

The Strength of Awkward Ties: Online Interactions between High School Students and Adults

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ABSTRACT

In this multiple case study of two high schools in the United States, we use interview and focus group data to examine the experiences of teen-age students when they friend and interact with teachers, high school administrators, parents, and other adults on social network sites (SNS). We identify several types of teen-adult interactions on SNS, including finding information, community building, and mentoring online skills, and we connect these findings to literature on homophily and context collapse. We also report on social media norms and policies of the schools where our fieldwork was conducted. We discuss how organizational policies surrounding social media use can inhibit or reinforce the development of age-homophilous networks and thereby encourage or reduce opportunities for teen-adult interaction online. Finally, we conclude that boundary work associated with managing these complex social experiences, though awkward at times, can be an important learning experience for adults and young people alike.

Author Keywords

social media; social network sites (SNS); teens; schools; policy; homophily; question asking

ACM Classification Keywords

H.5.2 [Information Interfaces and Presentation]: User Interfaces - Interaction styles.

1. INTRODUCTION

Adolescence marks a time of biological, cognitive, and social transition and growth. Teenage years in the United States are generally spent in high school, where young people prepare for work or post-secondary education. The role of social media in high school students' lives is a subject of considerable research and speculation. This study is part of a larger multi-year project in which we are investigating how teens' online social networks serve as resources for meeting everyday information needs as they

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prepare to transition to adulthood, explore and develop political identities, and learn social norms around issues like privacy. Specifically, in this paper we examine high school students' experiences interacting with adults, particularly teachers and school administrators, on social network sites (SNS). We want to better understand teen-adult interaction online in order to inform policy discussions in schools, libraries and other organizations that serve teens.

In a two-year study of students at two U.S. high schools, we used surveys, interviews, and focus groups to investigate relationships among teens' use of SNS for information sharing and seeking, the kinds of connections they maintain online, and the policies that govern their use of SNS in schools. As we explored the ways that teens used their online ties to find information, it became clear that, although interacting with (often like-minded) peers occupied much of their attention, teen-adult interaction on SNS is an important resource for many teens and a site of enculturation in a wide range of social activities including school activities, civic action, and practicing online civility and privacy management. In this paper, we report on the experiences of teens whose online social networks include adults like teachers, school administrators, and family members by answering the questions:

R1. What kinds of interactions do high school students have with teachers, school administrators, parents and other adults on social network sites?

R2. What meaning and uses do these interactions have for students?

2. RELATED WORK

To contextualize this work, we first explain relevant concepts like homophily and context collapse and how they relate to finding and sharing information in social networks. Then we focus specifically on literature about online interactions between adults and teens that raises questions about the kinds of interactions that occur and how they are perceived by teens.

2.1 Homophily, Context Collapse and Information

Homophily is a remarkably stable feature of social networks – the term means that people who are similar to one another are more likely to forge ties than people who are not similar to one another. With little cultural and contextual variation, this principle regulates the formation of relationships from marriage, to friendship, to professional contacts and casual interactions [26].

In the language of design, homophily is a kind of constraint. It circumscribes social worlds. It encourages the emergence of personal networks that limit the kinds of information, opportunity, and social experiences to which individuals have access. The

homophily constraint is observed across different communication media with which people maintain and develop social relationships and share information [3, 10, 16] and can be reinforced online by predictive algorithms that suggest connections and regulate the flow of information from person to person. Although most studies of homophily have focused on adults, adolescent friendships have also been shown to exhibit homophilous tendencies [23], and teens' and emerging adults' online friends have been shown to exhibit age and geographic homophily in particular [25].

Conversely, the diversity of contacts in one's social network is highlighted by the problems associated with networking across multiple group contexts. Context collapse was identified early on as a challenge for people who use social network sites [24, 30]: when family, friends, teachers, romantic interests, and coworkers mix and mingle, the result is social awkwardness. Context collapse happens when heterogeneous segments of our social networks that rely on different social norms start to mix.

SNS users adopt many strategies to control the flow of information across different social groups, a practice also known as boundary regulation. For example, boyd describes the practice of "account mirroring" or creating multiple accounts on the same service [6]. Hargittai and boyd documented a marked increase in use of privacy controls on Facebook in 2009 [18], whereas Vitak and Kim recently examined the ways that people managed boundary regulation when Facebook's privacy tools provide insufficient control [31]. In a five-year, longitudinal study, Zhang, De Choudhury and Grudin observed increased use of multiple social network sites among professionals and suggest this supports audience segmentation [34]. In a survey study, we [13] similarly found that teens maintain accounts on multiple social network sites for different purposes and audiences.

