Mobile Social Networks and Social Practice:
A Case Study of Dodgeball

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Go to a section in the article:

Abstract

A mobile social network system (MSNS) allows groups of friends to be accessed and engaged with from one's mobile phone. Dodgeball is a MSNS that seeks to facilitate social connection and coordination among friends in urban public spaces. Based on a year-long qualitative field study, this article reports on the social and behavioral norms of Dodgeball use. A comparison between social network sites and Dodgeball highlights some of the communicative differences of mobile technology and the Internet. The findings of the study suggest that Dodgeball use can influence the way that informants experience public space and social relations therein. At times Dodgeball can facilitate the creation of third spaces, which are dynamic and itinerant forms of "third places." Additionally, exchanging messages through Dodgeball can lead to social molecularization, whereby active Dodgeball members experience and move through the city in a collective manner.

Introduction

Specific communication applications and devices such as email, instant messenger, and mobile telephony have led to an age of "perpetual contact" (Katz & Aakhus, 2002; Wellman, 2001). Despite this increase in the ability to stay connected, there has been debate about whether communication technology contributes to a withdrawal of people from their social environments by decreasing face-to-face social interactions. McPherson, Smith-Lovin, and Brashears (2006) found that Americans' number of confidants has decreased over the past 20 years, despite a growing number of channels through which to keep in touch and stay connected. While initial concerns that the Internet caused social isolation (Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, & Scherlis, 1998) have been reconsidered (Kraut, Kiesler, Boneva, Cummings, Helgeson, & Crawford, 2002), a large body of literature suggests that social connections can be developed, maintained, and strengthened through computer-mediated channels of communication (e.g., Ellison, Heino, & Gibbs, 2006; Hampton & Wellman, 1999; Howard & Jones, 2004). Much of the literature to date has focused on the role of the Internet and computers in developing and maintaining social relations.

Mobile telephony provides an increasingly important communication channel in facilitating social connections. With 233 million mobile subscribers in the United States (CTIA, 2006), more Americans own a mobile phone than have an Internet connection (University of Michigan, 2006). Mobile phones are ubiquitous in many parts of the world today, with an estimated two billion subscribers worldwide (MIC, 2006). Most of the research on mobile telephony has explored the effects of mobile phone calls and texts on maintaining pre-existing social

connections (Ito, Okabe, & Matsuda, 2005; Katz & Aakhus, 2002; Ling, 2004). Some have argued, however, that mobile phones may lead to atomization and privatization among users by discouraging face-to-face communication in urban environments (e.g., Banjo, Hu, & Sundar, 2006; Gergen, 2002; Puro, 2002).

New services for mobile phones have been developed that purport to allow people to create, develop, and strengthen social ties. Much like social network sites on the Internet (boyd, 2004; Donath & boyd, 2004; Ellison, Steinfield, & Lampe, 2007), these services may help users to build valuable networks through which to share information and resources. MySpace and Facebook have each made deals with wireless carriers to develop limited versions of their services on mobile phones (Yuan & Buckman, 2006). In addition, software for mobile phones has been explicitly designed to help people network through location-centered interactions. However, much of the research to date has used quasi-experimental designs (e.g., Eagle & Pentland, 2005; Paulos & Goodman, 2004; Wang & Canny, 2006) and therefore does not explore how people use such technology in their everyday lives.

This project's goal was to explore the uses and perceived effects of a mobile social network system (MSNS) as it is integrated into everyday life. Two over-arching research questions guided the project:

> **RQ1:** What is the nature of interactions that develop around a MSNS (i.e., who is using it, and what are they using it for)?

> **RQ2:** How might these interactions change the way users think about and experience urban public spaces?

Dodgeball was one of the first commercially available MSNS systems in the U.S., and it has been one of the most hyped (Johnson, 2005). As such, it provides a unique opportunity to explore some of the emerging social uses of an MSNS. This article inductively analyzes Dodgeball as a case study for MSNS, exploring its embedded social meanings and uses among a group of active users, and identifying new social processes and functions that Dodgeball facilitates. First, the article discusses Dodgeball's background and how it works. It then offers a conceptual framework for exploring Dodgeball use, drawing on literatures on the emerging normative use of communication technology and the social production of space. The study's methodological approach is then described, followed by a presentation and discussion of the findings. The main themes are then summarized, and potential limitations of the study are identified. The article concludes with reflections on implications and areas for future research.

Dodgeball Background

Dodgeball[1] is a mobile service that distributes location-based information of users so that people can meet up at venues within cities. Similar to a social network site, Dodgeball allows users to set up publicly-articulated social networks of friends so that they can broadcast their location to these individuals' mobile devices. For example, when users get to a bar or cafe, they can "check in" by sending a text message to Dodgeball such as "@ Irish Pub." Dodgeball then broadcasts their location via text message to people in their Dodgeball network. Users can also be alerted when friends of friends who have checked in to Dodgeball are within a 10-block radius. The system also allows members to send "shouts" or general text messages broadcast among Dodgeball friends, such as "Roof party tonight my place 9pm til whenever." Shouts can be used like a check-in to facilitate meeting up at places not in Dodgeball's venue database or for whatever other reason

users might want to broadcast a message to their Dodgeball network of friends (such as a joke, celebrity sightings, etc.).

Dodgeball was acquired by Google in May of 2005, and it is available in 22 cities in the U.S. Dodgeball is currently free to use; however, users are charged by their mobile carriers for each text message they send and receive through Dodgeball (unless they have signed up for an unlimited text messaging plan). Dodgeball does not use tracking signals like GPS to determine where its members are; users must actively tell Dodgeball where they are by sending a text message to Dodgeball with their location.

