The Social Media Ecology: User Perceptions, Strategies and Challenges

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ABSTRACT

Many existing studies of social media focus on only one platform, but the reality of users' lived experiences is that most users incorporate multiple platforms into their communication practices in order to access the people and networks they desire to influence. In order to better understand how people make sharing decisions across multiple sites, we asked our participants (N=29) to categorize all modes of communication they used, with the goal of surfacing their mental models about managing sharing across platforms. Our interview data suggest that people simultaneously consider "audience" and "content" when sharing and these needs sometimes compete with one another; that they have the strong desire to both maintain boundaries between platforms as well as allowing content and audience to permeate across these boundaries; and that they strive to stabilize their own communication ecosystem yet need to respond to changes necessitated by the emergence of new tools, practices, and contacts. We unpack the implications of these tensions and suggest future design possibilities.

Author Keywords

Social media; media ecology; content sharing; boundary management

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

INTRODUCTION

Over the past 10 years, the social media ecology has changed radically in both the types of people who have access to social media sites and the range of social media tools available to them. As recently as 2005, only 8% of the Internet using adult population in the United States used social network sites (SNSs) [7], whereas more recently

more than 70% of people in a nationwide survey reported using Facebook [10]. As more people have access to the technology and skills that make up SNS use, their needs and goals for communication also become more diverse [22, 25, 38]. This diversity is compounded by the rapidly changing social media ecology. While long-standing sites like Facebook and Twitter have been integrated with communication tools like phones, new tools emerge that users need to consider in the context of their existing communication technology use. The changes in both the heterogeneity of the online population and the tools they have access to may drive new considerations for how people manage multiple social media sites.

The changing ecology of social media sites can also affect the decisions people make about how to meet their communication needs. According to recent work [10], 52% of adult Internet users in the United States use two or more social media applications, an increase from 42% just a year earlier [10]. Zhang, Choudhury, and Grudin [53] studied workers in a technology company over a five-year period and found among other things that "churn," or the rate of abandonment for new social media sites, was high among users, who would consistently return to Facebook. Forte et al. [20] studied how teens in two high schools used social media for information gathering, and found that teens used a variety of social media sites, often simultaneously. Researchers have previously found that people use multiple communication tools to engage their communication needs. In Haythornthwaite's [26] media multiplexity theory, the number of different communication tools that a person used to communicate with someone else was related to the closeness of that relationship.

Through interviews with 29 social media users, we address issues of how people perceive and manage the range of social media tools available to them, in a context where tools like email and telephone are also available. We find that, similar to previous work on managing social media relationships, people balance a variety of dimensions in considering which tools they will use to meet their communication needs. On top of the need to balance audience and content, we find that people consider how different sites enable permeation of content to multiple audiences and document how they react to the emergence of new social media tools that may threaten the stability of the communication ecosystem they have constructed.

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RELATED WORK

Negotiating Individual Differences

Over the past several years, there has been a rapid shift in both the number of people who use social media sites and the availability of sites to them. In 2005, only 8% of Internet using adults in the United States used social media sites [7]. By 2013, that number had grown to 73% of people. Social media use is even more ubiquitous when considered internationally, where on average 77% of Internet users are social media users [51]. The increased access to computer networks and the increased sophistication and decreased cost of mobile devices are just two factors that have led to widespread adoption of social media sites, many of which serve as a common platform for people to meet their communication and information needs.

As more people adopt social media applications, demographic and psychosocial factors become important for understanding how people experience social media differently. In early studies of SNS use, Hargittai [25] found that race and parental education (a common proxy for economic status) predicted differential adoption of early SNSs, which she warned could be a sign that inequality was being replicated online. Others have looked at urban/rural differences in MySpace adoption [22], personality differences in Facebook adoption [38], and cultural differences in “commitment” to adopt Facebook [49].

Not only does diversity of individual characteristics shape who adopts different social media tools, but it also affects their motivations and behaviors within those systems. As Smock et al. [42] point out, “SNS use has been traditionally treated as homogeneous, implicitly operating under the assumption that users are employing the same set of features in the same manner” (p. 2323). However, numerous studies have shown that use within social media sites is very diverse. Joinson [30] conducted exploratory work on early Facebook users and found that motivations to connect to others on the site could come from a desire to connect to old friends, having shared identities, or wanting to share pictures. Similarly Ellison and colleagues [15] found that people had different, distinct “connection strategies” on Facebook, like initiating new relationships vs. seeking social information about the people around them. Papacharissi and Mendelson [37] used the Uses and Gratifications perspective to show Facebook users valued very different potential benefits of the site, such as entertainment or social support.

Adding to this complexity, the heterogeneity in individual characteristics and motivations need to be negotiated in the context of specific site norms. Norms are “*customs, traditions, standards, rules, values, fashions and all other criteria of conduct which are standardized as a consequence of the contact of individuals*” [36]. Research shows norms matter in the context of social media use – even though users might approach the same site with different motivations or needs, they are affected by how

others behave and their perceptions of what other users expect [14, 8]. Perceived norms pose another constraint on people in terms of what to share and how to share, as some behaviors are considered inappropriate in particular contexts [35].

