Mobile Social Networking: An Information Grounds Perspective

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Abstract

Information grounds are places where people exchange information. Here we examine use of a mobile device-based social networking service as an information ground. The service allows users to form groups and send text and photo messages to those groups. We present usage and questionnaire data from 19 people who shared a primary group in this system and who used the system for 16 months on average. Results highlight the types and usefulness of information shared, the role of information shared in everyday life, the way the system fits into participants' communication and social "ecosystem", and the ways in which the system functions as an information ground. Usage analyses describe message sending frequency and system participation levels in relation to other factors, such as length of time in the system. Findings are discussed in the context of the seven propositions of the information grounds framework.

1. Introduction

1.1 Mobile Messaging Meets Social Networking

Mobile messaging is a highly popular communication medium used worldwide. Research into mobile messaging demonstrates the various roles it plays in people's lives, from simple chatting with friends and family [12] to playful teasing [15] to enabling more private communication connections when voice calls are undesirable [11, 13]. More recently, mobile messaging has started to appropriate attributes of social networking services, specifically the ability to maintain social groups for mobile messaging and to connect with members of a social network. For example, Twitter [20], broadcasts text messages to the social network. The advantages and promise of these services stem from the integration of the social connections brought about by social networking

services with the communication channel and portability of the mobile device: users can maintain and foster social connections in a low overhead (simple text messaging), and easily accessible and immediate (the mobile device is always with the user) way.

While a significant number of people use these mobile social networking systems, we do not yet know whether the promise has been realized. What role do these systems actually play in people's social lives? How do these systems affect information flow? Early research highlights benefits of these systems for coordination of nightlife type activities and for raising social awareness through exposure to the day to day activities and social interactions of members of their social network [7]. These benefits arise in part because content in these systems can be authored anytime and from any place, and thus it tends to reflect the ongoing stream of what people are doing in their lives and be immediately relevant.

Additionally, social and enhanced communication [4, 14] benefits of group-based mobile communications have recently been demonstrated. In [4], for example, users shared more content and felt more social and connected to their social network when able to create and message with groups of people rather than the one-to-one interactions typical of mobile phone communication.

Although this earlier work provides evidence for the importance of bringing enhanced social networking and communication services to mobile devices, we are just starting to get a sense of how such services are used as long-term, lifestyle-integrated communication media. A first contribution we hope to make with this paper is to present results of a longer running study of daily usage of a mobile social networking style communication system, focusing explicitly on the types, ways, and "ecosystem" around information sharing.

The second contribution we hope to make is to provide a theoretical framework for

interpreting mobile social networking usage. In this context, theory should help us understand why people benefit from these services and how they use and integrate them into their lives. Toward this end and given our focus on information sharing, we present findings in the context of the theory of information grounds, defined in detail in the following section.

1.2 Information Grounds

How people interact with information—from information needs to information seeking, giving, managing, and use—is the focus of researchers in information behavior, a subfield of information science [3, 19]. While varied theoretical approaches have been proposed in past decades (c.f., [10]), recent inquiries are employing such spatial metaphors as information grounds [2]. Coined by Fisher (writing as Pettigrew [18], [8]) from her ethnographic study of information flow in community health clinics, information ground theory focuses on people's information behavior in informal social settings, ranging from book clubs, gyms, folk festivals and bus stops to hair salons and supermarket queues.

In essence, information grounds can occur anywhere at any time, often unexpectedly, and while they form around an instrumental purpose (e.g., receiving a service or good), information sharing emerges as a byproduct of social interaction. As people visit and engage in social interaction, their conversation about life in general and about specific situations leads to both formal and informal information sharing on varied topics, in varied directions. Information needs may then emerge through this casual interaction or these casual chats can be purposeful lead-ups to questioning someone about his or her expertise in an area in which the person is experiencing difficulty, or to follow-up on the outcomes of a previous information exchange. Other times information is shared incidentally, in ways described by Erdelez [6] and Rioux [20] where information is shared serendipitously without anyone expressing (or necessarily having) a need for that information.

