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## A MICROSOCIOLOGICAL PERSPECTIVE ON NON-VERBAL COMMUNICATIVE STRATEGIES IN MMORPGS

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In tandem with technological advancements in virtual world design, video games have evolved from turn-taking affairs where individuals or groups hoped to clear the screen in record time or better a previous performance, to immersive, interactive environments where hundreds or even thousands of players acting in concert develop expertise in a variety of semiotic domains as they strive to achieve individual- and group-oriented goals. The newest generation of video games, Massively-Multiplayer Online Role-Playing Games (MMORPGs), has exploded in popularity in the past decade along with advances in graphics technology, computer processing power, and the continual spread of high-speed internet access. MMORPGs such as *World of Warcraft* (WoW) are popular virtual environments of epic scope where people engage in distinctly *social* play. MMORPGs are culturally-rich virtual environments that persist 24 hours a day, 365 days a year, and are populated by unique 3-D characters that players control using a computer keyboard and mouse. Players are immersed via linkages between themselves, the fantasy world, and other players in much the same way as in table-top role-playing games (Fine 1983; Waskul and Lust 2004), except that in MMORPGs players are typically displaced physically from those with whom they play. Like table-top role-playing games, one of the main design structures in MMORPGs leads players to level up or increase their character's status, abilities and power through ever more upgraded armor and weapons, fighting skills, and recognition of accomplishments (Bainbridge 2010a; Barnett and Coulson 2010; Klastrup and Tosca 2009).

### ELENA ERBICEANU ON HER METHODS

How do players align their actions in order to achieve collective goals? What role does the user interface play in facilitating this? What kinds of interpretations of objects and events do players make? How do players subsequently communicate meanings to one another? These were the research questions that underlay our study of *World of Warcraft* (WoW), a Tolkienesque, fantasy-based virtual gameworld that has boasted more than 12 million current subscribers worldwide (Blizzard Entertainment 2004; 2011). Using ethnographic methods including participant observation, in-depth interviewing, writing personal diaries and field notes, and collecting audio and video recordings, we participated in the social world of raiding. We had been playing WoW recreationally since 2006 and were familiar with many aspects of the gameworld, having created multiple characters and played them to

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In both genres, players' abilities to improve and progress are channeled through a social filter: "as a player gains in levels, quests become increasingly difficult to accomplish alone, reaching a point where a coordinated group of players is required to move further" (Ducheneaut 2010:135). Unlike single- and multi-player games, MMORPGs remove simple pattern recognition and the amount of time one plays as key determinants of success, promoting instead the ability to engage in successful coordinated action with other players. In MMORPGs, collaborative forms of play emerge through participation in fantasy-cultural milieu where players socialize each other to play in ways that are structured by game designers (Bartle 2003; Salen and Zimmerman 2004). MMORPGs are thus sociologically interesting because of their socially-centered design as well as because of the ways people interact with and through them (see Bainbridge 2010b; Ducheneaut and Moore 2004; 2005; Nardi 2010). And yet, while scholars have attended to concepts such as community, identity, and cultures of play, the microsociological means through which players' coordinated action constructs the social fabric of MMORPGs has been largely overlooked or downplayed. Game and virtual world designers must implement user interface (UI) features supporting modes of communication that facilitate the social activities players engage in. As part of a response to the perceived gap in the literature, this chapter looks specifically at the user interface, how it supports nonverbal communication between the game and the player, and how it facilitates coordinated action among players. Using video-recorded gameplay, screenshots, and interview data, we build upon Mead's (1934) conception of social action as group-oriented behavior comprised of smaller individual acts. We frame the achievement of coordinated action in MMORPGs through analysis of the visual and auditory dimensions of World of Warcraft's UI. Designers and researchers alike may find the analysis useful to implement practically or build upon theoretically, as we discuss how these communicative interface dimensions, which support the collective activities constituting MMORPG gameplay, enhance one another, and thus the potential of computer-mediated social activity itself.

the maximum available level. However, neither of us had more than fleeting experiences raiding. Therefore in October 2009 we went in search of a stable group of players to raid with. Social groups are a generic feature of MMORPGs. In WoW, like-minded players band together to form "guilds," which provide social and technical support to players (Williams, Ducheneaut, Xiong, Zhang, Yee and Nickell 2006). After a couple of weeks of searching and a stint in a short-lived guild, the second author was referred to the leader of an established raiding guild, The Cleaning Crew, and in November, 2009, we were interviewed and subsequently invited to join.

This guild has become a "third place" (Steinkuehler and Williams 2006), a research site, and the locus of our engagement with the game to the present. We joined as novice raid members and eventually took on dual identities in the guild as players/researchers. To research social interactions in an MMORPG, one must actively participate in its culture, for "you cannot observe a virtual world without being inside it, and in order to be inside it, you have to be 'embodied'" (Pearce 2009:196). During approximately 50 hours of play with other guild members between November 2009 and January 2010, we developed reputations as relatively good and trustworthy raiders, which, along with our researcher identities, facilitated our becoming active in guild life. We chatted regularly with other guild members via text and voice chat and, between January and April 2010, participated regularly in scheduled weekly guild raids on WoW's "end game" areas. After three years of casual play, we found the familiar gameworld to be unfamiliar again. Through regular and sustained interaction with guild members we learned to (re)define gameplay from

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## 1.