Conceptual Framework

Emerging Norms

New media provide an important platform for exploring social relations and communicative practices. As Williams (1975) suggests, new communication technology both reflects and refracts the cultural climate in which it emerges. Therefore, exploring early conceptions and use of new media can shed light on the social environment that produces and consumes such technology. In her seminal work on the introduction of electricity and the telephone in the late 19th century, Marvin (1988) explores how people used new communication technology to manage time and space and in this process, invent new conventions of social trust. Marvin argues that communities use new technologies to attempt to solve old problems.

The social shaping of technology literature also suggests that the assumptions, expectations, and needs of early users shape future normative use of technology (e.g., Bijker, Hughes, & Pinch, 1987; MacKenzie & Wajcman, 2002). Early adopters of technology tend to be social leaders; as such, their understanding and use of a technology can influence others (Rogers, 1995). Many of the early and active Dodgeball users were in direct contact with the founders to provide feedback on Dodgeball's design. This group of users is important to study, because some of them directly influenced future iterations and development. The early adopters examined in this study represent a "relevant social group" (Bijker, Hughes, & Pinch, 1987) of Dodgeball users; as such, they share similar understandings of the technology. Sometimes the practices of early adopters are quite dissimilar to the practices of either the early majority or late majority adopters (e.g., Preece, 2004). Technological innovation and adoption are complex social processes. Nevertheless, an examination of early adopters of an MSNS can identify potential opportunities and themes for developers and researchers to explore.

Social Space

As social network sites migrate from the computer to the mobile phone, network information and communication can be integrated into public space. I use the term public space here to refer to non-domestic physical sites that are distinguished by their relative accessibility, such as dance clubs, parks, restaurants, bars, cafes, laundromats, and the street (Lofland, 1998; McCarthy, 2001). Lofland (1998) suggests such urban spaces can be characterized by the social relations within them. People experience space based on their relations with others inhabiting that space.

A particular genre of public space is called *third places* (Oldenburg, 1991). "The third place is a generic designation for a great variety of public places that host the regular, voluntary, informal, and happily anticipated gatherings of individuals beyond the realms of home and work" (p. 16). Oldenburg contends that

gatherings in third places are an essential part of successful urban sociality. Third places are neutral ground away from home and work where patrons should feel like they are on a level field with one another. Casual friends regularly gather at a particular third place that is central to their sense of community. Among the regulars, conversation is the main activity, according to Oldenburg, and the mood is playful. These informal and casual social gatherings do not require premeditated planning with particular individuals.

Neither Lofland nor Oldenburg discusses the role of communication technology in urban public space; therefore, it is important to describe this relationship explicitly. The term *mediaspace* (Couldry & McCarthy, 2004) refers to the mutual connection, dependence, and constitution of communication technology and space. "MediaSpace, then, at once defines the artefactual existence of media forms within social space, the links that media objects forge between spaces, and the (no less real) cultural visions of a physical space transcended by technology and emergent virtual pathways of communication" (p. 2). Mediaspace theory argues that media use is inexorably tied to spatial practices, both social and physical.

In this article, I combine Lofland's notion of urban social space with mediaspace theory to explore how tying social networks to physical locations can strengthen, modify, and rearrange how urban public spaces and social connections are experienced. The sharing of social information through MSNS should be able to transform users' experiences of the public spaces they inhabit. Thus Dodgeball might be able to facilitate the production of meaningful gathering spaces, like third places, within a modern urban landscape.

Methods

Based on a year-long study (2005 to 2006) using participant observation, user observations, and in-depth interviews, this article explores the social and behavioral norms of Dodgeball use and discusses the implications of mobile social networks. I had originally planned to interview Dodgeball users of varying activity levels. However, the first three informants I interviewed were not very active on Dodgeball, in that they had not sent a Dodgeball message in over a month. After interviewing these subjects, it became apparent that the practices of these "less active" users had never reached the point where they had communicative exchanges through Dodgeball. For this study, I was interested in how people *used* the system and integrated it into their lives. Therefore I narrowed my recruitment to focus on "active" users, defined as users who sent more than one message per week through Dodgeball.

Twenty-one in-depth interviews were conducted with Dodgeball users from seven cities throughout the US. Because the Dodgeball system does not allow users to send messages easily to people who are not "Dodgeball friends," I initiated contact with Dodgeball's founder, Dennis Crowley, to ask if he would help recruit informants. Crowley sent recruitment emails to top users in several cities. In addition, I used snowball sampling based upon those interviews. In total, I interviewed 13 users met through an introduction from Crowley and eight users met through a snowball sample from those introduced through Crowley. In addition, I analyzed messages sent among a group of Dodgeball users during a week-long period in October 2006 in order to explore trends in timing, language, and proximity. I also interviewed Crowley to understand the background and context of Dodgeball as an MSNS.[2]

The demographics of my Dodgeball informants varied in several characteristics. I interviewed nine women and 12 men, ranging in age from 23 to 30.[3] Geographically, they lived in Chicago (n=1), Los Angeles (n=2), Minneapolis (n=4), New York City (n=9), Philadelphia (n=3), San Francisco (n=1), and Seattle (n=1). I

conducted fieldwork in Philadelphia, New York City, and Minneapolis, and therefore I was able to interview more users in these cities. Other interviews were conducted over the phone. My informants' Dodgeball networks ranged in size from one friend to 149 friends. The mean number of Dodgeball friends for my sample was 40.38 (sd=37.41), and the median was 24 friends.

Most of my interviewees (18 of the 21) considered themselves highly active Dodgeball users.[4] Five of the 13 informants recruited through Crowley had been top user with the most check-ins in their respective cities within a particular month. Thus this is not a representative sample of Dodgeball users, but a sample of mostly enthusiastic early adopters. Nevertheless, studying the activities of this group of users is an important first step in exploring the ways in which people embed social meaning in mobile social software use.