Social types are also characteristic of information grounds, people who play expected social roles, including with regard to information flow. For example, the setting of a book club may vary from one community to another, yet the clubs are typically the same in that the same types of people attend: women interested in

sharing a reading experience, and sometimes other people such as an author, book seller or librarian. Some may play stronger roles than others in sharing information, fostering information flow through giving feedback, or in instigating or communicating information needs.

General findings in information ground research reveal that most everyone has at least one information ground, and people's top information grounds are the workplace, activity groups (e.g. fitness clubs or playgrounds), and places of worship. Also, some information grounds have "hostage" characteristics—settings in which people are there by little choice, such as medical offices, laundry mats, bus stops, and store queues. These and other findings concerning information ground research and its connections to other social and space-based frameworks such as Oldenburg's "Third Place" [17] are discussed extensively in other works (e.g., [9]). Of importance to the current study are information ground's seven propositions:

- Proposition 1: information grounds can occur anywhere, in any type of temporal setting and are predicated on the presence of individuals.
- Proposition 2: People gather at information grounds for a primary, instrumental purpose other than information sharing.
- Proposition 3: information grounds are attended by different social types, most if not all of whom play expected and important, albeit different roles in information flow.
- Proposition 4: Social interaction is a primary activity at information grounds such that information flow is a byproduct.
- Proposition 5: People engage in formal and informal information sharing, and information flow occurs in many directions.
- Proposition 6: People use information obtained at information grounds in alternative ways, and benefit along physical, social, affective and cognitive dimensions.
- Proposition 7: Many sub-contexts exist within an information ground and are based on people's perspectives and physical factors; together these sub-contexts form a grand context.

It is important to note that we do not argue that information grounds is the only theoretical framework for studying mobile social network-based communications. We felt going into this research that it fit well, and we address this fit in the discussion below. Further, we recognized an opportunity to contribute to research on information grounds with a study of how online

settings, specifically here in a mobile social software context may function as information grounds.

2. Current Study

For the current study, we examined usage of a particular mobile social networking system called Slam [21]. Slam includes a Windows Mobile application interface (Figure 1), an SMS/text messaging interface, and a web interface for occasional desktop-based interactions. The default interaction mode in Slam is group-wide messaging, either text or photo, or both. That is, members of the Slam network create and participate in social groups whose primary communication medium is through their mobile phones. Sending a message to a group is as simple as selecting the desired group, or groups, keying in a message and clicking send.

The Slam system emphasizes social groups as the core structural unit. These groups can be either public or private, with private groups requiring an invite from a group member to join. While one can send messages to individuals in Slam, which is similar to leaving messages for a person on their social networking website page, by far the dominant communication modality is message sending to groups of people. Users can, traverse parts the Slam social network by browsing public Slam groups and their members' profiles, joining these groups if desired (see [3] for a more detailed description of the Slam system).

Figure 1: Slam home screen

Using the information ground framework to guide the research, we examined how Slam served as a communication, information and social medium. Our study was guided by the following research questions:

1. How does Slam, as an example of a mobile social networking environment, function as an information ground?
2. What role does Slam play in the lives of group members, specifically with respect to information sharing?
3. What are the properties of Slam (e.g., frequency of use, length of exchanges), as a communication medium?

Data were collected using two methods: (1) system usage data from a well-established Slam group via direct database query, and (2) an online survey with members of that same group. The survey tool was adapted from the standard information ground instrument, and covered usage data and patterns not available via database query, such as the places group members were when sending and receiving messages. Questions included both open-ended and scale item so participants could provide examples and other qualitative feedback.

Again, extensions to previous studies with Slam [4] and related systems [8] include a longer running and more naturalistic deployment and importantly the consideration of Slam within the more theoretical information grounds framework.

2.1 Participants

Participants were 19 Slam users who shared a common primary Slam group, meaning that while they may have been members of other groups, they all shared the same group to which they sent the most messages. This is a smaller sample than we would have liked. However, these participants represent the largest Slam group that was active and whose members were reachable by experimenters. Eleven participants were female, 8 male, with a mean age of 33 years. Occupations ranged from student to physician to travel agent. Participants had been in the Slam system for an average of 15.8 months (Med = 18 months) and had been a member of 4.26 Slam groups (Med = 3 groups), including the primary group. Participants sent on average 69.1 (Med = 69) messages to their primary Slam group and an average of 139.6 (Med = 69) messages to all their Slam groups over their membership lifetime in the group.

