). *Labyrinth* gives players only basic controls over the appearances of their avatars, letting them choose the mask that the cloaked figure will wear. Even this control, however minimal, allows players to feel in control of how the game represents them. Any amount of control encourages a sense of ownership, tying the player's view of herself more closely to the triumphs and failures of her avatar. In other words, control allows self presence.

Control has two components: choice and appropriate response. Giving players choice gives them the chance to realize and exert preference in the game. Without an appropriate response from the game, though, choice has no meaning. Imagine an avatar selection screen that allowed players to customize the appearance of their characters in every detail, but when the game began their avatars all turned to stick figures. That's choice without appropriate response. Lee writes that appropriate responses, both

physically and socially, increase self presence, and self presence increases players' self-efficacy (46). Self presence and therefore self-efficacy (sense of mastery) give players personal relevancy. Without self presence, players care little of the triumphs of their characters. They still experience some successes as their own, but any personal relevancy the story would have added disappears. If a fictional character in the game congratulates the player's character, only players with self presence translate those congratulations into increased senses of mastery. Since self presence increases personal relevancy, players experiencing self presence will more likely overcome the game's challenges. They will more likely experience increasing mastery both directly from their own actions and indirectly through the representation of success in their avatars (e.g. fictional characters congratulating their avatars). However, since they experience self presence, even their indirect successes represented in their avatars will feel direct, increasing their sense of their own mastery.

Non-transporting physical presence increases self presence. Players can't easily feel themselves and their actions represented authentically in the game world unless that world seems valid. Stronger non-transporting physical presence increases players' perceptions that the game world is valid. Transporting physical presence does not necessarily increase self presence on its own, though. *Facebook* and *MySpace* profiles, for instance, do not support much transporting physical presence, yet they allow for significant self presence. Hardly any *Facebook* users would claim their profiles don't represent them in some way.

Just as the game software must react appropriately to player actions, so does *appropriate social response* to players' actions strengthen self presence. Without appropriate social responses, the validity of players' existence within the game comes into question. Lee writes, "Users' self identification with either the [...] representation of themselves inside a virtual environment plays a key role in the feeling of the existence of a para-authentic virtual self. Other social entities' reactions to artificially constructed selves (e.g., responding to users according to their virtual identities) play a key role in eliciting the feeling that alter-selves exist inside a virtual environment" (40). In this case, the para-authentic qualifier becomes appropriate, because we want players to see their avatars as authentic extensions of themselves (not artificial). There is an interesting mix of reality and fantasy in games. The game world is fantasy, and when questioned players admit as much. Yet, players see their actions and advancements in the game world as real. Players really solve puzzles in *Labyrinth*, even though no actual puzzle room exists in the real world or gets obliterated there. In order for players to take pride in solving puzzles, they must see their in-game identities as para-authentic. Otherwise, their actions become like those performed by their avatars during cut scenes: uncontrolled and artificial. Because people play in teams, teammates can respond appropriately to player accomplishments. In other words, player mastery must be socially visible, and the social visibility must be personally visible to strengthen self presence. Social presence strengthens self presence. This social reinforcement comes from teammates through *Labyrinth's* message boards and in person when players play near each other.

Chapter 4: Self in *Labyrinth*

Playing games, like many other things in life, can be a way to experiment with how we see ourselves. I will describe the self as soft, defined by the contributions of many factors. I'll describe ways we can construct the self, to take a more active process in defining who we are. I'll analyze the tension between the real and the virtual, and conclude that for the self the distinction may not matter. I'll discuss how people decide which selves to reinforce and which to abandon, and how they can start fresh when current selves no longer satisfy.

Soft Selves

We may think of ourselves as cohesive -- that all that makes us who we are exists inside our bodies, or even within our brains. However, our environments constantly shape us. Clark writes that “There is *no self*, if by self we mean some central cognitive essence that makes me who and what I am. In its place there is just the ‘soft self’: a rough-and-tumble, control-sharing coalition of processes -- some neural, some bodily, some technological” (138). We can redefine the **soft self** constantly. If I don't like *being* a person who can't see, I can wear glasses. Glasses change my abilities, reshaping my soft self. Before the invention of glasses, when someone's vision declined, he became permanently poor-sighted. That too changed his abilities, reshaping his soft self. All of us who wear glasses blend biological bodies with technology, becoming cyborgs. Glasses augment our natural process of seeing.

Technology can augment how we think and know, as well. Clark describes sufferers of Alzheimer's coping with their disease by using their environments to help them think and remember. They lay important items out on the floor and counters throughout the house, so they don't need to search tediously through drawers. They draw maps of family trees and hang them on the refrigerator. If removed from their environments, they effectively suffer brain damage. Clark writes, “The moral is: certain harms to the environment are simultaneously harms to the person. *Our worlds, ourselves*” (140-1).

Accepting that our soft selves can include our environments invites us to think about how we use our environments to shape who we are. Choosing our environments consciously allows us to more deliberately shape our soft selves. We grow accustomed to environments accessible and common to us. However, with the advent of virtual worlds, we can choose environments of an entirely different kind. The more we live our lives in these virtual worlds -- doing business, building friendships, and learning -- the more we shape our soft selves in ways we may have never considered before. We can use virtual worlds to shape our soft selves in ways never before possible. For example, pretend I cannot walk. If I spend sufficient time walking around a virtual world, I may begin to think of myself, my true self, as able to walk. That is, my virtual self may affect my sense of my true self to a greater degree than my real physical self. The same could be true for abilities no human has without aid of technology, like an ability to fly. If we have sufficiently easy access to these skills and spend sufficient time using them, we can begin to take them for granted. Clark writes, “It is this bundle of ‘taken-for-granted’ skills, knowledge, and abilities that structures and informs our sense of who we are and what we know” (134). We can remake ourselves.

Self Construction

Given that we can remake ourselves, how do we go about it? “Change your environment” is vague direction at best. What environment helps us create the soft selves we like best? We don't know. We must experiment to find out, and what better place to do it than the Internet? Turkle writes, “The Internet has become a significant social laboratory for experimenting with the constructions and reconstructions of self that characterize postmodern life. In its virtual reality, we self-fashion and self-create” (180). The Internet gives us access to many different environments and communities in which we can try different roles and selves. In particular, MMOs help us experiment with reconstructing self, from our bodies to our abilities to our thoughts.

Turkle describes self construction through playful experimentation. She tells the story of Sandy, an MIT professor who learned to think of himself as an engineer by disassembling radios during childhood. He experienced a “great thrill” (78) when discovering something new. Turkle writes, “He came to see himself as the kind of person who was good at figuring things out” (78-9). By experimenting with self, Sandy became a tinkerer. He enjoyed feeling that he was good at something and continued the activity that gave him that feeling throughout his life. MMOs can give players the chance to playfully explore different constructions of self and find those that help them see themselves as good at something.

Self construction in Labyrinth

We've designed *Labyrinth* as students' first exposure to a variety of math concepts. By introducing the math using the game, rather than reinforcing it after classroom lessons, we give students the chance to play and experiment as mathematicians. We enable them to construct selves as competent math thinkers who enjoy what they do. Many players who succeed in constructing such selves would struggle to see themselves that way based only on classroom experience. As MIT professor Sandy began to enjoy being a tinkerer, so too will players enjoy being puzzle solvers. The enjoyment and utility of these tinkerer selves creates personal relevancy for players that encourages them to carry these selves with them past the completion of the game.