Throughout this project, I drew on grounded theory (Glaser & Strauss, 1967), which focuses on formulating theory, rather than testing established theory. Using the constant comparative method, I analyzed interview data and fieldnotes to identify recurrent themes. QSR's N6 qualitative data analysis software was used to categorize and compare findings across informants.

Findings

The findings are divided into five themes. The first three address the first research question regarding informant characteristics, how Dodgeball compares to social network sites, and emerging patterns of use. The second two themes address the second research question regarding informants' experiences of public space.

Informant Characteristics

Dodgeball is currently available in only 22 U.S. cities, so the service is geographically limited in ways that Internet social network sites may not be. According to Crowley, Dodgeball's demographic is roughly 21-35 year olds, "people with lots of friends who go out a lot." One informant from Los Angeles referred to Dodgeball users as the "interactive media elite." Several informants not only use interactive media for personal reasons but also work in information technology or design. One Dodgeball informant in New York City suggested that not everyone in cities would be interested in using Dodgeball:

> But I think it's certainly a particular demographic. It's gonna be people in their 20s and 30s, people who are pretty Internet savvy. A lot of us probably have technical jobs and are pretty used to doing that. I think for someone who is non-technical that constant communication and also telling the world where you are at any given time is also really intimidating. (Elicia, NYC)

Most of my informants were accustomed to communicating over the Internet or mobile phones in what some have described as a state of "perpetual contact" (Katz & Aakhus, 2002). Over half of the informants were bloggers and mentioned using other social software such as Flickr and del.icio.us. The Dodgeball users I interviewed always kept their mobile devices on them. Several informants had Blackberries or Sidekicks with QWERTY keyboards, which allowed them to text message more easily. Some of the informants had T9 mobile phones (which are more cumbersome to text on) but were still highly active text messagers, sending many messages a day either to Dodgeball or friends and family. Seven informants mentioned having to increase their text message plans with their mobile carriers, because they had sent or received over 1,000 text messages within a month.

Informant Characteristics

Following boyd and Ellison's (this issue) definition, Dodgeball is a social network site in that it allows users to publicly articulate technologically-enabled social networks on a website and to "traverse the network graph by clicking through Friends lists" (n.p.) on the Dodgeball website. However, to refer to Dodgeball strictly as a social network site may be misleading. While Dodgeball does offer a limited web component, the majority of the time informants spent using Dodgeball was not through their computer but through their mobile phone. While Dodgeball does not allow users to comment on friends' profile pages, it does allow members to broadcast text messages (a.k.a. "shout") to groups of people in similar semi-public commentary (users have to be friends in order to receive the text messages). Unlike on some social network sites, these messages are not collected and posted together as public commentary on the website, but are read as individual text messages and stored on individual mobile devices. Therefore, it is up to the individual recipient to determine the message's persistence (or the mobile phone's default Inbox settings for automatic text message deletion). The semi-public commentary of shouts cannot be browsed collectively, as it might be if it were on the website. Instead, each message must be opened one at a time. At the same time, this Dodgeball commentary is highly accessible to users, because it is on their mobile phones.

Dodgeball networks tend to be smaller than online social networks. Crowley said that the average Dodgeball network size is between seven and eight friends, depending on the city; this suggests that my sample's mean network size of 40 is well above average. According to informants, Dodgeball is not a great way to keep in touch with high school or college friends who have moved away. Rather, Dodgeball has a very *local* component to it. When asked how her Friendster network differs from her Dodgeball network, one NYC informant said that Dodgeball is only her local friends. Several users have Dodgeball friends in other cities for when they are traveling. These friends in other cities do not receive Dodgeball messages when the user is in his or her home city, but only when their friend is visiting their city. Another user said that Dodgeball differs from Friendster in that it involves "real world interactions." Several users suggested that social network sites do not facilitate face-to-face interactions the way Dodgeball does. One Dodgeball informant reflected on the differences between people who use online social network sites and Dodgeball:

> It's been interesting seeing how difficult it is for people to get into Dodgeball if you compare it to a lot of other social networking sites… You have to be both really geeky and really social. And a lot of times those two things don't go hand in hand. (Noah, Minneapolis)

Several of my informants were self-proclaimed "geeks" and seemed proud of it. Several Dodgeball users mentioned they were on Friendster, MySpace, or Facebook, but two informants explicitly told me they do not use social network sites, because "it's all about collecting friends like stamps," and "it was really good for finding old friends, but that was about it." Despite these differences, when asked how they would describe Dodgeball to someone who's unfamiliar with it, about one-quarter of the informants called it "MySpace for your cellphone."

Dodgeball Patterns of Use

Dodgeball facilitates the broadcasting of text messages, which, while sometimes possible, is not easily accomplished on mobile phones in the US. The majority of communication that occurs through Dodgeball concerns location information. According to Crowley, over 90% of messages sent through Dodgeball are check ins. Rather than having to call or email a group of friends to coordinate meeting up at a specific time and

place, Dodgeball users can just go out, check in, and have friends show up. Alternatively, one can determine where to go out initially based on where one's Dodgeball friends are. In this way, the use of Dodgeball seems to facilitate a time-shifting in coordinative communication and activities.

