Getting Real about Games: Using Ethnography to Give Direction to Big Data

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Abstract
"Big Data" is an increasingly popular way to study online, computer-supported gaming. This paper identifies basic epistemological problems in some BD approaches, those presuming that game play is fundamentally the same as other social activity. It explains why these approaches cannot establish this assumption's validity. It then presents a preliminary ethnographic study of Massive Multiplayer Online Games (MMOGs) as a way to study the underlying similarity issue. It suggests how methodological triangulation may be able to place Game Studies on a firmer epistemological foundation. Attempting such significant objectives in a compressed format justifies its inclusion in alt.chi.

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Online Games; gaming; Big Data; HCI, World of Warcraft, Virtual Worlds, Ethnography, Big Data

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Introduction

The study of online games has given HCI and other scholars a rich source of ideas about how humans interact with computers. ((For a general survey of HCI and HCI-relevant studies of games, see [e.g. 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 16, 17, 21, 29, 32, 33, 34, 37, 38, 39, 40, 41, 42, 43]) Among the reasons that can be used to justify such studies are: 1) To understand ways that interactions while gaming can be improved, in order to make better games [e.g. 13, 15, 16, 17, 30, 42, 43]; 2) To discern ways that pleasurable aspects of game play can be leveraged to other arenas; e.g., using games to educate people/impart more knowledge (e.g., "serious games" [e.g. 10, 11, 30]); 3) To use the commentaries and even meta-commentaries on the dynamics of normal life that gaming offers to draw more general design inspiration (e.g. [1, 2, 3, 4, 5, 8, 21, 29, 32, 38, 39, 40, 41]); and 4) To understand play in virtual worlds/look into player behavior because better understanding of player social behavior will have some broader, more general benefit for HCI and related fields (e.g., [6, 10, 12, 15, 17, 22, 26, 27, 31, 34, 37, 39, 40, 43)

We focus in this paper on the final one, the broader implications of studying game social behavior, in order to raise a general issue. Our basic question is, "Why in general should we study games and gaming, because such behavior is reflective of general human behavior, or is gaming behavior uniquely important precisely because of how it *differs* from other behavior?" We believe that a return to such basic questions is made necessary by the recent prominence among digital technology researchers of a particular kind of "Big Data"/"Data Science" approach to study of digital behavior. When applied to gaming, the Big Data approach typically focuses opportunistically on the traces left by players in games' virtual worlds, such as avatar action data and chat logs. By placing these data *en masse* into a database, the traces are reframed as player action data points that can be manipulated quantitatively.

Big Data approaches to gaming are held to be desirable for several reasons. One is because they afford a numerical (and therefore more "scientific") approach to the study of human behavior. Additionally, it is believed that, because of the character of virtual worlds' design, all players' actions are recorded in at least some form, so the database can be seen to yield an inclusive, more or less complete record of activity. Consequently, some major problems of sampling are believed to be obviated, so that Big Data analyses of traces from virtual worlds make for an easy, complete, and quantitative approach to the understanding of social phenomena [24].

There are many forms of Big Data research on games, but a few scholars [35, 42] have begun to raise questions about the epistemological presumptions that inform some of them. For example, databases may be simply trawled for statistically significant correlations (one form of "data mining") among the traces-turned-into-variables, and yet some of the correlations are then treated as providing general explanations for social behavior. Such practices may raise several issues, including a) exactly how one is to separate valid correlations from, e.g., those that are artifacts of database construction; that is, how such separations

are epistemologically justified; b) whether these *post hoc* explanations of correlations are different from the 19th Century rank empiricism rejected by science long ago; and c) the dangers of confusing a correlation for a causation. Even more basically, using game data in these Big Data ways involves an additional questionable assumption. To use game studies to make inferences regarding general behavior in the real world, behavior in games must be representative of behavior in the non-game, "real" world.

However, gaming behavior may instead be primarily a function of the social form in which it is recorded or framed (that is, a derivative "Hawthorne" effect). To assume that game behavior simply reflects general behavior is suspect on its face, because what makes a game a game is precisely that is *different* from the real world. This is the essence of "ludism," the interpretative perspective dominant in the general study of games [10, 21, 25, 33, 39] That is, we know we are in a ludic world because the rules governing behavior are explicitly different from those of normal life, the "not gaming," that is the rest of human activity. Since the distinctive feature of games is their difference from the real world, simple or direct inference from game life to real life is not justified.

