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HOW OFFLINE GATHERINGS AFFECT ONLINE COMMUNITIES
When virtual community members 'meetup'

This paper builds on past studies of virtual community by illuminating the effect of offline gatherings ('meetups') on physically dispersed virtual communities. Although research to date has examined the way in which online interaction affects offline community, the question of how offline interaction affects online community has largely been ignored. On the one hand, these offline gatherings may provide individual benefits for members as the development of relationships strengthens social ties, leading to the creation of bonding social capital. However, these gatherings do not necessarily benefit the community at large as the resources found in weak ties may be sacrificed as attendees favour interaction with one another to the detriment of those that do not attend meetups. Non-obtrusive analysis of over eight years of user activity from a large, active online community suggests that the development of multiplex relationships — relationships maintained both online and offline — enhances attendees' engagement with the online community as a whole, strengthens ties to other attendees, and contributes to the creation of bonding social capital. However, weak ties with non-attendees dissolve and bridging social capital is sacrificed as those who meet offline favour interaction with other attendees.

Keywords   computer-mediated-communication; virtual community; social networks; face-to-face interaction; social capital

Introduction

> . . . You mean there are real [members] living within spitting distance of me?
> This creepy Interweb business is definitely too close for comfort . . . I'm in.
> *Posted by XXXXX at 8:55 PM, 16 June 2004*

Relationships between virtual community members are not always confined to the virtual realm; rather, members often have pre-existing offline relationships with one another, or alternatively, form offline relationships after 'meeting' online. While scholars have recognized the inadequacy of a research approach that is blind to the offline relations of online community members, these studies have primarily investigated the effect online communication has on offline ties (Wellman & Haythornthwaite 2002). The question of how the formation of *offline* relationships affects *online* communities remains seldom asked, and as a result, unanswered. Despite the ubiquity of 'meetups', i.e. local, face-to-face gatherings of online community members, scholars have looked very narrowly on the social implications of this phenomenon.

This study's findings shed light on the frequent practice of virtual community meetups.[1] As people turn to 'strangers' online for support and community, the way in which offline gatherings affect individuals and the community at large must be explored. Although past research has found that members who attend these gatherings often benefit from strengthened interpersonal ties, enhanced bonding, and 'alloy' social capital (social capital embedded in relationships maintained both online and off) (Rheingold 1993; Sander 2005; Xie 2008), the collective benefits of these gatherings are uncertain. It should not be assumed that meetups are beneficial to the community – rather, these gatherings may be detrimental to the community if individuals come to prefer meeting with members who have met offline. In these cases, such communities may lose the benefit of weak ties, and the exchange of resources with weak social ties may be sacrificed.

Bonding and bridging social capital, two distinct forms of capital, each bring unique benefits (Putnam 2000). Bridging social capital, embedded in weak ties, is important to both members individually and the community at large collectively in order to access novel, non-redundant information. The community as a whole benefits from the bridges that allow information to pass between clusters of members (Granovetter 1973; Brown & Reingen 1987; Putnam 1995).

This paper addresses this overlooked question of how physically dispersed online communities, i.e. those that do not map directly onto delineated offline communities or spaces, are affected by offline meetings. Recognizing the transformative potential of this phenomenon, this paper will address two broad questions:

1. How does attending a meetup affect members' individual experience with the community?
2. How is the community at large affected by the occurrence of meetups?

These questions are addressed through analysis of approximately eight and a half years of online activity in a large, active, globally dispersed online community ($N = 34,117$). It is hypothesized that offline meetings positively affect those members that participate in meetups as their engagement with the community increases, and bonding social capital is created as a result of strengthened

relations. However, this individual profit may come at the collective expense of the community as members who have formed stronger relationships disproportionately exchange support with other meetup attendees, thereby sacrificing weak ties to the detriment of bridging social capital.

Literature review

Virtual communities and social capital

The term social capital refers to the 'resources embedded in a social structure which are accessed and/or mobilized in purposive actions' (Lin 2001, p. 41). Social capital has been linked to many positive goods such as health (Kawachi *et al.* 1997), educational attainment (Putnam 1995), and economic benefits (Knack & Keefer 1997; Erikson 2001). The internet has been both lauded for facilitating the accumulation of social capital and criticized for depleting this vital form of capital. Some have argued that online interaction detracts from interactions with co-located, physically present others, while other researchers disagree, arguing that the internet is 'particularly useful for keeping contact among friends who are socially and geographically dispersed' (Wellman *et al.* 2001, p. 450) and can facilitate connections with similar, geographically distant others (Culnan & Markus 1987; Rheingold 2003; Hampton *et al.* 2009).