Sandy experimented with self-construction on his own. In *Labyrinth*, players sometimes vie with each other for the role of the expert. Many MMOs employ a class system. *Labyrinth* does not. A class system maintains roughly equivalent contributions from each team member during group play. *Labyrinth* allows one player to master every puzzle, probably gaining significant influence within the team. Conversely, some players may struggle to feel relevant if they can't master new puzzles before teammates do. This dynamic creates opportunities for fewer players to construct more masterful and meaningful selves, but some teammates likely will experience reduced social and personal relevancy without sufficient opportunities to contribute. Those who attain greater mastery may also feel greater self presence, since people don't reject selves that feel good. Those who feel they have contributed less may feel reduced self presence, as they reject identification as non-contributors. Players who naturally progress more slowly can choose to compensate by investing more time, but many won't. The ones who progress the fastest naturally may also invest more time, because play brings less frustration and more rewards for them. This competition increases social relevancy and

visibility, but could also reduce personal relevancy for players who don't win the roles they prefer.

In our play testing sessions with *Labyrinth*, certain players sitting at the same computer did indeed take on dominant or submissive roles, regardless of their actual level of mastery. Since play testing happens only once a week, players didn't get a chance to build up the required personal relevancy that would encourage them to invest in progress through the game. With more personal relevancy, I suspect dominant players would defer more frequently to those with the best ideas.

Real/Virtual

People who maintain multiple selves experience tension between those selves. If some of those selves are virtual, people may feel the additional tension of prioritizing and legitimizing the real at the expense of the virtual. The needs of the real self, and especially the body, do take priority because the consequences of not prioritizing them are more severe (e.g. death). Health aside, in an age when we can conduct business and personal relationships through virtual selves, the real selves may not warrant as much priority as we have traditionally given them. Turkle writes that for some the distinction between RL (real life) and the virtual may no longer mean much. Both real and virtual selves can have different kinds of experiences, and some people choose to value all kinds of experiences equally. Turkle concludes that virtual experiences shape the real self to such a degree that a valid distinction between real and virtual can no longer be made. Maybe we can avoid the struggle between the two types of selves by defining our primary self as an amalgam of both real and virtual experiences. Turkle interviewed an interior designer experiencing this tension, "I feel very different online. I'm a lot more outgoing, less inhibited. I would say I feel more like myself. But that's a contradiction. I feel more like who I wish I was" (179). She expresses a wish for her real self to incorporate less inhibition, as does her virtual self. Moreover, she gives primacy to her real self, saying she wishes *she* was more like her online self. This linguistic construction may be force of habit more than anything else, but it still affects her view of the hierarchy of selves. If she thought of herself as a combination of online and off-line selves, she would realize that she's already achieved much of the self-actualization she seeks. As people realize they can access other sides of themselves virtually, they will appreciate online worlds and their time spent in them more.

What aspects of virtual world design help people reconcile the differences between the virtual and the real selves, and what aspects reinforce the distinction? Taylor thinks virtual worlds that have game qualities keep the real and virtual separate more separate than virtual worlds without those qualities do. Taylor writes:

In nongame virtual worlds users often find the lines between their off-line and online self fairly blurry (Taylor 2002; Turkle 1995). My sense is that while this happens much less in EQ, in large part because its "gameness" allows for grounding its own intentionality -- it is never just about identity play -- avatars continue to present themselves as evocative vehicles for identity and MMOGs offer some unique possibilities. (96)

How is an avatar different in a game versus in a virtual world without game elements? A particular avatar in a non-game virtual world like *Second Life* still represents me to other players but doesn't affect the actions the world (game rules) allows me to take differently

than another avatar would. As soon as the avatar starts to have unique abilities, the virtual world starts to feel like a game. The rules and restrictions games place on player action can reinforce the difference between the game world and the real world.

However, game rules can formalize increasing mastery, adding personal and social relevancy to investment in the virtual self. Whereas people could pursue constructions of self based on mastery in *Second Life*, games like *WoW* actively support masterful selves through their rules. Without obstacles to overcome, increasing mastery becomes less visible personally and socially and consequently less relevant. For example, Taylor writes, “Sharon Sherman (1997) has noted the development of ‘social power’ that men obtain through time spent perfecting gaming skills” (103). Because games support activities that require skills that can be improved, they provide opportunities to access social power that comes from perfecting those skills. Even when not using those skills, players want to demonstrate the current state of their mastery. Taylor writes, “Katink described her relationship to the gear her character wears saying, ‘I’m proud of myself. I have no problem with people inspecting me [...] because you know, I’ve worked hard for what I have”



(103). In *Second Life*, people can customize the appearance of their avatars to demonstrate fashion sense and avatar creation ability or willingness to purchase upgrades. These uses all emerged without formal game rules. However, it's difficult to determine exactly what character appearance signifies in *Second Life*. Game rules can focus what avatar appearance means. Certain gear in *WoW*, visibly worn, can represent years of effort invested, at least a medium level of skill, and membership in a competent, dedicated guild.

Real/Virtual in Labyrinth

In a class system, players obtain more power primarily when their avatars acquire new skills. In *Labyrinth*, players obtain more power primarily by increasing their understanding. This can decrease visibility of mastery, since growth takes place primarily in players and not their avatars. However, by tying growth to players, we enable them to maintain much of that growth even if they begin the game again with a different avatar. Since *Labyrinth* doesn't force players to choose a class, they won't choose to start again to try a different class. Players will probably want to play the game again because they enjoy the puzzles and/or want to experience the game with a different team. Subsequent times through the game, players with more experience than teammates solving the puzzles will take on roles of mastery within their teams. This allows even players who contributed less the first time around to feel like the head of the class. Persistent knowledge of how to overcome *Labyrinth*'s challenges increases all four mastery motivators. Both players and teams can see which players achieve and contribute most. Those contributions increase the social relevancy of players' mastery. All mastery motivators feed into personal relevancy of mastery. On the other hand, by embedding mastery primarily in players and not avatars, we decrease self presence.

Players maintain their skills every time they go through the game, even as avatars change. They more easily see avatars as tools instead of additional selves. If avatars in *Labyrinth* more visibly represented mastery, players would more strongly want to link their senses of themselves to their avatars. As is, representing mastery in the player and not the avatar helps the real self trump the virtual self, reinforcing the divide.

Migration

Time spent with virtual selves can take away from time spent with real selves. At each moment, players decide which self to spend time in. People who have difficulty getting what they want out of their real selves will turn to virtual selves in higher percentages than people satisfied with what they have and who they are. As Castranova writes, people migrate toward the realities that best meet their needs:

Whether the synthetic world grows does depend on the nature of the experience within it, but, critically, it also depends on the nature of experience here on Earth.

People will go where things are best for them. It is an issue of migration. (71)

Some people may turn to virtual worlds for wealth or status closed off to them in real life. After work, the janitor may prefer to feel a little bit like a superhero. Others, however, may turn to virtual worlds as a better tool for maintaining both real life and virtual world relationships. Castranova writes, “Growth [of synthetic worlds] will depend on whether avatar-mediated communication is better than its competitors at facilitating the interaction that humans want to have” (68). Using these tools to improve communication undercuts the idea of migration by suggesting dual residency between the real and the virtual instead of emigration from the real. People currently engage in both uses. Some can't leave their real selves behind fast enough, while others enjoy the added dimension of maintaining multiple kinds of selves.