The motivation to control information flow across social networks has been captured in the language of research participants when they describe what happens in networks that cross boundaries: things get "creepy" [34] and "strange" [20]. Yet, it is commonly accepted that when unlike groups connect, the results can be valuable.

Most famously, Granovetter's "Strength of Weak Ties" theorizes the effects of weak social ties on access to information or other resources and suggests that weak ties form the backbone of social information conduits that span networks [14]. Strong ties (relationships that involve intense affection, spending a lot of time together and intimate sharing) tend to bind people who know the same people. That is, your strong ties tend to have access to the same kinds of information and resources that you do and are often homophilous connections. Weak ties can be defined in opposition to strong ties: they lack the intimacy, time commitments and intensity that characterize strong ties. However, these weak ties are often connections to people who are less like you and who can provide access to diverse kinds of information and resources. In other words, homophily—that is, being connected to others who are very similar to yourself—can throttle information flow.

The practical implications of homophily for online interaction are important to understand: how does preferential association with similar individuals affect people in material ways? Some of the most striking findings concern diffusion of behaviors: people are more likely to adopt behaviors of individuals who share common characteristics with them [28]. If I see that you engage in a healthy behavior (like exercise), I'm more likely to follow suit if I perceive that others like me approve of this behavior [9]; likewise,

your strong ties on SNS are more likely to influence your voting behavior than weak ties [5]. Several studies of adolescents' friend groups—both online and off—have tied social network homophily to increased tendencies to engage in risky behaviors, such as marijuana use [11] and underage drinking [21].

Even in the case of strong familial ties or common experiences like affiliation with a school or church, teen-adult social connections are likely to bridge networks. Age homophily is a particularly salient characteristic of adolescents' online social interactions: teens tend to associate online with people close to their own age [32]. Age is a critical differentiator of human experience both socially and developmentally, and adults and teens often differ in other dimensions as well, like wealth, marital status, and social position/power.

2.2 Adults in Teens' Online Lives

In this paper, we focus specifically on understanding teens' experiences interacting with adults such as teachers and school administrators in their online social networks. Research on teen SNS use often focuses on what teens do most—socialize with other teens [6]—but as Ito and colleagues note, "in addition to their role in provisioning and regulating youth new media ecologies, adults are important coparticipants in youth new media practices" [22]. The role of adult family members in particular has drawn attention as people encounter problems associated with "digital parenting" [27]. Parents can play an important role in facilitating and encouraging the development of creative engagement with technologies [4] and may even help underage children gain access to social media [19].

There has been less work examining adolescents' experiences interacting with teachers and other educators in SNS. Agosto and Abbas found that high school students consider friending teachers "creepy" and a threat to personal privacy [1]. danah boyd's work has highlighted strategies that teens use to avoid authority figures such as teachers on social media in order to maintain their privacy [7], which she frames as a way of managing the awkward effects of context collapse.

Yet, sometimes teachers and other adults do interact with and friend teens online. Moreover, as we will show, these interactions can be useful. Ahn, Bivona and DiScala have noted that although most school districts restrict social media use, some frame policies in ways that are more productive for education than others [2]. As institutions grapple with establishing best practices for emerging technologies, online teen-adult interaction is a critical area of research for policy makers in schools, libraries, community centers and other institutions that serve the needs of both teens and adults.

To address this need, we ask, "What kinds of interactions do U.S. high school students have with teachers, school administrators, parents and other adults on social network sites?" and "What meaning and uses do these interactions have for students?"

3. METHODS

To answer these questions, we examine the cases of two high schools. Our data came primarily from interviews with students at our first field site. Our second source of data comes from focus groups at our second field site as well as demographic data and self-reported social media use that we collected using a survey instrument at both sites described fully in [13]. This multiple case study approach [33] enables deeper examination of the behaviors and trends that we identified at the first school by allowing us to explore areas of contrast.