Two participants used the Windows Mobile application, while the remainder used the SMS interface to Slam. Participants knew one another prior to the study and were in close contact with one another via other communication media as well: 53% reported seeing group members in person 2 – 3 times per week, and nearly half (47%) reported online interactions (e.g., email, IM) with at least one other group member every day.

2.2 Findings

2.2.1 Slam Usage In terms of participation, we examined the number of messages sent in relation to the number of groups users belonged to (Figure 2) and the length of time in Slam (Figure 3). Figure 2 shows that while message sending does increase with the number of joined groups, this was only a weak relationship. Likely this reflects the fact that for many, the primary Slam group was by far the dominant group, with other groups receiving little interaction. Figure 3 shows that the longer a person is in Slam, the more messages they sent. This is not surprising, but the figure does reveal the presence of a few lurkers, those who have been members of Slam for well over a year in many cases but have sent relatively few messages. Worth noting however, is the relatively high percentage of non-lurkers, those who continue to participate over time.

Drawing on the questionnaire results, secondary usage questions targeted the ways in which slam is used and fits into users' lives. Reported uses (Table 1) are in line with previous work and highlight the role of the service in coordination.

Table 1: Reported uses for Slam messages, including number of participants reporting each usage type and the estimated percent of total messages devoted to each usage type.

Usage	Number Participants Reporting	% of total messages (est.)
Coordinating get-togethers	15	25 – 100
Chit chat	7	5 – 50
Information exchange	7	10 – 25
Answering questions	4	5 – 25
Checking in/"hellos"	4	10
Witty banter	2	50 – 60

Targeted information sharing in the form of coordination and explicit information sharing was more prevalent than general chit chat and banter.

In terms of time of day, 100% of participants reported using Slam in the evening, which makes sense given its role in social coordination. However, about half (47.4%) also reported using Slam in the morning, three quarters (73.7%) in the afternoon, and two thirds (68.4%) late at night. Thus, usage is spread fairly evenly throughout the day. Participants tended to check messages throughout the day as they arrive ("Slam gets used throughout the day to keep up
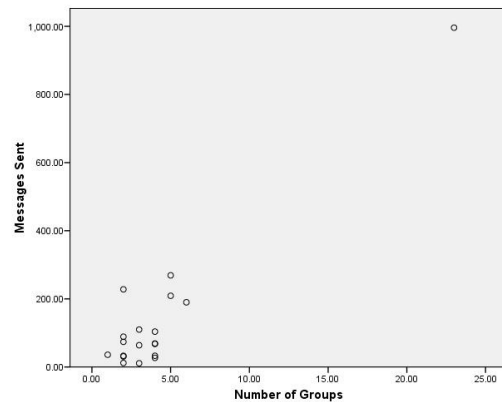

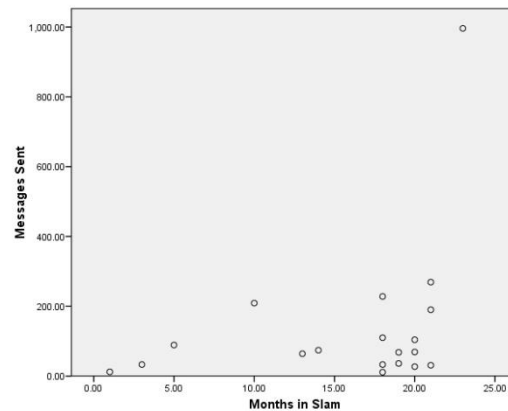**Figure 2: Scatterplot: Number of messages sent by number of groups belonged to.**