Of course, inference from game behavior is less problematic if our primary interest is in, say, improving game experience, as in the first reason for studying games that we discussed above. In contrast, and this is our primary contribution to games studies in HCI, the value of using an understanding of game play dynamics to illuminate general human behavior must be established; it cannot be assumed. Nor can any amount of "Big Data" analyses of corpora of online behavioral traces be used on their own to address this issue. How much one can infer from traces must logically be established *before* and *independently of* their analytic use for this purpose.

We in HCI need a much more exact understanding of the specific nature of the game/real life relationship before knowledge gained from Game Studies can to be presumed to illuminate social behavior in general. (A similar point is valid with regard to using Big Data analyses of game play for, say, user experience design inspiration; but this use is not our focus in this paper.) Establishing how much gaming parallels living is no simple matter, as we need to find some other way to establish more precisely just how much game activity deviates from "normal" activity.

In contrast to the brute Big Data approach we have focused on thus far, one combined with ethnography *could* provide substantial help in studying the extent to which game behavior is different from/similar to real world behavior. Establishing this is our second contribution to the HCI-relevant literature on gaming. Of course, ethnography as a means of examining behavior in virtual worlds is not new to HCI. Our third, more particular contribution is to illustrate how, through a preliminary ethnography of massive, multi-player online games/gaming (MMPOGs), we were able to develop a procedure that moves us substantially closer to being able to answer the "Why study games?" question. This research experience led us to argue that ethnography can be of more general help to HCI scholars in differentiating out aspects of game behavior that follow from fictional, virtual worlds, like those depending on the characteristics of the game's physics engine or deliberate design decisions by the game's

creators. At the same time, it helps us to identify game activity that *is* like that in real life, such as actions that carry notions about real life over into a game's virtual world.

Our final, ultimate contribution is to show how it should be possible to combine initial ethnography, like what we illustrate here, with other approaches, whether interpretive coding or Big Data. Exploratory ethnography can inform these approaches; that is, provide them with a clearer sense of what to look for: In our case, kinds of electronic traces that can be connected to irreal and real life, respectively. While ethnography can establish that some game play is like action in real life, and some isn't, it can on its own only with great difficulty establish the relative frequency of each type. Doing this requires analyses of representative corpora of game play, but such analyses can be given theoretical direction by preliminary ethnography. In our conclusion, we describe in more detail why we believe that the triangulation of multiple methods in dialogical (and dialectic) interaction offer the best promise of being able to answer the necessarily preliminary question in HCI game studies: Why study games, or, more particularly, to what extent does it make sense to study games in order to infer something about typical human behavior?

Relevant Research

To frame our discussion of the big question of how games relate to the real world, we discuss here some examples of the different ways HCI and HCI-relevant research has approached the study of virtual worlds. The nuanced and emergent nature of interaction in the virtual worlds created by games, especially MMOGs, cries out for scholarly examination, and scholars have responded.

HCI has had an interest in games and the virtual worlds they create for a number of diverse reasons. [See, e.g., 17, 42]. The framings of HCI-relevant "improvement" studies of gaming vary substantially in terms of width. Some examinations look at games exclusively as gaming alone [13, 42]. HCI scholars have approached gaming as something like an art for, as containing commentaries on real life [32, 7, 11, 21]. Still others have treated gaming more as reflecting rather than commenting on real life. [38, 39, 40, 41, 21 In such ways, interpretations of gaming are generalized outside of games into larger concepts, finding, for example, what implications social interactions in games have for online sociability [7, 3], 16, 33, 17]. In addition to the different reasons for investigating virtual worlds, HCI has also adopted a number of different methods to investigate games [6, 29].

The nuance of social behavior in games has certainly encouraged exercise of the ethnographic imagination (e.g., [8, 12, 29, 39, 40])..Interestingly, the reasons for doing ethnography of gaming parallel those given for the more general studies discussed above. Moreover, like Big Data study of MMPOGs, the ethnography of online game activity is not without its problematic aspects [29, 16]. Indeed, the basic ambiguity regarding fundamental objectives lurking within exiting general study of online games is also evident in some ethnographic studies. An important strain of ethnographic research, encouraged in particular by Geertz [20], may be more from aesthetic that empirical sources of inspiration [See also 23, 14,28].

Method

In this investigation, our main goal being to illustrate how we came to frame events occurring in MMOG play so that they might be might be properly parsed between those like real life and those different from it. (See also [22].) To get at such dynamics, we first assembled a group of researchers that included experienced players as well as those less familiar with the culture of gamers. We then chose sample of MMOGs as field sites, stratified in terms of age and type. From these, we identified two as good starting candidates: *World of Warcraft* and *Argo*. These two games were selected due to similar content (both fantasy Role Playing Games), but different player bases, costs, and levels of development.

