

Friendship Maintenance in the Digital Age: Applying a Relational Lens to Online Social Interaction

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ABSTRACT

HCI research has explored mobile technologies to support social activity and to support greater feelings of connectedness. Much of this has focused on different mobile devices, individual preferences and modes of use. Yet social activity and connectedness are about ongoing enactments of relationships *across* technologies. We propose the relational lens as a way to include a notion of relational tension in addition to individual preferences in the design and analysis of mobile communication technologies. We discuss three strategies people use to manage tensions in their relationships: *selection*, *segmentation* and *integration*. Our data show that use of social technologies can at times destabilize social relations and occasion relational tensions, forcing users to renegotiate how they enact these relationships.

Author Keywords

Social network sites; mobile communication; personal relationships; information sharing.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Investigations of computational support for connectedness in everyday life have been extensive in HCI and CSCW research [2, 18, 19, 27, 30, 44]. As devices, people, and practices increasingly intermesh, researchers are faced with compounded technical and social challenges. Understanding what connectedness means socially and how people manage technologies that strive to support or even increase connectedness remains crucial. Online social media offer increased possibilities to maintain constant contact. Yet interpersonal interactions continue to be guided by situated strategies that people employ to manage friendships and these strategies often contain conflicting goals and desires [5, 47]. For example, the desire to feel connected to others and yet to maintain a level of autonomy is a common relational tension that people ne-

gotiate – a tension that is often challenged by technologies designed for sociability [23, 47].

Another common contradiction is the tension between the desire to disclose information and to keep it private. What people share, how and with whom, has been an ongoing question of interest in CSCW. Studies of self-disclosure in social media suggest that perceptions of intimacy are affected by how public or private these disclosures are perceived [8]. Research on mobile technologies has considered perceptions of recording or information sharing technologies [34], and assessed when and how users may be willing to share different types of information [43] or to engage their social ties [18]. While research on individual preferences is important, when it comes to social technologies we also need to consider the personal relationships those technologies support as well as the strategies for maintaining those relationships. Research on online relational management mostly focuses on social capital [22], perceptions of disclosure [8] and tensions between sociability and privacy on SNSs [13]. The question remains, what strategies might be used to maintain and negotiate relationships online?

In this paper we use a relational approach based on theories of relational dialectics and relational maintenance [4, 16] to analyze data from a study of Facebook as an empirical case. We focus on how college students engaged with their social ties on Facebook via mobile phones and personal computers in their daily lives. Previous work has explored how students negotiate off-line socializing through online social media [3] and how management of information disclosure can include collaborative as well as individual strategies [31]. Some studies have also utilized aspects of the relational framework but focused on very specific relational types, such as romantic relationships [47] or considered narrow concerns such as privacy [31, 41, 42]. In our work, we expand on these efforts to identify and describe the way college students use Facebook to negotiate, build, groom and maintain friendship. We look at the dynamics of social media use among this group in order to illustrate how a relational lens can be productively used to make sense of online social network use practices.

BACKGROUND

Social media allow people to be connected to one another in new ways and smartphones have made this experience mobile [23]. The ability to bring social ties with us has also meant that remote connections may be able to share in some

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aspects of our embodied experiences through the content we share [18]. HCI researchers have stressed that information sharing on social media is not just about accomplishing coordination and collaborative work tasks, but also about enhancing feelings of connectedness and supporting sociability. They have provided new tools to support such social practices, from sharing awareness cues within a couple [2, 27] to producing systems that enhance connectedness through a sense of remote presence among friends and family [19]. Across these approaches, researchers have designed technologies to enhance both peripheral awareness of remote others and direct sharing of experiences with them.

The majority of these technologies rely on the user's willingness to share information about themselves with others. What information people are willing to share, with whom and under what conditions has emerged as a productive area of inquiry in HCI research such as for example identifying purpose-driven and socially-driven practices around location sharing [43]. Several studies have explicitly considered that information sharing preferences might hinge on more than individual desires and concerns and include the role of personal relationships, focusing on role-relationships [10] or relational characteristics such as closeness and frequency of communication [45]. Studies that considered both senders and receivers of communication suggest that the mutual sense of awareness was often achieved through observing others' activities as well as contributing personal information [3, 20]. In fact, users are far more likely to consume information about others than to share their own [37].

Much of the research on information disclosure that takes both sender and recipient into account has focused on information ownership and boundary management practices based on Irwin Altman's privacy regulation theory [1, 41, 42]. Building on the notion that privacy regulation "is a dynamic response to circumstances" [36] this work has explored boundary management as a collaborative process primarily based on interdependent strategies and rules that people develop as a form of relational maintenance [31]. Zhao and colleagues went further, exploring how negotiation of boundary rules happens in a relational context of romantic connections, noting the way participants had to navigate conflicting goals and desires [47].

Understanding what people might share, when and with who hinges on investigations of why people share. Studies of boundary regulation practices have revealed a range of motives for both sharing and boundary regulation but these remain at the level of individual preferences, such as propriety or utility [41]. A wealth of research on self-disclosure on Facebook has utilized Goffman's dramaturgical perspective using concepts of presentation of self, impression management and performance as explanatory tools [20, 46]. This work goes beyond personal preferences, paying attention to the social context of self-disclosure. Hogan [25] questions whether online content can be considered a performance, noting that there is a temporal dimension to online communi-

cation on Facebook, which makes it more akin to an exhibit than a performance. Zhao [46] develops this point further highlighting spatial and temporal tensions that people have to negotiate when posting on Facebook. Both impression management and curation are interaction-centered rather than individual-centered approaches, paying attention to the social construction of interaction by both actor and audience as a transactional process.

