Going to College and Staying Connected: Communication Between College Freshmen and Their Parents

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ABSTRACT

For many first-year college students in their late teen years, communicating with parents provides crucial social support. When going to college involves moving away from home for the first time, students and their parents must rely on technologies to keep communication channels open. We studied the ways in which college freshmen communicate with their parents and the various communication technologies they use. Interviews with nineteen first-year students at a major United States university revealed insights into students' perspectives of their communication and relationships with parents. We found students to use a variety of tools to connect with their parents and identified some considerations they make when choosing tools. Furthermore, the use of these communication tools played a significant role in mediating students' social and emotional closeness with, and independence from, their parents. We conclude by discussing technical and social implications for social support of students and student-parent relationships.

Author Keywords

Communication, domestic, parents, college students, CMC.

ACM Classification Keywords

H5.3. Information interfaces and presentation: Group and Organization Interfaces – CSCW.

General Terms

Human Factors, Design.

INTRODUCTION

Going to college is a major turning point in the lives of many young people. For many high school graduates in the United States, this also involves a residential move away from home, which is in itself a major life event for both students and parents [17]. This move may bring loneliness and reduced social support [21] and the possibility of wid-

ening emotional distance from family, especially parents. Reduced connections with parents can have negative impacts on academic performance and social well-being [18, 28]. These negative impacts may be most severe for first-year students who are just beginning to adjust to the college environment and independent life away from home. Thus we feel it is important to study the connection between first-year college students and their parents.

Shklovski et al. [28] proposed that Internet use for communication with family and friends may help relieve some of the psychological tensions of a residential move. Today's college students combine Internet use and other communication technologies to communicate with family at home. It is therefore interesting to examine how the use of such communication technologies can impact student-parent relationships.

Previous studies have looked at the impact of leaving home for college on the development of student-parent relationships [10,32] and the use of communication technologies among college students [22]. However, little is known about college students', specifically first-year students', use of technology for communication with their parents. Moreover, there has been little work that explored how the use of communication technologies impacts student-parent relationships. Our study hopes to bridge these gaps in the literature and contribute to the understanding of both technical and social aspects of communication technologies used by first-year college students to connect with parents.

In this study we examined the ways in which college freshmen communicate with their parents and the various communication technologies they use, focusing on the following research questions:

1. *How do first-year college students who are away from home for the first time choose among and manage multiple tools for communicating with their parents?*

2. *How do these communication tools contribute to the changes in student-parent relationships during this period?*

We conducted semi-structured interviews with first-year students at a major United States university. Based on qualitative analysis, we identified several themes in stu-

dents' practices for choosing and using different media to communicate with their parents: convenience, social cues, managing multiple media, the perceived generation gap, and face management. We also found the students we interviewed generally perceived the different technologies including phone, texting, email, instant messaging, video calls and social media to have a positive impact on the relationships with their parents.

This paper contributes in three unique ways: First, we explore the communication practices of first-year college students with their parents, a group that has not been well documented in the CSCW literature. Second, we provide a technical understanding of communication technologies that are currently available and how a sample of users from this population uses them. Third, we investigate the roles technological tools play in these significant and changing familial relationships.

In the remainder of this paper we review related work, describe of our research methods, present our detailed results, and discuss the implications thereof.

RELATED WORK

Student-Parent Relationship & Environment Adjustment

Previous research has examined relationships between parents and college freshmen, and how these relationships can affect students' transition to their new college environments. Flanagan et al. [10] compared the ways that student-parent relationships differed for those students who moved away compared to those who continued to live with their parents, and suggested that the student's process of individuation and redefinition of their relationships with parents might be more problematic for students who still lived at home. Attending college away from home gives the adolescent opportunities to make decisions with less parental support (and monitoring), and may be related to positive perceptions by both the student and parents. Wintre & Yaffe [30] found that good student-parent relationships benefited students' perceived adjustment to the new college environment. Students who feel their parents are responsive to their needs find it easier to adjust socioemotionally during the transition from high-school to college, even when this involves moving away from home [20].

Communication Tool Use Among Students & Parents

A growing body of research investigates teenagers and adolescents' use of various Computer-Mediated Communication (CMC) tools, with some focusing on college students. These studies concentrate primarily on two groups of CMC tools: mobile and Internet technologies.

