Hiding and Revealing in Online Poker Games

Scott A. Golder
MIT Media Laboratory
E15-391, 20 Ames St.
Cambridge, MA 02139
617-452-5637
golder@media.mit.edu

Judith Donath
MIT Media Laboratory
E15-392, 20 Ames St.
Cambridge, MA 02139
617-253-5098
judith@media.mit.edu

ABSTRACT
Poker is largely a game of social and psychological information. However, online card room interfaces do not support the subtle communication between players that is integral to the psychological aspect of the game, making the games less authentic and less enjoyable than they could be. We explore how card room interfaces can better support the psychological aspects of the game by critiquing the dominant methods of visualizing players: with generic avatars, and with text-only handles.

Categories and Subject Descriptors
H.5.3 [**Information Interfaces and Presentation**]: Group and Organization Interfaces – *collaborative computing, synchronous interaction.*

General Terms
Design, Human Factors.

Keywords
Poker, identity, avatar, handle, reputation, socially interpretable information.

1. INTRODUCTION
A long-popular card game, poker has attracted many new players to online card rooms. The televising of two of the most prestigious tournaments, the World Series of Poker and the World Poker Tour, has led to a surge in popularity of the game. Meanwhile, gambling online has grown in general; in 2002, 1800 online gambling sites existed, with over $4 billion in revenue [13]. Online gambling sites offer a variety of casino games and wagering opportunities. Many offer poker, some exclusively.

For many forms of gambling, including blackjack, roulette, and betting on professional sports or horse-racing, players bet against the house, not other players. The information needed to play can be presented online in roughly the same way as in person.

In contrast, poker is an inherently social game, played against other human opponents. Though there is a great deal of chance in the game – which cards the players draw – poker experts agree that the game is at least as much about psychology as about probability. Being able to observe and understand "tells" – gestures and mannerisms that betray what a player is thinking – is considered a valued skill. Two-time world poker champion Doyle Brunson observed that, "[m]ore than any other game, poker depends on your understanding your opponent" [4]. It is in a player's best interest to develop an understanding of each opponent and their playing style. The more time spent playing with a particular opponent, the easier it is to do so.

One of the significant problems in online poker is that most of the psychological and social information that can be gleaned at a card table is not present in online poker interfaces, greatly diminishing the authenticity and enjoyability of the game. In this paper, we discuss the nature and value of psychological and social information in poker, contrast the environments of some virtual card rooms, and make recommendations for general improvement.

Though the subject of this study is the poker room, the implications for online communication in general are great. In every interaction between people, whether a poker game, a social conversation or a work task, there are many kinds of nonverbal yet *socially interpretable information* that we assess to make judgments about others' character, personality and mood. These kinds of information are, in general, poorly captured, conveyed and represented online. The poker game provides us with a neatly bounded case study, one that is wholly dependent on identity formation and impression management.

2. RELATED WORK
Popular books on gambling, and on poker specifically, abound. Statisticians, professional poker players, and other self-proclaimed experts have long been writing books on poker strategy, including both the mathematical (e.g. [11]) and psychological aspects of the game. Brunson [4] stresses the importance of psychological factors such as alertness and control over emotions, and social factors, such as developing a reputation.

Scholarly studies of poker are comparatively few. Poker has been analyzed from an artificial intelligence perspective [2] and as a form of "scripted competition" that fulfills social-psychological needs not fulfilled in daily life [14]. Scholarly and governmental studies of gambling online have addressed the legal [8] and economic [13] impact, as well as casino credibility and trust [10].

Though poker has not been addressed directly, there is a significant body of work on online environments that represent users with avatars (e.g. [3] and [12]). This literature, however, is based largely on environments that are thought of as primarily collaborative, e.g. chat. Such environments are characterized by users' desire for self-expression [12], because overt behavior supports building relationships. This includes the development of social norms of entering, leaving and moving around spaces, and

CSCW'04, November 6–10, 2004, Chicago, Illinois, USA.

deliberately conveying emotion [3]. In contrast, a game like poker may be characterized as purely competitive, due to players' desire to *avoid* many kinds of self-expression so as to not provide potentially self-damaging information to others in the form of "tells." However, even conversational spaces are partially competitive; people compete for high status, for turns to speak, and for recognition as being right in an argument. To be sure, users' goals in conversational and gaming environments differ in many ways. What these environments share is that their participants are engaged in complex interpretation of socially-meaningful information; common solutions may exist for capturing and expressing that information.