This recent turn towards considering aspects of the social context of social media use in HCI is important but will remain limited unless we consider relational practice as central to decision-making implicated in online information sharing. Whether or not individuals might feel that particular content may contribute to their definition of self, their decision-making around posting it online for their personal network to consume will also include considerations of the effect this content may have on their relationships. In this paper we present a relational perspective that builds on and expands beyond notions of self-presentation and privacy in relational practice. We show how several basic relational strategies [4, 5, 7] can be productively used to analyze and interpret information-sharing practices on Facebook.

THE RELATIONAL PERSPECTIVE

Social relationships can be construed as stable but never static [24]. Some scholars argue that it is more useful to frame relationships as ongoing dynamic processes where meaning is constructed through communication as people manage tensions and contradictions that arise in everyday relational practice [4]. We refer to processes that involve negotiation of ongoing contradictions and resolutions as *dialectic* [1, 5]. By this, we mean that the aim is not to settle on a single resolution for an issue, but rather to remain in dynamic tension along a given axis, moving back and forth in reaction to situations as these emerge. Baxter and colleagues [4, 5, 7, 14] articulated and developed this idea, originally proposed by Altman [1], by specifying dialectic tensions inherent in relational practice, and identifying specific strategies people use to manage these [4].

Relational dialectics theory is predicated on the idea that relationships are developed and managed through acts of self-disclosure [1,4]. This is a relationship-centered theory where contradiction is a core concept, meaning a dynamic interplay between unified oppositions – two tendencies or forces that are interdependent and mutually negate each other. There is no finite list of contradictions (or dialectical tensions) but researchers seem to consistently agree on three: autonomy-connectedness, novelty-predictability and openness-closedness [4, 5, 33]. Relational partners respond to these contradictions through different strategies. Here we consider three strategies that are commonly identified in the literature: *selection*, *segmentation* and *integration* [4, 33].

Selection describes instances when people select or prioritize one aspect of the contradiction over the other. For example, people can choose to disclose information (openness), even if they fear or even expect rejection and want to protect them-

selves (closedness). *Segmentation* refers to instances when people acknowledge and respect activity or content domains that they see as mutually exclusive, such as taking the time to post information about a high school reunion only to the set of friends to whom it is relevant. Finally, *integration* is an attempt to respond simultaneously to both opposing tendencies by neutralizing the content of communication: avoiding the need for *segmentation*, via ambiguity or reduced emotional content of communication.

Baxter's theory of relational dialectics has typically been applied to the study of relational practice at the level of dialogue by analyzing the content of communication and identifying dialectic tensions and coping strategies as these emerge through dialogic interaction [5, 6, 33]. Yet relational practice does not only exist in the moment of communication, but relies on a range of interactive and non-interactive actions that serve to maintain relational continuity [16, 39]. The contribution we make in this paper is in presenting a relational lens, that is rooted in the ideas of relational dialectics, but takes a broader view, paying attention to what people say (post on Facebook) as well as what they describe (their motives and actions) as they enact relationships.

As people appropriate communication technologies into their daily lives, these technologies often exacerbate or highlight relational tensions [17, 28, 33]. Consider the following example. CoupleVibe [2] was designed for couples as an implicit messaging channel to inform each other about their whereabouts. A partner's location-information was automatically pushed to mobile phones via vibrotactile cues in order to notify unobtrusively when a partner has arrived home. The application supported the couple's desire to feel connected through the sharing of implicit but very intimate information. Bales *et al.* [2] found that long-distance couples indeed experienced feelings of greater connectedness through learning of their partner's activity. However, couples were willing to experience only so much connectedness as an increase in information sharing would have encroached too much on their autonomy. Despite the success of the application, users also expressed discomfort with sharing detailed information with their partners or sharing this information with other close ties. The introduction of Couple-Vibe changed the balance in the connectedness-autonomy dialectic, forcing couples to address an increase in connectedness. The same technology also exacerbated the openness-closedness dialectic. Couples that lived in different time zones turned off the application to allow their partner to sleep in peace. Here participants used *selection* to artfully manage both tensions, utilizing technology in ways that facilitated their partner's autonomy and offered moments of autonomy and closedness to the user.

Relational dialectics proposes that all relationships come into being through "the interplay of conflicting and interconnected forces" which arises from the partners themselves and from the contextual environment where relationships are enacted [4, 33]. In other words, relational tensions are present in all

relationships, but the extent of these tensions and the practices for managing them differ [5]. Though not unique, the CoupleVibe example demonstrates how in order to manage relational tensions, people not only negotiate regulation of their personal boundaries, at times being sociable or even dependent on each other and at other times being independent and inaccessible, but also express respect for their partner's boundaries through action [33].

Facebook and the work of relationship maintenance

A social connection expressed on a social networking site can be evidence of a connection that extends beyond the site. Yet, it says nothing about the nature of that connection and the relational work necessary to sustain it. Early studies of Facebook suggested that time spent on the site and attitudes toward it were reasonable predictors of positive social outcomes [21]. Later work by the same authors acknowledged that relational maintenance practices evident on the site are much more complex [22]. Similarly, others have shown that Facebook users experience considerable social tension in the course of their social activity on the site [11].