Figure 3: Scatterplot: Number of messages sent by number of months in Slam

with friends and for ongoing dialogues"), and regularly multitasked with Slam: All participants (100%) reported using Slam while engaged in some other form of socializing, nearly three quarters while working (74%), nearly two-thirds while driving (63%), and more than forty percent (42%) during other activities such as when checking email. Slam interactions typically are short, with a most commonly reported (68.4%)

length of less than 10 minutes for the duration of a Slam exchange. 89.5% of these information exchanges last 30 minutes or less, and no Slam exchanges last longer than 1 day, reflecting the immediacy of the information and the communication. (See Figure 4 for a message sending overview.)
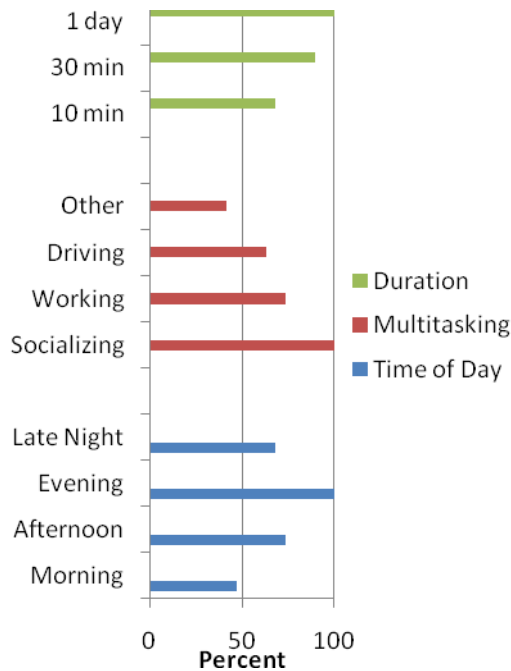

Figure 4: Message sending: duration of a given information exchange (cumulative percentage), while multitasking (percent of participants reporting each other activity), and time of day (participants messaging at

2.1.2 Slam as an Information Ground Of primary interest was participants' reported use of Slam as an information ground. To start, we asked participants to list the information grounds they frequent and to compare them to Slam. Participants listed an average of 7 information grounds per person. Online information grounds, such as email lists and MySpace, were most frequent, listed by nearly 80% of participants, as were group social events, such as parties. Restaurants, work, and one-to-one social encounters also were common (see Table 2 for a full listing of participants current information ground types). Regarding the primacy of online information grounds, one person specifically called out mobile online information grounds:

"Definitely the mobile texting groups. The information is the most important to me, I think, because the groups are made up of the

people that are the most active in my life. It is a "chosen" group, so there is not a lot of information being passed around that doesn't apply to me or interest me. Also, due to the nature of texting, the messages are usually short and specific. The information is shared in an efficient way without a lot of pleasantries that may be necessary for a 1-on-1, email or phone interaction."

When asked to explicitly compare Slam to other information grounds, participants rated Slam about the same as their physical space information grounds (M = 3.26, Med = 3 on a 5-point scale from "1 = Much Worse" to "5 = Much Better"). The short length of messages was the primary drawback, although this same short message format was actually a plus for many people ("More direct questions and answers, cuts the chit-chat"). Others touched on portability ("Slam goes with me wherever I go so it's very convenient. You usually take your friends with you!"), the always-on nature of the medium ("I can reach everyone instantly, and be reached instantly") and the ease of information spread ("it's easier to disseminate information quickly"). One participant underscored the role of mobile device-based communication in coordinating face-to-face encounters, "Slam is best for getting you to those places where your friends are so you can exchange info in person."

Table 2: Information ground types, as a percentage of total number of information grounds listed, and by percent of participants listing each information ground type.

Information ground Place Type	% of Information grounds	% Reporting
Online	23.3	78.9%
Group Social	18.9	78.9%
Restaurant	12.0	57.9%
One-to-one social	12.0	47.4%
Shopping	9.8	36.8%
Work	8.3	52.6%
Other	8.3	36.8%
Salon/Tattoo	6.7	42.1%
Church	0.8	5.3%

Similarly Slam was rated about the same when compared to virtual space information grounds (M = 3.12), and again the short messaging format was the primary drawback. Here though the ubiquity of mobile

communication channels was also cited as a drawback: "Sometimes I don't want in on a particular slam conversation. That's annoying." Several participants pointed out different goals:

"Again I find it to be a matter of information. If you want to find out what all your friends are doing on a Friday night or just send a shout out to them all Slams your service... but if you want to look up a recipe or do research on jock itch then I'm gonna have to go with the internet"

Table 3: Liking for attributes of Slam, percent of participants reporting liking for each attribute and number of instances of liking each attribute as percentage of total instances reported.