The search for meaning drives some people to leave real life behind and others to integrate what virtual selves have to offer into their existing selves. Castranova, drawing on his economic background, writes, “Catastrophic economic conditions do not explain high suicide rates as well as catastrophic collapses in economic ideology: a loss of the meaning of work” (273). Before people had access to virtual worlds and selves, emigrating from real life meant suicide or living alone in one's imagination. People sometimes took these comparatively more drastic escapes when they failed to find meaning in their primary activities in real life. People who abandon real life as much as they can in favor of virtual lives have probably failed to find meaning in reality. People who have found meaning in reality will more likely choose to enhance that meaning with virtual experiences, striving to integrate the two.

Players can sometimes more easily find meaning in MMOs because they feel more egalitarian than real life. So much about life we can't control defines our opportunities. To compensate, we may search for domains in which we have more control, and in which starting conditions seem fair. Castranova writes, “If (and only if) everyone starts with the same opportunities, the same amount of money (usually none), the same ability to choose roles and character types, then the resulting inequality is not taken to be unfair” (114). Games can make the struggle for status -- the same struggle we have in real life -- feel fun through fairness. By changing our perceptions of these challenges, games set us up for more success than we might achieve in real life if we are already discouraged there.

Migration in Labyrinth

The fairness of the game world increases personal relevancy and promotes self-exploration. Every player begins on equal footing, and through increasing mastery distinguishes herself. This equal footing helps players understand and respect the accomplishments of others, increasing social relevancy. It also helps players feel good and there virtual selves, free from resentment and jealousy of the spoils of inequality. This increases self presence and personal relevancy.

Persistent worlds like MMOs encourage players to invest in constructing selves within those worlds. Players know the world will exist for a long time, and any progress they make now will increase power and possibilities later. Players can join guilds and build social ties that will last for years within the game. *Labyrinth* provides a much shorter play experience. It has a story with an end and a limited amount of puzzle content through which to play. In other words, the game does not persist indefinitely. This decreases personal and social relevancy significantly, since players know they can't keep their progress forever. It decreases self presence, since players distance themselves from transient, less personally relevant selves. You can't immigrate to a transient world; that's just taking a vacation.

Finally, and perhaps most significantly, *Labyrinth* does not support a sufficient range of activities to encourage migration. The range of activities available in most MMOs convinces players that, no matter their current mood, they can find an activity in the game to suit it. They can find activities that take several hours at a time (instances and raids) or mere minutes (crafting, auction house), that take all of their attention (player versus player combat) or very little (fishing, traveling). These worlds become lively spaces, Steinkeuhler's *third places* (2005, 2006), and encourage players' expectations that they can visit these worlds at any time to reconnect with their virtual selves and social networks. *Labyrinth* does not support this kind of play. No two or three design changes could have transformed *Labyrinth* into this kind of game. They are fundamentally different. As a result, *Labyrinth* does not become the *third place*. This decreases every kind of presence and all mastery motivators. *Labyrinth* could not have been an MMO with its budget, but someday a game will come along that does what *Labyrinth* does well and combines that with design choices that turn it into a third place.

Starting Fresh

In real life, people can get stuck in ruts. When we first enter a social situation, we set expectations for future behavior by the way we perform our identities (Goffman 1963). We can set expectations in many ways at first, and with diminishing range over time. Once we have set expectations, we feel compelled to meet them in the future. Short of leaving that social situation behind and associating with new people in a new context, we can have extreme difficulty leaving old roles behind. When people become stuck in roles that no longer suit them, with little hope for change, they disengage from the system of expectations that keeps them trapped. For any environment, virtual or real, to stay relevant, it should allow people the flexibility to start fresh with new roles. It should allow them to remake themselves. For a variety of reasons, finding a new context in real life can feel impractical. Switching schools, jobs, or cities requires tremendous effort. MMOs can make this switch more accessible. Turkle provides an example of a student who was unpopular up into high school, but then had an opportunity to start fresh:

The summer after his sophomore year in high school Gordon went on a trip to India with a group of students from all over the world. These new people didn't know he was unpopular, and Gordon was surprised to find that he was able to make friends. He was struck by the advantages of a fresh start, of leaving old baggage behind. Two years later, as a college freshman, Gordon discovered MUDs and saw another way to have a fresh start. (189-90)

Gordon found ways to switch roles both in real life and online. However, the real life changes he made -- a summer in India, going to college -- had such high costs associated with them that he could only effect these changes infrequently. With MUDs, he could switch roles frequently, experimenting with different constructions of self. Since finding one's preferred self requires a good deal of trial and error, the more opportunities for experimentation he has the more likely the experimenter is to construct a preferred self quickly or even at all.

When people do construct their preferred selves, they want to keep them. If they fail, they want to start fresh. Castranova writes, "Those who have good reputations can make use of them in many places. Those who do not can still start over" (92). The ability to make use of a good reputation in many places adds personal and social relevancy to investments in those selves. That potential reward inspires those who have not yet achieved it to continue remaking themselves until they do.

MMOs both reward successful selves and allow players to start over. I can create a new avatar whenever I wish. I can join a new guild. I can take on a new role (class). I can maintain several avatars or abandon the old for the new each time. However, MMOs could do more to help players achieve successful selves. When I start fresh, I probably only want to make some changes. I may want to switch roles or join a new social circle. However, I probably don't want to lose all of my money and experience and other representations of mastery. If I earn \$1 billion in the real world, I can take that money, switch careers, and still start near the top. MMOs make this very difficult, requiring players to throw away much of their investments in previous characters when they start anew, especially if they want to switch servers to play with different friends. MMOs that allow players to maintain both mastery and flexibility will do better at motivating players to invest in avatars in the first place.

Starting Fresh in Labyrinth

As *Labyrinth* encourages players to keep their puzzle solving selves after the game, it encourages them to leave behind their classroom selves. We presume that in any middle school classroom, students will have impressions of each other that restrict everyone's behavior. People may belong to different cliques. Some people may have histories of appearing better at math than others in the class. Some students' selves may even depend upon appearing to not care for math. *Labyrinth* helps students leave all of this behind when they entered the game. The game splits the class randomly into teams, and no player knows who the others on her team are. This anonymity removes the expectation that students will conform, adapting their behavior to fit previously established roles, freeing them to experiment. This freedom creates personal relevancy. It also creates self presence, since, freed of expectations, players may feel more like themselves in the game than they do out of it.

Labyrinth allows players to specialize their skills and advancement, but does not require specialization or lock them in once they have specialized. Most MMOs base specialization on a class system, driven by combat. Players choose when they create their characters whether they want to deal damage, absorb damage, or heal damage. This dynamic forces group collaboration, since no one player can competently perform all combat functions. Group collaboration increases social relevancy and visibility. It also prevents players from experimenting with different selves. Traditionally, players wanting to experiment with a different class must begin with a brand-new character. Furthermore, since the primary means of making a character more powerful is investing time, getting the new character up to a higher level can feel like a waste of time, or, in MMO terminology, it can feel like a grind. *Labyrinth* has little or no grinding, increasing personal relevancy. *Labyrinth* has no class system. It also has no combat. Players specialize by choosing which puzzles they want to master first. If team members specialize in different puzzles, and if puzzles are sufficiently challenging that team members must rely on each other's guidance to progress at an acceptable rate, everyone maintains social relevancy. However, players who don't forge their own path through new puzzles may find themselves not contributing to the team's forward progress. Since players don't commit to a class at the beginning, or ever, they can always change specialization midstream. Since there are only a limited number of puzzles, though, players may not find unexplored puzzles for which mastery has social relevancy within the team. Teammates may have already mastered every puzzle, so they don't need additional strategic contributions.