In the area of mobile technologies, Aoki & Downes [3] looked into the mobile phone use of college students from the behavioral and psychological views, and derived several major themes on the purposes of having cell phones. Notably, some of the participants mentioned their parents while discussing these themes, such as personal safety (e.g., reaching parents in case of emergencies), social interaction,

and parental contacts (e.g., keeping in touch with parents). Chen & Katz [6] also found that cell phones for students were a "must" in maintaining contact with family, especially for fulfilling family roles and sharing experiences and emotional support.

Internet technologies have also been very popular among students and well-documented. Students have been found to use more communication media than college faculty and staff [22], including email, social networking sites (SNS), cell phones and voice over IP (VOIP) services. Some of this Internet use is for coping with loneliness, seeking social support, and maintaining family relationships [13]. Even high school seniors still living at home use social networking sites not only for quick and convenient communication with friends, but also to maintain social relationships with family members [2].

There has also been some research exploring parent's perspectives of using communication tools to connect with teenage children. Yardi & Bruckman [33] found that parents struggled with the generation gap between themselves and their teen children in the adoption of and adaptation to new communication technologies. However this study did not focus on parents of children away at college.

Communication Between College Students & Parents

Other research has specifically targeted communication between college students and their parents. In 1995, Johnson et al. [18] found that new students moving away from home felt it necessary to stay in touch with family (especially with parents), and when such family communication was not continued on a regular basis, student-parent relationships can suffer. Sax & Wartman [25] found that over the past two decades college students are increasingly maintaining closer ties with their parents and are communicating with them more frequently. Their findings suggest that these strong student-parent relationships can have positive impacts on students' adjustment to college, identity development and career exploration.

Hofer [15] also documented an increase in frequency of college student-parent communication, finding an average of communicating 13 times per week in 2008. However, more communication wasn't always positive; students who communicated more frequently with their parents also had lower levels of autonomy. High levels of communication with parents often remain consistent over the four years of college, while parents often wish for more contact than students are comfortable providing [16].

Gentzler et al. [12] studied college students' use of four common means of communication with their parents: phone, text messaging, email and SNSs. Students' feeling of loneliness was positively correlated with high frequency of SNS use with parents, while frequency of phone communication was correlated with satisfaction of the parental relationship, high intimacy, support, and instrumental aid.

To sum, previous research has found the importance of maintaining a balanced parent-student relationship for college students, and the overall increase in the use of communication technologies by students and parents to maintain this relationship. Our goal in this exploratory study is to understand qualitatively the point of view of the students and the kinds of interpretations they make of the communication tools they use, their relationships with their parents, and how the two are connected. Our study thus complements previous research that focused on the parents' perspective or on quantifiable measurements of use frequencies and behavior and perceptions measures. We do not focus on measurable frequencies of use, but instead on the idiosyncratic ways in which students choose and use these tools to communicate with their parents, and the understandings they make of the different features and characteristic of these tools in influencing the student-parent relationship.

METHOD

Participants

Nineteen students in a major United States university were recruited for an interview through a university-wide study recruitment system. Students were compensated with extra-credit for a course of their choice with instructor approval or $10 for their participation. All participants were American first-year students who lived on campus and whose parents lived in the United States. We decided to recruit American students only (as opposed to including international students) because we wanted to focus on a more homogeneous group of students for this initial exploratory study. Since this study focuses specifically on students' experiences and perspectives, parents were not interviewed.

Students represented a range of curricula, including engineering, arts, and sciences. We interviewed 16 female and 3 male students, all 18 or 19 years old. Students came to this university from various places across the country, as close as 50 miles from the university and as far as 2,700 miles away (mean 513 miles). No participant had lived away from home for an extended period of time before going to college. At the time of the interviews, 11 participants indicated their parents were married and 8 divorced (these students chose to discuss one or both parents during the interview). Table 1 lists participants' pseudonyms, genders and the technologies they discussed using to communicate with their parents.