	Facebook		Twitter		Tumblr		Instagram*	
	Devens	SciCentral	Devens	SciCentral	Devens	SciCentral	Devens	SciCentral
Every Day	65.0%	68.2%	42.5%	40.9%	20.0%	40.9%	39.4%	13.8%
Every Week	15.0%	13.6%	7.5%	13.6%	12.5%	18.2%	6.1%	0.0%
Less than 1x per Week	12.5%	13.6%	15.0%	18.2%	20.0%	18.2%	0.0%	0.0%
Total Users	92.5%	95.5%	65.0%	72.7%	52.5%	77.3%	45.5%	13.8%
Total Non-Users	7.5%	4.5%	35.0%	27.3%	47.5%	22.7%	-	-

Table 1: Frequency of Participants' Social Media Use

* Instagram was not included as an option but was the most frequently written in response for “other”; thus, it may be underrepresented relative to other sites and we have no data for non-use

Because we were interested in learning about the value of online interactions from teens’ perspectives, we approached data collection and analysis from the phenomenological perspective that social systems cannot be understood except through the experiences of the people who participate in them [29]. Such an approach involves learning how teens themselves make sense of social network sites and their own online interactions to yield interpretations and implications that reflect their understandings. These methods complement statistical analyses of social network and survey data that are often conducted to understand things like network composition, network structure, or the frequency of online behaviors.

3.1 Field Sites

The data were collected at two U.S. high schools; we sought out field sites that would provide different cultural norms and would allow us to compare different educational contexts. We obtained IRB approval to speak to 50 students at each school with parental approval. All students in the schools were invited to participate. In both cases we were able to accommodate all students who volunteered and showed up for their interview/focus group.

One school is a public science and engineering magnet high school that we refer to as SciCentral High. SciCentral is an award-winning school that is located in a dense urban environment and features progressive technology integration and a 1:1 laptop program. At the time of data collection, about 30% of the school’s 500 students were economically disadvantaged and 65% were minority students. Twenty-five students from SciCentral participated in interviews.

The second field site was a suburban public high school that we call Devens High, located outside a major metropolitan area in the southwest. Originally, we planned to investigate another school in the same district; however, due to circumstances involving our contacts, we switched to Devens. It turned out that Devens High also runs a science and engineering magnet program within its much larger total student body of about 2500. About 55% of Devens students were economically disadvantaged and 75% identified as minorities at the time of the study. 46 students from Devens participated in focus groups and 3 in interviews. Due to time limitations at Devens, we relied mainly on focus groups to enable data collection more quickly. Although individual interview data and focus group data are not directly comparable, the methods yield similar types of data that are amenable to qualitative analysis and can be useful for triangulation, comparison and building community case studies.

At both schools, receipt of permission and assent forms from minors was followed up by a phone call or in-person meeting

between a member of the research team and a parent or guardian to explain study procedures and answer questions. The barriers imposed by requirements for minor participants led to a disproportionately large number of participants who had recently turned 18 years old. A total of 74 students participated in interviews and focus groups.

Participants from SciCentral generally reported higher levels of parental education: over 36% of parents held advanced degrees compared with 4% of Devens parents. Over 25% of Devens participants’ parents had not completed high school. Students from SciCentral also demonstrated a greater understanding of Internet-related terms. See Table 2 for further demographics.

We were careful to choose culturally and geographically diverse field sites and participants; however, this sample of teens is not representative of the general United States teen population. We’ve already noted that a disproportionate number of participants were seniors and/or 18 years old. In some respects, this turned out to be advantageous as older students were often highly reflective about the school, its policies, and how their own practices had changed while in high school; however, it reduced opportunities for younger students to voice concerns and experiences that older students hadn’t experienced or no longer felt were important. Another limitation of our sampling method is that all our participants attend high school. Among teens who do not attend high school, interactions with adults may take on a different character and meaning; however, note that in this paper we use the term “teen” to describe high school students. All students in the schools were invited to participate, and participants were given \$20 to compensate them for their time and effort. One artifact of our data collection process is that Devens students are not identified by name in our data because, although we know which students participated, it was impossible to identify voices in the focus group audio recordings; when presenting data, we use pseudonyms for students from SciCentral and identify students from Devens as focus group participants.

3.2 Analysis

Interviews generally lasted between 20 and 40 minutes and focus groups lasted between 60 and 90 minutes. Focus groups included 6-10 students. Interviews and focus groups were audio recorded and transcribed. Thematic analysis [8] began with open coding of the transcribed data by three of the authors using Dedoose as a collaborative coding platform. The first author then iteratively coded segments of the interviews related to adult interaction to develop a more refined taxonomy of concepts that describes participants’ interactions with adults in their online social networks. A similar process was used to code focus group