Attribute	% eporting	% of total
Awareness of social activities	100.0%	10.1
Strengthening connections	94.7%	9.6
Coordinating	94.7%	9.6
Convenience	84.2%	8.6
Ease of use	78.9%	8.0
Compactness/Portability	73.7%	7.5
Getting questions answered	73.7%	7.5
Share interests	63.2%	6.4
Resources	52.6%	5.3
Cost	52.6%	5.3
People/Conversation watching	47.4%	4.8
Device compatibility	47.4%	4.8
Atmosphere	36.8%	3.7
Ubiquity	31.6%	3.2
Learning new things	21.1%	2.1
Share similar beliefs	21.1%	2.1
Diversity of people/ideas	10.5%	1.1
Making connections	0.0%	0.0

Next, to understand how Slam fits specific attributes of information grounds, we modified several questions from the standard information ground instrument. We started this section of the study by asking what they like about Slam. We provided a list of attributes and participants checked those they liked. As shown in Table 3, this group of people who knew one another well did not like the system as a way to make social connections, but did for strengthening existing

connections, coordinating with one another and being aware of social activities.

Slam also appears to be valuable for getting questions answered and to a slightly lesser degree for providing resources to group members. Participants largely liked the convenience and portability of the mobile form factor, although note the exception for low likability for the ubiquity of Slam. One repeat complaint was confusion over who was who, especially by text messaging users who, in the absence of visiting the website, only see a "handle" name associated with messages and must deduce the actual sender.

We then asked participants what types of things they learn in Slam (Table 4), again providing a list of options slightly modified from the original information grounds questionnaire. Participants checked a total of 83 items, for an average of 4.37 items per person. Note the emphasis on where people are ("I'm at XYZ restaurant") and what they are doing (in transit status), as well as on social events. When asked to estimate the percent of what they learn in Slam was spontaneous, participants reported an average of 58.47%.

Table 4: Types of information they learn in Slam, percent of participants reporting each information type and number of reports for each information type as percentage of total number reported.

Information Type	% reporting	% of total
Where people are	94.7	21.6
Social events	89.5	20.5
Who is doing what	73.7	16.9
What's happening, local	68.4	15.7
Things about places	31.6	7.2
What's happening, world	26.3	6.0
Other's thoughts/opinions	15.8	3.6
Things to learn more about	10.5	2.4
Other	15.8	3.6
Things for self-improvement	5.3	1.2
Things to apply to daily living	5.3	1.2

3. Discussion

3.1 Slam and Information Sharing

Given daily activity, Slam clearly played a role in a communication and social "ecosystem" that included other channels, such as email, instant messaging, websites, and face-to-face interactions, as well as other information grounds such as restaurants and when shopping. Members made Slam a part of their ecosystem because they liked not only the convenience and social awareness, but getting questions answered, resource availability (e.g., borrowing a car), and even people "watching". Slam appeared to complement other communication channels because of its immediate and ongoing nature, because interactions were short and typically very functional, and because it was with the user in different physical space contexts. This mobile access to the social network played a key role in physical space interactions both by facilitating them (coordination) and by being a part of them (use of Slam while being social). The type of information learned in Slam reflected the on-the-go usage: where members of the network were and what was happening locally and socially. Information exchange around "bigger" topics like world events was left to other means.

In terms of the way in which Slam was used, the preference for communication over networking was stark. That is, in contrast to traditionally an important aspect of social networking systems, Slam was not used by this group for meeting new people. Instead, communication with the social network was used to strengthen existing connections. From information observation, the study group uses Slam similarly to other groups. Thus we suspect this de-emphasis on forging new relationships reflects the aforementioned nature of Slam with its focus on group communications (versus systems like Dodgeball [5], with their focus on reaching out to others in your extended network). As one person commented, the primary communication group was "chosen" for ongoing communication and other social interactions.