Procedure

We conducted semi-structured interviews with first-year American college students. Each student was interviewed for up to one hour by one of the researchers in an on-campus interview room during April 2011. Interviews began with general questions about the student, the student's parents, and how they saw their relationships both before and after the student moved to college. The bulk of the interview focused on the various communication tools they used to interact with their parents. The communication tools

Name	Sex	Technologies Used With Parents					
		Phone	Email	Text	VidCall	SNS	IM
Sarah	F	X	X	X	X		
Emily	F	X	X				
Steph	F	X					
Mike	M	X	X	X	X	X	
Megan	F	X	X	X	X		
Jenna	F	X	X	X			
Kayla	F	X					X
Lisa	F	X			X		
Chris	M	X	X	X	X	X	
Julia	F	X	X	X	X	X	
Jamie	F	X		X		X	
Leah	F	X	X	X		X	
Erica	F	X	X		X		
Maria	F	X	X	X			
Erin	F	X	X				
Allie	F	X	X	X		X	X
Matt	M	X	X	X	X		X
Molly	F	X	X	X			
Ariel	F	X	X	X	X		

Table 1. Interview participants (pseudonyms and genders) and the communication technologies they use with their parents.

we focused on were phone calls, texting (SMS), instant messaging (IM), video calling, email, and SNSs. We also asked participants about using blogs, shared tools, shared calendars, and location-based services with their parents, however no student used these tools with their parents, so we do not discuss them in this paper. These tools were chosen due to their prevalence in modern society, and proved to be an exhaustive list; when asked, participants indicated no other communication tools that they used with their parents.

For each tool they reported using with their parents, students were asked to describe both their typical and most recent uses of the tool, their motivations for using this tool, and their understanding and valuing of the roles the tool plays in managing the relationships with their parents. For those tools they did not have experience using with their parents, students speculated why this was and how it might or might not be useful for them. At the end of the interview, participants ranked the technologies they used with their parents in terms of frequency of use, usefulness, favorite, and impact on their relationships. We also asked participants how communication technology might be changed in the future to better support student-parent relationships.

Analysis

All interviews were audio recorded and individually reviewed several times by three of the researchers. Partial transcripts were made when the participant described ideas relevant to the research questions. The three researchers then met and used an open-coding technique to identify the general themes that transpired through the data. This process took place iteratively while developing and organizing the themes described below.

RESULTS

We structure this section in two parts related to the two research questions we posed above. The first part illustrates

the ways first-year college students choose and use different communication technologies to communicate with their parents. In the second part we present our findings as to how these technologies contribute to the development of the student-parent relationship in terms of support for the students' adjustment to college and social well-being.

Choosing & Using Communication Tools

With a wide range of communication technologies available, participants described several considerations when choosing which communication tools to use with their parents.

Convenience

The most common consideration students mentioned was the convenience of using the tool. Not surprisingly, tools allowing for easy, immediate, and efficient communication were preferred. For this reason, cell phones were considered very convenient and reported as the most widely used communication tool with parents, both for phone calls (all 19 students) and for texting (13 students). Participants frequently described conveniently talking on the phone with their parents while they were walking around campus:

> *I like to do it walking to or from classes, because that's a time when I know I can't really get anything else done so I'm not losing productivity.* –Chris

Participants considered texting more convenient than calling because of its asynchronicity, which allowed them to respond at their convenience instead of being expected to respond immediately. Similarly, they often chose texting when they did not know their parents' availability and wanted to communicate without interrupting:

> *[I prefer texting] if I have to ask them something in the middle of the day; I don't have to find a time to call them or find a time they're not working to then call.* –Maria

Students also found the asynchronicity of email useful. For example, Allie described using email to share things with her family when she does not need them to get the information and respond right away. In contrast, participants considered IM and video calling to be less convenient and used them less often than phone calls or texting because both parties must be at a computer at the same time. When students did video call with their parents they often first used texting or phone calls to coordinate the video call, consistent with [19]. However, for some parents, the technical barriers of video calling made it inaccessible:

> *I would love for her to just get a high-speed line and a webcam and then we could just talk like that.* –Leah

Although these findings may seem obvious, they should not be taken lightly: given the stressful situation of transitioning to college and the differences in sociotemporal patterns between students and their parents, the convenience of communication technology is especially important to this particular population.