> Dodgeball is really good for my friend Nancy because she never likes to plan, so it allows her to be spontaneous and just send a text out to get her friends to go out with her. (Owen, Philadelphia)

> I don't need to call or text all my friends when I'm out. They can see for themselves and just show up if they'd like to. Or not. (Luke, NYC)

> I'll ask [my roommate] where he's going and he's like, "I don't know. I'll Dodgeball you." … We don't know where he's going. He'll just figure it out and then let me know that way. (Taylor, NYC)

It is important to situate Dodgeball use within a greater media flow of communicative exchange. As previously mentioned, some of the more active Dodgeball users also blog and post photos on the Internet, sometimes even involving their Dodgeball use (Dodgeball offers an RSS feed so that users can integrate their check-ins into their blogs). Moreover, Dodgeball is not usually used in isolation to coordinate meeting up. Often a Dodgeball check-in will be followed up with an inter-personal text message or call to the person who checked in, either to get the context (e.g., who else is there, how long will they be there, what's the scene like) or to make arrangements for later in the evening. As Nick points out, sometimes sending a check-in message is meant to start a conversation about meeting up:

> It's less frequent that I use [Dodgeball] and people just show up. It's more frequent that I use it and people say, "Oh you're out." It's just a way of saying, "I'm out, and I'm looking to meet up with people. I don't have any specific plans." So it's sort of like just registering your status. Your status is 'I'm open to meeting up.' (Nick, NYC)

In this way, Dodgeball use is similar to trends of micro-coordination (Ling & Yttri, 2002). It can take several texts or calls to coordinate a meeting. Despite this, several informants suggested that Dodgeball allows users to be more open to the possibility of other social gatherings.

> [Dodgeball] leaves you open for a lot more opportunity, you know, like more of controlled chaos, like you don't know what's going to happen type thing. So, it's just a great way to keep up with your friends. I don't have to call everyone every single minute… My friends want to know where I'm at, I don't want to call five of my friends. I want to send a message to them, saying, "I'm here. If you guys wanna hang, cool." That's probably my favorite thing about it. It's just letting people know where you are, and the fact that anything can happen at any moment when you're using it. (Livingston, NYC)

Crowley describes this openness and spontaneity as Dodgeball "facilitating serendipity," in that it can help users more easily meet up with friends who just happen to be nearby or available to come out and meet up.

Of course, Dodgeball does not eliminate pre-meditated social coordination altogether among Dodgeball friends. Informants still email, IM, and call in order to make plans to meet up. However, they do not always coordinate with an extended group of friends nor identify the specifics of when and where to meet. In addition, not all social gatherings of Dodgeball users are necessarily facilitated by Dodgeball. Dodgeball users

certainly have friends not on Dodgeball with whom they socialize. In addition, often two or three Dodgeball users will make plans for dinner on Friday or Saturday night not using the system and then determine where to go afterward based on Dodgeball check-ins. One informant in Minneapolis described such an evening:

> Actually, my friend Ingrid and I on Saturday had dinner and were like waiting for people to Dodgeball saying where they were so that way we knew where to go out rather than thinking up something to do on our own. So I think that's sort of the fun part, just like it makes going out and hooking up with a lot of people a little easier. (Dierdre, Minneapolis)

Not all check-in messages are meant to facilitate meeting up. There are two other common interpretations of Dodgeball check-ins: showing off and cataloguing one's life. According to Goffman (1959), communication is not just about the information we give, but also the information we give off. Broadcasting location information to one's social network therefore not only serves a functional purpose of facilitating meeting up, but it also serves a performative function of saying that one is aligning oneself with a particular venue and its branding. Sometimes check-in messages are meant to say, "look where I am" and not necessarily, "I'm available to meet up." For example, in circumstances where someone checks in from a fancy restaurant, an exclusive club, or perhaps while traveling, friends cannot come join the person who checked in.

> Researcher: When you checked in from Yankee stadium, was it in the hopes of finding other people in the stands?
> Nathan (Philadelphia): No, it was more a show off… It was like, "Yo everybody, check out where I am."

The informants who discussed others using Dodgeball to show off also admitted that they themselves had used it to show off occasionally. Generally speaking, informants considered the show-off check-ins to be benign. Just like friends might talk about interesting things they have done or places they have visited, show-off check-ins allowed informants to share information about themselves with their Dodgeball network of friends. It was not communication meant to facilitate social congregation; rather, such messages were a part of general communicative exchange maintained among friends, which reinforces social bonds.

Checking in on Dodgeball can also enable the social cataloguing of people's lives. Dodgeball keeps a history of where people have checked in, which can be plotted on a Google map, as well as imported into Google Calendar. Several informants mentioned that having this history of where they have been is "really fun" and that checking in to Dodgeball can be a passive way of documenting one's life.

> I like that kind of stuff, like the social diary. It's almost like somebody's doing it for me, like I'm passively… adding all these things. (Enid, NYC)

> I'm one of those people that tends to document everything that I do because it amuses me and because… that's part of how I keep in touch with my friends. And I also do it because I have a really poor memory. So I've gotten in the habit of like documenting things on the Internet just so I have a memory there. And [Dodgeball has] really sort of enhanced that because it's more real time. You're not just writing about it after the fact. (Elicia, Minneapolis)

One user suggested that cataloguing one's history was a driving force in how some of his friends decide where to check in, but insinuated that it could become annoying.

> I think that some people [check in] because they like the history. They like seeing the

> history of where they've been and having home and work in there completes that history or
> another part of that history. And it's this weird thing that a couple friends of mine have
> started doing where they will obsessively check in everywhere. I mean, they'll check in at a
> gas station. I mean, and I'm like, "Oh good, you're at the Pump & Munch on Nicollette
> Avenue. I'm gonna run right over there right now and fill up." You know, it's a little weird.
> But then they can go through and see their history, you know, and they have a pretty
> accurate record of where they've been. (Noah, Minneapolis)

Six months after his interview, Noah, who had been one of the more active Dodgeball users in Minneapolis and a self-proclaimed Dodgeball evangelist, announced on his blog that he was going to stop using Dodgeball, because some people in his network were abusing the system by checking in indiscriminately. One person responded to Noah's blog, agreeing and complaining about the "incorrect behavior" of Dodgeball users checking in from places where or when people could not meet up with them.