		Devens (n = 49)		SciCentral (n = 25)	
		Count	%	Count	%
Gender	Male	15	30.6%	8	32.0%
	Female	28	57.1%	17	68.0%
	Not Reported	6	12.2%	0	0.0%
Age	14	3	6.1%	1	4.0%
	15	2	4.1%	3	12.0%
	16	1	2.0%	8	32.0%
	17	8	16.3%	3	12.0%
	18	28	57.1%	10	40.0%
	Not Reported	7	14.3%	0	0.0%
Parental Education	Don't Know	9	18.4%	2	8.0%
	Some High School	13	26.5%	2	8.0%
	High School	8	16.3%	7	28.0%
	College	11	22.4%	3	12.0%
	Graduate Degree	2	4.1%	9	36.0%
	Not Reported	6	12.2%	2	8.0%
Race	Asian	4	8.2%	1	4.0%
	Black	8	16.3%	7	28.0%
	White	7	14.3%	7	28.0%
	Hispanic or Latino	23	46.9%	4	16.0%
	Other	3	6.1%	1	4.0%
	Not Reported	6	12.2%	5	20.0%
Web Use Skills*		Mean: 2.61		Mean: 3.28	

Table 2: Participant Demographics

*Web Use Skills is measured using the 10-item survey from Hargittai and Hsieh [17].

transcripts. Prior coding of interview transcripts sensitized researchers to the themes that had already arisen there.

In general, students spoke in more depth about interactions with adults in interviews than in focus groups. This is not surprising for two reasons: first interviews provide a level of confidentiality that focus groups do not; second, because our interviews came primarily from SciCentral where policies and norms around social media use created a favorable environment for students to interact with adults. Before we describe our findings about teen-adult interaction, it's important to understand a little about the culture and policies of the high schools where our data were collected.

4. SOCIAL MEDIA POLICIES AND NORMS

Although students who participated in interviews and focus groups reported similar social media use (see Table 1), our two field sites had very different social norms and policies about social media and technology use in school. Devens prohibited SNS use during school hours and had a firm policy prohibiting cell phone use. SciCentral allowed Twitter and "reasonable" cell phone use in school. Devens prohibited students from friending or following teachers and other school staff whereas SciCentral allowed and even encouraged it. The principal acted as a social media role model by tweeting school news and communications and using Twitter to reach out to students individually and as a group both during and outside of school hours.

When asked about interactions with teachers on social media, a few Devens students described Facebook groups for extra-curricular activities and certain teachers who maintained websites about their classes and made themselves available to students

online, but the language students used implied that these teachers were exceptions:

I actually had to text my teacher one time because he actually gave out his personal phone number, because he is willing to help in any way he can. – Focus Group (FG) participant

Another commented that there was usually no way to contact teachers outside of school "unless the teacher is really cool." Explained one Devens student:

we can't have the teachers on our Facebook until we graduate. We can't have our teachers' numbers unless it is for a club. I have neither, so I have to ask people. I ask [someone] to ask a teacher what the homework was or something. – FG participant

In the above case, school policies created network structures in which certain students serve as bridges to teachers whereas other students remain less visible to teachers and have fewer opportunities for contact. Policies at Devens generally prohibited students from interacting with teachers on social media and from using most social media on school networks. One student noted that cell phones could access blocked sites but that violated policy as well:

[If they catch you with a cell phone] some teachers won't really cause a big scene. They'll just ask you to put it up and move on. If a teacher is a douche, then they'll cause a big scene, take your phone up and try to argue with you... and you have to pay \$15 to get it back. – FG participant

Although the official policies in SciCentral's school district were not radically different, school officials tended not to enforce the district's anti-social media policies, and the principal actively argued the benefits of student social media use to district officials and within the school community. As a result, students at SciCentral described a unique school environment in which teachers and students frequently interacted on social media and cell phone use was accepted with the assumption that students would regulate their own use. Twitter was the only SNS allowed by the school district on school wifi and thus became the SNS of choice during school hours:

I follow my principal, I follow my teachers, so it's like I mainly look at tweets when I'm in class or in school, and that's mainly with everybody in SciCentral. – Madison, 16

...my teacher used to say, 'In our school, we don't mind if you text because we know either you get up, go to the bathroom and text and come back or you just sit here and text and you pay attention again. It's faster and simpler. There's no point.' – Tony, 18

Conversations with the school principal confirmed that although the school district set many of the official policies, norms at SciCentral were purposely more open to technology and social media use. Students were aware of this difference:

I try to explain it to friends from other schools. They're like, 'How can you have your principal on Facebook?' But it's normal for us. – Aileen, 18

5. FINDINGS: INTERACTIONS BETWEEN TEENS AND ADULTS

In this section, we describe the types of interactions we identified between teens and adults on social network sites at SciCentral and highlight any similar or contrasting experiences of students at

Devens High where teen-adult interaction was largely prohibited. We present the full range of observed interaction types as findings; in the subsequent discussion section, we delve more deeply into the relationships between teen/adult interaction and school norms and policies.