Starting fresh with a new character is harder in *Labyrinth* than in MMOs. *Labyrinth* doesn't restrict players within a class system, so they have less incentive to abandon an existing character to start fresh. However, if players earn poor reputations within their teams for unhelpful comments, they may want to start fresh. Unfortunately, starting fresh places them well behind their teammates in terms of solving puzzles and freeing pets. Furthermore, since the game restricts team sizes to six players, a newcomer in the middle of play may be treated as an outsider. Finally, since many times classes in school will play the game together, there will be too few players to provide anonymity through obscurity. If one player quits the team and another joins shortly after, most likely they are the same player. Even if the game doesn't formally preserve the player's reputation after he quits and rejoins, teammates who identify him will remember. In MMOs with thousands of players, players can truly start fresh when they create a new character. This major restriction keeps players from experimenting with selves. On the plus side, players may less frequently behave antisocially. On the minus side, players who do behave antisocially may feel compelled to continue in that role. Playing online, disconnected from the social confines of the school, allows more potential teams to join and greater ability to start fresh. However, many players in schools may not have this option.

Integrating Multiple Selves

Most people have multiple selves. Most people have multiple real selves, and those with virtual selves have multiple of those, too. Most people have an innate desire to have one primary self or experience one of their selves as primary, even if they have multiple secondary, situational selves. The primary self may not have qualities of some

of the secondary selves that one might like to promote to primary status. Thus, we have the challenge of how to integrate multiple selves, or at least components of them.

How can we integrate multiple selves? Turkle proposes that simply switching between two selves repeatedly strengthens each self's access to components of the other. She tells of her different personalities when speaking French versus English, and how she blended the two over time:

My mother died when I was 19 and a college junior. Upset and disoriented, I dropped out of school. I traveled to Europe, ended up in Paris. While the English-speaking Sherry had little confidence that she could take care of herself, the French-speaking Sherry simply had to go on with it. On trips back home, English-speaking Sherry rediscovered old timidities. I cycled through French- and English-speaking Sherrys until the movement seemed natural; I could bend toward one and then the other with increasing flexibility. When English-speaking Sherry finally returned to college in the United States, she was never as brave as French-speaking Sherry. But she could hold her own. (209)

Most people access at least one of their real selves every day. On days that they also access virtual selves, they switch between two or more selves. This simple act of switching back and forth may allow players to take aspects of themselves from games back to their real selves. Continuing Turkle's example, players with timid real selves may gain confidence through competence in game situations and take some of that confidence back to real life. By allowing players to access virtual selves from mobile devices, they can more easily and frequently switch between real and virtual selves, facilitating integration.

Virtual selves should integrate better with each other. Especially when players have multiple avatars in the same MMO, the game should acknowledge their expertise in multiple roles and reward them accordingly. This change is technically simple and feasible to design. Designers must simply identify and acknowledge the importance of integrating fractured selves in the same world.

Integrating Multiple Selves in Labyrinth

By the time the team completes the game, players will probably know who all their teammates are. Through the course of the game, players may want to play synchronously, and maybe even side-by-side. This requires coordination and potentially doing away with anonymity. Also, as players get to know their teammates better, people may start to ask who everyone is on the message board. Finally, if there is any sort of competition, the winning team will probably want to congratulate itself in person. In short, many circumstances could lead to an unmasking. Players need the most flexibility for self experimentation near the beginning of play, when they feel most uncertain about who they want to be in the game. Early-game anonymity may give players sufficient flexibility for this experimentation. Later-game unmasking could encourage players to revert to their off-line selves, or it could help them integrate their game and off-line selves better. Unmasking at the end of play could help players see themselves and each other in new ways. Depending whether unmasking pushes players back toward their off-line selves, losing anonymity can either increase or decrease self presence. Players who find their game selves accepted by classmates, post-anonymity, may have much less difficulty integrating online and off-line selves. This would increase self presence, as

players feel more license to be their virtual selves. This would increase personal and social relevancy and social visibility of mastery, too. People generally feel significant personal relevancy of their real-life selves, so the closer virtual selves connect with real-life selves, the more personally relevant they feel. Less anonymity increases social relevancy and visibility, as well, because now classmates know who their teammates are. Whether classmates have friendly, voyeuristic, or antagonistic relationships they care more about whether classmates succeed than whether strangers do. In some cases, increased social visibility without anonymity may encourage classmates to “put each other back in their places,” discouraging self integration. In that classroom, students likely sense the relative safety or danger of losing anonymity and stay cloaked.

Labyrinth's lack of real-time, one-on-one chat limits self-construction play. Some players may use instant messaging to communicate with teammates, but, unless they create special account just for the game (which they likely won't), using instant messaging erodes anonymity. Eroded anonymity makes players feel more forced to conform to past behaviors and less free to experiment. If players simply use the message board to communicate, they can't have one-on-one conversations. Private conversations feel safer for taking newly-constructed selves for test drives. Some players may never make the leap to group performance of a new self. Likewise, real-time chat allows a player to develop a rapport with a teammate quickly that encourages self-construction play. Even private, asynchronous chat (like e-mail), can take on a more formal quality that discourages experimentation. This lacking feature limits self presence, since players have fewer opportunities to perform new selves. It also limits copresence, because real-time communication makes players feel more together and accessible. It limits asynchronous social presence, because private, real-time communication helps build a rapport that carries over into asynchronous communications. And, it limits social relevancy and visibility of mastery, because players feel less like a team and feel more hesitant to engage in “trivial” communications that increase visibility. All of these effects in turn limit personal relevancy. In summary, *Labyrinth* learns from some, but not all, of these lessons of self construction.

Chapter 5: Extending *World of Warcraft* to Mobile

This chapter looks at the *World of Warcraft* through the lens of the theories introduced earlier in the thesis. Using this framework, I show how extending *WoW* to mobile can enhance the player's experience. I will suggest a small subset of potential changes that best support a mobile extension. I'm using *WoW* as a starting point because it is currently the best-known game of its kind and therefore best suited to help illustrate and communicate changes to an existing design. I'll discuss topics such as player versus player combat, the auction house, and communication.

Communication

Communicating with other players is an important component of any MMO. Communication allows players to socialize and feel together in a virtual world. Players can communicate in several ways in MMOs. They can text chat with each other in real time. They can post on the games forum's asynchronously. They can send each other mail asynchronously. They can use emotes that make their avatars clap, dance, bow, etc. they can engage in an activity that's visible to others, like travel, combat, and fishing. In short, players have many ways with which to facilitate communication.

Voice Chat

Mobile can extend that communication, allowing players to feel present more frequently or continuously. We can extend certain modes of communication to mobile more easily than others. With the limited textual input bandwidth mobile provides players, voice chat may connect players best. Some games, like *Eve Online*, support VOIP chat (Internet telephony) within the game. In games that don't support VOIP, dedicated guilds have long used separate software (Teamspeak, Ventrilo, Skype) to achieve the same purpose. In an MMO, voice, more than text, helps people

- share information quickly
- feel closer by hearing tones of voice and laughter
- feel present

Not coincidentally, voice communication is also a major feature provided by cell phones. To pull mobile players into the game, let them stay in voice contact with their group or guild while away from the PC. They will feel on equal footing with their teammates on PCs, since both platforms provide robust support for voice. Voice chat, more than anything else, enhances copresence. Support for voice mail could enhance asynchronous social presence.