This discussion highlights two important points. First, if someone thinks there is incorrect Dodgeball behavior, that implies that "correct" behavior exists that has been violated, further suggesting that normative Dodgeball use is not only emerging but contested. The second point this discussion highlights is the regionalism and contextualization of normative use. Different social networks within Dodgeball may have different tolerance levels, expectations, and definitions of acceptable or "correct" Dodgeball use. For example, several informants in New York City mentioned that checking in at home is "weird" and not generally done, whereas an informant in Chicago mentioned that among his friends, checking in at home means that someone is willing to meet up later on but just has not left home yet. Some meanings and expectations of use varied among networks of Dodgeball friends and also among individuals within the friend networks on Dodgeball. In Noah's case, he had different expectations and definitions of "proper" Dodgeball use than did other people in his Dodgeball network, which led to social tension and his eventual departure from the network.

Dodgeball as Creating Third Spaces

There is evidence to suggest that Dodgeball can help to coordinate casual social congregation in public spaces, similar to the kind Oldenburg (1991) describes as "third places." When asked who is in one's Dodgeball network, many informants described a "core circle" or group of three or four friends and then an outer circle or group of friends. This outer group seems to be characterized by many of the same attributes as the casual friendly relationships of Oldenburg's third places. Nick in New York City nicely characterizes this more casual relationship he has with some of his Dodgeball friends.

> I have friends that I'm much closer with than some of my Dodgeball friends, for instance,
> that I see far less often. I have a decent amount of acquaintances that I see all of the time,
> but I don't really know that well in the end. I have great conversations with them. We have
> a lot of fun together. But for instance, I see them in groups. I don't often see them solo.
> (Nick, NYC)

Several Dodgeball informants mentioned not having the phones numbers and email addresses of all the people in their Dodgeball network. These looser ties are an important component of third places, according to Oldenburg (1991), because they do not carry the same social requirements that intimate, closer ties do. These interactions are casual and fun, not burdensome. These weaker ties may also offer particular social benefits (Granovetter, 1973).

Like "third places," the interactions coordinated through Dodgeball are not necessarily pre-mediated or special, but rather tend to be fairly open and commonplace. Unlike "third places," however, there is no longer just *one* corner bar or café at which people congregate with the regulars, because Dodgeball provides a mechanism for coordinating dynamic spaces for casual social congregation. While Oldenburg's third places are relatively static *places* for social groups to congregate, the "third spaces" facilitated through Dodgeball are itinerant *spaces* for regular informal sociality. The informants in this study tended to use Dodgeball to coordinate moving from bar to bar within a given evening. For some informants, Dodgeball has facilitated more open forms of casual social congregation.

> There is a difference between now and then where my social life is a little more open. It's more public… It's more inclusive of other people. Like more crossing social circles and such. It's not like I'm just hanging out with these three people. (Noah, Minneapolis)

> It makes the social scene of Seattle feel a little smaller and a little looser. It's not really. I guess it was a tight knit going-out group and now it's loose. We are just people going from bar to bar, restaurant to restaurant. We like each other. It's hard to know if you're friends or not. Like you see each other and you like hanging out with each other, but you might not ever talk on the phone or know each other's email address or anything, but you're friends. So it's different. (Kirk, Seattle)

Kirk highlights several important characteristics of the relations and interactions in third spaces. First, the interactions are fluid in terms of *where*, physically, the socializing occurs on a given night at a particular time. Whereas people develop relationships with Oldenburg's (1991) "third places" (which might be seen in their reference to "our bar"), Dodgeball informants were often trying out new bars and clubs as places to congregate with the same group of casual friends. Thus the software facilitates coordination among groups of friends, so that various places can become congregative third spaces. Second, the interactions are also fluid in terms of *who* is involved. These looser ties can make a city feel smaller and more intimate. Just like familiar strangers (Milgram, 1992; Paulos & Goodman, 2004) can provide an urban dweller with a sense of familiarity with those around them, these more casual, friendly relationships of third spaces can help make a city seem less anonymous.

An important difference between third spaces and third places concerns diversity and managing space. Oldenburg (1991) writes that third places are inhabited by a diversity of people (not by gender, but by socio-economic status), whereas third spaces created through Dodgeball tend to be inhabited by more demographically similar people. The demographic of Dodgeball users is much narrower than the demographic of people who go to third places such bars or cafés. However, third spaces have a spatial diversity that third places do not. All space needs limiting dimensions to make it manageable; therefore, third places manage space by confining diverse interactions to a specific walled-in place. Third spaces manage space by confining interactions among a narrow group of people within a potentially diverse locational space. Both third places and third spaces manage space, but they do so in different ways.

Third spaces do not describe all of the interactions and congregations of people who use Dodgeball. All of my informants have good friends who are not on Dodgeball with whom they make plans and meet up. Nor do third spaces describe all interactions coordinated through Dodgeball. Not all Dodgeball interactions are among loose ties of casual friends; sometimes very close friends use Dodgeball to coordinate social gatherings. Dodgeball is used in a variety of contexts to help bring people together for face-to-face interaction.

Dodgeball and Social Molecularization

The kind of communication that Dodgeball facilitates seems to lead to a *social molecularization*, whereby informants both experience and move about through the city in a collective manner. This is not to say that people did not experience urban public space socially before Dodgeball; however, the social molecularization encouraged by Dodgeball seems different in two particular ways. First, rather than having to discuss places or venues explicitly, Dodgeball allows users to communicate indirectly about public places. That is, people do not necessarily have to tell a friend they went to a new bar, but they can indirectly alert him or her by checking in to a new venue. Second, the exchange of social and locational information is accelerated, because it can occur in real time and, thus, allow users to make decisions about their physical movements based on the social and spatial information available to them. Together these two differences can bring about momentum in using and responding to Dodgeball check-ins.