Negotiating Diverse Communication Needs

As in offline settings, people have diverse communicative needs to fulfill when they communicate online. Goffman [23] argues that people have nuanced needs for sharing information and that they must consider specific social contexts and the effects of their self-disclosures. Compared to the offline context, communicating in online social contexts poses many challenges. In fact, people need to “imagine” their audiences when sharing on social media [33], and they are not good at conceptualizing who their audience is or how big it is [6]. Given the difficulty of imagining one’s audience in a social media site, and that most social media sites collapse all connections into one common stream, friction about what to share to whom, or “context collapse” [34, 50], has become endemic.

Other factors further complicate users’ decisions around social media use. Although interactions among users can happen in short bursts of almost synchronous activity, Hogan [27] applied the exhibition approach to highlight the role of data persistence, arguing that social media is an enduring “exhibition” of one’s online identity. Following his approach, recent work around deletion behaviors provide evidence that people do need to re-evaluate how they use social media and that they take incremental efforts to manage their content sharing [39,44,55]. In addition, people’s social relationships and social circles change over time as do site norms [35]. Together, these changes suggest that understanding user practices around multiple site use is a worthy scholarly endeavor.

Multiple Platforms Provide Opportunities

Even though any single social media tool might be limited by its audience, norms of use, and features, the availability of multiple platforms provide new opportunities for people to negotiate their diverse needs and differences. The fact that people might adopt different sites means that we are less likely to find everyone we want to connect with in one “place.” Recent studies found that using multiple sites help to resolve this access issue: participants in Lindley’s study valued the fact that different social media provide easy access to different social networks [32] and Vitak et al. [50] found people switch communication channels when they want to reach different social groups. Research also shows people attempt to resolve “context collapse” by using multiple social media and compartmentalizing their social media use [48]; people would intentionally make their other account information hard to find for some of their contacts (a strategy called “practical obscurity” [43]).

The diversity of site norms actually provides new opportunities for people to manage different types of interactions or curate different identities. For example,

recent studies show that Facebook was more valued for sharing major life events and one's highly curated identity compared to other sites [32, 54] whereas Snapchat is valued for sharing small moments and mundane aspects of everyday life compared to sites that afford more data persistence [4, 52]. It is now common for people to go to different sites in order to share different content [2, 28].

With more platforms available and people approaching their use of platforms differently, it is less likely that one's communicative needs could be met on any single platform. Therefore, we are motivated to investigate how individuals leverage multiple social media platforms to fulfill their own communication needs, negotiating diverse needs in the presence of others and different site norms.

Existing work has explored the general pattern of multiple social media use for particular contexts (e.g., organizational context as in [53]; college students as in [45]) and different demographic segments [10]). Although this literature provides evidence that people do leverage multiple social media sites to fulfill their communication goals, our focus is on individuals and how their perceptions and practices are supported and negotiated when leveraging different social media: If people's usage pattern of social media is overlapping yet different [29], where exactly do people draw boundaries between different platforms? If it is hard to have any single platform fulfill one's communicative needs, how do people experience the constraints and opportunities represented by different platforms and channels? If people often need to decide to adopt new social media sites or to migrate from one to another, what drives their decisions and how does this affect their overall strategy of social media use?

To answer the call from some recent work [e.g., 48] to explore "how sites are compared and contrasted in each individual's everyday use," we designed a qualitative study to explore the following research questions:

RQ1: How do participants make decisions about which platform to use?

RQ2: How do people manage communication across multiple social media platforms?

THE STUDY Procedure

We recruited participants living in and around a Mid-western city in the US. We disseminated the recruitment advertisements on Craigslist, a local newspaper, and posters at local restaurants, libraries, and supermarkets. Participants were first directed to an online survey to screen for desired characteristics and were asked demographic questions (age, gender, race, etc.) as well as items about the social media tools they frequently and actively used and how often they accessed these tools. Information from the screening survey was used to screen participants. We understand that media experience could vary to a great extent in different age groups, so we aimed to recruit people from a broad age

range while balancing gender and race/ethnicity composition in our sample.

Participants were then invited to our research lab for a 60-minute in-depth, face-to-face interview. The interview involved questions about participants' daily communication practices with a focus on their use of different social media and their perceptions of how the communication experience was similar or different across different communication platforms. In the first part of the interview, participants were asked to perform a card-sorting task, where they created their own set of cards to list all the "modes of communication" they use (one card per channel) and then organized their cards into piles and described the relationship between these communication platforms. This activity was designed as a way to encourage participants to react to and reflect upon their communication practices and media use. We intentionally used the wording "modes of communication" in prompting the card-sorting activity, because we did not want to prime people to think of some as communication platforms but not others. In the second