There is a noteworthy interaction here between this explicit selection of the social network and the ubiquity of the mobile interface. Even in this group of known, selected others, many reported receiving undesired messages. Expanding the social network to unknown and not chosen individuals presumably would exacerbate this issue. Finally, because mobile social networking services appear to facilitate face-to-face interactions, greater transparency to true user identity than in web-based social networking systems may be needed, even among networks of mostly known members.

Perhaps because of the heavy focus on coordination and planning, along with the lightweight interface, every member of this social communication medium participated. This is in contrast to many online environments in which a few people contribute the overwhelming majority of the content. In other words, the "lurker" phenomenon was less pronounced in this environment. Understanding why is an opportunity for future research.

It's worth considering how additional technological features could extend the functionality or assist with frequent use scenarios. Given the considerably large number of location announcements and requests, location sharing appears a top candidate for improving the service, and given the current expansion of such functionality into mobile phones, is a highly likely outcome. Incorporating additional coordination tools, such as a voting mechanism for planning nightly outings, may be helpful. Especially for SMS users of these systems, expanding the "command line" feature set to assist in social networking behavior, such as learning more about whom people are, may also be of assistance.

3.2 Slam and the Information Ground Framework

At the outset of this paper we proposed that the information ground framework could be a viable lens for understanding how a mobile social software system fosters social interaction and information exchange among users, and that our study of Slam use could enrich the information grounds framework. To the former, we draw from the information grounds framework notions of the types and roles of different members of the mobile social network, the idea of information spreading in a variety of directions simultaneously, and the role of the sub-contexts individuals bring to the conversation. Each of these, and others, are discussed below in the context of the seven propositions of the information ground framework.

To the latter, we focus on the always-on nature of the information ground afforded by the mobile interface, divergences of Slam use from

that predicted by the information grounds framework, and finally we introduce into the framework the notion of "information capital". First, much of the information ground framework assumes people come together physically, at which point information exchange takes place. The mobile interface turns this on its head such that the information ground can be accessed anytime, anywhere. Thus the framework should be extended to include information sharing that does not take place around common physical spaces.

Second, the primary divergence of Slam use from what the framework predicted was the emphasis on highly functional information sharing in Slam versus more incidental or "byproduct" information sharing noted in previous studies of information grounds. Slam was a medium in which information was shared, but rather than more traditional informal social settings, Slam was a hub for short, targeted communications. The information ground framework, particularly propositions #2 and #4, as discussed below, can be updated to reflect this type of information ground.

Third, information capital is a concept we define as an individual's capacity to access information. It comprises a person's information grounds extent (number and variety of), degrees of social capital (c.f., [16]) and information literacy ([1], [22]). Participants in the Slam study then would be of high information capital given their large number of information grounds, their high sociability, and their high information literacy. This information capital concept expands on the seventh proposition that focused on the collective context of participants and setting by defining attributes of participants (degree of sociability, etc.) that both affect information sharing and also are the direct result of their participation in information grounds.

We now return to the information ground's propositions to consider more specifically how Slam use can be interpreted by and extend the information ground framework. The premise of Proposition #1 "information grounds can occur anywhere, in any type of temporal setting and are predicated on the presence of individuals" opened the door to studying whether online settings can serve as information grounds. The mobile device-based interface to Slam very much covers any type of temporal setting as well as a rich sense of the presence of others, even if those others are not physically present. Thus, Slam fits solidly as an information ground with respect to Proposition #1. As mentioned, this

"anywhere, anytime" nature of the mobile social network and corresponding communication channel was largely a plus, but also overwhelming for some. In fact, such high degree of connectedness represents something of an extreme version of physical space, or even other online, information grounds that are visited less frequently. There may be an optimal amount of interaction with an information ground, or this amount may vary by person or by information ground.