Interactions between teens and adults were organized in three categories:

- building community
- finding information
- supporting development of online skills

5.1 Building Community in School

For the majority of students we spoke to from SciCentral, use of social media bridged personal and academic lives as well as the online and face-to-face school community. Some SciCentral students felt that their relationships with teachers were more open than they would be without online interactions:

Whenever I explain my relationships to my teachers to my friends at my old school they are always super surprised. So if I was at a different school and one of my teachers saw my Vines, I think I would be a little bit more concerned about it. But knowing that I'm friends with my teachers on Facebook and I follow them on Twitter and stuff, so it's kind of normal at this point for them to see stuff. – Makayla, 18

Others described school as a more fulfilling experience due to interactions that took place on social media:

I think it's nice having that connection between teachers and students. It doesn't make it as bad. It makes high school a lot more memorable and more interesting. – Tony, 18

Still others described how social media created a new channel for interactions among school staff and students that moved between online and offline contexts:

My friend tweeted like, 'I am so hungry I can't focus on anything else.' She was like, 'I can't focus on school work, I am so hungry.' And our principal follows us all on Twitter, and he just like walks into history class, has a granola bar, and he goes, 'Shellyann,' which is my friend's name, and just throws her a granola bar. And she's like, 'What?' And he's like, 'You said you were hungry.' – Connie, 15

Yet despite the clear efforts of many administrators and teachers to deemphasize boundaries between school life and social media, one student explained that not all teachers participated in the social media life of the school.

I'm friends with some of my teachers on Facebook. A lot of them, if they don't feel comfortable being friends with a student on Facebook they won't accept, or they will limit access. I know once I graduate, they better accept my friend request! Just sayin'. – Todd, 18.

In this case, the student reached out and found that not all teachers were receptive. One interviewee did not seem aware of the information exchanges on social media that the majority of interviewees described; although this was only one participant, it suggests that at SciCentral, teen-adult interaction is more prevalent among some groups of students than others.

Most teachers I'm not even sure are on Facebook or social media... usually posts on Facebook, some of them are a little bit like racy and stuff. People usually don't have their

teachers or their principal as one of their friends on there. – Jaylen, 18

Although a few students at SciCentral discussed concerns about privacy when friending school staff, describing it as invasive, most used language that suggested they viewed privacy as a problem of negotiating and setting boundaries rather than excluding school staff from their online lives altogether. Tony, a SciCentral senior who was quoted above as feeling that online interactions enriched the high school experience also noted that students sometimes

feel like [the principal's] involvement in our lives is a little too much. Somebody will say something that's kind of offensive and he'll comment on it in kind of a snarky, sarcastic way, which he can do. It's in his right. We friended him and that's kind of his personality at times, so that's all right. But it's also kind of weird because this is your principal and he's watching what you're saying. It's big brother watching you. So yeah, there are times when we feel like Mr. Jansen has crossed some lines and it's not bad, but it's just weird. – Tony, 18

Devens students were not allowed to friend teachers on social media and had little to say about community building with teachers and administrators on social media, other than mentioning that certain teachers joined official Facebook groups dedicated to school clubs or organizations.

5.2 Finding Information

When we began the study, one of our goals was to understand online question asking and answering practices of teens. In general, teens reported talking to peers more often than adults when they needed to find information; one SciCentral student explained that she used social media to ask questions of adults only when she had exhausted her peer-level resources.

that's [posting to a teacher online] something I find a little bit creepy, because it's like, I see you all the time at school, and you're my teacher... Sometimes I may post on their wall and be like, 'What should I do for this,' and blah blah blah. But that's like rare moments. Most of the time I'll just ask my peers, because that seems more appropriate to me. I'll never inbox them [teachers] ever. I'll post on their wall if I'm really desperate. Like if I'm really like, the project is due tomorrow at 8:15, and none of my people have replied. – Sophia, 16

Many SciCentral students acknowledged social media as a reasonable place to ask teachers questions about homework.