P#	age	F/M	social media	P#	age	F/M	social media
P1	46	F	1,6,7	P15	34	M	1, 2, 3, 6, 9, 18
P2	53	M	1, 2, 3, 9	P16	29	M	1, 2, 8, 9, 11
P3	50	F	1, 5, 6, 7, 9 16, 17	P17	34	M	1, 6, 9
P4	33	F	1, 2, 3, 6, 10, 12, 13	P18	29	F	1, 2, 3, 5, 9, 8, 9, 10
P5	48	F	1, 4, 5, 6, 9	P19	24	F	1, 2, 3, 8
P6	26	F	1, 3, 5, 7	P20	32	F	1, 2, 3, 9, 14
P7	24	M	1, 2, 3, 8	P21	27	F	1, 5, 6, 7, 9
P8	25	F	1, 2, 8, 9, 15	P22	24	F	1, 2, 3, 5, 6, 8
P9	51	F	1, 2, 3, 5, 6, 7, 8, 9	P23	33	F	1, 5, 6, 9
P10	22	F	1, 2, 3, 5	P24	39	F	1, 2, 3, 5
P11	27	F	1, 2, 3, 4, 5, 6, 7, 8	P25	25	F	1, 2, 3, 4, 5, 9
P12	51	M	1, 6, 7	P26	49	F	1, 5, 7, 9
P13	40	M	1, 2, 3, 5	P27	26	F	1, 5, 9, 11
P14	32	F	1, 2, 5, 6, 9	P28	41	F	1, 3, 5
				P29	20	F	1, 3, 5, 6

Table 1: Participants and Their Frequently Used Social Media

1=Facebook, 2=Twitter, 3=Instagram, 4=Snapchat, 5=Pinterest, 6=LinkedIn, 7=Google+, 8=Tumblr, 9=Youtube, 10=Foursquare, 11=Reddit, 12=Path, 13=Flipboard, 14=MocoSpace, 15=Fetlife, 16=DateHookUp, 17=AtlasQuest, 18=LiveLeak

part of the interview, we prompted participants to reflect on their experience of using different communication platforms for specific communication scenarios, as well as for specific relationships. Participants were also asked to visit any archives of communication or traces of online activity either on desktop computers or on their own mobile phones, to help them draw examples to talk about in responding to our questions. All card-sorting results were photographed, and all interviews were audio recorded and then transcribed.

Participants

29 participants participated in the study (18 Female, 11 male; age range from 22-53). The frequently used social media sites by our participants include Facebook, Twitter, Instagram, LinkedIn, and Snapchat. Participants were given \$35 for their participation. Table 1 shows age, gender, and frequently used social media platform for each participant.

Analysis

The card-sorting activities were intended to serve as prompts for eliciting concrete communication cases to be discussed in the interview; since participants were asked to elaborate on their card-sorting results in the interview, and they talked about their use of communication platforms throughout the whole process, photographs from card-sorting sessions were analyzed together with the interview data and we do not differentiate between the two sources of data in our analysis. We used iterative coding to analyze all the interview data. There were three stages of our iterative coding process: inductive coding and codebook development, recoding of the interviews based on this codebook, and association of quotes with different themes. All co-authors met in a series of face-to-face meetings to discuss all the codes and emerging themes.

FINDINGS

We find people simultaneously consider their desired audience and norms around content when deciding how to share specific content. In some cases, audience, norms, and user needs align well. Our first set of findings describes the ways in which participants consider the primary factors of content and audience.

However, when we look at cases in which the boundaries are blurred, a more complicated story arises. In response to our second research question, we find that participants sometimes struggle to reconcile a strong desire to maintain boundaries between platforms and networks but also a need to allow content and audience to permeate through these boundaries at times. We also find that participants struggle to stabilize their own platform ecosystem yet feel the need to respond to the emergence of new tools and new relationships.

Sharing Strategies: Considering Audience and Content

Our first RQ explores how people experience the constraints and opportunities represented by different platforms and channels and how this affects their decision-

making practices around content sharing. Our data echo previous work in highlighting the role of expected audience and norms around content sharing on different sites, but our findings also explicate how these two factors intersect, affecting platform choices.

Participants experienced tension when their social needs did not align with a particular technical solution (i.e., sharing to one particular social media platform). Social needs include the desire to reach a particular audience and to share a particular kind of message or content. With regard to social media, we found “audience” and “content” are two primary considerations that simultaneously drive platform choices – but often these needs could not be met by the same channel. Participants described their need to reach specific audiences and to share specific content while noting the inherent tension at play when these needs could not be met in the same channel.

Audiences differ across platforms

As has been noted in other work, in some cases our participants selected platforms based on intended audience. For instance, this participant attributed her decision-making on *where* to post a photo to a decision about audience: ‘*Oh, I just want my friends to see this,*’ or ‘*I just want my younger cousins,*’ or ‘*I want everyone to see this.*’” (P25).

This strategy of “segmenting audiences by sites” is consistent with what Stutzman and Hartzog described in their work [43]. We find people are creating conceptual links between platform and audience as they consciously curate different audience groups on different platforms. For example, when mapping out relationships between communication platforms during the card-sorting activity, over half of participants categorized their platforms based on audience, such as close friends versus family versus business contacts.