Bridging versus bonding social capital

In his renowned work on the decline of social capital in America, *Bowling Alone* (2000), Robert Putnam draws on a distinction between two types of social capital: *bonding* and *bridging*. This dichotomy distinguishes between the types of resources accessed through *weak ties* and *strong ties*. Bridging social capital is linked to weak ties – relationships characterized by less familiarity, which stand in contrast to strong ties – close relationships such as those formed between family and close friends. These strong ties are the source of bonding social capital. Strong ties may provide more emotional support and substantial material support, while weak ties, those who do not know all of the same people, are important sources of novel, non-redundant information such as information about job opportunities (Granovetter 1974). This is the 'strength of weak ties', Mark Granovetter famously wrote of in 1973.

Multiplex relationships

There is an association between the strength of a tie and the number of channels through which the tie is maintained. A relationship that is characterized by multiple bases of interaction is referred to as a 'multiplex' relationship

(Kapferer 1969). Kapferer suggests that multiplex ties are, by definition, strong ties because of the multiple bases of interaction; thus, a tie that is maintained through both off- and online interaction is stronger than an identical tie that exists solely offline – although Granovetter would warn that 'the present definition [of tie strength] would show most multiplex ties to be strong but also allow for other possibilities' (p. 1361).

More specifically, a relationship is characterized by *media* multiplexity if more than one medium (e.g. face-to-face, telephone, email) is used to maintain the relationship. The theory of media multiplexity argues that the stronger the tie between two people the more media they use to communicate with one another. In a series of social network studies on media use, Haythornthwaite and colleagues found that stronger ties used more media to communicate than weaker ties (Haythornthwaite 2005). These studies also found that introducing a new medium into a group provides the potential to convert *latent* ties (ties that are 'technically possible but not yet activated') into weak ties, while also potentially disrupting weak ties that already existed in the network as communication shifts to the new medium (p. 137). Haythornthwaite notes that 'online groups may be particularly affected by such changes' because maintaining relationships online requires more effort than maintaining offline relationships (p. 138).

Meeting offline

One such medium that can be introduced into a virtual community is face-to-face contact. Many researchers have documented the occurrence of relationships migrating from online to offline (see Rheingold 1993; Bruckman 1996; Michaelson 1996; Parks & Floyd 1996; Kendall 2002; Xie 2008). While offline relationships are most likely to form between members of virtual communities with an association with a physical location, members of physically dispersed virtual communities, although constrained, are sometimes able to meet in person as well. Parks and Floyd (1996) found that 33 per cent of relationships that began in internet Usenet groups migrated offline to face-to-face contact ($N = 176$), while Xie (2008) found that face-to-face interactions helped older Chinese internet users convert relationships formed online from weak ties into strong ties.

Often times, virtual community members are not looking to meet any one member in particular, but would like to form offline relationships with many of their fellow community members. Online community meetups were documented as early as 1989 when members of the pioneering online community 'The WELL' arranged to meet in person (Rheingold n.d., 1993, 2000). Typically, meetups occur in a pre-arranged location – sometimes routinely scheduled, other times occurring sporadically – to connect online community members to one another in person. As a general rule, meetups are broadcast to all members and are open to anyone who wishes to attend.

Using the internet to form offline groups of like-minded people

In contrast to virtual community meetups in which established members meet offline, some websites exist solely to connect individuals online so that they may form relationships offline. This broad category includes many dating websites and sites such as *Meetup.com*, which enable users to search by interest for a group that meets up in their geographic region. Because the site specifically enables users to find each other online so that they can meet offline, Williams *et al.* (2004) refer to the communities that are formed through *Meetup.com* as 'e2f (electronic to face) communities'. Following US Presidential candidate Howard Dean's successful leveraging of *Meetup.com* in order to mobilize support, scholars have studied the way the site can be used to garner support during political campaigns (Williams *et al.* 2004; Conners 2005). Williams *et al.* (2004) concluded that *Meetup.com* is an 'effective' campaign tool due to the fact that 'frequent participants donate more, volunteer more, express stronger support for the candidate, and are more likely to advocate that others work for the candidate' (p. 16).