## RAIDING IN THE WORLD OF WARCRAFT

Although there are many ways to play MMORPGs, successful “raiding” is considered by many to represent the pinnacle. In game lingo, raiding refers to a process whereby groups of players enter the most difficult and challenging areas of the gameworld and, through careful planning and coordinated action among their characters, learn to overcome powerful computer-controlled enemies called “bosses.” Raiding is the ideal version of collaborative MMORPG gameplay and represents the most complex form of simultaneous interactions among players and between players and the game. Unlike other parts of MMORPG worlds, raid areas are intentionally structured so that groups must progress through series of bosses, each with a unique set of abilities and conditions designed to frustrate players’ efforts. No matter how skilled players are, a mistake by a single individual will often result in the group being wiped out and having to try again. Raiding thus requires that players constantly (re)define situations by considering their own knowledge, goals and actions, and by learning to anticipate, interpret and efficiently respond to actions initiated by the game itself, while also taking into account the imagined knowledge, goals and actions of other players. More than any other form of MMORPG play (with perhaps the exception of advanced player-versus-player content), raiding requires that players commit to maximizing their knowledge of character classes and to learning the most efficient methods of play.<sup>35</sup>

<sup>35</sup>Only top-level characters are able to participate in raids, and the “top level” changes over time as the developer releases new content to maintain players’ interest in the game. In WoW, the average time it took a player’s character to achieve maximum in the original version of the game was nearly 400 hours of gameplay (Ducheneaut, Yee, Nickell, and Moore 2006; for a more recent discussion see Lewis and Wardrip-Fruin 2010). Beyond the commitment needed to reach top level, raiding itself is time-consuming, usually requiring 3-5 hours of dedicated playtime per gaming session as well as additional time spent preparing, e.g., reading strategies, watching videos, acquiring food, potions, enchantments, scrolls, and other items to increase one’s offensive and defensive capabilities.

a raider’s perspective, thus providing us with a “doubly privileged form of contact” with the MMORPG and its players (Prus 1996:20).

We collected data through three digital media: textual, vocal and visual. First, we recorded our text-based chat in multiple channels between November 2009 and April 2010 and sporadically afterward, resulting in more than 600,000 words of in-game interaction between ourselves, other players, and the game itself. The chat logs represent naturalistic gameplay interspersed with research oriented discussions and brief informal interviews.

Second, we recorded vocal communications sent through a voice over IP (VoIP) program popular among gamers because it allows talking to replace typing as the primary method of verbal communication. We recorded vocal data from January 2010 through April 2010 for every raid, in addition to other non-raid conversations that appeared relevant to our research questions. For example, if guild members began discussing boss strategies, events from a recent raid, or guild-related issues, we began recording. In total, we recorded 36 VoIP sessions averaging 153 minutes each. Third, we recorded video of raid boss encounters, often from two perspectives, using a video capture program that also records and preserves in-game audio and external voice communication, producing richly layered data. In the end we analyzed 52 videos averaging 4 minutes and 49 seconds. Watching videos of ourselves later (i.e., observing the participant observers) was not only a reflexive exercise, but allowed us a very detailed examination of audio and visual aspects of player interaction. It also facilitated our thinking about player interactions in raids as we could literally watch raid members’

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We have uploaded a video at <http://www.youtube.com/watch?v=BEcs4KZdWGk> to help illustrate some of our descriptions of the UI as they pertain to raiding in *WoW* and suggest that readers pause to watch the video now.

As with most advanced groups in MMORPGs, raids need a flexible combination of players to succeed. That flexibility is shaped by a core feature of MMORPGs—character class. In fantasy MMORPGs, a character class is an archetype such as warrior, priest, or hunter, each of which may specialize in one of several areas of expertise that define the character's primary role. There are three primary class roles in MMORPGs: tank, healer, and DPS (an acronym for "damage per second"). Two seconds into the video [0:02], the user moves toward the flurry of activity on the top of the screen, where there is a paladin (class) tank (role) surrounded by enemies. Tanks, like the military vehicle from which the role takes its name, are heavily armored characters that hold an enemy's attention, or aggression ("aggro"), so that other players can concentrate on performing their roles with minimal interference.

Since tanks take constant damage, they need constant healing. Looking on the right-hand side of the screen, notice two anthropomorphic trees with green light emanating from their hands. These are druid (class) healers (role). Healers are tasked with keeping tanks and other raid members alive. Some healers use powerful single-target healing spells focused on tanks, while others use area-of-effect ("AoE") spells to heal many allies at once. DPS refers to characters that are responsible for damaging the boss. Most player characters on-screen are DPS, including the one recording the video. DPS are typically subdivided into some combination of melee versus ranged and physical versus magical damage. As this description suggests, *WoW* is designed with diverse sets of reciprocal role opportunities during play.