Several informants discussed thinking about and moving through public space in their cities differently as a result of receiving Dodgeball check-ins from their friends. This *indirect communication* is an important component of social molecularization, because it facilitates communication about the city among groups of friends.

> I might try out a new place because I've seen a friend check in there a couple times. And it's sort of like in my subconscious so I learn about new places through people's behavior. (Enid, NYC)

> It's funny. There's a bar in Northeast Minneapolis that I go to that my softball team is sponsored by. And I'm there every Wednesday. And so I think Dodgeball has opened up the visibility of places that some people may not have known about. Or have known about, but would never go to. And the fact that I go there every week, people start to notice. "Oh, we should go to Jarros and check that place out." (Linus, Minneapolis)

Through the indirect communication of people's check-ins, Dodgeball users may learn about new places to congregate in their city.

The use of mobile phones to communicate indirectly about place in real time also accelerates the exchange of social-location information and can result in a collective momentum of using the MSNS. Sometimes one Dodgeball check-in will spur other check-ins. "It's really funny to see one person check in and then see two or three or five or six other people check in like right after that," said Linus from Minneapolis. On one hand, people may forget to use the system when they are out and about in the city, so a check-in from a friend acts as a reminder to use the network. On the other hand, the language of a check-in message also encourages users to respond with their location. The text of a check-in follows a particular formula. For example, a check-in text message might say: "dodgeball.com says: Lee @ Ground Zero Coffee Shop (744 Williamson St) at 5:41PM. Reply w/ '@venue name' to check in!" Whether by the reminder to check in through the language used by Dodgeball or just by receiving a Dodgeball message, users can be encouraged to communicate through the network.

Just as there is momentum to send Dodgeball messages, there can also be momentum to move physically through the urban environment based on the social-location information available through Dodgeball. Particularly if multiple people check in to the same location, other people in the network may begin to feel a pull to join them. There is a marked acceleration of social-location information exchange because of the

mobility and accessibility of mobile systems such as Dodgeball.

> Sometimes I'll see, if a lot of people start checking in at one place, I'll kind of be like, "Hey, what's going on out there? Is there something cool going on?" (Dean, Chicago)

> I was getting these messages from my friends, and I'm not the only one to have felt this way, but then you felt like you had to be there or what am I missing or what's going on. (Yevette, San Francisco)

> I just feel like I don't go out more, but I go out to more places. I used to be the type who would say, "I'll just go out tonight and stay at one place." But because I know my other friends are out, or they're in the neighborhood, let's go meet them. I've been to more places than I have in the past. (Nicole, NYC)

These informants suggest that there is a social momentum that contributes to social molecularization and the collective movement through an urban environment. If one person checks in to a venue, it does not bring the same social pressure to congregate that multiple check-ins do—the more people check in, the greater the pull to meet up. With Dodgeball, sometimes people have the social-location information in real time and thus the opportunity to act on it and change the way they move through the city.

Some informants shut off their phones or send a text message to Dodgeball indicating they do not want to receive any more texts that night. Even when this occurs, however, informants can later observe the communicative exchange and experience the cohesion of social molecularization. As Enid points out, even if users turn off their phones, they can still stay in the loop about the group's socializing by reviewing Dodgeball the next day.

> At a certain point you can just shut it off in the night and I do that too. So like last night for example, or when I'm in LA I'll just shut it off because it's irrelevant at that point or I just want to go to sleep and I don't want to be bothered. But then again the next day, even if you didn't go out, you know exactly where everybody was without even having to ask them. (Enid, NYC)

In this way, Dodgeball messages, even if they are not received in real time, can contribute to users feeling socially connected to their network of friends and part of the social molecularization just by knowing what goes on. Two informants suggested that they have friends who rarely check in to Dodgeball but still like to receive check-ins from their network. While I was unable to interview any such user, informants suggested that these friends still like to stay "in the know."

> There's also a group of people who are more like the eavesdroppers who never send out ever, but they always want to know where people are… They still find it interesting to observe, but they don't want to participate. (Elicia, NYC)

Such eavesdropping still suggests a social connectedness among members of a Dodgeball network. Even if members are not moving through the city collectively, they can still observe and experience the city collectively. Inevitably, people will use the Dodgeball network for various purposes and in various contexts, some of which seem to contribute to a social molecularization or cohesion of network members in and through public space.

Discussion

The informants in this study are highly active and enthusiastic users of Dodgeball. At this point in time, these informants seem to represent a narrower demographic than social network site users; they are geographically limited to urban environments and are innovators and early adopters of mobile social software. Dodgeball as a technology is not "closed" by any means—the ways that people use the technology are still evolving and its meanings are contested. How or even whether Dodgeball will continue to be used is still an open question. For example, is software like Dodgeball likely to be adopted by more mainstream users, or is it likely to remain a fun coordinative tool of savvy interactive media elites?

The messages exchanged through Dodgeball did help my informants to coordinate face-to-face meetings among groups of friends. In addition to this functional purpose, Dodgeball messages also served a performative function by allowing informants to associate their identity with the branding of a particular venue. Sometimes a Dodgeball message could be interpreted as a member demonstrating a kind of social elitism. At other times, sending check-in messages with one's location to Dodgeball was a means of social and spatial cataloguing. In this way, Dodgeball can serve as a social diary or map. The coordinative, performative, and cataloguing functions of Dodgeball check-ins are not necessarily mutually exclusive. The same message could perform all three functions and be interpreted differently in various contexts. For this reason, future mobile social software systems might usefully integrate social and spatial cataloguing functionalities into their designs.