Unfortunately, voice chat can decrease presence and ability to self construct. Physical presence, dependent upon maintaining the validity of the virtual world, can quickly dissolve when players' voices undermine role-playing and the world's fiction. An accent or vocabulary not evident in text chat can come out through voice. Hearing other players voices decreases primarily physical presence, but using one's own voice can decrease self presence. MMOs provide flexibility in experimenting with different constructions of self, but that flexibility depends upon leaving other selves behind.

Bringing one's voice to a new self may bring other elements of the real self along, too, constraining the range of experimentation available.

We can keep voice from constraining self-construction by masking players voices with audio filters. These filters can make players sound like the opposite gender, like a robot, or like a monster. Orcs could have guttural voices. Undead could have wispy voices. Night elves could have rich, smooth voices. These audio filters would do nothing to reduce incongruent day between vocabulary and fiction, but changing the sound of the voice would help significantly.

Some people will prefer playing games with voice chat and others will prefer games without. The market can support both kinds of games. Individual games can attempt to cater to both audiences by providing robust controls over voice chat. Players must be able to easily mute other players temporarily or permanently, individually or as a group. Some environments, like taverns, could always involve voice chat, while others, like libraries, might never allow it. This transition could actually enhance physical presence, as players feel the impact of moving through space on the types of interactions allowed.

Text Chat

Text chat constitutes most communication in *WoW*. Players type questions and comments to each other almost continuously. Players also automatically join chat channels as they enter new spaces -- channels for commerce, defense, and group organization. If they belong to a guild, players see that chat as well. In order to feel copresent, players logging in from mobile devices would need access to all of these chat channels.

Mobile allows players to read text fairly easily, but it hinders text input. Most cell phones simply have a number pad, which can be used to enter text by “triple tapping” keys -- repeatedly pushing the same button until the proper character appears on the screen. While many mobile users are already adept at triple tapping for texting, the process still wastes time, precludes longer form conversation, and can cause repetitive strain injuries. If triple tapping is a player’s only form of inputting text, he will feel frustrated and cut off from socializing in the game.

Some mobile devices have full QWERTY keyboard. The keys on those keyboards are small and close together, as some people have trouble hitting only one key at a time. Still, players can much more quickly select a key on a QWERTY keyboard than they can produce the same character using triple tap. This input mechanism could allow full text chat participation from mobile players. Most mobile devices don't have QWERTY keyboards. More and more devices have them all the time, but there may always be some segmentation. When gaming becomes an important selling feature for a more players, though, people who want to access MMOs from their cell phones will probably opt for devices with keyboards.

Voice recognition could also allow players to input text quickly without relying on keypresses. Cell phones already use voice-recognition for hands-free dialing and menu navigation. Their voice recognition capabilities can't handle



free text input at this point. Cell phones don't have the processing power or memory required to do full voice-recognition. However, they may have this power in the near



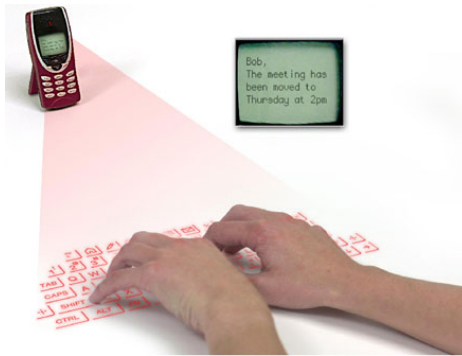
future. I have written this whole thesis with voice recognition software, so clearly free text input is possible. Unfortunately, voice recognition requires space where players can make noise. This severely limits the situations in which players can log into the game and expect social interaction. It also confuses players already in the game who won't know whether the person who just logged in can chat or not. Voice recognition, at best, would supplement another technique for entering text

silently.

Mobile users can also employ small, detachable keyboards or even projected keyboard where a camera detects finger position on an ordinary surface. Both of these solutions unfortunately require users to be seated and stationery, probably with a fixed surface in front of them. Again, this requirement makes use impractical for many situations in which mobile users may want to play *WoW*.

Some multiplayer games targeted at children disallow free text input for privacy and safety. These games sometimes allow players to chat with each other by selecting

preconstructed same approach quickly enter text sentences. This opportunities for limiting creative copresence by time.



sentences. *WoW* could take the for mobile users, letting them by choosing from a set list of would cut off most self construction by severely possibility, but it would enable letting players interact in real

the best solution

emphasize mobile players as consumers of information rather than producers, at least for text chat. After all, players can easily read silently, quickly, and without the need for a stationary, flat surface.

Sacrificing copresence, for the near future may be to

Status Updates

Given that mobile can deliver information quickly and efficiently to players, what kind of information do players want to access through mobile? Players want access to all of the chat going on in around them in their zone, guild, and party. They should be able to see all chat, even if they can't easily participate. Also, provide an automatically generated text channel specifically for mobile players that summarizes group members' activities at a high-level. For example:

- JoeBigSword creates an auction (Boots of Prettiness)
- MagicUser learns a new skill (Fireball of Hotness)
- [ALL] party enters instance (Molten Core)
- [ALL] party enters combat
- JoeBigSword dies
- MagicUser resurrects JoeBigSword

MagicUser levels up to 58!

...

Players could set this activity summary text channel to only show messages of a specific level of significance or higher. A player who is devoting all of his attention to the game may set the channel threshold to its lowest setting, showing every combat move and every tradeskill item creation. A player who wants less frequent updates could set the channel threshold to its highest setting, showing only player deaths, guild member connects/disconnects, and level ups. I can read only the highest rated comments or half of the comments or all of them. The web community *Slashdot* gives its users a similar feature, allowing them to filter comments based on ratings. This simple customization does take some effort on the part of the player to understand and customize. About half of Slashdot readers don't take the time to customize the ratings fell through. The average preference for users who do customize channel filtering could be applied back to players who don't customize, according to their reading or play patterns (Lampe, Johnston, and Resnick 2007).



In addition to all of this real-time information, players also want access to other kinds of information that get updated frequently. Players want to browse profiles of each other's avatars and see what's changed recently, just as they do with MySpace and Facebook now. Profiles increase asynchronous social presence by letting players



consume and interact with interesting social information on their own time. They also increase self presence by adding weight and permanence to players' alter egos. Players can engage in this kind of interaction briefly or continuously, and repeatedly, and they can start and stop at any time. Profiles should include screenshots players consider relevant or interesting, a log of activities that advance them through the game, like leveling up, a list of events they plan to engage in soon, like doing raids and instances, who has joined and left guilds and other interest groups, and most other information found in cutting-edge social networks. All of this information should be aggregated through some RSS-like news feed, as Facebook does. As social networks become increasingly relevant for our real-life personae, virtual personae without social networks at worst seem invalid and at best seem obsolete.

MMOs should support one master profile for each player which links to or contains separate profiles for each of the player's avatars. Players don't want to feel that they are abandoning a cherished avatar when they start a new one, so each avatar should have its place in a social network. Players may want to abandon a previous self and start fresh, so all avatar profiles should have an option to be made invisible.