The most difficult aspect of raiding is not eliminating bosses per se, but rather coordinating player action during encounters. Only when players are able to synchronize their characters' respective role performances can they defeat bosses and obtain rewards. Many players will encounter the same boss dozens of times before successfully defeating it. Further, raid bosses "respawn" every week, offering repeated opportunities for groups to hone strategies and build teamwork in order to smoothly progress through the raid area. Weekly repetition results in routinization of interaction where "respective identities and roles [become] essentially given and unproblematic, so that negotiation is mainly a matter of all recognizing the governing occasion or situation" (McCall 2003:331). Nevertheless, due to the random make-up of many raids, and the general complexity of boss encounters, raids continue to showcase the emergent nature of social action, warranting an analysis of the interface through which players interpret and act upon symbolic communications involving the game itself and other players.

In the remainder of this chapter, we look specifically at the technological interface through which *WoW* players interact with other players and with the game. The interactions can be broadly classified as player-to-game, game-to-player, and player-to-player, where the game mediates, i.e., player-to-game-to-player. Through the UI, players receive, transmit, and interpret information in dynamic situations. Our goal is to identify some of the particular bits of technoculture used in these situations, while highlighting the role that they play in mediating social action.

role performances. Finally, we interviewed three senior guild members using the VoIP software, which averaged 85 minutes. The guild leader, two assistant guild leaders, and two high-ranking guild members were typically responsible on a week-by-week basis for organizing raids. We designed a semi-structured interview to draw heavily on their own understanding of the nature of game design, raiding and player motivations to give us a "top-down" perspective on building raid groups and promoting/supporting effective coordinated actions. We analyzed data from all of these sources using a combination of inductive and deductive strategies, relying on open coding and existing literature to develop an understanding of how players utilize various aspects of the user interface in their interactions.

## 2. THE USER INTERFACE

Output devices (e.g., screen, speakers) project images and sounds that compose raid boss encounters, while input devices (e.g., keyboard, mouse, microphone) are the means through which players communicate with the game and other players. WoW's UI (see Figure 18-1) mediates and organizes the symbols that players use in coordinating their actions. Consider the short video extracted from one of our play sessions, where we are engaged with a raid boss named Lady Deathwhisper. The goal of the encounter is to first destroy a magical shield that surrounds and protects her while fending off a series of minions that she summons to aid her, and then to eliminate her. She regularly casts a green, circular area-of-effect spell called Death and Decay, which damages any character standing in it, and randomly takes control of a single player's character, making it hostile to the raid for a short time. That character must be subdued, but not killed, by other players until the effect wears off. While destroying her shield, the raid must also deal with her minions putting a curse on magic-using characters, preventing them from casting the same spell more than once every fifteen seconds. In the video, you can see a group of characters standing and moving around in various directions. You can see projectiles of various colors and shapes moving back and forth between the raid group and its enemies. You can see numbers appear, which represent the damage inflicted by our character on some of those enemies. You can see some colored effects surrounding certain characters and perhaps even notice that a few characters have red writing above their heads, marking them as enemies. Readers familiar with the game might understand that, for example, the healing druid becomes mind-controlled at 0:07 (represented by purple discoloration, swirling chains and character growth) and subsequently gets frozen in a block of ice by an ally. It is hard to say much more because the UI is turned off initially. However, 23 seconds into the video [0:23] the visual UI is turned on and things become quite different. In fact, those unfamiliar with MMORPGs are likely overwhelmed by the appearance of so much information at once. Note also that the audio is muted, so there is still another (hidden) layer of information not being dealt with yet. Still, non-MMORPG players are likely to understand little of what is occurring. Players, however, must learn to interpret this dizzying array of output data from the UI as they play. The UI is more than just graphical; it serves a pragmatic function, allowing players to connect to their characters and thus to “construct meaning and interpret [cues] as a [series of] orderly event[s]” (Hung 2009:7). Without the UI, players would be unable to orient to the situation, losing their ability to interact meaningfully with the game and with one another.



Figure 18-1: World of Warcraft's User Interface with customized content

## VISUAL

Every aspect of *WoW*'s gameplay has a visual component, whether it is the potency of a particular weapon, chatting with friends, or being injured during a boss encounter. For example, the mouse cursor is both a symbol and a tool, similar to that on a typical computer screen, except that it changes shape when the player interacts with different game objects to represent situationally relevant information. The default cursor appears as a gauntleted hand. When a player sees another character, she can quickly ascertain whether it is a friend or an enemy by moving the cursor over the unidentified other. The gauntlet may change to a sack of coins, signifying a friendly merchant, or change to a sword, signifying an enemy (first seconds of video), or to one of a number of other meaningful symbols. In addition to the mouse cursor conveying specific information, it allows the player to target objects in the game world, orient the camera, and so on. Thus the mouse cursor offers one of the most basic parts of the UI that players use to construct a definition of the situation.