3. POKER PSYCHOLOGY

Because poker is a game of *imperfect information* [2], where some of the information necessary to make an optimal decision is concealed (unlike chess, for example, where all the pieces are exposed), players must deduce from the behavior of other participants what that hidden information – the other players' cards – is. Therefore, Brunson's observation of the value of knowledge about your opponent is apt. Developing a reputation among your fellow players is not only essential, over time it is unavoidable, as keen eyes are continually sizing up each others' play. Reputation is a factor in deciding how to play; one might call a bet by an aggressive player, but fold if a more conservative player bets. The former is less of a threat because an aggressive player may take more risks, whereas the latter might bet only when holding a very strong hand. Knowledge of one another's reputations makes reasoning on this high level possible.

As people interact with one another, they are exposed to one another's behavior under varying circumstances; reputations are *highly subjective interpretations* of these behaviors. Goffman [7] draws an important distinction between "impressions given" and "impressions given off;" the former are those impressions one intends to make, the latter are those impressions actually made. Compare: "I'm going to stroke my chin thoughtfully, so he thinks I'm deep in thought" versus "What a fool! He's nervously stalling for time by making me think he's thinking deeply." In such a case, the *impression given off* clearly does not achieve the desired *impression given*. "Tells" can be thought of as a kind of *impression given off* that accidentally gives an opponent an accurate picture of what one is thinking. Of course, the interpretive nature of such impressions means that one can never be sure that what one has detected is truly a "tell;" one may be seeing a pattern where none exists, or may be taking at face-value an opponent's actions which are both deliberate and deceptive.

Deception is a fundamental characteristic of many social interactions [6]; this is especially so in the game of poker. For example, bluffing – representing oneself has having a stronger hand than one actually does – is a useful poker strategy. Deception is accomplished within the game by, for example, betting a large amount of money as though one expected one's cards to be profitable. Deception can also be achieved through nonverbal communication. Facial gestures and body language are powerful nonverbal means of communication, and they play a large role in poker. The term "poker face" describes the emotionless face that a poker player will attempt in order to avoid unconsciously giving hints about their cards. A player who seems happy may have good cards. Alternatively, the player may be bluffing, going through the motions of acting pleased to suggest the hand is better than it is. Deducing which is the case with a given opponent is a complicated process that requires knowledge of the individual's playing history and personality, as well as the ability to understand their facial expression in context.

In light of the social and psychological foundations of poker, we can describe the player's communicative goal as having three parts, all related to socially interpretable information. First, the player strives to unwittingly convey as few "tells" as possible. Second, the player makes use of the ability to selectively convey deliberately misleading information to opponents. Third, all the while the player watches for and tries to interpret the information *given off* by others.

To truly empower players in self-presentation, a poker interface must empower them to achieve these three goals. Current poker interfaces make the first unnecessary, and the second and third impossible.

4. ANATOMY OF ONLINE CARDROOMS

When opening an account in a card room, users choose handles, which are their primary representations within the system. To begin, the user is presented with a list of card tables to choose from. Tables vary in the kind of poker being played, the stakes, and the number of players. After choosing a table, a player is presented with a bird's eye view of a poker table, often surrounded by chairs. The use of a graphical representation for poker is apt, because unlike conversation, the game is fundamentally spatial; turn-taking always takes place in a circle, most often around a table. The table metaphor is in fact so deeply ingrained that every known online poker site includes it, whether users are represented by handles or avatars.

Many card rooms have a chat box for each poker game for players to converse and for displaying messages from a virtual "dealer."

When cards are dealt, users see their own cards all face-up. Others' cards, naturally, are not exposed. They are shown face-down to indicate that the player still is playing the hand and has not thrown their cards away. In variations in which there are "community cards" (cards all players can use to improve their hands), these cards are shown face-up in the middle of the table.

Betting takes place in rounds, each player acting in turn. When it is a particular player's turn to act, the chair or avatar will typically be illuminated or otherwise distinguished from the others. This allows other players to follow the progression of the game and always see whose turn it is. Bets are represented by poker chips; the value of each chip is written on it and/or determined by the chip's color. The amount of money players have is usually displayed near their handles. The pot – all the chips that have been bet – is shown on the table, often with its value written numerically nearby. When a winner is determined, the chips in the pot move toward the winner and the hand is over.

5. PLAYER REPRESENTATIONS

All players are represented by their chosen handles. In some cardrooms, the handle alone is used; it is often superimposed on an otherwise empty chair (e.g. Figure 2). In many card rooms, players are represented by avatars as well as handles. The card room may assign avatars (e.g. Figure 1), make players choose from a list, or allow them to upload images of their own choosing.