Weighing Social Cues

In choosing which tool to use to communicate with their parents, participants considered the depth of the conversation and the perceived richness of the tool. For in-depth discussions, students prefer phone and video calls that provide richer (audio and visual) social cues:

> *[Phone calling is] more personal than texting or chatting online. You can hear voice, and hear actual emotions like laughing or if she's concerned, stuff like that.* –Mike

Living away from home for the first time, students appreciated these informal, intimate conversations, particularly when they were feeling homesick or stressed. Furthermore, despite the barriers and inconveniences mentioned above, nine students reported talking with their parents over video, describing it as worth the extra effort:

> *If I have the time and it's convenient then I'd rather do Skype. It's more personal and just kind of nicer. It's like a phone call with benefits, pretty much.* –Matt

Students felt their parents were enthusiastic about video calls as well and appreciated the time commitment children made for them. The ability to convey emotions and intimacy and the need to bend one's schedule and to arrange the technical requirements for coordinating a conversation over richer, but more technically-intensive media, were perceived by participants as contributing to enhancing their relationships with their parents.

At the same time, media richness was not always considered positive. Students felt a trade-off between feeling more connected to their parents and sharing more about themselves:

> *When you hear the voice, you'd like to check the tone and how they react to what you're saying... but at the same time you can't hide how you're feeling.* –Steph

In some cases, students found that leaner media could also benefit the student-parent relationship. For example, Emily took her time composing an email to her father after an argument. She felt her thoughts came across clearer and were less likely to be skewed in email than in an emotional phone conversation.

Further, social cues extend beyond the communication channel between students and parents. Some students felt uncomfortable using the phone in their dorm room knowing roommates could easily overhear their conversations. They preferred text-based communication tools in their rooms instead. However, students did not express concern about being overheard when walking and talking on the phone in public.

Taken together, these findings support the view that choice of communication tool is not a simple formula based on message complexity and channel capacity. In other words, it is not simply the "media richness" that dictates when to use which tool and for what purpose [23]. Instead, students considered the entire communication in the larger context

of their family relationships and other sociotechnical aspects.

Managing Multiple Media
Despite describing a preference toward one communication tool or another, students frequently used multiple media for communicating with their parents depending on the situation. They described a variety of considerations when deciding which specific tool to use in any individual situation.

First, students considered the specific attributes of the conversation – its purpose, priority, depth, and length. On one end, students reported texting instead of making phone calls when they considered the content something *"not worth calling for"* (Ariel) or not a *"serious conversation"* (Emily). For these messages, texting was considered a faster alternative to calling:

> *Usually when I call they want to have a whole conversation, but texting I can just get a one-word answer.* –Chris

On the other end, some topics called for more focused conversations. For example, Erica described her choice of video calls for a serious discussion about financial aid.

Another factor that students considered was the social norms around the appropriateness of a communication tool to the specific conversation. Many students referred to email as formal and impersonal, and used it exclusively for task-specific purposes:

> *I wouldn't email them to just talk. If we had to send each other forms or something [email] would make it easier.* –Jamie

At the same time, email was occasionally used to share less formal content such as family photos or links to amusing videos. Despite its informality, this kind of content is hard to deliver through voice or short text messages, and is therefore considered socially appropriate for email.

An additional social norm students considered was the expected level of involvement during a conversation:

> *When you video chat you're supposed to like face them and talk to them. … And I feel rude if I'm doing a bunch of other stuff.* –Kayla

Students also considered the specific affordances provided by each tool. The reviewability of the text-based communication was often appreciated. Jenna described sending a text message as a *"tangible evidence"* of her attempt to communicate when she couldn't reach her parents on the phone, indicating her commitment to persevering the relationships with her parents.

These findings suggest that there is no one-size-fits-all solution for student-parent communication. Instead, students appreciate being able to choose which tool to use in any given circumstances. Students enjoyed having multiple media available and being able to choose the appropriate one for their current purpose.

Overcoming the Generation Gap
While students liked being able to choose which tool to use, their perception of their parents' technological abilities frequently limited their options. Many of the participants described a gap between technology used by themselves and peers in their generation and that used by their parents. Of the 19 participants, 10 reported that their parents were not at all technologically savvy; other parents who work with technology were still considered to be behind the curve by their children.