*WoW* characters rely on dozens of skills and abilities. For example, a healer has different spells for healing one or multiple targets instantly or over time, or for cleansing diseases or curses. To use a skill or ability, the player pushes a specific keyboard button or clicks the appropriate icon located along the bottom or right side of the screen on the “action bar” (see Figure 18-2). Notice the variety of feedback communicated from game to player that his action was, is, and soon again can be, carried out in-game, beginning at 0:31 in the video clip. The border of the icon representing the ability currently being used illuminates. When this character casts the “Haunt” spell at 0:34, notice its icon (the third from the left on the bottom row) becomes grayed out, meaning the spell cannot be cast again. This gray gradually recedes back into color, signaling its availability for use. Tactile interaction with the mouse and keyboard translates to character actions in the game. Interacting with one object (e.g., a targeted enemy) through the use of another object (e.g., an icon in the action bar) through the use of yet a third object (e.g., mouse or keyboard) is not always an easy task, and novice players especially have trouble making connections between the input commands and their character's actions (Hung 2009). The UI aids in the learning process with visual cues, helping players organize visual data in an orderly way.



Figure 18-2: Screen blurred to highlight action bars locations across the bottom and right side of the screen.

The character portrait is situated in the upper left-hand corner of the screen. It shows a picture of the character's face, health and special energy bars, level, name, and any friendly or harmful effects currently affecting the character. Clicking on any friendly or enemy character brings up a portrait of that target to the right. When a character receives damage or healing, the color-coded amount is displayed on the portrait, and when a character has aggro the outline of the portrait turns red (damage received and aggro are both visible in Figure 18-3). The UI allows players to arrange windows that are condensed versions of the character portraits showing much the same information, enabling players to see the statuses of other players. Healers, for example, need to see such information in order to perform their roles effectively, while other players, such as DPS, only need to see their portrait and that of the targeted enemy.



Figure 18-3: A healer's UI, showing this character portrait in the top left, the character portrait of his target just to the right, and miniature character panes of all other group members below.

Visual representations of actions, statuses and notifications of events provide both obvious and subtle cues that players interpret and act toward. When Lady Deathwhisper casts Death and Decay, a large, circular, green, bubbling animation appears on the ground. A character standing inside the green circle takes damage, visible numerically above its head and on the character portrait. Players must perceive and interpret either the green circle or the flashing numbers (or both) as indicative of damage being taken by their character to act accordingly. One of the first lessons players learn is that “fire is bad.” Here “fire” is symbolic of any harmful visual anomaly on the ground. Watch the players on the left side of the screen at 0:42 when Lady Deathwhisper casts Death and Decay. Players learn that when they stand in these effects, they take damage, die, and are often reprimanded by others for failing to move. Players should be discerning, however, and interpret a red circle with the same animation as a friendly spell, which is harmless to them.

Text, far from relaying only typed messages, has a variety of visual significances. Players first perceive and interpret the color, size and location of text, and allocate their attention accordingly to read and act on it. Players type to each other in chat windows, which work like an instant message service with various “rooms” players can join that are categorized by group membership or location and represented by different colors. Typing “/raid” allows one to type to all members of the raid group in orange text, typing “/whisper” followed by a player's name sends a private message to that player in purple, and so on. Raiders use the

orange raid channel to give instructions, review strategy, and engage in communications that most raiders assign high priority. The raid leader has the ability to strategically place text in a more prominent, central location via a “raid warning,” which bursts onto the center of the screen of each raid member, accompanied by a loud sound. Similar warnings conveyed by a custom game modification appear prominently in Figure 18-3. “If you need to emphasize something, you put it in raid chat. I don’t know why, but people seem to follow instructions from raid chat a lot more than they do instructions from [voice chat]. So, if I have an important point to make, I’ll either put it in raid chat or raid warning...” (Xeky, raid leader interview). The game itself also conveys information to players in the chat window. During boss encounters, various relevant and extraneous conversations co-occur in the raid channel, the guild channel, and in various active private channels. The multi-layered and colorful flow of textual interactions draws players into various roles that may support or weaken situational role performances.

Visual animations are the most persistent means through which the game communicates to the player and the primary, continuous means through which players communicate actions to other players, mediated by their characters. Each animation is symbolic—it must be interpreted and acted toward. When Lady Deathwhisper curses someone, a player must remove it. When she dominates a character’s mind, another player must counter it. These are the most effective responses players may have in these situations, and not responding quickly and precisely leads to characters dying. Players act on the basis of what has happened before and what will happen next, where their character is, where it is going or what it is moving away from, and so on. Game designers intend players to respond to cues given off by boss maneuvers in specific ways, and raid success hinges on players’ responses within boundaries defined by the game rules. Collective responses must be individually learned, communicated to other players visually or sonically, and then practiced together.