As fun and useful as players would find browsing profiles from mobile, these profiles would serve an important function for PC players as well. They could help support community. As Wellman writes and Rheingold summarizes, community comes from networks. MMOs traditionally support groups, not networks, limiting community. Rheingold writes:

One of Wellman's claims is that "we find community in networks, not groups." He explained that "a group is a special type of network: densely-knit (most people are directly connected), tightly-bounded (most ties stay within the densely-knit cluster), and multi-stranded (most ties contain many role relationships)." (56-7)

WoW, and most MMOs, do very little to enable networks, focusing instead on groups. For instance, players should be able to market their unique skills to all other players. If a guild needs to fill a slot for a raid -- maybe they need a healer who can ward against Fear -- they should be able to go to a classifieds listing or social network of the freelance services of highly-rated players. They should be able to browse and search profiles, evaluating potential hires based on experience (dungeons completed), gear, success/failure ratios, ratings from past teammates, current online/off-line status, and asking price. The fact that there is no easy way for guilds to fill these holes means there is no viable role for freelancers. Thus, members of groups remain connected with each other and more disconnected than necessary from relevant strangers.

Players want to access status updates on changes that affect gameplay. They want to list, bid, and check on auctions. Some players will want SMS messages sent to them when auctions succeed or fail, or when a tracked resource gets newly listed. For many

players, the auction house represents the perfect mobile interaction. Checking the status of auctions brings interesting, actionable information quickly but with little time pressure. Players can complete the interaction of checking their auctions using only part of their attention, allowing them to do so



frequently and in many situations. In making *WoW* mobile, we should discover and invent several similar activities with different time frames. Players may not want to check on the status of 10 activities all the time, but they may enjoy checking on the status of one activity every few hours, another activity every day, a third activity every week, and a fourth activity every month. Some activities should probably not be on regular timetables, like receiving mail (probably an SMS alert), so that every time the activity occurs the player is pleasantly surprised. All of these kinds of interactions drive player interest back to the game world continually, increasing personal relevancy, self presence, and both kinds of social presence.

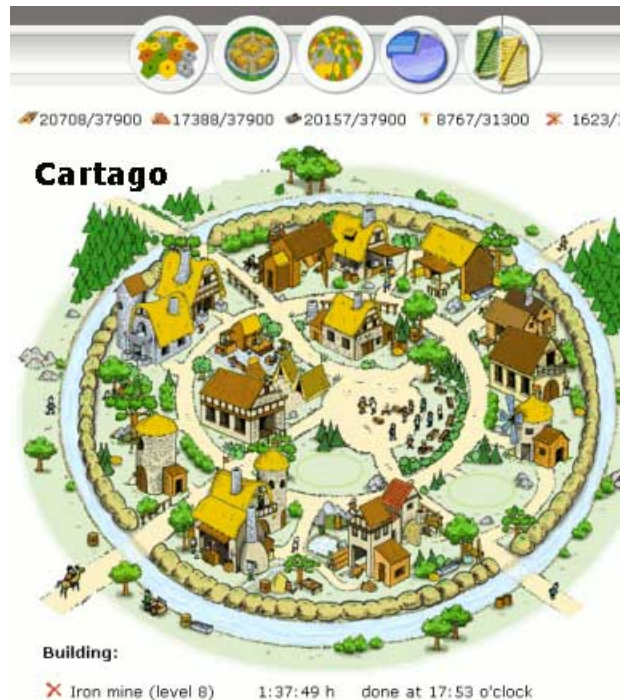


Some designers have created MMOs around the principles of driving players back to the game repeatedly to check for status updates. The textbased, mobile and web cross-platform MMO *The Violet Sector* does just that. Teams of 50 or so players compete with other teams for control of a space sector. Teams win or lose based on their strategies, which all players

can help negotiate, and based on attendance. Players get five action points that they can spend every three hours, and they lose unspent points. The more players on the team login to spend their points in accordance with the team strategy, the better the team can compete. Everyone feels useful at predictable intervals that drive play patterns. Players log into the game to check for updated orders from their team leader (who they've elected), and then log back in later to execute those orders. This checking and executing can happen from a PC web browser or from a mobile phone. That players can stay linked in while away from the computer allows them to commit to checking in frequently. If they knew they had to stay tethered to the PC, they likely wouldn't invest in such an activity. Much tension comes from orders that require players to login at a particular time. For instance, in order may direct players to attack the enemy in a particular zone at a particular time. The players online at that time take shots at the enemy. Frequently, the attacking team may find itself unable to completely destroy an enemy ship, but if only a couple more players would login they could finish the job. Sometimes, another player or two does log in and saves the day. Those kinds of moments reinforce for all players the importance of attendance, and each player feels crucial to the team's operations.

The Violet Sector had limited appeal due to its low production values and frequent required check-ins. Only some segment of players willingly checks the game status for updates multiple times every three-hour window. However, most players would probably willingly check game status updates less frequently. MMOs should provide a range of activities with different required time frames to appeal to different players. If designers make these activities mutually exclusive, players will have to choose which they engage in. Players who willingly invest more time more frequently will probably choose the activity that requires the most time and frequency if the game sufficiently rewards them for that activity. Players who only want to check in every so often can choose the activity with less time requirements (but also less reward). All such activities can complement each other, such that players to invest more time still depend upon the players to engage in the activity that requires less time. This sets up a dynamic where everyone feels useful but can still engage with the game on her own terms. This increases personal and social relevancy, and asynchronous social presence. Synchronized check-ins like order execution in *The Violet Sector* increased copresence as well. And, all of it increases non-transporting physical presence by making the world feel more alive and valid.

Another game, *Travian*, allows players to build up resources slowly over time. They may only build up enough resources during one day to take one action within the game world, resulting in 10 or so minutes of play.



does not require appointment gaming, so players can check in with the game world whenever they choose. However, it does build up increasing enticements for players over time that encourage them to check in. Resource accumulation alone brings players back, as they want to spend those resources to maximize growth within their cities. They also want to spend those resources because they can only store so many at one time, and excess resources will get wasted. Anxiety builds up over time as well. At any point, one player can attack another players cities. It takes time for troops to move from the attacking city to the defending city, and during that time the defending city receives warning that an onslaught is on the move. If players check in frequently, they can observe incoming attacks and prepare. The longer a player goes without checking in, the higher the likelihood that he will miss opportunities to defend against attacks. This dynamic increases personal relevancy, too. It reduces copresence, but increases asynchronous social presence as players must prepare to respond to the actions of opponents.

Both of these dynamics that drive player desire to check game status, from *The Violet Sector* and from *Travian*, could help *WoW* integrate compelling mobile play as well as increasing relevancy and presence for all players. Like *WoW*'s existing resting bonus, they drive players back to the game after a certain amount of time because the passage of time alone has increased to the interestingness of the virtual world and the reward for play in it.

Sorting and Rating

People love viewing, rating, tagging, and sorting player-generated content. They love doing it with videos on *YouTube*, with photos on *Flickr*, with portraits on *HOT or NOT*, and with 3D models in *The Sims 2 Exchange*. All of these activities translate perfectly to mobile, since they

- can take as little or as much time as the user desires,
- can be started and stopped at any time with no penalty for interruption, and
- constantly promise a fresh experience.

In addition, these activities provide significant benefits regardless of the platform, including

- letting the user exert influence upon the media he's consuming, and
- informing the system about each user's tastes.

