Communication and Map Tools for use with the Warsong Gulch Battleground in *World of Warcraft*

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Design Document

Goals

Through this program, users of *World of Warcraft* at all levels of ability will be able to bring together learning from cooperation and competition in a capture-the-flag scenario or Battleground called Warsong Gulch and apply this knowledge into future capture-the-flag scenarios. Learning from cooperation is defined as the ability to learn how to communicate with a team about common goals effectively. Learning from competition is defined as the ability to adapt to changing situations based on opponents' strategies and abilities.

Relevant characteristics of learners

Players of Warsong Gulch should already know how to:

- Play *World of Warcraft* and understand the user-interface of the game.
- Understand the different class abilities their characters have and how to use them.
    - For example, a player controlling a rogue should understand the rogue's abilities and options and the different customizations that are available for a rogue.
- Understand the different roles different character classes take when grouped with other characters of different character classes.
    - For example, a rogue is often included in a party of characters to deal lots of damage to opponents, whereas, a warrior is there to take the brunt of the damage being taken. There are 9 different character classes in the game and each plays a different role depending on the composition of the group.
- Play Warsong Gulch, a specific Battleground capture-the-flag scenario in *World of Warcraft.*

Setting

In *World of Warcraft*, players create a character to control in a virtual fantasy world full of dangerous monsters, exotic locations, and people who need help (http://www.worldofwarcraft.com/info/basics/guide.html). Each player chooses a type of character class to play (e.g. a brawny warrior, a backstabbing rogue, a devout healer). Within the game, there are certain areas known as Battlegrounds where players team up with other players to compete against another team of players. Warsong Gulch is one of these Battlegrounds where players form two teams of 10 and follow standard capture-the-flag rules. In *World of Warcraft*, however, one way of preventing opponents from carrying the flag away is to defeat them in battle.

Learning Objectives

See Appendix A for an overview of the proposed map addon tool and web-based discussion board. With the in-game map tool, players will be able to:

- be more aware of the terrain and their location within the game world
- see the locations of others in the world
- predict where opponents and allies will go
- communicate to each other where they should go next

This will be done through in-game chat and voice chat using the map as a reference as well as through the map itself since players will be able to mark and draw on the map and share these drawings with their teammates.

Players will be able to use an out-of-game web tool between play sessions to:

- communicate different strategies to use for different conditions and future play
- reflect on in-game play
- share and archive the maps for each game iteration

Assessment Strategy

We will take these steps to assess player learning:

- Look at their performance over time in a quantitative way: what their win/loss ratio is before and after the use of the tools. The scores of individual matches (the

game is set up so you have to capture the enemy's flag three times to win, so a score of 3-0 would be a more definitive win than a 3-2 score even though technically they both count as wins).

- Use discourse analysis to look at the way players talk about strategy to each other in-game before and after the use of the tools. We will have to come up with a coding scheme and maybe a ranking scheme. For example, we can look for instances of location talk, situational talk, and yells for help or commands while they play, as well as any instances of "this is what we should do and here is why" talk. Each utterance would fall into one of those categories (and other categories which would emerge from the transcripts), and then we would rank or weight each category to see if the talk is at a higher level (more sophisticated in terms of strategy and reasoning) than before the intervention.
- Analyze how they use the in-game mapping tool to see if the first time they use it differs from how they use it after a few weeks of using it. In other words, see if they can learn to use the tool itself as well as if the tool helps them play the game. The map tool will automatically record a movie of itself which can then be viewed outside of the game. We should be able to see how often players use the map and what kinds of things they draw on the map over multiple game sessions.
- See if they use the discussion board to talk about strategies and to debrief or if they use it for non-task related talk. See if they use maps of the game as a tool to talk about their strategies.

Design

Teaching Strategies:

Given that this is largely user operated, learners will be depended upon to utilize the teaching tools within the program. The instruction is frontloaded into the program, with the users eventually becoming instructors themselves. These will be seen in the following:

- The provided map will give a view of the particular game setting in *World of Warcraft* that is closer and in greater detail than that of the world map provided by the game.