Some of the social connections and congregations facilitated by Dodgeball are similar to those found in third places, but Dodgeball congregations are itinerant spaces for urban sociality. In contrast to place-based acquaintanceships, third spaces allow for habitual, dynamic, and technologically-enabled face-to-face interaction among loosely tied groups of friends. Third spaces highlight mediaspace's mutual constitution of spatial practice and communication technology. Various public places can become third spaces, based on the pre-established social relationships inhabiting them.

A related implication of Dodgeball use was social molecularization. By communicating about locations in the city, my informants could cognitively map urban public space. In addition, Dodgeball users can move through the city differently, based on the social-location information available to them. If they know friends are at a bar, they can go join them. In fact, the more friends who check in to a bar, the greater the pull to meet up with them. In this way, Dodgeball use contributes to a collective experience and movement of social groups through urban public space.

Dodgeball is not contributing to the further atomization of mobile phone users in public spaces, but it is not necessarily contributing to their collectivization, either. Instead, Dodgeball is primarily connecting Dodgeball users to one another and not to the general urban public, thus leading to a kind of social molecularization. As an MSNS, Dodgeball becomes another means of maintaining and reinforcing social bonds. Even when my informants did meet new people through Dodgeball, these people were fairly demographically similar. While urban areas are diverse environments, Dodgeball may contribute to an illusion of "looser" sociality despite reinforcing homophilous tendencies. This study suggests that social network analysis of Dodgeball friends may be worthwhile to explore more deeply the kinds of relationships that Dodgeball facilitates.

Limitations

There are several limitations to this study. First, Dodgeball is not necessarily representative of other MSNSs

such as Twitter or other social network sites with mobile offerings. Different mobile social networks may contribute differently to the ways in which people experience public space. Perhaps as MySpace continues to migrate into the mobile arena, people might use Mobile MySpace very differently than they do Dodgeball. A social network with a pre-established user-base online may behave very differently from a Dodgeball network. However, Dodgeball provides a starting point for exploring emerging norms of MSNSs.

In addition, data for this study were collected in 2005-2006 and therefore represent a snapshot at a particular point in time. Most of the informants in the study could be considered innovators or early adopters and therefore not representative of potential, future Dodgeball users, who may represent early majority and late majority adopters (Rogers, 1995). Thus these findings cannot be generalized to other Dodgeball users. However, the informants in this study are examples of people who are integrating mobile social networks into their everyday lives, and thus their perspective provides a rich source for researchers and designers to begin thinking about additional features and offerings of future MSNSs.

It is also important to keep in mind the limited breadth of Dodgeball. Google will not give out any specific numbers regarding registered Dodgeball members or active users; however, it is safe to conclude that there are fewer Dodgeball users than users of the larger social network sites. Dodgeball would not currently work as well in suburban or rural contexts, where the options for gathering places are much more limited than in dense urban environments. That said, there is a very large population of mobile phone users at universities and colleges throughout the U.S. who could adopt an MSNS like Dodgeball and integrate it into their regular media flow.

Conclusion

This study has described some enthusiastic users of MSNS and their emerging patterns of use. In addition, it highlighted some similarities and differences between MSNSs and social network sites found solely online. The findings suggest ways in which integrating social networks and physical space through mobile technology can change the way users experience urban public space.

Townsend (2000) suggests that mobile telephones may help transform modern cities into "real-time systems." "Real-time systems are defined by an ability to constantly monitor environmental conditions vital to the operation of the system" (Townsend, 2000, p. 95). The dynamism of third spaces and social molecularization relies on partial real-time monitoring of one's social network. Because Dodgeball is an opt-in system, it does not allow people to monitor their social networks *constantly*, but rather only when friends check in to the system. However, some GPS-based mobile social systems, like Loopt, which can share friends' locations automatically, do allow for near-constant monitoring of networks. As Townsend (2000) acknowledges, the modern city will never be an *entire* real-time system, because not everyone and everything will be accessible. However, mobile technology can allow some micro-systems within a city to approach a "real-time system," thus contributing to third spaces and social molecularization.

Future research should explore the ways in which social-location information available through technologically-enabled mobile communities may contribute to collective movement through space. Issues concerning privacy should certainly be more closely examined in future studies of MSNSs. Discontinued use of MSNSs is also a potentially rich topic for future study. As developments in mobile technology and social network software continue to advance, the ways in which people adopt and integrate these kinds of systems

into their everyday lives will continue to be a rich area for new media research.

Acknowledgments

Notes

1. The name Dodgeball has nothing to do with the service. The founder, Dennis Crowley, called it Dodgeball, because he and some friends happened to have owned the domain "dodgeball.com" since college. Crowley had tried to get 4square.com, but it was already taken, so he registered dodgeball.com.
2. I interviewed Crowley in March, 2006. He quit Google/Dodgeball in April, 2007.
3. All user names in this article have been changed to protect the anonymity of the informants.
4. The three inactive users were from Philadelphia, one of whom made the Top Ten Dodgeballers list despite not having any Dodgeball friends in Philadelphia.

References

Banjo, O., Hu, Y., & Sundar, S. S. (2006, June). *Cell phone usage and social interaction with proximate others: Ringing in a theoretical model*. Paper presented at the International Communication Association, Dresden, Germany.

Bijker, W. E., Hughes, T. P., & Pinch, T. J. (Eds.). (1987). *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*. Cambridge, MA: MIT Press.

boyd, d. (2004). Friendster and publicly articulated social networking. In *Proceedings of the ACM CHI Conference on Human Factors in Computing Systems* (pp. 1279-1282). Vienna, Austria: ACM Press.

Couldry, N., & McCarthy, A. (Eds.). (2004). *MediaSpace: Place, Scale, and Culture in a Media Age*. London: Routledge.