Figure 1, pokerroom.com, uses assigned avatars. Figure 2, ultimatebet.com, uses handles only. These two were selected as

examples because they are typical of their respective methods of player representation and are among the most popular card rooms.

Handles, also called usernames, nicknames or screen names, are effective self-representation tools in text-only media; users choose them with care and often creativity, as they are users' primary means of establishing an identity [1]. Where the goal of the interaction is conversation, this is arguably sufficient; conversational environments that support graphical representations demonstrate declining use of those graphical enhancements over time, possibly because users do find text representations sufficient [12]. They can express their individuality through play within their conversation text in a variety of ways. However, when the interaction is centered around gameplay, in which action is far more scripted and rule-based, the opportunities for self-expression are far more limited, and the need for alternative, non-textual opportunities is greater.

At the very least, a text-only representation is much more difficult to see at a quick glance than a graphical one; compare the ease of counting players in an avatar-based environment (Figure 1) and in a handle-based one (Figure 2). The focused nature of gameplay makes ease of seeing especially important; players may be so focused on their cards that they may be only peripherally aware of other players' presence and movement. Exaggerating such features graphically may make observing other players easier.

Avatar-based interfaces not only make it easier to see that someone is present; they also have the potential to make it easier to see who that someone is. That is, they have the potential to provide more clues about the *identity* of the players they represent. This is beneficial if the clues are accurate, but dangerous if they are misleading.

An environment that allows users to choose their own visual representations gives them greater freedom of self-expression [12]. Of the major poker rooms, only PokerStars.com gives players the opportunity to upload images of their own choosing. Players represent themselves with photographs and images of pop culture references; this is already a common practice in handle choice [1]. This solution is imperfect, however, because a player's chosen image may not be an authentic self-representation; the problem of player recognition is addressed, but the problem of conveying social information is too complicated for this to be a complete solution.

Several poker rooms with avatar-based interfaces (e.g. Figure 1) assign avatars to chairs, rather than individuals, such that there is an avatar for seat number one, an avatar for seat number two, and so on, regardless of who is seated there. As a result, the avatar becomes a false marker of identity, arguably worse than none at all. Images – especially images of people – are very powerful; they naturally evoke emotional responses. People ascribe personalities to graphical characters on a screen, making subtle judgments about the characters' dominance, intelligence, friendliness, and other traits [9]. When people are mapped to images beyond their control,[1] they are projecting identities (and therefore personalities) that are not their own, and are interpreting inaccurate social information about others. For example, in PokerRoom.com (Figure 1), a player placed in the seat in the

Figure 1. Screenshot from PokerRoom.com

Figure 2. Screenshot from UltimateBet.com

lower-right is a dashing man in a tuxedo. If placed in the upper-right seat, the player is a buxom blonde. Though players know intellectually that the avatar is assigned and the stereotype associated with the avatar does not describe that player, it is nonetheless difficult to dissociate façade from reality.

Because human-looking avatars are most often either assigned or else selected from limited choices, it is important that representations of race and gender be examined critically. In many sites avatars are overwhelmingly male and almost completely Caucasian. This is most problematic where stereotypes are exaggerated; for example, suggestive comments are often made toward (or by) the player represented by the woman in the aforementioned upper-right seat in Figure 1.

The most significant problem that (assigned) avatar-based and handle-only interfaces share is that keeping track of who is at the table is not easy. In light of the fact that players are attempting to establish an understanding of the opponents' playing styles, this is troublesome, as it fundamentally changes the game.

Reputations are important both in the short term and long term. In the short term, it is important to know who is at the table. When other players are waiting for a seat, it is possible that one player could leave and another could take the seat virtually instantly; since the two are represented either by the same avatar or a lack of any visual marker, a player not carefully paying attention may not notice that someone else is now seated. In these

[1] Though players do have a choice of seat, and therefore a choice of avatar, often only one or a few seats will be open, limiting those choices.

cases, knowledge that "the person in the third seat bluffs frequently" is worse than useless, because it will be applied erroneously to the new player, for whom it is not accurate.

Though handles can be a marker of identity and a source of self-expression in text-based environments [1], the impact and utility of handles may be different when used along with visual representations like avatars. In interfaces with user-selectable visual representations, it is unclear whether the visual (graphic) or textual (handle) identity marker is the more salient or memorable, especially if either can be changed. When names are static and graphics change, conflicting visual representations likely blur associations between players and their playing histories.

6. HIDING AND REVEALING

The overwhelming importance of understanding one's opponents demands that future online poker interfaces empower participants in self-presentation through socially interpretable information. Such empowerment in turn provides the basis for long-term identity management.