Participants often felt the generation gap limited their choices of technology to communicate with their parents. Even when parents had the technical ability to use a tool, their level of comfort with the technology may still prevent it from being used:

> *[My mom] went out to the store to get a new web-cam but she just doesn't use it. Maybe she thinks it's too much of a hassle or something.* –Allie (mother is a computer programmer)

Similarly, students who generally preferred texting described using it infrequently with their parents who were less comfortable. When obstacles like this arose, students receded to communications tools that their parents felt comfortable with, particularly the phone, in order to keep the communication channels open.

On the other hand, participants reported influencing their parents to adopt new technologies. While living at home, their parents controlled their access to technology, but as they become more independent, students' exploration of new technologies encourages their parents to expand their own use [see also 24]. Some parents learned to use the tools their children preferred, suggesting a similar effort on the parents' end (from the students' perspective) to maintain communication with their children:

> *I think my parents try to make it convenient for me to talk to them, so there's more opportunity to do that. So as I adopt text messaging or Skype they follow.* –Chris

Some students found creative solutions for using their preferred communication tools. For example, Matt described texting his younger brother who lived at home to ask his mom a question, since she does not use texting. Similarly, his mom interacts with him on Facebook through his sister but does not have an account of her own.

Matt's account exemplifies a trend we observed in communicating with parents while involving other family members in the conversation. Often when students called home the phone was passed around so they could talk to parents, siblings and grandparents in turn. During video calls, everyone at home tended to gather around the computer and talk to the student at once. Other students described email blasts being sent to siblings all over the country at once.

Our findings suggest that students perceive their parents' limited technological proficiency as a major obstacle in the ways they communicate with each other. But at a deeper level, their relationships may be enriched as a result of this

perceived generation gap. Having to talk over the phone, even for trivial messages they would otherwise choose to text, forced them to engage in meaningful conversations with their parents. Otherwise, talking with their parents through their siblings or teaching their parents how to use new communication technologies opens up new ways to connect and interact with their family. In other words, overcoming the generation gap required efforts on both ends, which, in turn, strengthened family connections.

Face management

Another aspect in choosing a communication tool revealed in our findings was the tension between awareness and the demand for privacy. Participants thought that an increased level of awareness of their daily activities might benefit their relationship with their parents. At the same time, they were concerned about sharing with their parents specific information such as their exact location or activities such as attending off-campus parties. They wanted the ability to control and filter what information was shared with their parents, especially on social media such as Facebook.

While one-to-one conversations over the phone or other tools allowed students to present only the information they want to share with their parents, broadcasting technologies such as social networking sites frequently treat all of a user's contacts the same way, making it difficult to manage what information is shared with whom [5]. Similar to [9], many of our students preferred to share pictures with their parents via email than by friending them on Facebook.

Of those students who did interact with their parents on social networking sites, many described taking precautions to ensure their parents would not find sensitive information about them online. For example, Mike described how he often untagged pictures of himself and deleted friends' posts on his page so his mom wouldn't see them. He even went as far as to warn his friends to be *"careful"* when interacting with him publicly on Facebook. On the other hand, some didn't worry about this at all. For example, Leah described her mother as *"pretty chill"* and explained that she has nothing to hide from her parents.

Facebook was not the only concern for students; they worried about sharing information with their parents via other media as well. For example, Kayla described her mom checking her status on Google chat and messaging her to go to sleep if she was awake too late. Similarly, many students indicated they would not be comfortable sharing personal blogs with their parents.

After moving to college, students explore new interactions with people their parents may not know and activities that their parents may object to (partying, staying up all night). While this may be an inevitable part of American college life, students still want to present to their parents the identity that they perceive their parents want to see. Our findings suggest that students' choice of tools (e.g., one-to-one over broadcasting) and the ways in which they use them (e.g., filtering information) indicate this tension and point to

students' desire to maintain good relationships even as their life is changing.

Impact on Student-Parent Relationships

Our second goal for this study was to explore how communication tools contribute to changing student-parent relationships during the transition to college. As part of the interview, we asked participants if they felt that their relationships with their parents had changed since they moved to college, in what ways that relationship had changed, and how they understand the roles of communication technology in these changes.