Noting that the founder of *Meetup.com* expressed his intention to create the site explicitly in order to help build social capital, Sander (2005) asked: can social capital be generated through meetups? Sander theorizes that *Meetup.com* is an example of 'alloy social capital' that 'interweaves online and real strands' (p. 4). Sander and his team observed 40 *Meetup.com* meetings in the summer of 2004, surveying the attendees of 37 of the 40 meetups ($N = 337$). The findings indicate that meetups do in fact build social capital. Participants often met up with their *Meetup.com* acquaintances outside these gatherings (29 per cent), and made new friends (31 per cent). Furthermore, Sander found that whether or not social capital was created through a gathering factored heavily into a member's decision of whether or not to participate in subsequent gatherings.

The effect of meeting face-to-face

The effect of adding a face-to-face dimension to an utterly virtual relationship is largely unknown, although many computer-mediated communication theories lend insight into the social–psychological processes at work when meeting someone face-to-face for the first time. Some theories purport that gaining information about one's physical appearance leads to a reduction in discomfort and results in increased feelings of affection (Parks & Floyd 1996), while others have documented the experience of seeing a virtual friend for the first time as jarring and disconcerting (Kendall 2002). In an ethnographic study of the online forum that the author calls BlueSky, Kendall (2002) found that most members who had met others offline described these face-to-face experiences as more 'intense' than online contact and notes that these meetings are often said to be 'uncomfortable' (p. 162). Although there have been many studies

on how seeing a potential romantic partner in person affects a relationship (see Jacobson 1999), there have been few empirical studies on the way in which face-to-face contact impacts online behaviour.

Research questions and hypotheses

Although the role of virtual communities as potential sources of social capital has been recognized, the effect of offline meetups on virtual communities is uncertain. Accordingly, I ask how meetups affect members' level of involvement in the community and their likelihood of being non-contributors, as well as to whom these members provide support. To date, research on virtual communities and social capital that has looked at online ties together with offline ties (rather than assuming exclusivity between these networks) has most often looked at virtual communities that correspond to neighbourhoods or other physically located communities (Hampton & Wellman 2003; Ellison *et al.* 2007; Hampton 2007). On the other hand, research on meetups has primarily focused on the way in which these virtual communities facilitate the formation of offline ties. This leaves the examination of the effect of offline interaction on *online* ties as yet to be studied.

The first hypothesis here is that meetup attendees are more active in the virtual community than non-attendees. This is hypothesized to be the case, first, because those who would want to meet members of the community offline likely make the choice to do so because they are already committed to the community, and second, because the development of multiplex relationships with their fellow members may encourage further engagement. Similarly, it is also expected that these members who choose to attend meetups will be less likely to become non-contributors as time passes (i.e. to abandon the community).

Second, it is hypothesized that meetup attendees will become more attached to the community as a result of developing multiplex relations with those members they have met offline. Specifically, attendees will increase their involvement in the community, as displayed by an increase in site activity after attending their first meetup.

Finally, it is hypothesized that there will be a disproportionate amount of in-group commenting among those who have attended a meetup. As a result of this increase in in-group talk, the community as a whole will become less inclusive in conversation.

H1: Meetup attendees will be more active on the site than non-attendees.
H2: Attendees will be less likely to abandon the community than non-attendees.
H3: Attendees will increase their involvement in the community after attending a meetup for the first time.

H4: Attendees will favour interaction with other attendees after attending a meetup.

Method

To test these hypotheses, I draw on approximately eight and a half years of longitudinal user activity data from the online community MetaFilter (*MetaFilter.com*), from the community's first post on 14 July 1999 through 31 December 2007. This particular community was chosen for a variety of reasons: (1) MetaFilter is a firmly established community with significant tenure surpassing that of the vast majority of online communities. The community's tenure enables longitudinal analysis that would not be possible with any of the numerous nascent communities. (2) There is a high volume of user activity daily (more than 90 per cent of MetaFilter readers reported visiting the site more often than once per day) and a large membership base (over 45,000 registered members to date) (MetaFilter User Survey Results 2004; MetaFilter Wiki 2010). (3) Because the membership base is globally dispersed and is not organized around a singular interest (e.g. exercise, parenting), there is a high level of member diversity, strengthening the external validity of this research. In addition, MetaFilter has previously been the subject of scholarly attention as researchers have looked at such issues as class (Lawton 2005), norms (Ali-Hasan 2005), and cohesion (Silva *et al.* 2009) in the MetaFilter community.

MetaFilter

MetaFilter.com is a large, active, geographically dispersed, English language online community. Originally organized around a single purpose, the site is now broken down into several 'sub-sites', each of which hosts a unique form of interaction between members.