- Because the program will most likely be shared among members of a guild, each player will have the opportunity to act as a teacher for the other users. This is done by sharing maps on the corresponding online message board tool.

Learning Strategies:

Again, the program is user run. Players will need to download and install the program in order for it to run on their version of *World of Warcraft*. Upon doing this, learners will use the program for their benefit in the following ways:

- Through the onscreen map in the *World of Warcraft* environment, users will be able to locate their character on the screen, giving them a more complete frame of reference in the 3D environment (albeit, through a 2D representation).
- Players will be able to "flag" the map with important landmarks (e.g. - enemies, items, hazards) reducing the load on working memory. These flags will be cleared every 5 seconds so players will need to continually update the map tool with new information. This is because location of players continuously changes.
- Through the use of the out-of-game message board, users will be able to upload map recordings and talk about what went right and what went wrong in that particular match. They may also compare them to other maps from other matches. The comparison and contrasts of these maps will allow communication of unique scenarios that come up during gameplay.
- The ensuing discussion of the in-game maps prepares users for similar situations that they may come across in future gameplay.

Implementation and maintenance plan

The implementation of the *World of Warcraft* addon would first require a beta playtesting by a guild of players. This guild would agree to play the Warsong Gulch scenario with the tool at a sufficient level to feel comfortable using it as well as to be able to provide feedback for improvement. After a small series of playtesting and modification at this level, the tool would be made available for public download.

Proliferation of the product - if it is a useful tool - should increase in download and use through word of mouth on the internet. There are many sites that collect and distribute

third party addons for *World of Warcraft*. These sites also typically ask for feedback by users of the tools. Therefore, another source of modification and improvement would be found for updating.

Also, as new patches are added for the game itself, often the tool must be modified to remain compatible with the changes. Periodic testing and updating will be necessary to make sure that the game does not become incompatible with the addon. If the tool is popular enough, it may also be the case that other users will eventually take on the role of maintenance on the coding since addon tools for *World of Warcraft* are simply flat text files where the code in the text files are considered public domain.

Appendix A: User Experience

Our map tool is a piece of addon software to be used during the play of *World of Warcraft*. *World of Warcraft* is a Massively Multiplayer Online Role-Playing Game (MMORPG) where players control a character in order to complete quests and improve the traits of the character. As found on the official web page for the game, www.worldofwarcraft.com:

> *As a massively multiplayer online game, World of Warcraft enables thousands of players to come together online and battle against the world and each other. Players from across the globe can leave the real world behind and undertake grand quests and heroic exploits in a land of fantastic adventure. At long last, the world of Azeroth, first glimpsed in Warcraft I and further enhanced in subsequent strategy games, is realized in glorious detail and ready for the arrival of millions of prospective players. So step upon the hallowed shores of this embattled world, and see what journeys await for those who would plumb this ancient realm's many secrets.*

This add-on software will exist in two phases: 1) as an in-game customizable and dynamic map tool that will enhance the experience of gameplay; and 2) as an external message board layout that will allow users to discuss strategies, post maps, and communicate about the game.

This tool will have a specific range of use in the game, and will not be used during all facets of gameplay. Within the *World of Warcraft* environment, there exists an internal “mini-game” that based on *capture the flag* called Warsong Gulch. Two teams play against each other in this scenario, with each player being controlled by an individual user. The map tool and message board structure attempt to improve the ability

of players in Warsong Gulch, as well as improve their communication amongst each other.

Sample of the original map found in Warsong Gulch (lower right)

The in-game software will attach a button to the normal interface of the *World of Warcraft* environment. This button will allow the user to launch the Warsong Gulch add-on tool when it is needed. While there is no active Warsong Gulch game played, the add-on will merely appear at default in the lower right hand corner of the screen. In this default state, all the user sees will be the basic map add-on tool. The in-game tool itself is split up into parts: the map component on the left side, and the notes and log component to the right side.