Relationships are organized through social structures and norms, but they are enacted and continuously renegotiated through actions and interaction that signal commitment and support relational continuity [39]. As relationships develop they can become comfortable and predictable, sustained with infusions of contact and attention, able to withstand substantial upheavals. Yet even in the most stable relationships people generate meaning through interaction and constantly navigate tensions inherent in any relational construct [4]. The process of maintaining relationships relies on interactive as well as non-interactive behaviors [16]. Examples of interactive maintenance may include making a phone call or leaving a comment on a photograph a friend posted online. Browsing the newly uploaded photos, on the other hand, is a form of non-interactive maintenance. Following this logic, we can reframe Facebook use as a range of interactive and non-interactive relational acts. For example, sending a private message or posting on someone's wall is an example of interactive behavior while spending the time to catch up on what your friends post on Facebook can be seen as a non-interactive relationship maintenance behavior.

While there is evidence that people use Facebook for relational maintenance [21, 26], only a few studies have considered what this means in practice [12, 28]. SNSs and an increasing number of mobile social applications enable people to broadcast communication to many social ties at once. People engage in self-disclosure, personal information sharing and exchanges of support that target or at least become visible not just to specific individuals but also to their social networks as a whole [20]. Thus individuals do not just navigate tensions within relationships but also must balance the way each communicative action may become relationally meaningful to all of their social ties simultaneously.

Boyd and Marwick illustrated that teenagers manage a range of relationships on Facebook simultaneously through "social

steganography” where the true meaning of a status update or a wall post is “visible” to a limited audience [12]. This is possible because such posts are intentionally obscure and can be interpreted in more than one way. The intended recipients, however, are expected to properly interpret the obscure meanings. Self-disclosure is a necessary part of relational practice, implicated in relational growth and closeness [5, 33]. SNSs and mobile phones could potentially make relational maintenance more efficient and pervasive. At the same time increasing connectedness and accessibility could exacerbate the tensions inherently present within relationships and across increasingly mutually visible networks of connected but disparate relational partners.

In what follows we use an interpretive lens that relies on a combination of theories of relational dialectics and relational maintenance for an analysis of college student’s Facebook use practices. We highlight how a relational lens can provide insights into characteristics of electronically mediated friendship. We close with a discussion of what these findings suggest for future designs of social technologies.

METHOD

Although relational dialectic theory was originally developed for analysis of dyadic relationships, it has also been used for research on group interaction [40] and social network maintenance [7, 47]. This theoretical lens can also be productively applied to data collected through more common study designs where each respondent describes a range of their relational practices [28].

The data presented here were collected in the spring and fall of 2010 at a large public university in the Midwest of the US. Although, this might seem to represent ‘old’ data, for such rapidly changing area as online media, we argue that this specific time was particularly appropriate for such study as ours with college student participants: Facebook was the default and omnipresent social network for college students and a very large proportion of them were active on Facebook [22]. One of our participants admitted that “*sometimes I am so busy that I will not check Facebook for eight hours*”, emphasizing the ubiquity of Facebook in these participants’ everyday lives. Similarly, the use of college students was deliberate: This particular population lives highly social but also nomadic lives leading to a need and desire for communication technology on the go [3]. Thus college students were a relevant group to investigate, as we wanted to investigate a group that blends social media into their everyday lives, rather than use it sporadically,

One of the authors conducted 48 semi-structured interviews with students at a large public university in the Midwest of the US. None of the authors were affiliated with this university. Instead we chose this site because it was more representative of public universities in the US than our own. We were able to gain access to the site by approaching colleagues at the university and ensuring compliance with their IRB protocols. Participants were recruited using snowball sampling via a range of means including word of mouth, flyers, mailing

lists, and Facebook. All participants taking part in an interview received a small monetary compensation in the amount of \$10 for their time.

Interview structure

We deliberately selected college students who were frequent users of both mobile phones and Facebook in order to access a group of technically and socially savvy individuals who blended Facebook into their everyday nomadic lives [3]. The semi-structured interviews were conducted in-person and primarily focused on the use of Facebook across platforms (computers and mobile phones) along with more general questions about recent use of Facebook. On average, interviews lasted about 40 minutes.

During the interviews, we asked participants to show us their last ten status updates on their Facebook profiles, and allowed them to show however many they wished. For each status update they explained why they had posted that update and in what context. Browsing the profile during the interview also allowed the participants to show us other aspects of their Facebook use that they found salient. This approach ensured that during the interview we always discussed specific examples aiding memory and recall. All interviews were videotaped. We did not collect or analyze comments on these profiles, as our consent form covered only content produced by the participants themselves, and we felt it would have been unethical to include content produced by individuals who did not participate in our study.