Consistent with research on “context collapse” [34], this desire to separate audience groups often stemmed from privacy concerns, such as the need to keep multiple dimensions of one’s identity (and the audiences for each) separate from one another. One example is this Reddit poster explaining why he does not link to his Reddit page from his Facebook account:

“I try to keep the story page separate from everything else, is because, like, I’m writing primarily, like, horror stories. So, they’re gonna be kind of gross, and creepy, and upsetting... I kind of don’t want my boss or somebody finding out about all these horrible, gross, gory things that I wrote on the Internet.” (P16)

In addition to managing issues around context collapse, participants described the need to carve out separate spaces for more targeted kinds of content-sharing. Having one platform dedicated to a particular kind of audience or content helped to ease the pain of “*deciding where to post*” (P24) for users:

"My main mode of social media is Facebook and to me having to decide where to post it is more of a pain in the butt than that, so most of my friends and family are on Facebook... [whereas with] Instagram if I know it's something for the girls and softball-related, the picture goes there." (P24)

Aligning specific kinds of content (such as sports or children) with specific channels helped to ensure messages were delivered in intended ways and could receive sufficient attention from other parties. Many participants remarked that particular social media platforms such as Facebook and Twitter, which contain a variety of content from a diverse group of people, could end up making it difficult to find valuable and meaningful content due to the messy and diverse nature of the audiences and the filtering algorithms used to display content. In talking about this issue, one participant described how she intentionally maintains a subset of contacts on Instagram that are different from Facebook:

"There's so many other things on Facebook... I know I use it more so for stories and videos of random things that had nothing to do with my close friends. I'm thinking that other people use it as that, too. So [if I post to Facebook] they might scroll down and miss the picture that I want them to see, whereas on Instagram it's like you can't really miss it." (P25)

Norms differ across platforms

Another need that drives platform choice is whether the content to be shared is normative, or perceived as "appropriate," for a particular platform. In many cases, the concern for sharing the right kind of content took precedent over concerns around audience.

For example, Facebook was perceived to be strictly "personal" for many participants. Even if the audience for that site represents connections from a specific domain (such as work), the personal nature of the platform still is what dictates how people communicate on Facebook: *"while I am Friends with some folks that I work with, whatever interactions we have on Facebook have nothing to do with work."* (P22).

The characteristics of the content often dictated which platform participants used to share it. Three themes emerged with regard to these patterns. First, our participants differentiated lightweight content from more meaningful, high-quality content. For example, consistent with previous work [e.g., 54] we found some platforms, like Facebook, were seen as appropriate for highly curated content. Participants described selecting the best subset of photos (as opposed to uploading the whole camera roll) when they used Facebook, in order to meet audience expectations and avoid overwhelming their readers. Other platforms, such as Instagram, did not require this kind of selection process:

"If it's an exceptionally cute photo of my rabbit, I send it to Facebook. If it's just – 'this is another pet picture' I just keep it to Instagram... I don't want to have [my bunny] overtake my Facebook page." (P22)

Second, participants described the expected interactivity of the content as driving platform choice. Participants differentiated between content mainly shared for self-expression or self-archiving purposes versus content shared with expectations of audience feedback. Participants saw some social media platforms as vehicles for self-expression, as opposed to extended interactions with specific people. For example, Twitter was described as "a venting tool" (P3); another participant described the value of sharing there as purely "getting it out" (P5). Another participant described Twitter as *"more [of] an informational tool versus a communications tool"* (P15).

Similarly, social media platforms varied with regard to the expected level of feedback. For example,

"...Facebook, I get a lot more comments on things. But Instagram is more of just, 'I just wanna share this because I want you to see it,' not so much comment on this. I just wanna share it with people. That's all." (P28)

Finally, content was segregated by topic and theme, with different platforms being used for different topics. Participants described constraining content centered on a common theme to a particular platform, and tried to avoid alienating or spamming other platforms with irrelevant content. For example, one participant reported that all discussions regarding *"politics and religion"* only took place on Facebook and Twitter (P2); another participant mentioned Instagram was reserved for content that was *"visual"* and highlighted *"my artistic taste"* (P11).

Audience and content are intersecting parameters

In the section above we describe content and audience as distinct dimensions, in which considerations of expected audience and appropriate content were engaged to manage social boundaries and site norms, respectively. In reality, content and audience were often intertwined. Site norms around content are actually partly shaped by the ways in which different social media aggregate audiences, and different audiences expect different kinds of content. For example, Facebook networks typically reflect a more comprehensive group of "contacts," and normative "content" shared on Facebook was expected to be more curated than other platforms (also noted in [54]), perhaps due to this wider audience.

In some cases, schisms existed between platform audience and expected content. For example, this participant talked about why he has to communicate with some of his family members via Facebook, even though he does not consider Facebook as the preferred place for this kind of interaction:

"... for them it's like the most convenient way to get in contact with me, and I guess they figure I'm going to see it,

so they go on there. They don't care (about the content) ... So I have to go on there to contact them because that may be the only way... I may not have their phone number." (P15)

In conclusion our data highlight the importance of content and audience factors when making decisions about platform choice. When the content and desired audience aligned perfectly, participants' decision-making strategies were clear. However, in many cases participants experienced competing desires. These tensions were along two dimensions: Separation-Permeation, and Stability-Change. Similar to the way in which tensions have been explored in interpersonal [3] and organizational contexts [21], our finding about tensions regarding how people manage platform boundaries does not imply simple contradictions or the need for dichotomous choices. Rather, echoing Gibbs [21], we can think about "complementary dialectics" as a framing: the notion that tensions are positive to work through and the goal should be to incorporate both poles in an enabling manner.