## AUDITORY

*WoW*’s designers have implemented game mechanics with equal representational emphasis on visual and auditory dimensions, but because of the genre’s visual primacy (i.e., everyone must be watching the game to play), audio-use is less universal than video. Specifically, some players choose to disable or minimize in-game sound, or to replace it with music. Nevertheless, sound in *WoW* has rich symbolic value, providing information and orientation toward events in which characters’ visibility may be impaired or which occur off screen, as well as supporting what is visible. Two types of audio are worth distinguishing. Game-to-player audio refers to sound files that the software plays in connection with in-game events. For example, when a tank’s shield blocks an enemy attack, the game produces a sound that mimics a sword hitting a shield. Jørgensen (2008) argues that audio works simultaneously “as support for gameplay by providing the player different kinds of information that needs to be comprehended... [and] also by providing an understanding for how the game *should be played*, and *how to behave* in a specific in-game context” (emphasis added). Player-to-player audio, which is vocal interaction among members of a guild, raid, or other group, serves a similar purpose. Players interact with the game’s audio content and other players’ utterances, learning to correctly identify, interpret, and orient themselves to specific audio cues in order to effectively coordinate their behaviors. In other words, neither type of audio is produced or interpreted in isolation; both produce specific, situational meanings. Players without access to audio miss these communicative acts, which can negatively impact their ability to coordinate their actions.

Game-to-player audio tends to complement the role of visual data by providing an additional symbolic resource on which players may draw when defining actions and events during gameplay, though it sometimes fills in informational gaps from lack of visibility. For example, if a player hears the crackling sound of Lady Deathwhisper’s Death and Decay from behind her character outside her field of vision, she can imagine the event occurring and take precaution not to step backward into the spell. If the player does not know what Death and Decay sounds like, or does not know the source of the ominous crackling sound, the next recognizable sound may be that of a dying character. Bosses are vocal in communicating their

actions to players. All sounds Lady Deathwhisper generates are what Jørgensen (2008) calls “proactive... demanding evaluation or action on the part of the player.” When Deathwhisper casts Dominate Mind, she yells, “You are weak, powerless to resist my will!” In addition to hearing this through the computer’s speakers, the message appears in text chat in red letters, ensuring that players who disable the sound are still able to interact with the boss. For each taunt, the game conveys meaning through verbal content, vocal presentation (yelling), and nonverbal color and placement of text. When players hear or read this taunt, they may or may not interpret it as signaling that spell. Players who understand its intended meaning know what is happening without needing visual confirmation, whereas players who cannot differentiate this taunt from Deathwhisper’s other taunts, or do not draw a connection between this taunt and Dominate Mind, will remain unaware of the dominated character if it is out of their visual field. The importance of this interpretational moment is recognizing that utterances (indeed, all sound effects) directly correspond to symbolic phenomena that orient players toward in-game phenomena.

Once learned, players interpret “proactive sounds” Jørgensen (2008) along a hierarchy of urgency, prioritizing them based on their character’s role, the type of action or event the sound represents, and the imagined consequences of the resulting effects on characters. When Lady Deathwhisper announces her Dominate Mind attack with its corresponding visual cues, DPS players should become aware that one of the raid’s members is now targetable for attack. Players must ensure that, as they are switching among multiple targets, they do not accidentally attack and kill a fellow player. Meanwhile, for those few characters with the ability to subdue a dominated character, they must locate and prevent her or him from attacking other raid members. Determining the urgency of, and possible responses to, audio and visual cues requires a shared understanding of their potential meanings and taking into account how other players ought to respond to them. A good example of this situation is in the video at 0:07 when Lady Deathwhisper casts Dominate Mind on the healing druid. As the druid enlarges, a hunter (class) directly to its left freezes it in ice. Notice the blue line shooting from the hunter to the druid at 0:09. Player-to-player audio enables characters to quickly negotiate role performances such as this, but we will set aside analysis of verbal interaction in this chapter.

Demonstrating knowledge of the intricacies of boss encounters is necessary for those who want to continue raiding. Players whose characters do not perform their roles efficiently, often defined through their actions and their communicative and interpretive competencies via text and voice channels, may be put on a “no invite” list for future weeks if not kicked from the raid immediately. The more difficult the fight, the more important voice chat is, and the less extraneous conversations occur. The more routine a fight, the less players rely on verbal communication. Raiders are expected to do their homework each week before a raid begins by reading online guides and watching videos put up on websites such as Tankspot ([www.tankspot.com](http://www.tankspot.com)). This is especially important for newer raiders, who have relatively less experience in large groups that require complex coordination. Online guides, however, function only as a means of anticipatory socialization (Thornton and Nardi 1975) and do not prepare one for the adrenaline-fueled, emergent nature of gameplay through which one learns and eventually personalizes her role(s). The communications that raid members engage in during boss encounters serve as important resources through which players practice and learn how to better interpret the various visual and auditory channels of the encounter.