Distance Changes Relationships

For some of our participants, moving away from home for the first time helped them become more aware of their parents, less take them for granted, and appreciate the relationships they had with them:

After I came [to college] I realized how much I missed my mom. –Megan

Talking to parents helped these students to relieve some of their frustrations, tensions and anxieties during the stressful transition to college life. They enjoyed personal conversations over the phone or video calls, particularly when they were feeling homesick. Other students and parents struggled at first to adjust to the changing dynamic of their relationship:

I think it's changed, But I don't think it's gotten really any better or worse. Clearly we're distant, but I think it's kinda giving us space, which is nice. I think it was hard for [my parents] at first but it's gotten better, so I think it's been good. –Chris

And some families were still working to figure out how their new relationship should function:

Sometimes I wish they could be a little more [laughs] supportive and stuff because some things I'm still confused about and I need their advice –Julia

These findings indicate that students are sensitive to the changing relationships as they move away from home: they expect empathy and support from their parents, and at the same time they understand that their parents are experiencing difficulties as well in this new situation.

Whether they felt a strong bond with their parents before moving to college or not, seven participants believed that the overall nature of their parent-child relationship had not changed despite the new physical distance and the use of mediated communication:

Now a greater proportion of our communication takes place, obviously over the phone, but also over emails, so it's more technological. But I mean as far as the nature of our relationship I don't think [it's changed]. –Sarah

For these students, the available communication technology helped them maintain their relationships with their parents and keep the connection between them alive. As Julia explained, "*If we didn't talk, we wouldn't feel close.*"

Preserving existing relationships was particularly important when students went home to visit. Students reported a range of one to six visits home since the start of the school year, over a period of eight months. Erin imagined how these visits would have been different if she had not had access to communication technology:

> *We would have completely lost touch and it would have been all awkward when I went home. As opposed to now when it's like "I spoke to you yesterday, and now I'm here."* –Erin

Many students admitted that they communicated with their parents less frequently than when they lived at home. For example, Erin admitted that she did not put in the expected effort to communicate with her parents:

> *I probably talk to them less [now that I'm at college]. I mean, I only talk to my parents if they call me. If they forget, then I don't talk to them.* –Erin

On the other hand, Lisa would like to talk to her parents more. She felt that the a problem lies with her parents for not learning to use her preferred tools:

> *I don't really think the technology needs to be improved; I just think that my parents should probably learn to use the technology… It'd be great if we talked more often* – Lisa

Erin and Lisa's accounts suggest that the mere effort to maintain frequent communication indicates one's readiness to support the relationship. From the point of view of our participants, both sides of the relationship, the student and the parent, are responsible for bridging gaps in the communication: geographically, temporally, and technologically.

Although they communicated less frequently, none of our participants felt this negatively impacted their relationships with their parents. In fact, eight participants indicated that moving away from home helped to improve their relationships with their parents. Although they were communicating less frequently than when living at home, they now felt closer to their parents. A common explanation for this was that the students were becoming more independent and the relationship with their parents more mature.

Some students, particularly those who had fought with their parents often when living at home, immediately benefited from the mere distance:

> *I know that our relationship has gotten better now that we're not suffocated with each other all day so I guess [technology] creates a good middle point between seeing them all day and not seeing them at all.* –Emily

Emily's account indicates how she perceives the advantages of the geographical distance (not being near each other), the temporal distance (not communicating all day long), and the technological distance (using mediated communication), all helped improve her relationships with her parents by soothing daily, ongoing, face-to-face conflicts.

These findings illustrate the drastic changes that student-parent relationships undergo during the student's transition to college. Students use communication technologies to maintain contact with their parents during this time.

Maintaining "Normal" Relationships

Almost across the board our participants indicated beliefs that more frequent communication would contribute to improved relationships, especially given the new distance. What they considered "frequent communication" with parents, however, varied greatly from one student to another; some talked to their parents multiple times each day (Leah) and others were happy being in contact only every few weeks (Steph).

Some participants compared their communication patterns to those of their friends. For example, Erica second-guessed herself when talking about how close she was to her parents:

> *A lot of my friends are a lot more open with their parents, but I still talk to them a lot…* –Erica

While Kayla found it surprising that her mom doesn't always have time to talk when she calls, but her friends' parents beg them to call more often. She went on to explain that not all students want the same connection with their parents she does:

> *I feel like if college students aren't communicating to their parents it's more so that they just don't want to, it's not like it's hard for them. I think it's fairly easy to communicate with your parents. I think most people just don't really have time, and it's not high on their list of things to do.* – Kayla

During the transition to college, students often compare their own behavior to that of their peers in an effort to determine what is normal and to help themselves fit in. Calling home frequently can contradict the image of becoming mature, independent individuals that students want to project. Finding excuses such as lack of time and playing down their lingering need for emotional and social support from their parents may be ways for students to cope with this tension.