Managing Across Platforms: Separation vs. Permeation

Our second RQ asked about the tensions that arose when people attempted to manage content across multiple platforms. Our data suggest that participants experienced opposing desires to guard platform boundaries in order to maintain separate spaces but also felt the need to relax platform boundaries to allow "audience" and "content" associated with any particular platform to permeate others.

On one hand, participants mentioned a variety of strategies for keeping different platforms separate. The most commonly mentioned strategies include disguising their Facebook account names to avoid recognition by offline contacts (P30), making fake accounts (P2), intentionally avoiding disclosure of their social media profiles (P1), making sure their social media profiles were "search-proof" (P19), and separating different social media accounts to avoid mixing professional and personal audiences (P8).

In this following case, the participant purposefully chose other traditional communication channels (such as email) to avoid directing others' attention to her Facebook profile, which is associated with more recent personal information:

"[When communicating in professional settings] I don't want that to come with everything that's attached to my Facebook, 'cause I don't want that to come with the ability to look back. I don't want [people to say] 'Oh. Let me go stalk all her pictures now' because I want that to come from me as a professional individual, and Facebook is not that professional setting. (P15)

Although many participants described efforts to keep platforms separate, permeation between platforms did occur. Since a single platform was not likely to have the perfect match of "contacts" and "content," participants reached their desired audience by sharing the same content over multiple platforms. More than half of our participants

mentioned this cross-sharing strategy, which means sharing the same content across different platforms to reach a bigger audience. For instance, participants used multiple channels (e.g., Facebook, emails, calls) to announce big life events, as we saw with two of our participants (P2, P8) who announced engagements on multiple platforms.

Another participant, who is active in an online letterboxing [an outdoor orienteering game] community, mentioned she often shares letterboxing-related content to Facebook in order to access those who weren't in this community:

"Because it's interesting to get comments back from non-letterbox-ers. Brandon isn't a letter-boxer, he doesn't have a letterbox-ing profile or whatever. But if I said, 'Where's a good box place to plant in Washington County?'... they don't need to be a letterbox-er to have insight into where's the cool places to hide little boxes." (P3)

When people share across platforms, they do strategically "tailor" content to specific channels. For instance, one participant would post photos to Instagram "when preparing for exams" but post a status for "passing the exam" on Facebook later so "everyone could see" (P25). Alternatively, the same content might be modified to be consistent with different platform norms, as with this participant who shared a textual quote on Facebook but the quote and an image on Instagram:

"... (on the picture) it'll say, 'Love is...', and then you copy and paste it and you'll put it on Facebook and then you'll use the actual picture for Instagram... Instagram should be pictures and Facebook should be words." (P18)

This "cross-sharing" is one type of boundary permeation described by our participants. We found that cross-sharing situations were usually managed with extreme caution because they may entail losing control of platform boundaries around audience. For example, many social media sites allow users to use login information from one platform to access another or the ability to link accounts across platforms; when this happens account information is made visible to other (perhaps unanticipated) users. Many of our participants mentioned instances where they "found people's Twitter names through Facebook" (P22) when others were cross-sharing on both platforms.

This participant, for example, explains why she always posts from Instagram to Twitter, not another way around, because this does not reveal her Instagram account information to her Twitter followers:

"Because I like to keep my Twitter private. If I post something from Instagram to Twitter, then the people that follow me on Instagram still don't know I have a Twitter... But if I was going to tweet, post pictures of something I tweeted, then everybody on Instagram would know I have a Twitter [account] and they could follow me. It's like I keep it private, kind of. I'm weird with it." (P19)

In addition to linking accounts, which can be seen as a permanent form of enabling permeability across platforms, participants sometimes did this sporadically in order to, say, attract a bigger audience at the moment while still maintaining the boundaries between platform audiences:

"I try to keep [the Facebook Fan page and personal account] a little bit of separate. When I first made [the fan page], I kind of made an announcement, like I invited people to like it. And then after that I just kind of like keep my personal account personal and keep the Facebook page the Facebook page." (P16)

Despite the strong desire for separation between platforms, participants also desired platform permeation at times and intentionally made explicit links between platforms in order to increase permeability between platforms. For instance, links between platforms enabled some participants to port contacts from one platform to another, in order to increase numbers or strategically manage audiences. For instance:

"I absolutely control it to the extent that I can. My Instagram has my online name and a link to my blog. My blog has links to connect back to Instagram or Twitter, and my Facebook has links to my blog, not Twitter or Instagram because Facebook doesn't currently have that interface like, there's no place on a personal profile where you can say, find me on Instagram and you just click a link" (P11)

In other cases, participants were very selective about disclosing account information for one platform on another. For example, this participant talked about having her LinkedIn profile included on her emails for the purpose of job-hunting, although she purposefully severed the connection for other contexts such as Craigslist postings:

"When I returned from working in Thailand and I did not have this job yet, I definitely beefed up my LinkedIn... My e-mail signature, my personal e-mail signature, has my LinkedIn link... But there are times depending on who I'm messaging, I might delete that signature. If it's a Craigslist response for something like 'I'm looking for housing,' I'm just going to delete that part... (P4)

Similarly, participants might selectively post content for the purpose of encouraging interactions on other channels. These conversational triggers were not necessarily shared on multiple platforms but were rather purposefully placed to initiate interactions via another channel or in anticipation of other kinds of interactions. For example, this participant intentionally updated her Facebook photo albums before the high school reunion:

"When we had a class reunion a couple of years ago, I posted some things on Facebook like pictures of myself 'cause well, I'm in great shape for my age... before the reunion definitely, and kind of to be like, 'Heh, heh, I stayed in good shape and you might not be.'" Because in high school I was very studious and a little bit of a nerd, so it was kind of like retribution." (P9)

For others, porting Facebook content into other channels, such as face-to-face communication, were desirable because they allowed her to signal attention to specific ties:

"I have to remember to talk to them about [their Facebook posts]... like 'I saw this weekend that you're camping and I saw pictures of it that you had fun,' that type of thing. So, it's a gateway for communicating with the person the next time you see them... I think it helps to cultivate the relationship because it's showing that you're paying attention to what they have on there, and you pay attention enough to actually have a conversation about it too." (P24)

The Separation-Permeation tension is often especially salient in the case of platform adoption decisions. For example, many social media platforms provide options to import contact lists from other applications. On one hand, this is a convenient way to build one's contacts quickly and easily. For instance, one participant noted that using the suggested contact lists when one signs into Pinterest through Facebook "gives you more things to search from" (P22) from the very beginning. Similarly, being able to mine one's phone contacts made it easier to locate others on new platforms; P25 described how hard it was to find people on Snapchat because people "have to be in your phone" or one has to know others' snapchat username.

However, this kind of mass transfer of contacts from one platform to another shapes the type of experience users have on the new site and limits the ability to carefully craft a set of contacts tailored to that particular platform. For example, this participant was aware of cutting down the list when Instagram presented the opportunity to easily connect to all applicable Facebook friends:

"... Because I just don't want to have an overflow of stuff. My sister was complaining to me one time about how she follows like 400 people on Instagram, and how she doesn't get to see all of the photos and stuff that people post, and she just follows them to follow them. And I'm like, 'I don't have time for that.' ... If I'm going to follow you, I kind of want to be interested in what you're doing." (P22)

Depending on a host of factors, participants carefully calibrated the permeability of platform boundaries in ways that reinforced segmentation or blending between tools. For many this represented an ongoing effort to establish an effective communication eco-system where they could make adjustments based on evolving social needs and norms – and the dynamic ecosystem of platform choices, as described in the next section.

Managing Across Platforms: Stability vs. Change

The second tension, stability vs. change, refers to the competing desire to establish a stable system of how each communication platform was used and the need for change when faced with new platforms and emerging practices. Adopting a new platform, and integrating the new platform into one's communication routine, appears to be a non-trivial decision and the integration usually took time to

stabilize. About half of our participants mentioned the experience of “trying out” a new tool hoping to get more benefits, often not successfully.

We discovered that how individuals view their existing communication ecosystem plays an essential role when making adoption decisions for new platforms. Our participants seem to perform an evaluation of their current ecology of communication platforms when faced with decisions about whether to start using a newly available social media platform. One common reason for non-adoption is that they consider their current “ecology” as complete, manageable, and satisfying. For example, this participant thinks Facebook is a more powerful tool due to its broad user base and everything else is merely a subset of what Facebook can help him accomplish:

“I’ve checked out Instagram before.... They weren’t really things that like stuck for me, especially because you already have something that kind of like overpowers those.... Not everybody has like a Instagram or not everybody has the Foursquare, but most people are going to have a Facebook” (P6)

Another important factor that determines whether people want to adopt a new platform is a person’s perception of their own “literacy”:

“... It’s partly a laziness decision. Like, I kinda don’t like... I barely understand Tumblr like first off... I go there and I don’t get it. They’re just like all these pictures and GIFs, and I don’t know what’s going on... This all looks chaotic and random to me,... And Twitter just seems silly to me. I’ve never really gotten into that.” (P16)

This concern for new “literacy” is particularly common among older participants (over age 45):

“I signed up for a Twitter account. I tried logging in, and it was mostly to see what my daughter was doing on Twitter... What I saw the pattern... And this is gonna show my age, I couldn’t even understand what the fascination was with it. ‘Cause it was incomplete sentences and thoughts and re-tweeting, and trying to understand what all that meant... So I went back to the old people’s Facebook.” (P1)

Second, over time the expected use or perceived norms of particular social media could change, affecting participants’ own practices and experiences. In other words, even if individuals do not react to the emergence of new platforms, their use of existing ecosystem could be affected by how others are reacting to such changes. For example, more than half of our participants commented on how they changed their sharing and other practices on Facebook since their initial use of the platform. Many expressed the belief that overall use of Facebook was becoming more curated, and that some uses of the site had migrated to other channels.

“... but my friends now... we are no longer like, ‘Oh look, I really enjoyed driving past my old high school today.’