Participants

Of the 48 students in our sample 17 were males and 31 were females, aged between 18 and 29 (mean: 21, SD: 2.3). Most were undergraduates with two at the graduate level. We ensured diversity in our sample by recruiting respondents from a variety of majors including computer science, biology, business, journalism and psychology. All participants used mobile phones to connect to Facebook. Eighteen respondents used mobile access extensively while three interacted with Facebook exclusively through text messaging eschewing other functions. Participants had between 187 and 2939 friends on Facebook (mean: 860, SD: 523). During the interviews, we asked participants to show us at least 10 status updates, but allowed them to show however many they wished. As a result we collected a total of 598 status updates, receiving between 1 and 22 updates from each participant (mean: 12.4, SD: 4.2, median: 11.5).

Analysis

The themes presented in this paper are based on findings that initially emerged through a series of analysis workshops where the research team iteratively stepped through and discussed video-recorded face-to-face interviews. We then narrowed and refined these themes based on data analyzed from extensive field-notes, transcriptions of interview videos and status updates that our respondents chose to share with us. The initial goal of the project was to explore potential differences in how our participants used Facebook from computers and mobile phones. However, our early analysis of the inter-

views highlighted the way Facebook use seemed to underscore how our participants managed relational tensions across both mobiles and computers, sometimes through the use of the site and sometimes because of its use.

We conducted a content analysis on all collected status updates. Although status updates are not directed and have previously been interpreted as primarily self-oriented [29] more recent work showed both self-presentational and relational aspects present [9]. Two authors conducted an open coding on a sub-sample of 100 status updates separately as a way to develop initial categories. This sub-sample was selected using systematic sampling by randomly selecting status updates, while ensuring the sample contained at least one status update from each respondent. Authors refined the resulting codes through an iterative process of extensive discussion before explicitly defining coding rules. In the course of this discussion, the two authors identified three initial major theoretical categories: forms of relational work (37% i.e. exchanges of support or relational announcements), self-disclosure (53% i.e. posting about completed, ongoing or upcoming activities, expressing feelings or opinions) and media sharing (16%), all of which can be conceptualized as critical components of communicative relational practice. In addition, we noted two more categories: locally relevant (21% i.e. a sorority event or a college party) and obscure (12% i.e. updates with meaning that was not immediately obvious to all or part of the participant's network). About 10% of the updates were announcements or reminders for big local events (i.e. a marathon, a football game), which were coded as a separate category. Upon completion of this initial exercise, one author coded all of the status updates, using the videos of the interviews as a guide to interpretation of the meaning of each status update.

When we coded status updates, we paid close attention to potential differences in the kind of updates our participants might post while mobile and thus potentially more engaged socially. After all, sharing on the go is likely to demand more complex forms of relationship management. We compared the frequency and breadth of content posted from mobile phones and computers, using the Wilcoxon signed rank test to compare the code-frequencies. Although our participants tended to post similar things from both platforms, we noted that a significantly higher proportion of updates from the mobile phone included photos ($z=2.66, p<0.01$), while from the computer media sharing was primarily links and videos. Overall, more than 50% of updates were related to disclosing information about the self and engaging in relational work. However, participants posted significantly more about upcoming activities from the computer ($z=-2.01, p<0.05$) and about current activities (what I am doing right now) from the mobile phone ($z=2.32, p<0.05$). Our analysis, including a Wilcoxon sign test, revealed no gender differences in these patterns. However, our sample size was quite small and it is entirely possible that subtle gender differences would be present in larger populations.

We report here on the major themes using data excerpts to illustrate points, which are reproduced exactly as spoken or written by respondents. Data are denoted by [I] for interview and [S] for status update; participants are anonymized.

FINDINGS

In line with previous work [15], we divide the discussion of Facebook use into content consumption and production.

Consumption of Facebook content

Similar to prior research, [37] our participants spent more time consuming content than posting updates or sharing pictures. One way we could study the reasons behind Facebook usage is to ask 'why' these students used Facebook. Many of our participants commented that the act of consumption of social content was a less important activity, often described as "empty calories." Schoenebeck notes that the use of social technologies can carry a stigma of "empty calories" due to media driven moral panics despite potential or real benefits of use [38]. Our data suggest that the practice of filling idle moments with consumption of Facebook content indeed had an underlying *relational* function, explaining in part a consistent pattern of enthusiastic usage.

Facebook feed as entertainment

Social life has high entertainment value especially when this is the social life of friends and acquaintances; there is clearly some explanatory power in understanding Facebook use as entertainment. Mobile use of Facebook was often filling up the spare moments of the day. Our participants called the site "time filler" because the social information available for perusal was boundless. Many emphasized appreciation for the quirky humor of people in their feed and the range of information they could stumble upon just by scrolling through. Here, entertainment happened through the experiences, views, and facts shared by one's social ties: "...it's for the same reason that people find celebrities entertaining and so many gossips [sic]. It's like reading about other people's life, especially when you know them, it's just really entertaining but also if there is a sports game and you missed it or something you know everyone is posting about the scores and stuff so it's just good to stay updated on my world" (JB, 20, [I]).

While many referred to browsing through the news feed as a form of entertainment, the quote above highlights another important point. Along with enjoying the social minutiae of the feed, JB used it to get caught up on the important social and cultural events she may have missed as well as to keep track of the activities of her network. She also demonstrated a kind of contradiction when she equated her feed to something similar to a "celebrity watch" while pointing out that this was a way "to stay updated on my world".