CTIA Cellular and Telecommunication Information Association (2006, December). *Semi-annual wireless industry survey*. Washington DC. Retrieved July 26, 2007 from
http://files.ctia.org/pdf/CTIA_Survey_Year_End_2006_Graphics.pdf

Donath, J., & boyd, d. (2004). Public displays of connection. *BT Technology Journal, 22* (4), 71-82.

Eagle, N., & Pentland, A. (2005). Social serendipity: Mobilizing social software. *IEEE Pervasive Computing, 2* (2), 28-34. Retrieved August 1, 2007 from http://reality.media.mit.edu/pdfs/serendipity.pdf

Ellison, N., Heino, R., & Gibbs, J. (2006). Managing impressions online: Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication, 11* (2), article 2. Retrieved July 24, 2007 from http://jcmc.indiana.edu/vol11/issue2/ellison.html

Ellison, N., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Exploring the relationship

between college students' use of online social networks and social capital. *Journal of Computer-Mediated Communication, 12* (3), article 1. Retrieved July 24, 2007 from http://jcmc.indiana.edu/vol12/issue4/ellison.html

Gergen, K. (2002). The challenge of the absent presence. In J. E. Katz & M. Aakhus (Eds.), *Perpetual Contact: Mobile Communication, Private Talk, Public Performance* (pp. 227-241). Oxford, UK: Oxford University Press.

Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine de Gruyter.

Goffman, E. (1959). *The Presentation of Self in Everyday Life*. Garden City, NY: Doubleday Anchor Books.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology, 78* (6), 1360-1380.

Hampton, K., & Wellman, B. (1999). Netville online and offline: Observing and surveying a wired suburb. *American Behavioral Scientist, 43* (3), 475-492.

Howard, P. N., & Jones, S. G. (Eds.). (2004). *Society Online: The Internet in Context*. Thousand Oaks, CA: Sage Publications.

Ito, M., Okabe, D., & Matsuda, M. (Eds.). (2005). *Personal, Portable, Pedestrian: Mobile Phones in Japanese Life*. Cambridge, MA: MIT Press.

Johnson, S. (2005). Friends 2005: Hooking up. *Discover, 26*, 22-23.

Katz, J. E., & Aakhus, M. (Eds.). (2002). *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. New York: Cambridge University Press.

Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). The Internet paradox revisited. *Journal of Social Issues, 58* (1), 1017-31.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53* (9), 1017-1031.

Ling, R. (2004). *The Mobile Connection: The Cell Phone's Impact on Society*. San Francisco, CA: Morgan Kaufmann.

Ling, R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J. Katz & M. Aakhus (Eds.), *Perpetual Contact: Mobile Communication, Private Talk, Public Performance* (pp. 139-169). Cambridge, UK: Cambridge University Press.

Lofland, L. H. (1998). *The Public Realm: Exploring the City's Quintessential Social Territory*. New York: Aldine De Gruyter.

MacKenzie, D., & Wajcman, J. (2002). *The Social Shaping of Technology* (2nd ed.). Buckingham, UK: Open University Press.

Marvin, C. (1988). *When Old Technologies Were New: Thinking About Electric Communication in the Late*

Nineteenth Century. New York: Oxford University Press.

McCarthy, A. (2001). *Ambient Television: Visual Culture and Public Space*. Durham, NC: Duke University Press.

McPherson, M., Smith-Lovin, L., & Brashears, M. E. (2006). Social isolation in America: Changes in core discussion networks over two decades. *American Sociological Review, 71*, 353-375.

MIC Market Intelligence Center. (2006, May). *Worldwide mobile phone subscriber base expected to reach 3.3 billion by 2010*. Taipei, Taiwan. Retrieved July 26, 2007 from http://mic.iii.org.tw/english/report/pop_DocPR.asp?func=press&Doc_sqno=3693

Milgram, S. (1992). The familiar stranger: An aspect of urban anonymity. In J. Sabini & M. Silver (Eds.), *The Individual in a Social World: Essays and Experiments* (pp. 68-71). New York: McGraw-Hill.

Oldenburg, R. (1991). *The Great Good Place: Cafes, Coffee Shops, Community Centers, Beauty Parlors, General Stores, Bars, Hangouts, and How They Get You Through the Day*. New York: Paragon House.

Paulos, E., & Goodman, E. (2004, April). The familiar stranger: Anxiety, comfort, and play in public spaces. In *Proceedings of the ACM CHI Conference on Human Factors in Computing Systems* (pp. 223-230). Vienna: ACM Press.

Preece, J. (2004). Etiquette online: From nice to necessary. *Communications of the ACM, 47* (4), 56-61.

Puro, J. P. (2002). Finland: A mobile culture. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile Communication, Private Talk, Public Performance* (pp. 19-29). Cambridge, UK: Cambridge University Press.

Rogers, E. (1995). *Diffusion of Innovations* (4th ed.). New York: The Free Press.

Townsend, A. (2000). Life in the real-time city: Mobile telephones and urban metabolism. *Journal of Urban Technology, 7* (2), 85-104.

University of Michigan, Department of Communication Studies. (2006). *On the move: The role of cellular communications in American life*. Retrieved July 26, 2007 from http://141.211.177.75/UofM/Content/comm/document/OnTheMove.pdf

Wang, J., & Canny, J. (2006). End-user place annotation on mobile devices: A comparative study. In *Proceedings of the ACM CHI Conference on Human Factors in Computing Systems* (pp. 1493-1498). Montreal: ACM Press.

Wellman, B. (2001). Physical place and cyberplace: The rise of personalized networking. *International Journal of Urban and Regional Research, 25* (2), 227-252.

Williams, R. (1975). *Television: Technology and Cultural Form*. New York: Schocken Books.

Yuan, L., & Buckman, R. (2006, April 4). Social networking goes mobile: MySpace, Facebook strike deals with cell companies. *The Wall Street Journal*, p. D1.

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