We’ve reached the point now where we all use Facebook to browse for each other, but when it comes to the everyday necessities of life, we all just text each other.” (P22)

Often platform usage practices were determined by broader shifts in use as opposed to individual decisions; these shifts in norms around platform choice drive users to other platforms for the type of “content” or communication experiences that they care about [35]. This participant described how she replaced Instagram with Snapchat:

“...when Instagram first opened, it was just for iPhone people and, not like that mattered, but most of my friends have iPhones, so it was just me and my friends... So now, Instagram is weird... Because people post weird stuff on there or there will be spam and I don’t know. It’s just not the same anymore... Everyone’s worrying about how many followers they can get, opposed to being just the people you actually know... So on Snapchat, it’s just people I actually know and people can’t just randomly follow me and find my thing and get on there and send me random things.” (P25)

With the increasingly proliferating communication platforms, it might be evitable that the use of each platform is getting more “specialized.” For example, this participant commented on how he was more cautious about adding new “contacts” on Instagram:

“So when I first got my Facebook back in high school, like eight years ago – I was friending literally everyone that I ever knew. And now, because I’m still friends with a lot of those people, I have people, where I can’t even remember why I’m friends with them, posting stuff. And I’m just like ‘I don’t really care to see your stuff on my Facebook anymore’... So now when it comes to things like Instagram... I’m more strict about it.” (P22)

Similarly, with the availability of multiple sharing platforms, our participants reported becoming more conscious about where and how to share certain content. For example, interactions or content that used to belong to Facebook may have diverged to other platforms over time:

“So, I feel like the status... When Facebook first came out in social media or whatever, it was like the major one, right? So, everyone was putting up everything that they’re doing on Facebook or whatever... but now... I don’t know. I feel like everything that people used to do on Facebook has been branched into these two forms [Instagram and Twitter] and I think they’ve made it better.” (P7)

Changing norms on particular platforms also affected participants’ platform choices. For example, this participant describes the difference between phone calls and Facebook:

“... It’s very similar, I would say, in a lot of ways [Facebook has] really replaced [phone calls]. Definitely. If I were to get a phone call from one of my old friends, I would think that somebody just died. That would be... It would be like, not like, “How dare you call me,” but I would

be very thrown off as to why they're calling me. Whereas ... 20 years ago or something like that, that would've been the totally normal thing to do." (P27)

The change in interface design can also lead to people rethinking and enforcing changes in managing their social media ecology. For example, this participant talked about how he had to switch to another social media for photo-sharing with families after Picasa changed their interface.

P17: "It's just all the links that I had been sharing with my family stopped working... now I couldn't share a link that says, "Here is all the folders that I have, essentially. (Interviewer: Can you give people access to your GooglePlus page instead?) Right, but my parents aren't going to get a GooglePlus account."

DISCUSSION

Our study explores how individuals manage their platform choices when faced with an ecology of communication and information tools. Our findings suggest that both audience and content are key considerations for participants as they make decisions about what to share. People experience challenges when their content and audience needs are not met by the same platform or require the use of multiple platforms. These challenges are amplified by the fact that users experience multiple (and sometimes conflicting) desires, which are captured in the two tensions we see in our dataset: Separation-Permeation and Stability-Change. We found people experience the desire to both reinforce and dismantle boundaries between platforms. This fluid calibration of boundaries is an ongoing process in which participants attempted to stabilize their use while contending with shifting norms and the influx of new platforms and people.

The affordance perspective describes how users perceive different social media site features as "affording" different types of activities [16, 42]. For example, on Facebook a person might see a status update as affording the ability to broadcast to a large audience of known contacts. The affordances people associate with a platform stems from multiple sources; the design characteristics of the platform, observation of how others use platform, and previous personal experience may all play a role in defining what affordances people perceive.

The affordance perspective of social media platforms has been most commonly applied to use of a single social media site, given that the numerous features available in individual platforms already create a complex set of affordances [42]. However, our findings regarding cross-platform practices suggest that people think about affordances within the context of their *overall assessment of all available platforms*. Rather than focusing on whether a particular platform "allows" people to do one thing, users consider the affordances of that social media platform in the context of *all of the communication tools* available to meet a communication or information need. In other words, we

suggest that people are cognizant of the sum total of affordances of their own social media ecology, not just those associated with discrete platforms or channels.

Using the Social Media Ecology to Bridge the Social-technical Gap

Our findings provide a productive context for revisiting the notion of the social-technical gap with respect to the social media ecology. The social-technical gap is defined by Ackerman [1] as "the divide between what we know we must support socially and what we can support technically" (p. 179). Ackerman argues that the difficulty in designing for technical systems lies in the fact that social activities and needs are fluid and nuanced, while technologies have rigid and discrete boundaries. In other words, human social processes are analog, but when we enable them through computer networks we have to represent them digitally. As with any conversion of analog to digital, there will be gaps in translation.