Game play view of the in-game tool (lower right)

When a game of Warsong Gulch begins, the user can now see where all allies are located in the area through the map on the left side of the tool. . Further, the ally who is carrying the enemy flag is marked with a special marker on the screen. Movement of players on the map is represented in real time in accordance with gameplay. Moving the mouse over the character icons on the map brings up more information regarding that particular ally (e.g. – name, rank, health, etc.).

Another feature found in the map window of the tool is the ability to mark and flag significant features of the current game. A basic drawing tool allows the user to add lines, arrows, or circles to the map to call out important moments in the game. Also, a

flag mark will be available that users will place and add auxiliary notes that appear when the mouse is moved over the flag. As the case may be, a tool to erase extraneous marks and flags is available to remove clutter from the map window.

In collaboration with the external message board aspect of the tool, the maps are savable. A default save folder will be set automatically and can be altered through the preferences of the tool. The user will go to this folder at a convenient time and upload these saved shots to the message board for further discussion.

The notes and log component of the game is a simple area to keep informed of the workings of the game. The notes area allows for the user to make quick notes during the course of a Warsong Gulch game. The log portion at the bottom right corner of the tool displays relevant events to the battlefield scenario (i.e. – a captured flag, returned flag).

Zoomed view of the in-game tool

The external message board aspect of the tool will be a web-based collection of perspectives from players within the game environment. The most obvious use for this is

found in guilds collecting maps and responses in a designated thread on their respective websites. Users post under the following format:

- Recap: A brief recap of the experience of one or a series of games. Post relevant statistics such as score, length of game, etc.
- Reflection: The user will respond to the recap and elaborate on their personal reflections of the game. This provides a chance for a metacognitive outlook on the scenario.
- Room for Improvement: After reflecting on the game details, the user will report on possible areas of improvement. A particular focus is placed on teamwork within the game, as the battlefield environment is heavily reliant on communal progress.
- Map File: If a .jpg of the modified map was saved, it is pasted into the post. This gives observers some context for replies and suggestions.

As the initial post is made, the form now becomes an open opportunity for discussion by other players who took part in the scenario, as well as those who were outsiders. This is intended to be an opportunity to give and receive constructive criticism for future gaming opportunities.

Appendix B: Theoretical Justification for Design Decisions

In the initial planning stages of this project, there was a common interest in the social interactions found in gaming environments. However, there was a slight difference in the focus of these interactions. Where Mark's interests lie largely in how users work together to advance in games, Alex wondered about how the competitive interactions between users of games affected such progress. The standard gameplay in *World of Warcraft* is largely cooperative in its emphasis on performing quests in groups and the formation of guilds. This addresses the cooperative aspect of gaming, but does not directly concern the competitive interactions between human users.

Fortunately, there is a subset of gameplay in *World of Warcraft* that is specifically designed for competition between human users. The Battlegrounds in the game are areas where players from the Horde and the Alliance, the two opposing factions in the game, play against one another. The specific Battleground of focus for this project is Warsong Gulch. The premise of this Battleground is a capture-the-flag game. In this Battleground, a simple map of the area assists users. This appeared to be a glaring hole in the gameplay for Warsong Gulch, and we saw this as an area to capitalize on.

We decided to develop the in-game map tool in an effort to improve upon the one provided by the game. The interactive nature of the map is built upon the goal of reducing cognitive load for the user (Cooper 1998). The hope is that by marking locations on the map and seeing where peers are, users will use less working memory on remembering these things. This frees up space for concentration on in-game communication as well as strategic development. In an effort to address matters of the improvement of game communication in general, the external message board plays a key

role. Ideally, this discussion of game strategy would develop the innovation and efficiency discussed in *How People Learn* (Bransford, Brown, & Cocking 2000). An eventual progression towards adaptive expertise is an ideal outcome. These skills of increased communication, innovation, and efficiency are seen as skills that are transferable into non-gaming experiences.