Understanding the various functions of each sub-site is essential to understanding the ways in which members utilize these sub-sites. Of particular importance in light of the research questions posed here is that the sub-sites differ from one another in the type of support being exchanged. It is this author's belief that, because the nature of support exchanged on each section of the site differs, analysis should consider not only the effect of meetups on the site as a whole, but also sub-sites individually.

- *MeFi*. MeFi is the sub-site on which users share links to external webpages of interest and discuss web-content. Users can post up to one link per day, and comment on others' links as many times as desired. When founded, MeFi was the sole component of *MetaFilter.com* (the reason that this sub-site shares its name with the name for the website as a whole). Although other sections have since been added, MeFi remains the front page of the

site. The nature of members' interactions on this sub-site largely revolves around discussions of external content.

- *AskMe*. AskMe is the site's Question & Answer forum that aims to 'query the hive mind' (*ask.metafilter.com*). AskMe serves as a platform for the exchange of emotional and instrumental support among community members. Members are able to post a question on any topic, to which any other member may respond with a comment. The type of support requested varies – some are looking for technical support (e.g. 'How do I post images in the comments on the newest Facebook redesign?'), others look for relationship advice (e.g. 'What steps did you take to find your partner in spite of social anxiety or severe shyness?') or material support (e.g. 'Can someone deliver a cupcake to my girlfriend's L.A. hotel room?').

- *MetaTalk*. On MetaTalk, members discuss the community itself (i.e. provide 'meta-commentary'); for example, discussing ways in which to improve the site's usability or posing solutions to technical issues. MetaTalk also hosts the 'MetaFilter Gatherings' discussion threads in which members organize meetups. Coordinational support is commonly exchanged here.

Because of the anonymity afforded to members, there is little demographic information available about the community. Although members are able to populate a profile page with their photograph and personal details, many do not choose to do so. However, there are indications from a member's survey that the community is both diverse and representative of other virtual communities. In response to members' own ruminations on the extent of homophily in the community, one member conducted a web-survey through the site using a convenience sample in 2005. The survey found that 68 per cent of users were male, 73 per cent resided in the USA, 23 per cent were students, and another 25 per cent employed in the technology/communication field ($N = 436$). The survey found that the modal member is a white male of 31 (SD $= 7.7)^2$ (MetaFilter User Survey Results 2004).

Meetups are methodically broadcast so that all users may attend. A calendar of upcoming and recent meetups is maintained by administrators, which one can synch with their own personal calendars. When asked what purpose these offline meetups served, one member responded:

> The meetups are wide open excuses for people who know each other only in the online world of MeFi to get together and hang out in person. We had quite a few when I lived in Seattle and there was always a mix of people who knew each other (usually from former meetups) and new people who just dropped in. People often bring non-MeFi friends and partners. There's usually drinking – though there were many teetotalers in the [MetaFilter Seattle] group – and food, and the obligatory shout-out choruses.

Meetup attendees often spend a portion of their face-to-face time drawing up a list of members who, while not physically present, are on attendees' minds. This 'shout-out' list is then photographed and posted to the meetup's discussion thread so that non-attendees can see that their physical presence was missed.

Research design

The study used publicly accessible user activity data available for download on *MetaFilter.com* ('MetaFilter Info Dump' 2009). The publicly available text files were used to create a database of user activity in which queries were run to create variables that could be analysed using SPSS statistical software. User activity data from the site's launch in 14 July 1999 through 31 December 2007 (approximately eight and a half years) were analysed.

User activity is broken down into 'posts' and 'comments'. Posts refer to a contribution that begins a discussion thread (i.e. starts a conversation, poses a question, shares a hyperlink) while 'comments' are those contributions that respond to 'posts' (i.e. add to a conversation, answer a question, comment on a hyperlink). A user's 'total activity' is equivalent to the number of comments they have contributed *plus* the number of posts they have contributed. Users' average daily activity was computed to control for time.

Users are classified as either 'activated' or 'non-activated' based on their activity since registering. 'Activated' members are those who contributed at least one comment or post (engaged in activity of some sort on the site) after registering. 'Non-activated' members are members who, after registering for and receiving a username, never posted or commented on the site; these users have no record of online activity.