If we have a question, our teachers usually let us add them on Facebook and follow them on Twitter, so if we have a question, and they're not answering us through email, we can either text them, send them a message on Facebook—that's mainly the time that they reply, when we message them on Facebook or Twitter, because in my school, the teachers use Twitter a lot. – Madison, 16

Yet not all students felt comfortable asking for information in public. In the next section, we will discuss adult audiences as an inhibitor of risky disclosures online, but it is important to note that potential adult audiences can also inhibit information and help seeking online. The clearest example of this came from a Devens student who explained that she would avoid asking about homework publicly because teachers might judge her for it; instead, she would hide such interactions:

For homework I would mostly ask people directly because I don't want the teacher looking and saying, 'Why didn't you get this? You could have done tutorial.' So I mostly ask them in private about how they've done their homework and if they can help me with it. – FG Participant

5.3 Supporting Development of Online Skills

Online experimentation with different facets of identity and with forms of creative expression is an important aspect of maturation that sometimes requires freedom from adult intervention [12, 15]. Yet, at times we observed that the presence of adults can also play an important role in supporting teens as they develop more sophisticated privacy practices and insights about online life. We observed three ways that adult interaction on social media sites influenced teen behavior: as audiences for teen disclosures, by modeling online behaviors, and moderating online behaviors in the form of advice or direct intervention.

5.3.1 Adults as audiences for teen disclosures

The presence of adults can provide a natural mechanism to encourage reflection on self-presentation. In many cases, students reported that parents, grandparents or other family members were present on SNS, particularly Facebook, and that this caused them to carefully consider what they posted there. This student describes a typical experience:

I'm Facebook friends with my mom, so I tend not to say anything too crazy on Facebook. I know some people who do. – Brian, 18

At SciCentral, students reported not only thinking about family members' reactions to their public posts, but many discussed teachers and staff as potential audiences for disclosures on social media:

If I had a private account, maybe I'd be more lenient with my tweets, but since I have an open account and there are principals and teachers following me from all over the country, I wouldn't post something like that. – Corinne, 16

All the teachers and the students follow each other. I use that as a reason to censor my tweets. I think 'How would [the principal] feel if he saw that? So I should really think before I post.' – Tony, 18

My principal and most of my teachers have Facebook and Twitter... The teachers at [my school] are very cool, some of them, laid back. They apparently have lives. We still have to respect them as adults... Like we can't like...well we can curse sometimes like rarely, but we can't have like a sailor's mouth every five seconds around them. – Tiana, 15

Students primarily reported connections with adult family members or school staff in Facebook and Twitter; they did not report connections to adults in other networks like Instagram or tumblr. One Devens focus group participant noted that:

The thing about Facebook is, even though a lot of people say they don't use it or don't get on it as much they still have it, they still go back to it. Facebook is different. It's for everybody, like even your grandparents. Twitter and Instagram, it's just for like, our kind of peers. Facebook is for everybody. – FG participant

Network fragmentation across platforms may support more exploratory or risky disclosures in spaces where teens are deidentified or maintain more age homophilous networks.

5.3.2 Modeling online behaviors

In some cases, teens described seeing negative consequences when peers engaged in risky online behavior like bullying or unwise self-disclosures and drew personal lessons from these observations. Their descriptions of peers' social media use were often cautionary whereas their descriptions of adults' use of social media often involved mentoring and modeling relationships. When connected with teachers and school administrators on SNSs, participants described observing them modeling professional uses of social media.

[Our principal] usually tweets or says something when our school has an accomplishment, like he posts it as a status and how proud he is. – Ella, 18

Like, my journalism teacher, she's going to post things that are of interest to me, because we share that interest. Or my English teacher posts this thing called #EngChat, and every night it's teachers who are discussing English classes together, so I'm interested in that because I'm a writer. – Alexis, 18

In some cases, teens also acted as mentors for adult family members who needed help with things like maintaining a Facebook page for a business, or using SNS to keep in touch with family or friends.

5.3.3 Moderating online behaviors

Finally, adults sometimes played a direct role in advising and patrolling teens' online behavior. In several cases, students described how adult family members set rules or advised them about privacy settings or avoiding dangerous behavior. Mia, age 18, related the advice she was given by her mother about Facebook privacy settings, "My mom said, 'Have it [privacy settings] set to your friends and only accept people that you want to be friends with on there.'"

In other cases, students at SciCentral described how teachers on social media had intervened in dangerous or harmful situations, including selling drugs and bullying. Less dramatic and more common was the experience of posting something inappropriate and having a teacher or staff member explain the possible consequences.