Browsing the feed as a way to maintain friendships

While browsing the feed may have been described as a time filler and entertainment, it seemed to often function as a non-interactive relational maintenance strategy. Our participants voraciously consumed the social information available in their feed or got lost in friends' photos. Yet they were also aware that this was important for their relationships: "It is

sort of having a conversation with one of your friends except not really right, but if you just want to talk to somebody and you can't the next best thing I suppose you can do is read a message from someone and when you are reading Facebook that is essentially what you are doing. Reading these little snippets of people, you know, things they want to share with whoever you know and you read it" (JP, 27, [I].) This evocative quote illustrates the relational value of perusing the feed. Whereas reading the feed was entertaining, posting to the feed was a much more considered act of self-disclosure. Self-disclosure is a necessary part of relational practice, implicated in relational growth and closeness [16]. Yet the very act of self-disclosure is predicated on the fact that information is disclosed to someone who is interested in it. By "*reading the little snippets of people*" our participants were validating acts of self-disclosure performed by their contacts.

Reading the feed then was relational work to stay updated on what other people are doing, engaging what they wanted to share and at times acknowledging it. For college students, being in the know was vitally important and reading the feed was the necessary background work for relational maintenance: "...what is everybody else doing that might affect me [...] what are the guys I hangout with doing... if they are going to the game... can I... should I?" (SA, 21, [I]). This is an example of how non-interactive maintenance strategies can become crucial for managing the connectedness-autonomy dialectic and navigating desires and necessities of sociability. It seems apparent that this *need* to know is not well characterized by mere entertainment but rather it is part of a deeper sense of ongoing and valuable relationships. Not only did the feed serve as a source of relevant social information, it could also provide important lubrication for interactive relational maintenance activities in the future: "*News-feed works as a sort of small talk starter, see what he or she did*" (SP, 27, [I].) Knowing a little bit in advance could make further discovery of another person a simpler task, but knowing too much could get creepy highlighting the use of *selection* to manage a novelty-predictability dialectic in relational practice. Thus what happened on Facebook was a kind of strategic sharing of social information and users built up expectations that their content would be read and understood as part of their relational maintenance practices.

Posting content on Facebook

Along with Facebook content consumption, our participants also posted a substantial amount of content from both computers and mobile phones. In this section, we focus primarily on the tendency to share the current experience (the now) as the most relevant example of relational practice.

Sharing the now

Our respondents shared future plans from the computer, but preferred sharing their current ongoing experiences from their mobile phones. Mobile phone status updates tended to be grounded in the now, defined by the present time or moment. Many referred to mundane experiences of eating out, school activities, made commentaries on the weather or annoyance

with fire alarms: "*Eating at Eddie George's Grille in [city]. (photo)*" (SA, 21, [S]); "*this weather is amazing!*" (NC, 19, [S]);

As the majority of photos were posted from the mobile phones, we examined these closely, noting that most were of little anomalies – things just slightly out of the mundane and ordinary that people encountered while traversing physical places, such as commenting on a badly dressed individual with "*What a GEETUS!*" [photo]" (NC, 19, [S].) These little anomalies, shared with the Facebook network through text and pictures, were contextually situated, often requiring some relevant local knowledge and awareness of the local context to be correctly interpreted. At the same time they could be evocative and of interest to distant contacts.

At times, mobile updates were examples of sharing personal experiences as well as inclusions of friends in the pictures, links and text. "*Maggie & I at the homecoming game [photo]*" (CS, 21, [S].) Some updates were telling a shared history that could target parts of or the entire network. "*It looks like Jack-Leeeeeen's birthday!!*" [picture of refrigerator]" (NC, 19, [S].) Several updates were posted precisely because they somehow connected the current experience with some portion of the remote audience, bringing those far away into the conversation: "*Hey jess??? No it's just your twin from behind... creepy*" [photo tagged]" (HB, 19, [S].) As this participant explained that while at a cafe with her college friends, she saw a woman that looked "*identical to my friend from back home, so I took a picture and tagged my friend from home and all my friends were all like oh my gosh it is totally her!*" (HB, 19, [I].)

Although these students rarely interacted in person with the vast majority of their Facebook connections many of their connections were local to the university. The "now" status updates illustrated strategies for maintaining remote connectedness by posting "*little snippets of people*" (JP, 27 [I]) while retaining autonomy by limiting this sharing to activity with very few instances of disclosure of location (just 3 of the 164 updates were explicitly named locations). Several students commented that they would not disclose their location in such updates because "*I would be afraid of who would show up*" (AE, 21 [I]) nor would they meet people based on location disclosed in a status update because "*that would be way too creepy*" (AK, 19 [I]). This differed significantly from postings made from computers, which often included announcements for large upcoming events or entreaties to participate in various college activities.

Controlled Spontaneity

Mobile phones enabled sharing of spontaneous expressions of wonder and emotion, highlights of mundane details, notifi-

¹ According to the Urban Dictionary "geetus" is a slang word that refers to "a stupid, dorky person. Usually someone you know who repeatedly displays this behavior." <http://www.urbandictionary.com/define.php?term=geetus>

cations of being someplace or attending an event and sharing the experience with others: “*More immediate responses. I can write statuses as soon as I can, I do that a lot more. More spontaneous*” (SX, 20, [I].) Much of this activity was spontaneous in the sense that sharing these moments wasn’t planned far in advance. At the same time, there was much thought and deliberateness behind every post: “*Anything that I post, I am careful about that*” (HL, 21, [I].) Participants thought deeply about what to share, when and how – a practice we termed *controlled spontaneity*. At times this deliberateness stemmed from efforts of impression management: “*I put a lot of thought into everything that I put on my profile because I want people to look at it and see the me that I want them to see*” (SL, 21, [I].) Yet this practice was also critiqued: “*Posting pictures on Facebook, especially Mobile Uploads are like a caption contest in on itself. Who won on your News Feed today? :)*” (KW, 25, [S].)