To establish which users attended meetups, attendee lists for each individual meetup were collected from the 'MetaFilter Gatherings' category on MetaTalk. Meetup data were collected from the first day the 'Gatherings' category was added to the site in April 2002 in order to facilitate these meetups. Although it is entirely possible that a small number of meetups occurred before this category was established, it is unlikely that many meetups are unaccounted for, as this category was added soon after these gatherings started occurring. The attendee lists, created by the attendees themselves, are found within the discussion threads categorized as 'MetaFilter Gatherings', which follow a naming convention of place and date. Usernames were reported in these discussion threads by those who attended the meetup, often as soon as one hour after a meetup concluded as those users who met-up often went online immediately to discuss the gathering, as well as to post photographs from the event on a popular online photo-sharing website (often tagging users with both their screen names and their 'real names'). These photographs, as well as users' comments, were used to validate the user attendee lists. While there was no way to know if a user was operating under more than one username, this practice is kept

to a minimum by site administrators. Second accounts, known as 'sock puppets', are discouraged and regulated to the extent that two accounts can be traced back to the same email address or ISP, or discovered through a user's activity ('More than one account', 2005).

Findings

> Feel free to drop on by. If we look like a group of slavering dorks, you can just walk in and walk right out again, we certainly don't know what you look like.
>
> *Posted by XXXXX at 9:11 AM, 13 January 2005*

Meetup frequency, location, and attendance

Over the eight and a half years, 322 meetups occurred (approximately five per month). There were, sadly, cases when a single person showed up for a pre-arranged meetup. These cases were not included, as they did not result in face-to-face interaction between at least two members. These meetups took place in 81 unique locations, 36 per cent of which were outside of the USA. At least one meetup was held on every continent with the exception of Antarctica. Meetups were predominantly held at night in bars and restaurants, although there were instances in which members hosted meetups at their homes.

On average, six people attended each meetup – ranging from only two members to as many as 28 members. As expected, the areas with the largest meetups on average were highly populated cities, as well as areas with a slightly younger, more educated, demographic (e.g. a 'college town' such as Ithaca, NY).

New York City drew the largest crowd to a single meetup with 28 members. San Francisco, CA came in a close second with a meetup as large as 27 members. Portland, OR, London, UK, and Las Vegas, NV additionally held meetups with at least 20 attendees. Although on the surface it may seem slightly surprising that Las Vegas held one of the most populated meetups, Las Vegas is a special case – two members who had met originally at a New York City meetup decided to wed in Las Vegas, inviting the community at large to join them in celebrating their marriage (a great testament to their devotion to the site, and to the validity of those relationships that migrate offline).

New York City also holds the title for the highest number of meetups held with 49 meetups, followed by San Francisco (22 meetups), London, and Seattle (each with 17 meetups). Las Vegas is the location with the highest average number of attendees per meetup, although the aforementioned 'destination wedding' meetup certainly inflated the city's average number of attendees per meetup (Table 1).

TABLE 1   Locations with the highest number of meetup attendees and highest number of meetups held ($N = 322$ meetups, 812 attendees).

most attendees		most meetups	
city	number of attendees	city	number of meetups
New York, NY	28	New York, NY	49
San Francisco, CA	27	San Francisco, CA	22
Portland, OR	20	Seattle	17
London, UK	20	London	17
Las Vegas, NV	20		
N	812		322

Two percent of the population attended at least one meetup ($N = 34{,}117$). Interestingly, only a slightly higher margin (4 per cent) of the *activated* population (users who contributed a comment or post to the community at least once since registering) attended at least one meetup ($N = 20{,}850$).

Many users attended more than one meetup. Of those who attended at least one meetup, the majority attended only a single offline gathering (57 per cent), although a small number (3 per cent) attended as many as 10 or more. One attendee based in New York City attended 33 meetups.

How do meetup attendees differ from non-attendees?

The first hypothesis states that meetup attendees will be more active contributors in the online community than non-attendees. This hypothesis was supported (χ^2 [1, $N = 34{,}117$] = 454.98, $p < 0.001$). Meetup attendees are more likely to be activated users – to have contributed to the site at least once since registering – than are non-attendees. Ninety-seven percent of meetup attendees can be considered activated users, while only 60 per cent of non-attendees contributed to the site at least once (Table 2).

Furthermore, attendees' daily activity is significantly higher than non-attendees – this is true for comments and posts together for the site as a whole ($F[34{,}116] = 905.33$, $p < 0.001$) as well as for posts ($F[34{,}116] =$

TABLE 2   Activity since joining by meetup attendance.

	non-attendee	attendee	total
Non-activated (no posts)	39.77	2.83	38.89
Activated (posted at least once)	60.23	97.17	61.11
N	33,305	812	34,117

Note: $N = 34{,}117$, $\chi^2 = 454.981$, d.f. = 1, $p < 0.001$.