Mr. Jansen [the principal]... He's a stalker. He sees my personal life. But it let me know that what I put on social network sites is not a secret and that anybody can see it. He explained to me that colleges could look at your social network sites and see your tweets and stuff like that. So from there, I changed how I tweet and what I put on Instagram. He helped me actually change what I put on Instagram and how I tweet and stuff like that. – Jayla, 17

6. UNCERTAINTY ABOUT INTERACTING WITH ADULTS

We think it is important to convey the full range of attitudes that we observed when teens recounted their interactions with adults online. Teen-adult interactions in our data ranged from productive and pleasant to awkward and unpleasant. None of our participants reported being victims of predation, exploitation, or harassment by adults, although some of the young women described getting friend requests from "weird guys" or "old creepy men." Still, fearful narratives about predatory adults surfaced in some interviews and focus groups at both field sites.

Facebook is super dangerous now because some people that can be added that are way older than you and they might have a picture of someone that looks like me. They might have my picture on there and say, 'I'm 14 years old,' but they're really 40 years old. –FG Participant

People aren't who they say they are online. So you don't really know if it's a boy or a girl. It could be a pedophile and he's telling you he's 15 years old and you want to meet him in person. – Gillian, 17

Although predation – particularly sexual predation – does not often involve adults misrepresenting their age [7], the lore of predatory older men misrepresenting themselves as teenagers appears to be alive and well.

7. DISCUSSION

The teen-adult interactions we described in the findings above are not unambiguously positive, but particularly the case of SciCentral highlights opportunities for productive interactions between adults and teens on social network sites. As discussed in our literature review, the design of technologies like recommender systems and ranking/filtering algorithms such as those that supply content to Facebook's newsfeed have been critiqued for their opacity and potential to diminish exposure to diverse views and people. However, we find that restrictive organizational policies surrounding social media use can also inhibit the formation of heterogeneous ties and reinforce the development of (particularly age-)homophilous networks. Although it is possible to extrapolate novel design explorations from this work—for example by allowing would-be mentors like teachers and school administrators to signal their willingness to be friended by students and designing friend recommendation algorithms to take such preferences into account—we focus in this paper on implications for technology-related policies.

7.1 Policy Implications for Schools, Libraries and other Institutions that Serve Teens

The influence of organizational policy on the composition and experience of online social networks is increasingly important to understand when behaviors as diverse as drug and alcohol use, exercise, and voting are demonstrably influenced by online social interactions (i.e. [5, 11, 21]). Ahn et. al. examined over 200 school policy documents and conclude that policies framing technology use as a core part of education and as an extension of the school are more productive than those that frame technology use as a privilege [2]. School policies intended to protect teens and help them avoid distraction may have the unintended effect of inhibiting access to the kinds of information, community building and mentoring experiences that we identified in teen-adult interactions. Policies that encourage age-homophily in teens' online social networks may reduce opportunities for both observing and modeling mature online behaviors, as students may miss out on chances to observe professional behavior among online adults and to serve as positive role models for others.

We noted some commonly held misconceptions about how sexual predation happens online. These may also encourage school policies that rely on prohibition of teen-adult interaction in order to keep teens safe. Our findings are congruent with danah boyd's observations that one effect of such policies is fewer opportunities for positive adult support and intervention if teens *do* encounter dangerous situations [7], which are more likely to involve bullying, depression, or risky interactions with peers and family.

It is important, too, to highlight the ambivalence of students when they reflected on their interactions with adults. References to school staff as "big brother" or "stalker" accompanied testimonials about how well respected they were and how much they cared about their students. Likewise, interactions with loved family members were sometimes described as "creepy" or "embarrassing." Much has been written on the topics of privacy and self-disclosure online, often with the conclusion that better privacy management tools are needed. Although good tools for managing privacy are important, we suggest that the boundary work associated with managing these messy social experiences is an important kind of work for adults and young people alike. We saw in our interview data that when teens encounter friction between social worlds that overlap on SNSs the experience is sometimes revelatory. When teens actively reflect on how to manage their online interactions with teachers and parents (and when teachers and parents reflect on how to manage their interactions with teens), they engage in an important social sensemaking activity. Eliminating awkward encounters may not always be the most desirable goal for designers or policy makers.

We described efforts by SciCentral's principal to advocate at the district level for student access to social media on campus and some teachers' views that technologies like phones and social media can't be eliminated from teens' lives during school hours. The culture at SciCentral is notable in that administrators and teachers view students as capable of regulating their own use of technology and online behavior, and the curriculum emphasizes the teaching and learning of safe, responsible online practices. A reasonable corollary of giving students this freedom and responsibility is the school's positioning of adults within the social network sites that are used at school. Students were not simply *allowed* to use technology: use of technology permeated the organization where adults and teens participated on social network sites alongside one another.