### 3. FROM USER INTERFACE TO COORDINATED ACTION

In MMORPGs such as *WoW*, arriving at a shared definition of the situation is necessary for successful gameplay. The emergent nature of coordinated action is highly salient in raids, where learning the mechanics of the encounter encompasses this process as knowledge is refined over time to fit together

with the knowledge of other players. Knowledge finds its form in action, and boss encounters are resolved through the alignment of individual players' lines of action. *WoW* is interesting because of the mixture of emergent social action with the technological determinism that is coded into its design structure. Defeating bosses is predicated on the coordinated actions of players who are connected to one another through keyboards, cables, and data streams. Players must direct their characters to act according to a shared definition of the situation, performing actions in a highly rationalized sequence while constantly imagining the expectations and behaviors of their fellow players. In this way, social action becomes almost algorithmic. Game design uses algorithms (i.e., sets of instructions for carrying out procedures via a finite series of steps) as a method of providing obstacles to player's goals. Players must learn how to pragmatically interpret the algorithms that underlie any particular boss encounter (indeed, any encounter at all between the player's character and the virtual environment) and then act on that knowledge in concert with other players. Further, players must subsequently each develop an algorithmic play style that maximizes the potency of their class-based role(s).

In a game characterized by social interactivity, we noticed that raiders were constantly striving to maximize efficiency, with the result that players' interaction with the game sometimes eclipsed interaction with other players. If players' actions become mechanized out of an algorithmic imperative, then to what extent are players actually interacting with each other through the use of the UI versus solely with the UI itself? The social activity of taking the role of other players is replaced with the single-player mentality of top scores or fastest reaction times. For example, a healer describes a successful role performance: "I mean, just watch people's health bar. When the health bars go down, you fill it back up" (Vaid, interview). The "people's" importance is far surpassed by that of the health bar. During boss encounters, player-to-player and player-to-game interactions are always role-to-role interactions. The "who" matters only insofar as players are engaged in coordinating role performances. "That was my job, just to keep the tanks alive. If the tank dies, you know, probably my fault. Yeah, if the tank dies, the raid dies. So, my fault" (Vaid, interview). It is important for healers to be able to make the distinction between the tanks' and other characters' green health bars. The distinction is more or less necessary depending on how routine the encounter is and how well the team as a whole coordinates their actions. Difficult or less practiced situations require greater attention to detail because of their emergent characteristics.

"Gameplay is not a feature designed into the game alone, but an emergent aspect of interaction between the game system and the player's strategies and problem solving processes" (Jørgensen 2008). Because coordinated behavior is a requirement for successful end-game play, one's actions are equally oriented toward other group members and the game itself. The act of filling up green bars cannot be conceived of as being asocial because here one is filling green bars for the purpose of keeping teammates alive. The green health bars of allies, like the red health bars of enemies, are symbolic representations of the shared fantasy within which players interact with each other as well as with social objects in the game itself. Being self-conscious of the act and imagining its effects on, and the potential responses to it by, other people makes it a social act (Mead 1934). A healer can imagine that if she stops healing, player characters will die and blame her, and likewise can imagine that if she continues healing, then player characters will be able to continue performing their roles and may praise her. Continuing to perform one's role under the assumption that everyone else is doing the same is the fundamental process underlying smooth social interaction. Consider this example: A cursed healer and a dying mage (a class that can remove curses) are running toward one another. The mage knows he is almost dead and may assume the healer is running toward him to heal because she notices the mage's depleted health bar. The healer knows she cannot heal the mage since her healing spells are temporarily unavailable due to the curse, and may assume that the mage is running toward her because he sees that she is cursed and intends to remove it. Each is making an assumption of the other's intentions through role-taking, imagining the other player is acting toward the visual symbols of the low health bar and icon representing a curse. The positive resolution to this scenario may eschew visual interaction and instead rely upon textual or vocal interaction. The healer may type or say, "decurse me!" Everyone is engaging in the social act of playing the game, but as in the example above,

players interact consciously with others in mind, and sometimes they do not. Conscious recognition of other players is often muddled because all player-to-player interaction in *WoW* is computer-mediated, which masks aspects of other players. An exception would be of players sitting in the same room talking together, a potentially more complicated situation in which players must negotiate multimodal spaces, interacting visually, verbally and nonverbally, face-to-face and hardware-mediated, with physically and digitally co-present others (Keating and Sunakawa 2010). Yet even without physical co-presence, players still negotiate among multiple communicative layers, in some ways made more difficult by the absence of proximal bodily cues and therefore making it more important to be able to interpret non-verbal communicative acts in shifting contexts.

A haphazard or lackadaisical approach to collaborative gameplay will likely negatively impact everyone involved, which can promote indignation, bickering, or a disbanding of the group. To avoid such problems, players must be able to imagine encounters from multiple perspectives, taking themselves as objects, and trusting that other players possess a similar level of reflexivity in their role performances. Since each boss encounter is uniquely algorithmic, players are required to perform their roles within a set of continually negotiated situational demands. Interpreting visual and auditory symbols from the game and other players allows for player creativity and problem solving. When players are able to interpret symbols and define game objects in the same way, or to understand that each player is defining an object in a way appropriate to his or her role, and the interpretations of these meanings lead to joint action for a collective goal, then a shared definition of the situation exists and joint action will likely be successful, as collectively and situationally defined by raid members. Voice communication and user-created game modifications are two technical innovations that standardize audio and visual cues, and to some extent, the meanings and intended interpretations of those cues. As shared meanings become more common, raids become more successful.