Finally, player-created content reduces costs for the developer, especially over time, and helps to sustain the kind of long-term community MMOs depend upon.

What opportunities for a rating and player-created content exist in *WoW*? Avatar appearance varies significantly from player to player and can be a source of pride. Some players go out of their way to obtain clothing and equipment that looks interesting or



attractive, and most players enjoy observing a range of avatar appearances. A simple *HOT or NOT* interface applied to *WoW* avatars could maintain player attention for a long time. However, players may not care as much about the perceived hotness of their avatars as they do about their uniqueness or creativity. Additional controls for customizing avatar appearance, like *The Sims 2* provides, could add significant value.

Players also enjoy creating machinima videos of their exploits in *WoW*, including PvP, PvE, exploration, and choreography. *WoW* need only provide a central repository and in game access for these videos to begin the viewing/rating frenzy.

Players could even rate quests based on difficulty, interestingness, or reward. They could rate either professionally developed quests or player-created quest outlines. *WoW* developers could then implement the highest rated player-created quests after some time, rewarding the best creators and inspiring the next round of contributions.

Any time players can contribute something that others will see and rate, personal and social relevancy increase. Players will want to contribute their best work, and will strive to become more masterful at producing that work. Also, seeing one's rating change over time creates a new status in the game world that one wants to check in on frequently. Just as blog writers enjoy checking who links to their articles, so too do players enjoy seeing the results of other players praise and criticism. And, seeing feedback increases personal and social visibility of mastery. Players who contribute something that others find valuable will experience increased self presence in the selves based on masterful contributions. They will continue to invest in those selves.

Player v. Player Combat

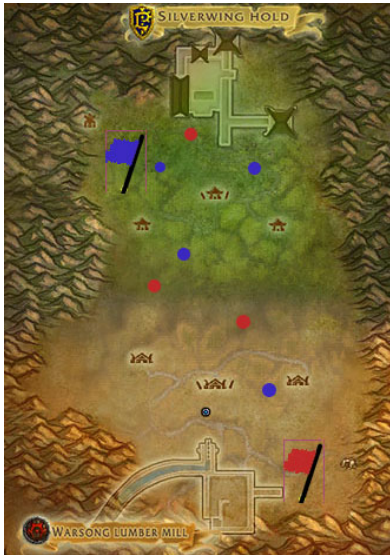
Most of the activities described thus far support mobile extensions because the asymmetric capabilities of PCs and mobiles support, or at least don't hinder, each other. By asymmetric platform capabilities I mean that PCs have mice, keyboards, large screens, lots of processing power and storage, and high bandwidth, whereas mobiles have portability and players always carry them. PvP combat seems to require perfectly symmetrical platforms. After all, PvP relies on reflexes. Even asymmetric latencies or frame rates can cause an unfair advantage for one player over another. Should mobile players stand on the sidelines then during PvP?

If we take advantage of the asymmetries of PC and mobile, we can design an asymmetric activity that includes players on both platforms fairly. Despite traditional PvP benefiting from symmetric platforms, avatar abilities have always varied. PvP generally includes players in a range of 10 levels (20-29, 30-39, etc.) players at the lower end of the range are intrinsically underpowered. Even at the same level, avatars that have rare, expensive equipment perform better than normal avatars. In fact, when players reach the level cap, the main factor differentiating their performances besides skill is the rarity of their equipment. Players stay invested in this competition despite the asymmetries because they know they can always increase their power within this social structure by investing more time into the game. Teams can always increase their efficacy by choosing players who fill the right roles and practicing coordinated combat. In both cases, players feel they have the power to achieve greater success through effort.

Within this view of PvP combat, adding mobile players to the activity with unique roles could maintain perceived fairness. What would these roles look like? They must be significantly different from the roles of PC players, due to the platform asymmetries.

They should minimize dependence on reflexes, compensating for interface and bandwidth efficiencies. They should minimize dependence on graphics, since mobiles have small displays. They should constrain the range of choices, again due to interface limitations, offering players a small set of options to consider at any time.

These design principles lead to a number of possibilities for integrating mobile players into PvP. Mobile players could serve as strategists, guiding their teammates with information and advice/orders about the best way to proceed. Mobile players would need



to provide information particular to the current situation, so teammates couldn't simply read and memorized the best strategies ahead of time. In other words, unless the information provided is **time-sensitive** or **highly personalized**, it may be easily accessible through some web resource like wowwiki.com and thottbot.com.

Certain kinds of information cannot be found there, however, creating opportunities for mobile player to make a meaningful contribution. To strategically coordinate *Battlegrounds* PvP matches, mobile players need access to different information than PC players have already. A mobile player could see a 2D map (like *WoW's* minimap) representing

player locations and movement, flag locations (*Warsong Gulch*, left), and territory controlled (*Arathi Basin*, right). Using this map, mobile players could determine weak points in their teams' and their opponents' teams' defenses. They could advise what the best plan of attack might be. They could order particular players to adjust position or ready certain spells. They could advise which controlled territory may soon be lost and which territory might be easily taken.



All of this advice requires communication within teams. Mobile players could make the largest contribution with high-bandwidth communication like voice chat. Visual aids like drawing circles and arrows on teammates' minimaps could help as well. Even just bringing teammates' attention to a particular spot on the map could help, as in *Warcraft III*.

In addition to providing strategy, players will want to make a direct impact on the battlefield. To overcome the hardware and interface limitations, we will want as little time pressure as possible. Mobile players could deploy features already in the game, like buffs on teammates and curses on opponents. They might get only a limited number of these (like *The Violet Sector* limits moves), or have a long cool down timer requiring them to wait for a while after casting a spell (pseudo-real-time like *Final Fantasy VII*). These constraints would encourage mobile players to think more strategically and rely less on reflexes. Along these lines, the buffs and curses should last longer and be weaker than those cast by PC players, again to emphasize strategic thinking and compensate for latency.

Given the rate at which players get killed on the battlefield, even strategic buffs and curses wouldn't last long. Mobile spells could last beyond death, so that the whole nature of the battle slows down from the mobile interaction perspective. Alternately or additionally, mobile players could affect the actual battlefield instead of players. Mobile players could get spells that last for a long time, but affect players only while they stand within a certain area. They would need to redeploy these spells to different areas as strategic needs change.

Perhaps only mobile players could affect other mobile players. They could get spells that undo each other's effects or take each other out of play for some amount of time (as death does with PC players). They could mislead each other with false information on the strategic map. In other words, to make mobile players more relevant to both teams, mobile could counter mobile more effectively than could PC players.

All of these hooks for mobile players into PvP increase mastery motivators, presence, and self construction. By feeling included in this important and exciting activity in *WoW*, players feel increased personal relevancy. Playing as part of a team in a valued support role increases social relevancy and visibility. Abilities that let mobile players observe and affect the battlefield increase both kinds of physical presence, since players feel more located in the virtual space and experience it as valid. Real-time interaction with teammates and opponents increases copresence, whether through communication or affecting players or the battlefield. Contributing to the team in a unique role strengthens self presence, enabling deeper and more lasting construction of selves.