4.07, $p < 0.05$) and comments ($F[34,116] = 1,413.21$, $p < 0.001$) separately. This is also true for each individual sub-site (Table 3). The exception here is the MeFi sub-site for which the attendees' average number of posts per day did not differ significantly from non-attendees' average number of posts per day ($F[34,116] = 1.56$, $p = 0.21$).

The second hypothesis states that meetup attendees will be less likely to stop contributing to the community all together (i.e. to abandon an active role in the community).[3] Here, abandonment is operationalized as zero contributions to the site (neither posts nor comments) in the final three months of the data collection period. This hypothesis was supported.

Meetup attendees are significantly less likely to have stopped contributing to the site. Looking at all activated users (those who contributed at least one post or comment after registering), attendees' mean site activity was 19.57 posts or comments over the three month period ($N = 789$; $SD = 77.7$), whereas non-attendees only contributed 1.22 posts or comments on average ($N = 20,061$; $SD = 20.0$) ($F[20,848] = 1,072.75$, $p < 0.001$). Attendees' mean list activity was significantly higher for posts ($F[20,848] = 1,622.01$, $p < 0.001$) and comments ($F[20,848] = 1,052.06$, $p < 0.001$) as well as each sub-site individually.

Meetups and engagement in the community

The third hypothesis posits that the experience of attending a meetup leads one to become more engaged in the online community, evidenced by an increase in contributions to the site after attending a meetup for the first time.

The difference between attendees' daily activity *before* attending a meetup for the first time and their activity *after* attending a meetup is not significantly distinguishable from zero, i.e. there was no significant increase or decrease in activity as a result of attending a meetup ($t [811] = 0.01$, $p = 0.99$). However, when sub-sites are considered individually, and commenting and posting activity differentiated, effects of meetup attendance emerge (Table 4).

While there was no significant change in the overall quantity of contributions to MetaTalk ($t[811] = -0.68$, $p = 0.5$), there was a statistically significant increase in activity on AskMe, both for activity overall ($t[811] = 6.76$, $p < 0.001$) and for comments ($t[811] = 7.08$, $p < 0.001$) and posts individually ($t[811] = 3.59$, $p < 0.001$), and a decrease in activity on MeFi that approaches significance ($t[811] = -1.92$, $p = 0.056$).

Do attendees favour interacting with other attendees online?

The fourth hypothesis predicted that members who attended meetups would favour interaction with other members who have attended meetups. This hypothesis was supported, as there is a statistically significant difference

TABLE 3   Mean number of comments and posts per day ($N = 812$ attendees, 33,305 non-attendees).

site	mean
Total site	
Posts	
Attendee	$0.03^{0.044}$
Non-attendee	$0.01^{0.044}$
Comments	
Attendee	$0.87^{0.000}$
Non-attendee	$0.09^{0.000}$
All activity	
Attendee	$0.91^{0.000}$
Non-attendee	$0.10^{0.000}$
AskMe	
Posts	
Attendee	$0.01^{0.008}$
Non-attendee	$0.01^{0.008}$
Comments	
Attendee	$0.27^{0.000}$
Non-attendee	$0.04^{0.000}$
All activity	
Attendee	$0.29^{0.000}$
Non-attendee	$0.05^{0.000}$
MeFi	
Posts	
Attendee	$0.02^{0.212}$
Non-attendee	$0.00^{0.212}$
Comments	
Attendee	$0.42^{0.000}$
Non-attendee	$0.04^{0.000}$
All activity	
Attendee	$0.44^{0.000}$
Non-attendee	$0.05^{0.000}$
Meta	
Posts	
Attendee	$0.00^{0.000}$
Non-attendee	$0.00^{0.000}$
Comments	
Attendee	$0.18^{0.000}$
Non-attendee	$0.01^{0.000}$
All activity	
Attendee	$0.18^{0.000}$
Non-attendee	$0.01^{0.000}$

Note: Numbers in superscript are *p*-values (ANOVA).