#### 4. COMPUTER-MEDIATED COMMUNICATION, VIRTUAL WORLDS, AND COORDINATED ACTION

In MMORPGs such as *World of Warcraft*, players are bombarded with information that they must make sense of and act back on if they wish to master the intricacies of collaborative play. The amount and frequency of data streaming onto the screen and through the speakers sometimes make it difficult to decide what is important. Some players choose to rely on certain media within the UI over others for most of their information and communication needs. Perhaps the most oft-cited theory for explaining why people prefer one communicative medium over another is the psychologically-oriented media richness theory, which holds that the richest media, the one that most reduces uncertainty and equivocality among interactants in a situation and best captures the essence of face-to-face interaction, is best suited for a particular moment of communication (Daft and Lengel 1986). Media naturalness theory introduces an evolutionary augmentation to richness, claiming that the human brain handles face-to-face interaction best and that communication with lower degrees of “naturalness” (e.g., communication that is non-face-to-face, asynchronous, or that has expressive cues filtered out) poses cognitive problems. Media like email are both less rich and less natural, while “super-rich virtual reality media” like online video games are less natural because they are too rich, i.e., they possess excessive stimuli (Kock 2004:340). Media richness and naturalness theories operate under assumptions that face-to-face interaction is ideal and are thus biased in how they frame non-face-to-face communicative environments and channels, seeing new media environments particularly as inherently problematic. Yet, it is new media environments such as virtual worlds with and within which a growing number of people regularly interact.

In this chapter we have taken a more open approach to the significance of informational communicative media. Our approach is that of symbolic interactionism, a sociological perspective that emphasizes the social aspects of meaning-making, interpretation and context in human activity. Symbolic interactionism emerged from American pragmatism and from the work of scholars such as George Herbert Mead, Charles Horton Cooley, and John Dewey. Herbert Blumer (1969), a student of Mead, rigorously developed a set of premises upon which symbolic interactionism has come to rest. First, people act toward things on the basis of the meanings those things hold for them. Second, the meanings of things arise out of social interaction with others. And third, people handle and modify meaning through an interpretative process in dealing with the things they encounter. The symbolic interactionist approach has more in common with communication theories such as “media synchronicity,” which focuses on “the extent to which individuals work together on the same activity at the same time; i.e., have a shared focus” (Dennis and Valacich 1999:5). Unlike media richness and media naturalness, which focus on users’ optimized media choices, media synchronicity highlights communication performance, or how media enable users to achieve synchronicity and successful communication. Here communication consists of two basic processes: conveyance (the transmission of new information and its processing and interpretation through individual cognition) and convergence (the discussion of subjective interpretations to reach intersubjectively shared meaning) (Dennis, Fuller and Valacich 2008).

Conveyance and convergence processes often blend or co-occur in hyper-action-oriented settings within online games. Media synchronicity is not rigidly defined for a given medium in a given situation (Kahai, Carroll, and Justice 2007), but is instead situationally emergent, simultaneously shaping and being shaped by the interplay of player, technology, and context. MMORPGs and other computer-mediated environments support a host of overlapping communication channels. The interactionist approach espoused here focuses not on *why* gamers choose among communication media, but on *how* they effectively deal with specific communicative media during gameplay. The benefit of a focus in communication performance highlights the intersubjectivity of communication, where “meaning derives from interactive interpretation by multiple persons, not simply from the cognition of a single individual” (Miranda & Saunders 2003:88).

Computer-mediated communication (CMC) research has already focused extensively on business and organizational concerns in interaction and interpretation in areas such as trust-building and virtual teamwork (e.g., Jarvenpaa, Knoll, and Leidner 1998; DeLuca and Valacich 2006). One goal has been to understand which media are best suited for facilitating such activities to result in better performance, higher productivity and more effective problem-solving. CMC scholarship has also been useful in analyzing communication and coordinated action among groups in MMORPGs. In the 21st century especially, there have been increasing calls across disciplines for researchers to explore communicative potentials and performances in virtual worlds (e.g., Castronova 2006; Davis et al. 2008; Bainbridge 2010b; Montoya, Massey, and Lockwood 2011). Research has attended to analyzing the functions and uses of these modalities, beginning with text-based communication in multi-user domains and moving on to the increasing support of voice chat in MMORPGs (Mortensen 2006), and even into the futuristic technology of real-time video representation in virtual worlds (Van Broek, Lou, and Van den Broek 2011). A number of studies have looked at player preference for, and in-game performance with, text versus voice chat in virtual worlds. A study of PC first-person shooter games found that “where gamers used text, their gameplay as a [team] was less cohesive. [The players] had more trouble coordinating strategy and their scores were lower... they explained that text communications...[were] something they now dislike, much preferring the social experience of being able to talk” (Halloran, Rogers, and Fitzpatrick 2003:138). Another study of text and voice chat among *WoW* guilds concluded that “the social impact of playing *WoW* with only text was clearly negative” (Williams, Caplan, and Xiong 2007:443) because text chat did not simulate presence or promote the stronger social bonds that voice chat did. Being able to hear teammates increased feelings of group membership, perceived likeability, and willingness to trust, all of which are important for cooperative gameplay (Chen 2009).