In choosing an instructional design, we considered both the Dick and Carey model (Dick 1997) as well as the Tennyson (1997) model. The Dick and Carey model, while appealing at first, did not seem to address the flexibility that we sought in the creation of this tool. Further, the reductionism inherent in the model was not ideal. Breaking down *World of Warcraft* into its finite components would be a long and likely fruitless process.

Tennyson provided a flexibility that Dick and Carey could not. The System Dynamic model is not linear, and therefore our changes in plans still fit into the domains and sub-domains of the model. SD was also helpful in considering the interactions between the in-game tool and the external message board. Assessment and evaluation for these pieces together was a process that involved taking many ideas and slowly shaving them down to the points of interest found in the design document. Ultimately, Tennyson did a good job of guiding us through the ID process. Admittedly, we were unable to find room for consideration of all of the sub-domains in our design. This never appeared to be a vital component of the System Dynamics model, however, and we did not see it as a fault. We applied those principles that were relevant to our design, and we progressed through with few major roadblocks.

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Appendix C: A Tennyson Model to WoW Map Addon Design

Situational Evaluation

Assess problems/needs:

Many players who play Warsong Gulch, a player-vs.-player Battleground in *World of Warcraft*, communicate very little with each other during the battle. As a consequence all of the strategies employed while playing are internalized. Players constantly decide the best course of action for themselves without coordinating their efforts with the team. This happens so often that a team which actually talks or plans things together would have a marked advantage in terms of winning the Battleground.

Assess user population:

The general base of users are players of *World of Warcraft* who participate in the Battleground known as Warsong Gulch. Specifically, we are looking at a group of players in a guild who consistently play the game together and are interested in playing Warsong Gulch together with level 10-19 characters. What is interesting about this group is that they use voice chat to coordinate efforts in game, yet the actual level of communication while playing is minimal even with the added mode of communication. It is possible to acquire actual demographics of this group and compare this sample with the larger player base, but it isn't necessary to compare to a larger population since we are mostly interested in change in communication and strategizing within this one group.

Determine ID competence of author/team:

Mark has designed several Flash games for a science museum, taken several courses on usability and design, and plays *World of Warcraft* over 20 hours a week. He is interested in designing communities with an emphasis on cooperation.
Alex has experience teaching and is interested in the kinds of learning that happens in a competitive setting, especially with regards to online games.

Propose ISD solution plan:

We came up with a theoretical framework for why people are not communicating (cognitive load theory coupled with adaptive expertise), identified two ways of addressing the situation (in-game mapping tool and out-of-game discussion tool), and are using Tennyson's method to design those tools.

We looked at current addons and discussion board practices and decided to design something on top of that since neither tools were designed to specifically address communication and reflective argumentation. There was an addon for Warsong Gulch called Warsong Commander which we will be modifying. The guild we are using already has a discussion board. We will create a specific forum for Warsong Gulch discussion.

Foundations Domain (1,0)

Define educational philosophy and theory of learning:

Everyone has the ability to do well in a given area or learn a skill if given the right tools (cognitive load theory), but the performance plateau for different people is still different depending on personal potential and personal situations (situated cognition). A team that works together understands the strengths and weaknesses of its members (distributed knowledge). Their knowledge and skills may be distributed but, as a whole, they may perform their collective tasks very well. It is therefore important to get them to share common goals so that they can actually work on the same tasks in a critical, reflective manner (adaptive learning).

Define instructional theory:

With the above statements in mind, we designed two tools to help people communicate. The first tool is an in-game map meant to alleviate some of the unnecessary cognitive load while playing the game. Our guess is that communicating in-game is difficult because understanding all of the on-screen elements and activating the hardware interface gets in the way of deeper strategizing and coordinating movement at a more macro level. The second tool is an out-of-game web discussion board meant to allow for reflection and an understanding of each players' skills and a common understanding of team goals and tasks.

Foundation Maintenance Subdomain (1,2)

Prepare and conduct maintenance evaluation:

Both Mark and Alex will be participating in Warsong Gulch matches. Mark will be monitoring the guild and its reactions to the tools under development.