It is tempting to interpret behavior on Facebook exclusively from the point of view of self-presentation, vanity or kinds of exhibits of the self [25]. Our study participants spoke of their Facebook use in similar terms where self-presentation and deliberate performance are underscored in seeing pictures on Facebook as a “*caption contest*.” Yet online self-presentation itself is a kind of relational practice [35]. These students put a lot of thought into information that they shared, because they were also managing the level of openness of their relationships that were represented on Facebook: “*Don't put things in status like that, more serious things because I want to keep in contact with acquaintances, like people from High School*” (SX, 20, [I].). Our participants were so thoughtful about online content production because they were managing simultaneous dialectics of openness-closedness and connectedness-autonomy in deciding whether, what and how to share with their Facebook networks. They performed *selection* where acts of sharing prioritized openness and connectedness over closedness and autonomy. This selective self-disclosure served to groom their relationships, not just to present themselves in a particular fashion. This suggests that regardless of connectivity or having the right filter settings each act of sharing is also about managing relational tensions.

Sharing just the right amount

Could sharing the now be simply a “look how cool I am” kind of activity? Most participants deliberately disclosed only the information they found suitable for the entire network. When considering what to post they explained that they relied on ‘commonsense’ so as not to ‘overshare’: “*it is sort of a way to share part of your life yet not too much because that is a little creepy*” (SA, 21, [I].) Sometimes, however, a different part of life impinged on information sharing practices forcing changes in posting routines. For example, one participant got actively involved in geocaching but by posting many status updates related to that activity she had broken the unwritten rule of posting too much content irrelevant to most of her network: “*I noticed that I post about geocaching and 4-H [youth volunteer organization] a lot and so I lose friends because they don't want to be hearing about these things*” (JF,

25, [I].) Note that she spoke of literally “*losing*” her friends, a far more serious concern than just getting complaints. To manage this emergent dialectic of openness-closedness she used *segmentation* by posting through different networks: “*Most of my status updates I actually customize who they are going out to so this one is only going out to 4-H people [...] I usually try to make sure that when I am sending out any message that they are audience specific*” (JF, 25, [I].) Yet such explicit *segmentation* was rare among our participants who often simply limited how much content they shared.

Snippets of conversations

Mobile status updates shared one other quality that caught our attention. A subset of statuses we coded as “obscure”, as these required significant discussion with the participants to decipher meaning. These were obscure statements, obscure references to local landmarks, strings of numbers, single words, passionate expressions, inside jokes, random smartphone pictures, questions, requests and complaints:

“*1 year...lovin it. :)*” (KH, 21, [S]), she and her boyfriend had their one-year anniversary. “*yay new baby turtles :)*” (SO, 20, [S]), a reference to a crop of new sorority recruits. “*26.2 26.2 26.2 26.2*” (HL, 21 [S]), expressing excitement about an upcoming marathon.

These status updates required context and explanation because they did not represent accessible communication to the full social network. Instead these updates were deeply meaningful to the interlocutors, but potentially taken out of context and perhaps even boring or nonsense to the rest of the network. By posting a status that was intelligible and interesting to a subset of the network, our participants reinforced their relationships with that subset. At the same time, they risked alienating the subset of the network for who the status was unintelligible, much as our participant JF did with geocaching. By using vague and obscure statements our participants actively negotiated the level of openness through messages that appeared cryptic. Even when the post was deliberately intended as an inside joke many of our participants tried to “*post things that more than one person will get*” (AE, 21, [I]) in order to involve as many contacts as possible and to avoid accidentally “*losing*” them.

Similar to the behavior described by Ding *et al.* [20], students crafted messages for different audiences at the same time. Yet some of these updates seemed to follow the logical progression of conversations started in some other context and medium. Consider this status update as an example: “*J. [...], Y. [...] was this what/who you guys saw that's blue? (photo Mobile Uploads)*” (KW, 25, [S].) Here the status update was a direct question to recent conversation partners. What we encountered here were multimodal conversations, continued over a period of time, with thoughts, emotions and ideas transmitted via whatever most convenient medium at hand. Increased connectedness via social media meant that collocation was no longer required for continuing a conversation. Greater connectedness then in some ways facilitated greater autonomy while managing the openness-closedness dialectic

and illustrating a curious form of *integration*. At times a turn or two of these conversations would surface as an update on Facebook, as if allowing the rest of the network to overhear friends talking and perhaps even to join in. Such snippets of conversations had short-lived meaningful lives. Even just a few days later, when coming back to these updates during interviews, participants reflected how inside jokes, funny “*at the time*”, were not really funny anymore and bereft of context.