In spite of all of these benefits, adding mobile players to PvP has one major drawback. PC players may sometimes feel compelled to play with their mobile even while sitting at the PC, simply to obtain the abilities mobile gives them. If one team has a mobile player and the other team does not, someone from the second team may feel compelled to switch from PC to mobile to achieve greater balance. Interacting with the game through mobile with the PC available seems wasteful and could frustrate some players. How do we solve this? Allow PC players to take on the same role as mobile players from their PCs. The role, by its nature, is limited by mobile constraints. PC players in mobile roles wouldn't get extra information, and their more advanced hardware wouldn't help them perform better. They would simply get to transition roles without switching platforms, and they could view the strategic map in a more attractive but equally functional form. Balancing the mobile role across platforms would take careful tuning, but could practically be achieved.

Single Player

One model for extending *WoW* to mobile that works less well is creating a single player activity that then feeds back into the multiplayer world. *Ragnarok Online* did this very poorly with *Ragnarok Mobile Mage*. The mobile version created a single-player activity where one could build up money to then transfer back to the PC-based multiplayer game. Because the mobile game was so poorly designed, I can't rule out the possibility that a well-designed version could strengthen mastery motivators and further enable self construction. However, the possibilities for that seem limited.

WoW supports many activities that require only one player but take place in a multiplayer space. The game's designers could have reduced bandwidth requirements by

making all of these activities entirely single player, cutting players off from each other. However, they understood the value of feeling as though other players are nearby and could observe or interact with you at any time. They understood the value of social presence, especially copresence. By making the mobile activity single-player, copresence disappears. If designed properly, asynchronous social presence could persist.

Disconnected, single-player mobile play could add value in the short term. It could reduce costs and allow play where a connection cannot be established. However, without those external obstacles, which lessen every year, the ideal design includes constant connection.

Conclusion

These are just some of the ways in which *WoW* could be extended to mobile. The first MMO to achieve a polished experience with these or other mobile aspects will create a system in which players can construct more meaningful selves. Players want this badly.

Chapter 6: Conclusion

WoW and *Labyrinth* have many common and also different features. They achieve different experiences around mastery, and it's worth analyzing why.

Comparing WoW and Labyrinth

WoW and *Labyrinth* strengthen mastery motivators in different ways and to different degrees. On the one hand, *WoW* provides a persistent world and social relevancy and visibility that *Labyrinth* can't. On the other hand, *Labyrinth* does not contain activities that simply reward an investment of time (*grinding*, or the *treadmill*). As a result, *Labyrinth* does a better job than some of the activities in *WoW* at creating personal relevancy.

WoW makes progress more personally visible than *Labyrinth* does. *WoW* gives players explicit levels, and makes all progress countable. *Labyrinth* does give players scores and reputation, but they carry less weight. Players' interactions with each other do not hinge upon each player's score, though those interactions may be affected by reputation informally. In *WoW*, players often think of themselves by their level and class: "I'm a level 47 priest." Players of *Labyrinth* don't think of themselves in the same way by their scores, though they still enjoy seeing the scores increase.

WoW creates significantly more social visibility than does *Labyrinth*. Through its 3D, immersive world, it creates a sense of physical presence and copresence that *Labyrinth* cannot match. These increases then strengthen social visibility, since the more players feel they are spending time *together* and in an actual space the more they notice details of progress both small and large. *Labyrinth* does create an opportunity for heightened social visibility by encouraging and allowing people to play together at the same computer or any two nearby computers. This is where *WoW* has an opportunity to make up the deficit by extending some of the gameplay to mobile.

WoW creates social relevancy more powerfully than does *Labyrinth*. The heightened visibility contributes to social relevancy. But come a more powerfully, *WoW* forces players together. And *Labyrinth*, particularly competent players could feel as though they could complete the game on their own. Because *WoW* uses a class system, players know that they depend on each other's assistance for the games more advanced activities. *WoW* gives players the choice at every moment to engage in activities that can be accomplished alone or that require collaboration. *Labyrinth* allows for collaboration, but contains no activities that require it.

WoW creates personal relevancy better than *Labyrinth* through all kinds of presence. The transporting and non-transporting physical presence allowed by the immersive, 3D world strengthen personal relevancy. Real-time group play creates copresence. Features like mail and auctions strengthen asynchronous social presence. But, the opportunities *WoW* creates for self presence and self construction create the most personal relevancy. *Labyrinth* is weakest in these aspects.

WoW creates self presence through its customizable avatars and through physical and social presence. Players can choose many aspects about their avatars' appearances and abilities. This customization helps them feel represented in the world (through choices, if not resemblance to real selves) and increases self presence. Social presence occurs with interactions with other players through these avatars, so the stronger social

presence feels the more legitimacy self presence obtains. Similarly, physical presence allows players to feel their avatars actually exist by giving them spaces in which to act and explore. *Labyrinth* allows players to customize their avatars' appearances somewhat (by picking a mask and color), but much less so. It doesn't allow avatars to take on skills directly, also diminishing self presence. It does encourage players to develop skills, but the competition between the player and her avatar for primary self during play undermines both selves.

WoW creates many more opportunities for self construction than does *Labyrinth*. Its range of activities helps players feel control over the play experience, moment to moment, and allows for many situations in which to experiment with identity. Players can join social networks (guilds, servers) and leave again as many times as they wish, allowing them to start fresh. *Labyrinth* allows this too, but because the range of activities is so limited players may feel like they've experienced everything already and not choose to return. By allowing players to invest in constructing selves over the long term, and to see constant growth during that time, *WoW* encourages players to think of constructed selves as permanent (even if they are in fact temporary). *Labyrinth's* shorter play experience does not allow players to think of their identities as permanent.

In summary, *WoW* provides the infrastructure that inspires and allows players to invest in self-experimentation and construction. It motivates mastery, as represented by the avatar, more effectively than does *Labyrinth*. And, with the changes suggested in this chapter, it has the opportunity to make an even stronger bond with players.

Reflections

Over the next several years, mobile technology will change the way we self-construct. We will rely much more heavily on mobile, using it in almost every aspect of our lives. It will become the hub through which we conduct our social networking, more than it already occupies this role. Over time, it will change the way we think, just as language and writing and computers have. Games will become an even more important context in which we interact with our social networks, and, as our use of the technology reshapes our thinking, so too will we reshape the ways we think about ourselves.

Mobile does have limitations. Especially in the near term, bandwidth will be highly limited, latency will be high, storage and processing power will be low, and battery power will be short. All of these shortcomings will dissipate with time. Small screens and cumbersome interface will remain much longer, shaping our expectations for mobile experiences. In the more distant future, ways of connecting mobile to larger displays and controllers will become more common. Different people have predicted different technologies will fill this role, from USB memory sticks to MP3 players, but mobile shows the most promise. People care enough about its capabilities to invest in upgrading it frequently and over the long term, and they already carry it everywhere.

Mobile MMOs will ride the rising wave of highly-capable, portable technology, tying players into virtual worlds and selves constantly. These worlds and selves will take on greater personal and social relevancy, as whole generations invest time and money in them and base some sense of self-efficacy on their in-game achievements.

This thesis has looked at self-construction based on mastery, but players construct selves based on other aspects of themselves, too. Identities of mastery, though powerful, do not comprise the full range of possible identities players care about. Future research

should investigate how players experiment with seeing themselves as (or not as) moral, loyal, loving, and any number of other qualities. I chose mastery to begin this exploration because games encourage and represent it well already. Future games may represent other qualities.

The mastery motivators discussed in this thesis, likewise, are not the only motivators. Rather, they are the primary motivators of mastery found in games. Future research should examine other mastery motivators, especially those not commonly found in games, to see how including them in game designs can strengthen self presence and opportunities for self construction.

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