

# Second Life as an Information Ground: Implications for Collaborative Information Behavior

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## ABSTRACT

This paper describes a particular information-seeking-sharing-and-use scenario—“real life” information mediation in Second Life (SL)—to illustrate collaborative information behavior in Second Life. We explore how applying CSCW concepts such as *awareness* and *common ground* to the scenario reveal challenges of integrating a new media (SL) with existing collaborative information behavior practices, or vice versa, applying existing information behavior practices in a new media.

## Author Keywords

Collaborative information behavior, information grounds, information mediation, Second Life, awareness, common ground.

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous. H.5.3 [Group and Organization Interfaces]: Collaborative computing.

## INTRODUCTION

Collaborative information behavior using new media is not well understood. Using a real life information mediation scenario in Second Life, we discuss the challenges of CIB in new media and implications for design.

*Second Life* (SL) is a 3D virtual environment in which users are, by default, represented by a human avatar of their choice. SL users can populate it with their own virtual creations (property, clothing, and any object), trade virtual goods, and exercise extra-human capabilities on their avatars, such as change appearances, fly, and be programmed to perform highly skilled acrobatic movements. *Information mediation* is a situation in which

someone (the “person-in-the-know”), who either by profession, recognition from others, or by chance, helps someone else (the “person-needing-to-know”) by giving advice, searching for, or directing the person-needing-to-know to the appropriate resources. In exploring whether information seeking takes place in SL and how, we found a virtual library (info island) and a health information island. Info island is regularly staffed by volunteer librarians (with such profession in their first life) and regular (non-librarian) volunteers. In the span of 106 weeks between 2007 and 2009, librarians and volunteers recorded 389 “real life reference questions” in info island (questions that were not about how to use SL, or how to get somewhere) [SL librarian, private communication]. In speaking to a few health information professionals (health librarians and educators), we learned that Second Life as a whole acts as an *information ground* [6]. In other words, people come to SL usually to socialize and find communities of interest, and as a by-product, end up seeking, sharing, and using information. The following scenario illustrates SL as an information ground.

## REAL LIFE SCENARIO IN SECOND LIFE

A librarian is in the process of building her virtual house in Second Life and wants to buy a virtual couch. As she speaks to the person selling the couch in Second Life, he finds out that she is a health librarian in first life (to distinguish it from Second Life). He then reveals to her that his child has a long term chronic disease that doctors have not been able to find answers for. So, the librarian engaged in a “just-in-time consumer health information reference session” and provided resources to the couch seller. She found out what the couch seller had already done in terms of searching for information. The couch seller could not fully recall what he and his wife had done but described what they had done as best possible. Then, the librarian switched applications and looked for information on the web (not via Second Life), switched back to SL to create *notecards* with relevant information, and sent the notecards to the couch seller. A SL *notecard* is a small document represented in a pop-up style window within SL that can be transferred from avatar to avatar and stored in SL’s

inventory—a file and object storage system in SL)<sup>1</sup>. The couch seller read the notecards and scanned to resources he had not already encountered. A week later, the librarian received a SL instant message from the couch seller, thanking her for the information. He apparently had looked the librarian up on the web (of first life), verified her profession, and brought his wife into SL to chat more with the health librarian to discuss their child's conditions, the information they were looking for, and how to approach their problem.

### **DEFINING COLLABORATIVE INFORMATION BEHAVIOR**

Drawing from Poltrock et al. [7], we define Collaborative Information Behavior (CIB) as the range of activities that two or more people undertake to identify and resolve someone's information need, regardless of whether that someone is an actor in the aforementioned activities. We consciously expand the definition of CIB in three ways. First, we use the term "collaboration" broadly, to refer to any activity that takes place in the process of finding a solution to the same problem regardless of whether there was common understanding of the problem to begin with. In other words, a shared goal or common information need is not necessary for activities to be CIB. Activities that may not be directed by a shared goal need to be considered part of CIB in order to include initial interactions between an information mediator and a "person-needing-to-know". These initial interactions or information activities should not be discounted because they contributed to the shared understanding of the information need. This is important for it acknowledges that helping someone find helpful information is a *process* whereby identification of the information need can be done iteratively. Second, our definition does not restrict the information need to belong to those engaging in the collaborative information behavior.

### **THE RELEVANCE OF USING AN INFORMATION GROUND TO EVALUATE CIB**

An information ground is an "environment temporarily created when people come together for a singular purpose but from whose behavior emerges a social atmosphere that fosters the spontaneous and serendipitous sharing of information" [6]. Information grounds tend to occur in settings that afford social interaction. The relevance of using an information ground as a context to evaluate CIB is that the users who are interacting in the setting or virtual space have not planned to do an information search task, or did not come to the place with the purpose of sharing information. Typically, settings of social interaction do not support CIB and people do not come prepared with tools and resources for CIB. If the setting of social interaction

does not readily support collaboration of searching, sharing, and making sense of resources from diverse media, the onus would be on the "people-in-the-know" to figure out how to pass information they don't have with them to the person with which they are interacting. Otherwise, a breakdown occurs where an identified information need cannot be addressed in a "just-in-time" and "just-in-place" fashion. By using information grounds as a context to discuss future research and design directions for CIB, we are directed to think in terms of portability and dynamic linking between entities and across media and platforms so as to address both: a) the mobile and distributed nature of casual social interactions and, b) the problem of *information fragmentation* [3] or having different pieces of information about a person, entity or topic across different resources.