TABLE 4 Change in activity per day following meetup attendance ($N = 789$ activated attendees).

site	type of activity	mean	SD
Entire site			
	Posts	$1.29^{0.000}$	3.37
	Comments	$-1.29^{0.186}$	27.36
	Total activity	$0.01^{0.996}$	29.06
AskMe			
	Posts	$0.03^{0.000}$	0.24
	Comments	$0.45^{0.000}$	1.77
	Total activity	$0.48^{0.000}$	1.98
MeFi			
	Posts	$-0.08^{0.093}$	1.28
	Comments	$-1.67^{0.057}$	24.59
	Total activity	$-1.74^{0.056}$	25.57
Meta			
	Comments	$-0.07^{0.587}$	3.49
	Posts	$-0.03^{0.079}$	0.40
	Total activity	$-0.09^{0.499}$	3.86

Note: Numbers in superscript are *p*-values (*T*-test).

between the percent of comments that the attendees contributed to other attendees daily *before* attending a meetup and the percent of comments that the attendees contributed to other attendees daily *after* attending a meetup (Table 5). For the entire site, the mean difference between the percent of comments

TABLE 5 Attendees' change in daily comments on other attendees' posts following meetup ($N = 789$ activated attendees).

site	mean	SD
Entire site		
	$0.032^{0.000}$	0.176
AskMe		
	$0.005^{0.547}$	0.229
MeFi		
	0.034^{000}	0.216
Meta		
	$0.036^{0.004}$	0.346

Note: Numbers in superscript are *p*-values (*T*-test).

contributed before versus after the first meetup was 0.031 comments per day, or about one comment per month ($t[811] = 5.02$, $p < 0.001$).

When site-sections are examined independently, we see that the difference is statistically significant for all site-sections with the exception of AskMe (Mean = 005, $t[811] = 0.602$, $p = 0.55$).

Discussion

The goal of this study was to explore the way in which virtual community meetups affect those members who attend them, and how the virtual community at large is affected by face-to-face meetups. Particular consideration is given to the way in which members' social capital is affected by the introduction of this medium of communication. While offline meetups have been shown to strengthen the relationships of those who participate in them, those who meet other members offline, I ask how the network of weak ties will be affected by this sub-group's strengthened ties.

Four hypotheses were proposed. The first concerning whether or not attendees and non-attendees differed in their virtual community activities. The next set of hypotheses applies to the effect of meetups on attendees individually. How does attending a meetup affect a member's engagement with the community at large? Will they increase their involvement in the community as a result of forming face-to-face relationships with community members? Similarly, will they be less likely to stop contributing to the site? The last hypothesis tested whether or not those who attended meetups favoured other attendees at the expense of non-attendees following face-to-face contact.

In addition to analyzing user behaviour on the site as a whole, the sub-sites of *Metafilter.com* were also considered individually. This was done because the nature of the interactions taking place differed from sub-site to sub-site. For example, on the MeFi site, members discuss web-content external to *Metafilter.com* (e.g. a news item or a new video on *YouTube.com*) while on the AskMe site, members answer one another's questions on topics ranging from the most impersonal advice on which computer software to buy to deeply personal relationship advice. I claim that because different forms of support are exchanged on each sub-site, meetup attendance will affect user activity on each section differently. Evidence in support of this claim was found, as the findings indicate that significant changes in user behaviour on one sub-site does not necessarily come with changes on all sub-sites, or on the site as a whole.

The findings indicate that attendees are more active on the site than non-attendees. Meetup attendees are more likely to have contributed to the site in the form of either a post or comment at least once after registering to become a member. Furthermore, attendees' average daily activity is significantly greater than non-attendees – this is true for both comments and posts together

as well as for each separately. However, the difference between attendees' and non-attendees' posts to the MeFi sub-site, that section of the site on which one posts links to web content external to *Metafilter.com* to share with the community, is not significant.

Furthermore, attending a meetup may positively impact members' engagement with the community as a whole. Meetup attendees are significantly less likely to abandon the community – to stop contributing either posts or comments. This effect was significant for the site as a whole, as well as each sub-section individually. However, it is unclear whether attendees, being already more active on the site than non-attendees, became less likely to abandon the online community and increased their site activity as a result of attending a meetup, or if these members would have been less likely to abandon the community independent of the meetup, ramping up their activity over time.

Attendees also increase their daily contributions to certain sub-sites after attending a meetup for the first time, but not on the site as a whole. There was no significant increase or decrease in entire site activity. However, there was a significant increase in activity on AskMe, the main platform for the exchange of support, as a result of meetup attendance. Further, there was a decrease in activity on the MeFi sub-site. The data suggest that the development of multiplex relationships – here defined as adding offline interaction to online interaction – made individuals more likely to engage in the section of the site on which support is primarily exchanged (AskMe), but not more likely to increase activity for those sections of the site on which little support is exchanged. These results may suggest that the decrease on the MeFi section coupled with the increase on the AskMe section displays attendees' preference for a more support-based, more personal interaction as a result of establishing offline ties, but future work will be needed to fully understand the connection between establishing offline ties and increased interest in support-based interaction.