Each session of study involved two investigators. One investigator would "pilot" the game, controlling the avatar. The second investigator would take notes on the process of play, noting comments that the first would make regarding gameplay as well as rich descriptions of the virtual world. This approach was taken to include the perspectives of the actual player as well as details regarding the environment that may go unnoticed in the process of actual play. Via continuing talk, we arrived at a useful initial unit of analysis: The event. We defined an event as a specific and discrete interaction that occurred between a player and/or players and the virtual world. Using this unit, we synthesized the events within the gameplay sessions.

Findings

These investigations teased out aspects of the game relating to the virtual space created including the ways that space was divided by objects and how these objects created paths for players. While these showed an intentional design decision, players subverted these paths through shortcuts and other techniques. It became clear that space in the game was also related to time (i.e. the amount of time that it takes to complete a task. This simultaneity of time and space became an important factor in our investigation.

Shortcutting

Games introduce "paths" as a means of giving players the ability to shorten travel times across open space between important nodes while still allowing freedom to deviate. Meandering from more overt paths, one deviation is called "shortcutting". While there are drawbacks to taking shortcuts in the real world (injury or death), their absence in-game means players can save time using this method, as long as, e.g., one is jumping from points that are not high enough to kill the player's character. Shortcutting's break of immersive realism is at an intersection point for game with real time. Game rewards are tied to travel time, which is a function of distance and speed. Other means to increase speed include modification of the player's character, mounts, and location-specific flights, all of which cost game currency or other resources. Still, being able to achieve the same result in less time is generally advantageous. Once a method of time reduction is found, the social nature of MMOGs mean it quickly spreads and becomes a part of playing the game. Along with "physical" shortcuts like those described above, there are also shortcuts accessible via real world money. Underground trade in game currency (only gained in game through time-consuming processes) may violate game makers' rules, but it still exists. One "free to play" game offers players the ability to spend real currency to buy points that may be redeemed for in-game resources Along with the illicit

money trade, there is a more direct way to increase a player avatar's fitness - the outright purchase of an up-leveled and geared character. Moreover, bots exist that will play the game for a player. This means that the real time of the player can be spent doing other things while the bot increases the player's level in game.

Intersection of Social Aspects with Time and Space

While there are many metrics of success in MMOGs, one important metric is renown. How well known a player is depends particularly on her ability to complete the goals of the game. Just as a player's ability to win any given battle is likely to be directly related to the amount of time spent playing the game, increased time will also probably raise recognition by the community. (This is true even though, as described above, there are ways to increase perceived experience and wealth that do not involve actual, real world time playing the game.) Games can explicitly encourages reputation through rewarding players, as they play, with points and special abilities. Time spent playing also increases the time when a player can interact with other players. This interaction, in turn, can translate into something like what social scientists call [9] "social capital". Raiding in groups often rewards a player with better items, but these items are limited in number. Thus, the same raid group will have to raid the same dungeon repeatedly in order for everyone in the party to get the items they want. In order to travel through an area that is full of particularly high-level monsters, a lower-level "newbie" player may need the assistance of a higher level player to act as a guide. This all leads to creation of "communities" that manifest complex systems of social interaction during efforts to reach goals.

Changes of Space/Time Based on Social Interaction

Over time, an MMOG world may be experienced as "smaller." This may follow from any of a number of factors: An increase in players' ability to travel, a lessening of the amount of experience at lower levels required to advance, added flight paths, shortened duration of flight paths, introduction of flying mounts, etc. Whatever the reason, this "smallerness" is another aspect of the relationship between space/time and social interaction. In such games, social interactions assume increasing importance. Over time, areas of social interaction are kept while the spaces in between them become smaller. While this has the benefit of increasing the points of social interaction, it has the side effect of reducing the value of travelling in space/time. This results in what players have deemed "MUD-flation" - the decreasing value of in-game assets. As the world gets smaller, each player's ability to access resources increases, so the value of individual resources decreases. This is another illustration of how intimately considerations of space and time are tied both to in-game resources and to reputational "capital." A final aspect of game space/time is a specific developmental trajectory of the game. This "grand narrative" trajectory leads to a further separation in the game's social structure. A player who has been playing since the beginning of the game may be quickly trumped by a newer player with more raw power because of money spent or game change. Still, the "founding father" player's longer experience translates into a form of reputational value. In a similar sense, players who circumvent normal methods of advancement in favor of rapid power gain (eg. account buyers, gold buyers) are [17] spurned by players who have gained experience, gold, items, and class mastery through more conventional use of game space/time.