A notable trend is that new developments in MMORPG communication supplement rather than replace previous developments, resulting in multi-modal communicative environments. Emoticons, for example, are widely used in graphically rich virtual worlds for reasons similar to their continued use in SMS, instant messaging, and email: to efficiently express emotions (Walther 2006). In most cases, the expressive potential of characters is limited. Smiles, winks, and nods are communicated through text rather than through the visual manipulation of facial features. Characters' bodies are, however, able to communicate information. Manninen (2001), for example, observed that players of the first-person shooter game, *Counter-Strike*, communicated to one another through character movements, such as pointing and moving rapidly back and forth to tell a teammate to move in a specific direction. In that study, players had access to text chat and were co-present, yet they often persisted in using computer-mediated gestures rather than talking or typing to one another.

In another example gleaned from our data that shows how different modes of communication mutually enhance one another, players use their characters' bodies to practice a boss fight. The raid leader, through voice and text chat, instructs a player-character to stand in the center of the room, pretending to be the boss. He then positions everyone else in their respective places to initiate the exercise. Some fights allow players to position their characters appropriately relative to one another before initiating the encounter, but this practice exercise of an unfolding fight highlights the performative aspect of characters and the rich visual information their movements and positioning communicates. The raid leader explains the fight step by step, and instructs player-characters to move in relation to one another, based on their roles, and the "boss," in accordance with how it moves and acts in a real fight. In this way, characters' bodies become visual learning tools so that the raid team can practice the intricate coordinated movements necessary for succeeding in a complex encounter without the interference of real enemies. This creative communication is sometimes an orthogonal, unintended outcome of design decisions which we can identify through observation and analysis. These communicative tools, and the ways players utilize them, can then be meaningfully integrated back into virtual worlds.

## 5. CONCLUSION

The confusing chaos of visually and sonically dazzling effects, bosses, minions, and other players' characters running this way and that, all emoting and creating noise must in pragmatic terms be made meaningful, interpreted, and acted toward. Players do not simply choose the richest or most natural medium through which to communicate. Rather, in raiding (a situation demanding high synchronicity), players engage with specific parts of the UI as the situation unfolds. For those who put in the long hours, the day-to-day coordination of actions among raid members results in evolving sets of interpersonal and digital-media competencies, i.e., expertise, that include navigating across the computer screen, the ability to collaborate by recognizing the visual representations of other players' actions, and overall awareness of digitally-mediated situations (Reeves, Brown, and Laurier 2009). Each aspect of gameplay (moving, using abilities, reading a map, and so on) relies on skill sets integral to social roles, which players learn, refine and modify over time. A holistic sense of expertise develops as players practice "chaining together these small actions into temporally and componentially longer sequences of action" (Reeves et al. 2009: 214). By the time a player is raiding, he or she needs to have developed a thorough understanding of game mechanics, media literacy vis-à-vis the user interface, and a knowledge base that includes the various roles expected of her character's class and specialization.

Certainly virtual worlds, including MMORPGs, should not be viewed as a single medium, but rather as the interplay of physical and digital interfaces (mouse, keyboard, UI) that comprise multiple ways of communicating. None of the communication channels surrounding virtual worlds exist in isolation; each layer of the whole is symbolic and interpretable. And while players need to learn to navigate screens

full of visual and auditory stimuli, they are fundamentally being socialized into doing so through their interactions with other players, the game, and with the UI itself. This is not dissimilar to people in everyday life using other technological interfaces, from learning to navigate the sights and sounds of city streets via map applications on a smartphone to becoming socialized as an environmentally-friendly driver by striving to maximize the vehicle's energy efficiency according to the digital display of miles per gallon on the dashboard. The role of the UI as an agent of socialization in virtual worlds ought not be glossed over. Its expressive potential across platforms allows human creativity to flourish in everyday work and play. Designers of MMORPGs, virtual worlds, and other digitally-mediated environments largely take this into account already, as the interfaces they implement provide a range of communication channels to users, ideally facilitating interaction and community-building. Some researchers are already implementing novel methods of nonverbal communication in virtual worlds (see Innocent and Haines 2007). An understudied realm of especially high productivity in interface design is custom game modifications that users create and share in order to improve the gaming experience (e.g., Kow & Nardi 2010; Sotamaa 2010). Players themselves are flows of design creativity that developers tap into. Blizzard, developers of *WoW*, designed and implemented new UI features over the years to help players complete quests and learn to defeat raid bosses, drawing direct influence from prior user-developed game modifications. There is a symbiotic relationship between researchers, developers, and players. Each of them relies on the other to contribute to the continual development of novel UI designs and methods of CMC. Through the collaborative efforts of the organs in this relationship, users will have more choices for how to interact with one another in virtual worlds, and can thus accomplish more diverse goals in a variety of contexts.

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