Finally, findings indicate that after going to a meetup, attendees favour interaction with those who have also attended meetups. However, there was no statistically significant change in activity for the AskMe sub-site. This finding is at first glance curious, as it is on the AskMe section of the site that most social support is exchanged. However, the fact that attendees do not shift their support towards other attendees on this section of the site may result from the fact that having strengthened social ties with some members, attendees feel closer to all members. This suggests that future work on the effect of face-to-face meetups on tie strength is needed.

Conclusion

In keeping with previous research on the individual benefits of offline gatherings such as that by Rheingold (1993), Sander (2005), and Xie (2008), these findings

suggest that meetup attendees strengthen their relationships with those they meet offline. However, as Haythornthwaite (2005) has previously found, as a new medium is introduced into the community (face-to-face meetings), weak ties are affected. This is evident here as attendees steer their comments (i.e. their resources and their support) towards other members of this exclusive in-group of attendees. The finding that attendees favour those that also attend meetups has implications for the social capital embedded in members' networks. Although the benefits of meetups to the individual are evident (greater engagement with the community evidenced by a smaller likelihood of abandonment and an increase in site activity), the community as a whole may not benefit from the self-serving in-group activity of the meetup attendees. Whether or not the community benefits from a strong core of active members or is harmed by in-group talk is outside the scope of this paper, suggesting a need for future research.

An encouraging finding of this study is that attendees did not shift their attention towards other attendees at the expense of non-attendees on that sub-site on which most instrumental and emotional support is exchanged (AskMe), although they did so for the other sub-sites, and for the site as a whole. This suggests that while attendees strengthen ties with others who met offline, they do not choose to withhold these important forms of support from other members, perhaps evidence that increased commitment to the community resulting from face-to-face meetings led attendees to be more engaged in generalized reciprocity.

It should be noted that there is greater opportunity for attendees to comment on other attendees' posts than to comment on non-attendees posts, as it has been shown that attendees are more likely to post than non-attendees. The finding that attendees are more active on the site than non-attendees, together with the finding that meetup attendance enhances members' engagement with the site, suggests that while meetups may have benefits for individuals, it may be that 'the rich get richer'. Those that were already gaining social capital from the site are those that will be most likely to attend meetups and, in turn, become more involved in the site, reaping additional benefits.

Finally, it is also important to note that only two communication channels were analysed in this study, both public: interaction within the forum of the virtual community, and face-to-face interaction at meetups organized and broadcasted on the site. It is possible that members of the community were interacting with one another through other channels, via additional media such as email and private messaging. Most likely, these additional communication channels were utilized most by those members who met face-to-face. As a result, the true strength of these face-to-face ties may not be evident in an analysis that examines behaviour within the virtual community.

This study's findings have important implications for virtual communities. When community members meet other members offline and strengthen their

relationships with other attendees, they affect not only their own experience with the virtual community, but also the experience of all the other members. Virtual communities are important sources of support. The effects of meetup attendance, such as strengthened ties and enhanced engagement with the community, can benefit these individual members; however, exchanges of support among weak ties are sacrificed when meetup attendees favour inter-action with other attendees over interaction with the community at large. As a result, those that do not attend meetups (the vast majority of the community) are negatively affected by their presence. Weak ties are essential to the community both because they provide a diversity of interaction, and because these weak ties provide bridges that allow information to move between clusters of members. Consequently, the effects of meetups on the individual are not the same as those on the collective group. What at first may seem a way in which to enhance bonding within a community may prove a more complex phenomenon that negatively impacts the essential weak ties found within.

Acknowledgements

Notes

1   The type of gatherings of interest here should not be confused with offline meetings arranged through websites such as *Meetup.com*. Sites such as these primarily facilitate offline interaction and may have limited online channels for interaction. The goal is find people to establish offline groups, not to interact virtually.

2   The self-selected nature of the sample should call into question the validity of these findings. That being said, this survey is the only one of its kind conducted on the MetaFilter community.

3   It is not assumed that one who has abandoned a contributor role is no longer visiting the site. These members may very well continue to exist as 'lurkers', those who visit the site and read others' contributions without actively participating. However, these members have abandoned the community in the sense that they no longer interact with other users on the site.

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