Discussion

These relationships of space and time, and their simultaneous space/time manifestations, are part of the fundamental, low-level structure of virtual worlds. As such, their specific aspects form the social interactions that occur within those worlds. Consider, for example, cooperative action by more established, experienced players (those who have traveled more of the space of the game and spent more time playing) and toward newer players, which is sometimes fostered (with more experienced players helping newer ones) and other times undermined (through the idea of "newbies" and the creation of a hierarchy within the game). Such in-game relationships are related, subtly, to discrete aspects of the space and time created within the virtual world.

The behavior of shortcutting, for example, makes time loom larger in the game, but it does so in a specific way. While necessitated travelling and the size of the constituted game world are largely functions of design decisions, the players' practice of reducing the time spent playing the game is an element that is best understood as something taken from similar events in real life. In this way, the game-defined elements (strong ludic) and the players' innovations (weak ludic) work together to construct the specific events as well as the overall culture of the game. If such distinctions could be made in regard to specific events; and further, if the number and typical frequency occurrence of event types could be ascertained; it might be possible to say something more definitive about our main concern. This can now be phrased as the extent to which events in gameplay are similar to or are different from those in real life.

While we think ethnography can provide us with examples of particular events that can be parsed in this manner, and maybe even a typology of events, it is not very good at establishing events' relative frequency, let alone the frequency of, say, events in which game-sourced strong ludism was more important to their dynamics than were life-sourced weak ludism. It may, however, be possible to carry out such analyses of game events "by hand" in enough cases to allow some inference. In addition, the digital records created during game play offer the possibility of analyzing automatically large amounts of data. Now that ethnography has helped us establish what to look for, the question becomes, are there traces in automatically generated gaming data that can be linked to physics engine and game design, on the one hand, and carryover from the real world on the other? Was this the case, a "Big Data" approach to game analysis certainly could be useful for the behavioral analyst. Indeed, the ideal kind of analysis would be the one in which ethnography, hand coding, and Big Data are brought into collaboration when big questions, like "Why study games?" are at issue.

Such a collaboration, described as methodological triangulation in the social science literature, is what we would hope for in the long run. Observed patterns of behavior such as shortcutting and the perceived shrinking of the game space create valuable hooks into the origins of social behaviors in the game world. That is, while identifying the locations of players throughout a particular episode of play is likely to be suggestive of the areas of congregation and the paths that players take through the virtual world, additional aspects of interaction, such as what is done while at those locations and while traversing those paths, are also likely to be

meaningful. Rather than seeking patterns in data - "throwing it at the wall until it sticks" - this approach has given valuable context into what game logs to look at and how to interpret their contents.

Conclusion

Unlike Big Data, we began our analysis ethnographically, by listening to skilled players and the language they used to talk about play. This led us to seeing the nature of space/time as important aspects of social interaction in game play. Such grounded analyses afforded useful hypothesis creation. In future work, we hope to combine out ethnography with other approaches, including "big Data," to give the study of gaming on a sounder foundation. How precisely to use these analyses when approaching the large data sets of game play traces typically used in "Big Data" analyses should in our view be next on the agenda for such approaches. However we come to execute this next stage, we are confident that aspects of space/time will be relevant to in-game social interactions and thus to more robust understandings of game play.

With regard to ethnography, we identified the tight coupling of space and time — i.e., that play/social interaction takes place in particular forms of "space/time." Through analyses of MMOGing in terms of space/time across platforms, the team came to believe that it would be possible to account discursively for the manifestations of space/time in terms of various combinations of the following factors:

The specific characteristics of the "physics engine" deployed by the game by which play is visualized;

The deliberate choices made by game designers to encourage or ban particular actions; and

The presumptions about space, time, and space/time carried over by players from their "real world" experience— that is, the elements of cultural "pre-consciousness(es)" necessarily, habitually, frequently, or occasionally manifest in game play.

The remaining parts of this paper were devoted mostly to a description of the discussions about MMOG play that led us to articulate these as the grounded analytic notions that we found most useful. In general, we contend that such ethnographic framings provide starting points for theoretically informed hypothesis formation, to replace the simplistic empiricism that is underlies so much "data mining." In contrast, ethnographically grounded analytic framings can provide a way to frame hypotheses about the similarities and differences between computer-mediated and non-computer mediated sociality. Indeed, it should be possible to synthesize ever more satisfactory analyses via reciprocal movement between the various ethnographies of MMOGs and efforts at analyzing Big Data from gaming. In our view, such an analytic practice provides the best hope for constructing a viable theory of the relationship between computing and change in things like sociality.

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