The overarching problem with current poker interfaces is that much of the detail provided is devoid of meaning, while meaningful detail is absent. Useless detail like garish carpeting and scenery (Figures 1 and 2) provide no real meaning beyond the table metaphor. Misleading avatars (Figure 1) at once convey too much information (through stereotyped images) and too little (due to their being static, unchanging and unmoving). We suggest that human-like representations, if used at all, should not convey potentially meaningful cues that are not instigated by user action. Instead, a human-like image should have a range of outputs that match input information [5].

Though users do not want to convey information unwittingly, this does not mean an interface should not allow this to happen. On the contrary, such information is so valuable to opponents, we emphatically recommend that this kind of information be preserved and conveyed. It is the player's responsibility to control that information, and that defense should not be built into the interface, as it is a vital aspect of playing well. Additionally, it is the system's responsibility to convey information faithfully, whether the information provided by the player is accurate (e.g. a "tell") or not (e.g. a "bluff"). After all, purposely conveying deceptive information is a vital part of the game, as it is in much social interaction, and should not be prevented by the system [6].

Much socially interpretable information comes from activity directly related to gameplay, even when it is not a player's turn. These activities include users repeatedly looking at their cards or manipulating their chips. The former is often an unconscious response to a good hand, and the latter may be indicative of one's desire to bet. Players' behavior during their non-turn time, whether they are contemplative, inattentive, or even disconnected, can reveal their state of mind. If these activities are transmitted to others, players will feel as though their behavior "counts" even when it is not their turn. Many things compete for computer users' attention; if players multitask when it is not their turn, they may not give complete attention to the game. Because keeping track of one's own socially interpretable information and that of others gives attentive players a competitive advantage, there would be a financial incentive to pay attention, which would make the game more captivating and therefore more enjoyable.

Social activity when it is not one's turn, such as engaging in conversation, can be a rich source of "tells" as well. Though conversation among players is not an intrinsic part of the poker game, it nonetheless often takes place at poker tables. This makes the game socially engaging, but it is also an opportunity for players to further learn about one another through their manner of speech. Though many online card rooms include chat boxes, it is difficult to type in a box while focusing on playing. As a result, the chat is often limited to "nice hand" and "thank you." Additionally, typed text is deliberate and is not susceptible to cracking voices, rapid speech, or other audible indicators of emotion. For this reason, an audio component that is hands-free and requires little effort may convey verbal "tells" whereas a text-based chat system may not.

7. SUMMARY

Though poker relies on social information, the majority of current online poker systems do not adequately convey that information, or do so in an inaccurate or problematic way. Being able to recognize other players and remember past interactions is essential, as is being given appropriate, accurate information on which to judge them.

The criticisms and suggestions made here are proposed with the goal of improving the authenticity and enjoyability of online poker. However, the problems and issues of identity representation and impression management raised here are related to those in other environments for social interaction online, gaming or otherwise, and may be applied there as well.

8. REFERENCES

[1] Bechar-Israeli, H. From Bonehead to Clonehead. *Journal of Computer-Mediated Communication*. 1(2).

[2] Billings, D. *Computer Poker*. University of Alberta M.Sc. thesis. 1995.

[3] Becker, B. and Mark, G. Social Conventions in Collaborative Virtual Environments. *Proc. CVE 1998*.

[4] Brunson, D. *Super System: A Course in Power Poker*. 3rd ed. Cardoza Publishing. 2003.

[5] Donath, J. Mediated Faces. *Cognitive Technology 2001*.

[6] Erickson, T. Designing Visualizations of Social Activity: Six Claims. *Proc. CHI 2003*.

[7] Goffman, E. The Presentation of Self in Everyday Life. Doubleday. 1959.

[8] Janower, C. Gambling on the Internet. *Journal of Computer Mediated Communication*. Vol. 2. Issue 2.

[9] Reeves, B. and Nass, C. *The Media Equation.* CSLI Publications. 1996.

[10] Shelat, B. and Egger, F. What Makes People Trust Online Gambling Sites? *Proc. CHI 2002*.

[11] Sklansky, D. and Malmuth, M. *Hold'em Poker for Advanced Players*. Two Plus Two Publishing. 1999.

[12] Smith, M., Farnham, S., and Drucker, S. The Social Life of Small Graphical Chat Spaces. *Proc. CHI 2000*.

[13] United States General Accounting Office. *Internet Gambling: An Overview of the Issues*. December 2002.

[14] Zurcher, L. "Enjoying an Ephemeral Role." *Social Roles*. Sage Publications, Inc. 1983. 135-156.