A few students felt that the advances in technology changed the expectations and norms for student-parent communication:

> *Now that there are lines of communication are open, if you don't communicate it's more detrimental to your relationship* – Matt

Similarly, parents expect to be able to contact their children who are away at school and become worried when the communication channel breaks down:

> *One day my phone broke and I was activating a new one, so I didn't have my phone for the day and my dad had BBMed me and it wasn't going through. So then he was like "Where are you, I was getting worried." But then if I didn't have a cell phone he would never have been worried.* –Ariel

These findings demonstrate that communication technologies are seen as inevitable for students to stay in touch with their parents and maintain what they perceive as good rela-

tionships even at a distance. However, the reliance on communication tools also creates an expectation of constant contact, which, when the tools cease to function properly, can cause conflict.

To summarize, our findings suggest that, for many of our participants, using communication technologies deepened and strengthened their relationships with their parents. Moving to college also helped students to feel more independent and mature. Communication tools such as the phone, texting, and email allowed them to maintain open communication channels with their far-away parents during this stressful time. Such tools keep students updated about their distant families; relieve stress; provide students with control over the content, mode, and frequency of communication; and overall make the adaptation to college life easier for first-year students. However the expectations about appropriate amounts and frequency of communication need to be constantly reevaluated as students become more independent and parents adjust to their absence at home.

DISCUSSION
Our qualitative interview method allowed us to gather valuable insights into how a sample of first-year college students communicate with their parents from the students' perspectives. The first goal of our study was to better understand how first-year college students make choices between communication tools and their patterns of use when communicating with their parents. The second goal was to investigate the roles these communication tools play in students' changing relationships with their parents.

Our participants described a number of media used to communicate with their parents, including phone calls, video calls, text messaging, email, instant messaging, and social networking sites. Similar to Green's findings about use of cell phones by students and parents to communicate with each other [14], we found that convenience, often correlated with mobility and accessibility, was a prominent factor in choosing which tool to use when contacting their parents. However, our findings highlight a number of additional factors, such as social cues afforded by the tools, the generation gap, and face management, all of which contributed to complex decisions and sets of practices in which each student uniquely engaged.

For example, our findings suggest that parents' willingness and ability to use a communication tool may influence the students' choices, similar to Murnan's finding that students would contact their parents "based on the parents' main mechanism – usually cell phone to parent's cell phone or wired phone, or e-mail to e-mail" [22, p. 269]. On the surface, this may seem as another example of how students' perceptions of their parents' technological incompetence restricts them to a smaller set of tools from which to choose [33]. Yet our participants were sometimes able to bypass this limitation by teaching their parents to use new communication tools such as text messages and Facebook, or by communicating indirectly through other family members.

Our results therefore emphasize the importance of communicating through technology not only for staying in touch with parents, but also adding new dimensions to the relationship and signifying willingness to adjust to the other sides' abilities and needs.

A key aspect in this complex sociotechnical arrangement requires consideration of the student's overall relationship with the parent and how communication tools mediate the impacts of physical distance. In 1995, students relied on letters and landline phone calls to stay in touch with their family [18]. Today's students have access to many more and advanced communication technologies. All of our interviewees relied on a constellation of various technologies to stay in touch with their parents, creating what has been described elsewhere as a communicative ecology [11,29]. Students in our study described their relationships with their parents as changing in a variety of ways; some grew closer to their parents emotionally and others felt the nature of their relationships had not changed at all. Furthermore, our findings suggest that students see a direct role that communication technologies play in helping them and their parents actively participate in maintaining these relationships, either enriching, preserving, or toning down the relationships.