At times, status updates with unclear messages remained obscure to the entire network. For example, one participant posted “*something is missing :/*” (BP, 20 [S]) that, as she explained, was not clear to anyone in her network, but was posted “*just to see people’s reactions*” (BP, 20 [I]). She had felt sad that she didn’t have a boyfriend after watching a romantic movie alone. Her status update elicited a lot of commentary that, as she explained was “just really funny” as a kind of friendly banter. This is an example of *integration* dealing with the openness-closedness dialectic, a kind of social sharing without needing to explain herself in detail to anyone. Here the tension between disclosure of potentially embarrassing information (crying when watching a romantic movie) and the desire for companionship and comfort were managed through neutralizing the shared information and using ambiguous statements to elicit response while leaving the cause open to discussion.

The ‘now’ was deeply meaningful and relevant when shared, but it was often only meaningful in the moment and could lose its color and flavor over time. While there were postings that were regarded as memories to hang on to, much of the action on Facebook, especially the content posted from mobile phones, seemed to be about sharing in the immediacy of experiencing, engaging and relating, relevant only at that moment but always carefully constructed to manage relational tensions inherent in Facebook use. Some of our participants even went so far as to remove old status updates from their wall because, as they explained in interviews, these were no longer relevant to their current experience. These participants enacted a kind of ephemerality to their Facebook interactions – in some ways antithetical to the very design of the SNS – in order to produce an ongoing rather than an archival set of practices.

DISCUSSION

As our world becomes more interconnected, it is important to understand how people are appropriating communication technologies. We show that social interactions can continue across communication platforms as people engage in different tasks with different technologies throughout the day, rather than being neatly contained in a particular piece of software on a specific platform. This sort of interleaving of technology and conversations will likely become more common and more complex. The mobile phone is an addition and an extension of social platforms, and it offered students in our study an easy and often irresistible way to check Facebook during micro-breaks or unexpected moments of idleness.

Keeping up with the experience that their friends had chosen to share was both entertainment and a kind of social grooming.

Applying a relational lens to online communication

By utilizing the concept of relational dialectics we propose that apparent contradictions in human behavior are a feature and not a bug and treat these contradictions as necessary, dynamic and omnipresent parts of life. People may say they want one thing and behave in ways that accomplish an opposite result. They may consider two things incompatible and then find a way to reframe these into a complimentary match. The relational approach underscores that when people adopt new technologies offering new ways to interact or connect, these technologies necessarily alter the pre-existing practices of managing relational tensions. The identified dialectics of openness-closedness, connection-autonomy and novelty-predictability can be managed through the strategies of *integration*, *selection and segmentation* and these suggest ways to support and mitigate the subsequent renegotiation of relational contradictions. For example, when building for connectedness, it is important to remember that the desire for connectedness is but one part of an attendant dialectic inherent in relationships, and we need to also support the attendant desire for autonomy.

Baxter’s three strategies for managing dialectic tensions [4, 5, 7, 14] allowed us to articulate and make sense of the ways our participants shared the “now” with their Facebook audiences. For example, a geocaching enthusiast used *segmentation* as a strategy to manage sharing content with different parts of the network, selecting via Facebook’s controls which of her contacts could see particular status updates. SNS developers have put a considerable amount of effort into solutions to deal with such a problem. Google’s ‘circles’ or Facebook’s ‘lists’ support explicit *segmentation*. Prior studies have found that people increasingly use segmentation tools as they become better designed and easy to configure [32]. Admittedly at the time of our study this functionality was less developed on Facebook. However, recent studies show that the lists and circles still receive limited use and the vast majority of content is posted to the “lowest common denominator” of audience [8]. Our participant felt she was forced to resort to this strategy because she had started “losing” friends, which is a pretty extreme perception of the situation. Yet the types of status updates that needed to be posted for a select group of people were simple to identify—anything that had to do with geocaching. The audience, too, was easy to segment—geocaching friends. Such clear lines of separation are rarely present in most everyday cases and *segmentation* then requires significant cognitive effort. Putting the onus of *segmentation* on the users is clearly a useful feature for some but only in very specific situations. Instead, most participants relied on *integration*—such as using obscure language—or *selection*—often achieved through self-censorship of posted content.

As our participants interacted with their friends they at times interleaved different modalities into ongoing conversations. Their Facebook use reflected this with status updates and other forms of information sharing shifting between content oriented toward the whole network and content that was directed at specific people. This was more prevalent in the mobile phone updates perhaps because the content here tended to arise from selected moments of the ongoing embodied experience. This was an artful way to manage the connectedness-autonomy and openness-closedness dialectics through *selection* and *integration*. This kind of occasional drawing in of proximal and remote friends into casual conversation on the site rather than in an SMS or in an in-person conversation provides an explanation for the irresistible draw of Facebook that makes relational sense and suggests potential avenues for design.

Designing with relationships in mind

As our digital networks grow more diverse and interconnected, the balancing act of relational dialectics becomes ever more challenging. The relational lens suggests that in designing social software we must keep in mind that shifts and destabilizations in existing contradictions are unavoidable, but there are ways to support managing these contradictions through provision of tools or capabilities that offer at least one of the three types of coping approaches described here. For example the recently deployed stand-alone Facebook messenger app has location disclosure turned on by default – a detail that may problematize the strategy of *integration* through steganography. The assumption that users would want to broadcast their physical location because they are engaging with Facebook via the mobile phone is at odds with the connectedness-autonomy dialectic. This suggests that location disclosure must be made clear at the point of composing the status update, offering ways to manage granularity of such disclosure.