### **APPLYING COMMON GROUND AND AWARENESS TO EVALUATE SL FOR CIB**

*Common ground* can be understood as the mutual understanding of the problem at hand and the mutual assumptions that the people engaged in conversation or collaboration share [3, 2]. Along with processes such as *joint action* and *constant verification* using *diverse forms of communication/interaction* by those engaged in the process, common ground is a critical ingredient in efficient collaborative work [3]. To be clear, for collaborative contexts, the focus of common ground is on *how* joint action takes place [3]. In technology terms, common ground can be conceptualized in terms of features that enable processes of *mutual signaling, checking, and verifying* [3] the understanding amongst participants. We purport that SL has some technological ingredients that facilitate the establishment of common ground in collaborative contexts, but can be improved to support CIB more effectively. First, spatial ergonomics are built into SL (for example, sound dissipates for the user if s/he moves away from its source; objects enlarge or diminish based on the viewer's distance and perspective). Avatars can also show gestures. Thus, SL users tend to easily carry first life rapport building rituals, such as small talk, use of social cues, interpersonal distance, and self-disclosure [1], that enable some establishment of common ground in SL. However, as described below, specific to collaborative information behavior, more system features would be needed to support CIB effectively.

SL does not fare as well in *awareness*, another critical ingredient for successful collaboration. *Awareness* refers to the "understanding of the activities of others, which provides a context for one's own activity" [4]. One could say that awareness is a pre-requisite for, or part of the processes needed to achieve common ground. Specifically, SL is not equipped for processes particular to collaborative information behavior—seeking, searching, sharing and use. In the scenario described above, the librarian could have more easily assessed the resources to share by having more awareness of the couch seller's information activities. For example, the mediation process would run much smoothly if: a) there were a trail of the couch seller's information

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<sup>1</sup> When doing reference or mediation in SL, users tend to continue the interaction in SL, both for convenience (both entities are already in SL) and to protect the users' confidentiality (the default SL account requires users to select last names from an existing list of SL names).

behavior activity, of which disclosure is controlled by him; b) the librarian could easily share her screen view with the couch seller, so that they could more easily collaborate and assess the information sources and future strategies; and c) the search conducted by the librarian's search results would automatically link to the information in the couch-seller's trail of activities for the problem-at-hand, and the links had a weight of relevance and other appropriate indicators, and such information were available to both parties.

### THE RELEVANCE OF USING A NEW MEDIA LIKE SL TO EVALUATE CIB: IMPLICATIONS FOR DESIGN

Social media systems such as Second Life, Facebook, and instant messaging are designed with social interaction as one of the primary functionalities for users. However, as discussed, information grounds can form in any of these social media, and can lead to collaborative information behavior. In order to support such collaborative information behavior, social media systems need to be designed to address awareness, common ground, and information fragmentation [8]. In other words, social media need to do what they do while enabling the coordination and integration of information from different resources located in different media, and support collaborative seeking, sharing, and use in multiple contexts of social interactions. In our scenario, the librarian had to switch back and forth between SL and other search and retrieval systems in order to provide the couch seller with the appropriate information in the appropriate format. We envisioned how such breakdown could be addressed with a sharable information trail which dynamically links to relevant information.

While researchers in CIB recognize the need for information retrieval systems to acknowledge collaboration in search processes [9], there is little to no work accounting for the nature of information grounds and its implication on social systems and the need for them to support collaborative information behavior. Second Life's sophisticated 3D representation of people and objects, and its programmability, make it a rich environment in which to conduct research and design of CIB functionalities that allow a sociable system<sup>2</sup> to readily support CIB.

### CONCLUSION

This paper contributes in various ways to the discussion of how existing systems do not adequately support collaborative information behavior:

1. We acknowledge that information seeking is a highly collaborative activity, but move the conceptualization of collaborative information behavior beyond the context of teams or formed groups because serendipitous information sharing occurs in information grounds.

2. We illustrated a scenario of information mediation in Second Life, in which awareness, common ground, and the management of information fragmentation were not ideal for CIB.
3. We stress the importance of incorporating the concept of information grounds to CIB research and discussed its implications on the design of sociable systems that more readily support CIB.

### ACKNOWLEDGMENTS

This work is funded by the John D. and Catherine T. MacArthur Foundation.

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<sup>2</sup> A sociable system is one which functionality (for users) is to enable and maintain social interactions