Schwartz and Buboltz [26] suggested that while parental support can be highly valuable to students while in college, conflict might also be necessary for students to create their own identities separate from their parents. Although student-parent communication may be on the rise overall [16], our findings illustrate a variety of ways in which students develop independence and confidence in their new adulthood, while staying connected to their parents. They do this by navigating between maintaining parents' awareness of their whereabouts and their growing need for privacy, engaging in faceting their identities [9], and creatively solving technical and socioemotional communication breakdowns.

Overall, our findings suggest that our objects of study, communication tool uses and student-parent relationships, are dialogically related: students' choices and uses of communication tool both shape and are shaped by their relationships with their parents.

IMPLICATIONS
Major life events, including transitioning into college, are significantly intertwined with technology use and are therefore worth considering in the design process of information and communication technologies [7,28]. On the surface, our findings may point to a list of straightforward design recommendations: to create communication tools that are more convenient, mobile, accessible, richer, and easy to use by both students and their parents. However, design implications are not always the most important result of research studies [8]. Instead, we suggest considering the kinds of support students may need as they move out of their parents' home and transition into adulthood. Our exploratory work examines particular circumstances of students moving away to college, and therefore points to future research in

other domestic and social relationships as well as to other major life events such as residential move and adjusting to a new job.

Previous findings suggest that strength of relationships with parents before moving to college may help students adjust to college and perform better [20,30]. Our findings suggest that these relationships can change during the first year of college, and that communication tools play an important role in this change. Through the use of communication technologies, many of our participants felt they had grown closer to their parents since moving to college. There may be an opportunity to design technologies that facilitate such familial intimacy [31,34].

However, college is also an important time for children to grow from adolescents to emerging adults. Our findings suggest that one reason these relationships improved was the increased independence provided by living away from home, allowing students room to become independent and mature. "Always on" channels, such as media spaces [4], in which parents and students are constantly connected to each other, provide parents with considerable monitoring and therefore may inhibit students' growth [16]. Instead, we encourage the use of "on-when-in-need" channels supporting open-ended awareness [27]. Such tools could provide students with the comfort of knowing they can instantly connect to their parents when they need the support, while leaving them responsible to independently assess when it is a good time to communicate, using which tool, and what to talk about.

We should also note that parent support is not the only kind available to college students. For example, student peers, especially those who live together, are highly important for satisfaction with the environment and for academic performance [1]. While outside the scope of the current paper, future research may extend our work to examine the roles communication tools play for student services, advising, and peer support for students making the transition into college and growing into adulthood.

Lastly, these results also contain some important implications for theory. CMC is often thought about in a human-computer-human paradigm, where the computer mediates the interaction between two humans. However, our data contain several instances in which another person is also mediating the communication, such as the college student texting a sibling to get in touch with a parent. It may be beneficial to expand CMC theory to account not only for situations where multiple tools form a communicative ecology [11,29], but also for those situations in which another human functions in part as a communication medium within that ecology.

LIMITATIONS AND FUTURE WORK

One key limitation of this study is the relative homogeneity among our participants, such that our findings may not be generalizable to other populations. All of our participants came from a single university, none were international stu-

dents, most were female, and none were transfer students. This study also took place within a cultural context where it is acceptable for students to leave home and go away to college, but this may not be the case in other cultures. This work should be extended with further studies targeting more diverse students, including more male, community college, vocational school, and international students.

Our method, interviewing first-year students, allowed us to gain deeper insights into the ways students interpret their communication patterns and relationship changes. However, we do not know how close our findings are to actual student-parent communication patterns and relationships. To complement our findings, future studies may benefit from other methods such as diary studies or communication logging and inclusion of parents perspectives to examine these topics.

CONCLUSION

In this paper we explored the ways in which first-year college students communicate with their parents and the various technologies they use. Through qualitative interviews with nineteen first-year students, we gained a valuable understanding of the students' perspectives. We identified a variety of tools used by students to maintain connections with their parents as they transition from adolescents to emerging adults. We also explored students' considerations and preferences when choosing communication tools for this purpose. We discussed the deep impact these communication tools had on students' relationships with their parents and discussed both technical and larger social implications of this work, as well as how these findings may also apply more generally to situations of major domestic and social change. Thus, this paper makes three unique contributions to the CSCW field: 1) exploratory investigation of a new and interesting demographic; 2) technical understanding of communication tool use by a sample from this group; and 3) sociotechnical understanding of impacts on student-parent relationships.

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