Despite the pervasive impression of Facebook use as “empty calories” and entertainment, perpetuated by the media, our participants also acknowledged its importance in “staying updated” on their social worlds. Yet the current design of many SNSs privileges the entertainment and “popularity contest” factor of content which may interfere with relational practice by deprioritizing less popular status updates and thus rendering them less visible. Relational dialectics suggests the need to manage openness-closedness from both sides: I may be annoyed by too much self-disclosure from my contacts in my feed just as much as I worry about annoying them with my own update frequency. While getting too much information about someone may be creepy, not seeing updates from friends at all is an even worse social faux pas. So perhaps a mode of browsing social media can be developed to accommodate the desire for an “update on your social world” by showing the latest or most popular recent update from each friend with an option to see more updates from the more prolific friends in situ.

LIMITATIONS

As an inductive qualitative project, we were not concerned with universal generalizability of our results. Rather, our goal was to show how a relational lens could be applied to data on students’ use of Facebook, from their point of view, through detailed descriptions of their actions and thoughts. While the use of college students in research has a long (and varied) history in research, we remain cautious about generalization of particulars outside of a similar sample. Facebook’s user base has expanded vastly since the completion of data collection for this study, as has the use of SNS on mobile phones. Future research would need to consider diverse samples of participants to identify whether and how Facebook and other social media use may be implicated in relational practices further. College students in this sample represent a population in a life stage when social relationships are in a considerable flux. Decades of prior research on relational practices among adults of a range of ages suggest that while Baxter’s dialectic tensions are commonly present throughout life span, people’s strategies for managing these tensions may manifest differently. Although applications of the relational lens to more diverse samples in future research is imperative, we feel that even with such a limited sample our study successfully demonstrates the importance and utility of this approach.

CONCLUSIONS

Communication technologies continue to develop toward support of seamless connectivity in people’s daily lives. Yet the very idea of connectedness relies on people having relationships. After all, in order to be connected we need people with whom to connect. Connectedness itself is about ongoing enactments and performances of relating and relationships. It follows then that in order to design technologies that support connectedness it is crucial to consider designing for both individuals *and* relationships, which means recognizing the carefully crafted ways in which people actively negotiate the relational tensions in their multiple and overlapping social networks.

We apply the relational lens to the analysis of a study on Facebook use. When our study participants shared the “moments of now” with their Facebook friends, they were also performing a kind of public broadcasting of their point of view of ongoing events in their immediate physical space. This type of sharing could strain existing relational tensions within their social networks and they employed *selection*, *integration* and *segmentation* as self-disclosure strategies designed to address emergent dialectics.

Some might say we are making an artificial distinction between designing for individuals and designing for relationships, bringing as an example of the former features such as individual differences in psychological makeup or personal preferences. However, personal preferences are precisely geared towards relational management. After all, managing one’s online presence is an important aspect of modulating one’s social relationships as everything we do that has an interface to the outer world does have social valence. The

question then is whether the relational perspective that we present is substantially different from the more individual perspective expressed in previous work, and if so, how might this be reflected in the design of social technologies?

Our answer is that the management of relational tensions is based on individual decisions before it is mediated by technology, and much of this management is rooted in meanings and connections, which are contextually grounded in and emerge through interaction. Relational dialectics is rooted in the idea that relationships are constituted through communication because it is in the instances of interaction where relational partners negotiate the nature of their relationships. Individuals (including their preferences, presence, etc.) do remain, so to speak, the bottleneck and the primary focus of social modulation. Yet why individuals make certain decisions and engage in particular relational acts is best understood when the form and content of relational practice is taken into account. We believe our findings can be used to identify opportunities that would better support individuals in their relational work through social media.

Our approach demonstrates that connectedness is about negotiating a need for autonomy, managing awkwardness, and exploiting “in the moment” sharing to speak to many audiences at once without overstepping boundaries. Current HCI research is deeply concerned with users and their needs. Domain analysis often looks at individual preferences resulting in limited options that cover potential use scenarios. In this paper we have introduced a set of self-disclosure strategies, but in the context of relationship maintenance. We have shown that social networking technologies can destabilize social relations and cause tensions forcing users to renegotiate how they enact these relationships. Paying attention to the relational work users must do as they adapt the new technologies in their relational practice would enable HCI researchers to develop new sets of requirements for iterating on their designs. The relational context underscores the idea that where there is a desire for connectedness and openness there is also simultaneously a desire for autonomy and closedness. For example, technologies that privilege information sharing necessarily tip the balance forcing people to develop new ways of managing autonomy and closedness which could range from non-use to joint efforts at renegotiation the meaning of disclosure.

As we design for social connectedness through device interconnectivity, we perhaps should consider that every interactional or non-interactional communicative act not only influences sociability in the moment but also affects the nature of future interactions. The relational view forces us to conceive of social relationships not as static constructs with predictable features, but as an ongoing dynamic process that involves nuanced management of relational tensions.

Relational dialectics brings to the fore the pushes and pulls implicated in online communication and offers an alternative to the perplexing conundrum of differences between stated preferences and subsequent action. If we accept G. H. Mead's

idea that “selves can only exist in defined relationship to other selves” [c.f. 20] then understanding of social action necessarily requires a more holistic view, which can be better achieved through the use of a relational lens.

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