This social-technical gap is still salient in the design and research of social-technical systems. For instance, scholarship on privacy and boundary management highlights the discrepancy between social needs and technical capabilities. As Goffman's work on self presentation [23] demonstrates, our practices around sharing information with others are shaped by audiences, physical contexts, time, and other factors. Individuals may struggle to achieve conflicting self-presentational goals when performing to multiple audiences simultaneously. Research on context collapse and privacy management [e.g.34, 50] has highlighted the difficulty of managing social pressures around self-presentation in social media platforms, suggesting the continued salience of the social-technical gap. The subtle and fluid way that social boundaries and self presentation work in face-to-face contexts is hard to code into technical systems, and attempts have often been too cost-heavy on the part of users of those systems [50].

While existing privacy management research is mostly focused on individual platforms, the availability of multiple information and communication services brings new opportunity to manage nuanced social needs. Previous boundary management work in HCI (as in [11, 18]) explores how people consciously integrate their use of multiple devices or applications (e.g., cellphones vs. desktop computers, work email vs. personal email) into their daily routine to manage their social role transitions (mainly between home and work). Our findings on how people consciously calibrate platform boundaries has extended this work and provided evidence that people are remixing their use of multiple platforms as a strategy to overcome the inherent social-technical gap, as suggested by the Separation-Permeation and Stability-Change tensions in our data. Our participants pointed to friction between their social communication desires and the ability of individual platforms to meet those communicative goals. Even though

individual platforms pose social friction because of the social-technical gap, participants reported breaking platform boundaries, as well as restructuring and reintegrating them, based on considerations like audience, permeation, content, norms and changes in the available set of tools. This ecological view of the social-technical gap changes the calculus of user-interaction from system-centric to goal-centric.

Implications for Practice

Our data suggest we should consider system affordances not within the context of any single tool or service, but rather within the framework of an ecosystem of communication channels people use in an organic and fluid fashion. Furthermore, our findings suggest one's personal media ecology is re-evaluated constantly in the context of shifting norms and other available and emerging platforms. These findings have important implications for system designers, researchers, and practitioners.

First, system designers now face the challenge of balancing how to design for use of one discrete platform versus designing for the broader ecosystem of platforms and channels. On one hand, when approaching the design of new social systems, it is useful to think about how to deliver a unique value proposition that extends a user's existing ecology of systems; for example, novel ways to aggregate contacts or a new type of content generation (e.g. using location information to suggest new contacts or encourage location-specific content exchange). On the other, the ecological approach suggests new types of "cross-platform affordances" that could act as design guidelines. For example, designers may wish to provide tools for users that acknowledge the fact that people are using multiple platforms and which support their ability to calibrate levels of permeation and segmentation across platforms. Many social media platforms visibly display users' other social media accounts or employ permeability calibration functions that allow for cross-sharing content and contacts. In order to create robust content streams, new systems now often provide options to build contact lists from other existing applications. System designers should be cognizant that these design decisions could have significant impact on sharing the norm of particular sites. For example, in cross-sharing situations, the possibility of sharing contacts across platforms creates a tension between convenience and the ability to partition contacts as well as content. Furthermore, designers should consider how to supporting how people communicate within their ecology of technology use. Two users who wish to communicate must consider one another's constraints, preferences, and skills as they negotiate the choice of platform. User decisions about platform choice are not unilateral decisions, although they are often treated this way, but rather are negotiated with others either explicitly or implicitly.

Second, our finding suggests new ways to approach social media scholarship. Research often focuses on use of one

particular platform, as in [15]. As users increasingly mix and remix use of different communication platforms, focusing on only one channel may conceal important insights. Our findings highlight the need to consider the more holistic context of social media use across platforms, as affordances are perceptual and are shaped by a broad range of factors including the other channels being used at that time. This suggests an increasing need to evaluate the usability of a discrete social system iteratively within context of other available technologies and systems.

Third, our findings suggest new directions for social media literacy training, emphasizing a focus not on the features of discrete platforms, but rather on the affordances of the suite of possible communication tools. Social media literacy deals with helping people understand the implications of social media use, at the personal and interpersonal scale, and an affordance view that emphasizes media ecosystems may help users create a menu of available channels that can be matched to specific communication goals at that moment.

As with any study, there are limitations of this work. The experiences of our participants are shaped by their cultural and geographic context, and thus research in other contexts may uncover other insights. Our two main contributions of this work – that people intuitively attempt to bridge the social-technical gap through use of multiple tools and the benefits of considering affordances at the environmental level – should be confirmed in other contexts and methods.

CONCLUSION

Our study disentangles how and why people approach their use of different communication platforms. In this piece we used a data collection method that reflected participant's lived experiences using different communication channels as opposed to artificially restricting them to one platform, in order to better explicate how users made choices within a media ecosystem. Our work suggests that people make decisions based on their consideration of multiple parameters across social media platforms, including audience and norms. We found that users experience the desire to both reinforce and dismantle boundaries between platforms, and they are engaged with an ongoing effort to calibrate boundaries to adjust to new platforms, people, and practices. This has two broad implications. First, these findings suggest that people use multiple communication tools to bridge the "social-technical gap." Second, the use of the affordances perspective to describe how people interact with an individual platform should be broadened to include consideration of specific platform characteristics (norms and networks) that people think about when trying to meet their communication and information needs.

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