Propositions #2 ("People gather at information grounds for a primary, instrumental purpose other than information sharing") and #4 ("Social interaction is a primary activity at information grounds such that information flow is a by-product") were more problematic in terms of their fit to the mobile social networking environment for largely the same reason: Much of what Slam was used for was targeted, rather than incidental or "byproduct" information sharing, something many participants reported a desirable system quality. Thus we conclude that propositions #2 and #4 do not fit Slam use. The overhead required to send mobile messages, especially in comparison to face-to-face conversations, may prevent the chatter required for such byproduct information sharing. As mentioned, this shift to more exclusively functional information sharing represents a direction for the information grounds framework to expand due to an impact of technology on communication. Slam is a place users went for information, but the information sharing was short (Figure 4) and focused rather than casual and indirect.

The notion of social types figures strongly in the information ground framework. Our examination of Slam, including the analysis of usage data, generally supports Proposition #3 "Information grounds are attended by different social types, most if not all of whom play expected and important, albeit different roles in information flow." We learned that two individuals served as hubs (e.g., see the very high system use of one person in Figure 3). We further learned from the range of messages sent that particular individuals participated more than others. This variability suggests that members play specific roles, such as initiators of information exchange, although future research will be needed to really define these role types in the mobile social networking context.

Our examination of Slam contributed to enhancing past findings regarding proposition #5, "People engage in formal and informal

information sharing, and information flows occurs in many directions." Participants indicated that Slam supports the sharing of formal and informal information. Our study revealed that the "1 : Many" ratio is magnified exponentially in such settings as Slam. At physical information grounds, the number of people participating in any conversation tends to be low as only a small, finite number of people can hear and participate in a conversation unless a microphone or some other tool is used to project. With Slam, however, any number of people can participate. Moreover, in traditional settings, information sharing occurs synchronously, while Slam supports synchronous and asynchronous communication. For future research, one should examine the relationship between the online discussion via Slam and what occurs when the same people meet up physically. From the current study we hypothesize that Slam may be serving as a primer, catalyst or ice-breaker such that ideas are instigated or shared with the social network online, but are discussed in-depth later due to the greater facilitative nature of face-to-face communication. Thus the sharing of light or trivial information in Slam may be followed by the sharing of highly important information later.

Proposition #6 "People use information obtained at information grounds in alternative ways, and benefit along physical, social, affective, and cognitive dimensions" was largely supported by our findings. Participants reported that they enjoy Slam because of the social benefits, which make them feel happy and connected, as well as the learning opportunities that arise, often through serendipity and conversation that occurs after people meet-up.

Finally, Proposition #7 "Many sub-contexts exist within an information ground and are based on people's perspectives and physical factors; together these sub-contexts form a grand context" revealed a unique feature of online information grounds such as Slam. Like traditional information grounds, each participant brought his or her own personal subcontext, which contributed to creating a larger mise-en-scène. Of primary difference, however, is that in Slam the participants can be physically remote and fully immersed in their own physical space sub-context, in effect greatly amplifying the range and diversity of information ground sub-contexts and in turn creating many more ways in which these sub-contexts can interact to form the "grand context".

4. Limitations and Future Work

While the study is to our knowledge novel for its use of an information science framework to study an established group of mobile social software users, it contains several limitations, most notably the inability to generalize statistically the findings to a larger population of users. For example, the participants studied appeared to be heavy information seekers in that they reported many more information grounds than those in past studies. Also, as mentioned, no two mobile social networking systems are identical in terms of functionality, and the system studied here may be more focused on groups of people rather than networks and on communication rather than awareness, both of which may moderate findings. The richness of the findings, however, indicates several areas for future investigation, including:

- The disconnect between online and offline identity—we found that Slam users who knew each other well offline had difficulty recognizing one another online due to alias confusion and lack of visual cues.
- The identification of different social types, such as the "hub," and their specific roles in information flow.
- The effects of side conversations that occur when people go outside the group.
- The relationship between online and offline information grounds shared by the same members (e.g., can an online information ground serve as a primer for information sharing that is carried out in-depth offline)?

Beyond mere facilitation, mobile networking and communication systems are revolutionizing the ways that people communicate. Evidence from our study shows that such systems can play an active role in user's information sharing "ecosystems", function as information grounds, and can mediate barriers of time and place that hinder the formation of information grounds in traditional, physical settings. Findings from future systematic research will aid greatly to understanding this complex, emergent phenomenon and its effects on society.

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