Revise and refine learning environment:

As players become more experienced with Warsong Gulch with low-level characters, it is expected that various strategies will emerge. This is a constantly changing environment. The ability to adapt to your opponents' strategy and to adapt to your team's composition will be important. The tools we develop should allow for constant change.

Foundation Design Subdomain (1,3)

Specify goals/objectives:

We want greater occurrence of in-game communication about player positions, situational circumstances, and strategy on what to do next. Additionally, out-of-game, we want players to talk about how they performed and analyze ways of improving their

performance. Higher performance in this case is winning the Battleground faster and more often.

Specify management system:

Players in the greater *World of Warcraft* community choose whether to use the tools we'll be creating. For the purposes of the study, the players in the guild under study will be encouraged to use the tools, but it will not be a requirement. From those that do use the tools, it should be clear whether the tools have any impact.

Specify delivery system:

The in-game tool would be distributed over the web.

Specify facilities:

It is assumed all players will have PCs or Macs at home which can handle the game and any addons we create.

Maintenance Domain (2,0)

Develop, implement, and operate maintenance system for the learning environment:

Updates to the tool would be done as needed in case of bugs or user requests. After a stable release, maintenance of the tool would hopefully be picked up by the *WoW* player community.

Design Domain (3,0)

Analyze content (curriculum and instruction):

Players will learn about traits of an adaptive learner from the How People Learn framework, most notably, making goals explicitly known so students have the ability to continually self-assess their own learning behavior in relation to those goals. In this case, the explicit goal is to do well in player-vs.-player combat in Warsong Gulch by effectively communicating with each other to work as a team.

Specify entry knowledge:

Players are expected to know how to play the game *World of Warcraft* and how to play their specific characters' classes with knowledge of general roles each class plays and their in-game abilities to help them fulfill those roles.

Specify organization and sequence of information:

The addon we will create will automatically load when players join a Warsong Gulch instance. The tool displays an in-game window which shows an overhead map of the Battleground and the locations of allied players. The window also has an area for textual information about the current battle. All of it is presented simultaneously, and it continuously updates to reflect the events of the battle and locations of players.

The web-based discussion board is meant to be used between play sessions, not while playing the game.

Specify instructional strategies:

A quick line or two of text will be displayed initially within the map tool which reminds players to share information about what they see and what they are doing. No other intervention is planned. We hope the tool itself will naturally encourage communication.

Specify learner management:

[same as management strategy]: Players in the greater *World of Warcraft* community choose whether to use the tools we'll be creating. For the purposes of the study, the players in the guild under study will be encouraged to use the tools, but it will not be a requirement. From those that do use the tools, it should be clear whether the tools have any impact.

Specify message design:

[see Appendix A] We will use the same conventions as used in the regular *World of Warcraft* user interface.

Specify human factors:

[see Appendix A]

Conduct formative evaluations:

[unable to until tool is created and working past the mock-up stage]

Design Production Subdomain (3,4,5)

Develop learner evaluation:

[unable to do until we have a working tool] We plan on looking at player utterances in in-game text chat and in voice-chat. These utterances would be coded based on how timely the information is, how specific it is, whether it is useful, and what kind of information is given (location of enemy, location of self, location of flag, predictions, etc.). We can do this coding with a transcript before the tool was introduced and compare it to one in which the tool is being used and see if there is any sort of quantitative

difference. The actual coding scheme and ranks will not be determined until we have looked at some initial data. We can also qualitatively analyze the discourse to understand the change in communication through the use of the tool.

Conduct formative evaluation of prototype:

[unable until tool is created and working]

Production Implementation Maintenance Subdomain (4,5,2)

Prepare dissemination plan for learning environment:

The addon tool will be uploaded to a *World of Warcraft* addon database website. Player feedback will have the most effect on when updates are made and which features are improved or added. Eventually, other players may take the tool and update it themselves, so the maintenance will not be the sole responsibility of the initial designers.