8. CONCLUSION

In this multiple case study, we examined teen-adult interaction on social media at two U.S. high schools. Teens' social networks tend to exhibit age homophily; however, we found that a school environment where students are encouraged to friend and interact with teachers and administrators can yield important benefits. The resulting teen-adult interactions are sometimes awkward, but also often beneficial as many teens experience the "strengths" of these awkward ties: community building, expanded access to information, and supporting development of online skills.

The case of SciCentral provides a useful touchstone for policy deliberations at schools and libraries. Educators are increasingly aware that learning to manage use of social media like SNSs and technologies like phones is critical for teens, but best practices for social media use in schools remain elusive. Cases like SciCentral provide empirical grounds from which to reason about policies and practices in schools. Still, the exceptional involvement of some teachers and staff in this case study can be viewed as a limitation of this work for extrapolating to broad policy recommendations. The case of SciCentral is unique. It is an award-winning school with strong, Internet-savvy leadership, and the experiences of students there are not likely easily replicated without a culture of mutual respect among teachers, administrators, parents and students who are heavily invested in the success of a technology-rich school environment.

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10. REFERENCES

1. Denise E Agosto and June Abbas. 2010. High school seniors' social network and other ICT use preferences and concerns. *Proceedings of the American Society for Information Science and Technology*, 47 (1). 1-10. <http://dx.doi.org/10.1002/meet.14504701025>.
2. June Ahn, Lauren K Bivona and Jeffrey DiScala. 2011. Social media access in K-12 schools: Intractable policy controversies in an evolving world. *Proceedings of the American Society for Information Science and Technology*, 48 (1). 1-10.
3. Luca Maria Aiello, Alain Barrat, Rossano Schifanella, Ciro Cattuto, Benjamin Markines and Filippo Menczer. 2012. Friendship prediction and homophily in social media. *ACM Trans. Web*, 6(2).1-33. <http://dx.doi.org/10.1145/2180861.2180866>.
4. Brigid Barron, Caitlin Kennedy Martin, Lori Takeuchi and Rachel Fithian. 2009. Parents as learning partners in the development of technological fluency. *International Journal of Learning and Media*, 1 (2). 55-77.
5. Robert M Bond, Christopher J Fariss, Jason J Jones, Adam DI Kramer, Cameron Marlow, Jaime E Settle and James H Fowler. 2012. A 61-million-person experiment in social influence and political mobilization. *Nature*, 489 (7415). 295-298. <http://dx.doi.org/10.1038/nature11421>.
6. danah boyd. 2008. Why youth [heart] social network sites: The role of networked publics in teenage social life. in Buckingham, D. ed. *Youth, identity, and digital media*, MIT Press, Cambridge, 119-142.
7. danah boyd. 2014. *It's Complicated: the social lives of networked teens*. Yale University Press, New Haven.
8. Virginia Braun and Victoria Clarke. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2). 77-101.
9. Damon Centola. 2011. An experimental study of homophily in the adoption of health behavior. *Science*, 334 (6060). 1269-1272.
10. Shuo Chang, Vikas Kumar, Eric Gilbert and Loren G. Terveen. 2014 of Conference. Specialization, homophily, and gender in a social curation site: findings from pinterest. in 17th ACM conference on Computer supported cooperative work & social computing, (Baltimore, Maryland, USA, ACM, 674-686. <http://dx.doi.org/10.1145/2531602.2531660>.
11. Kayla de la Haye, Harold D Green Jr, Michael S Pollard, David P Kennedy and Joan S Tucker. 2014. Befriending Risky Peers: Factors Driving Adolescents' Selection of Friends with Similar Marijuana Use. *Journal of youth and adolescence*. 1-15.
12. Abigail Durrant, David Frohlich, Abigail Sellen and David Uzzell. 2011. The secret life of teens: online versus offline photographic displays at home. *Visual Studies*, 26 (2). 113-124.
13. Andrea Forte, Michael Dickard, Rachel Magee and Denise E. Agosto. 2014 of Conference. What do teens ask their online social networks?: social search practices among high school students. in 17th ACM conference on Computer supported cooperative work & social computing, (Baltimore, Maryland, USA, ACM, 28-37. <http://dx.doi.org/10.1145/2531602.2531723>.
14. Mark S. Granovetter. 1973. The Strength of Weak Ties. *American Journal of Sociology*, 78 (6). 1360-1380.
15. Christine Greenhow and Beth Robelia. 2009. Informal learning and identity formation in online social networks. *Learning, Media and Technology*, 34 (2). 119-140.
16. Shion Guha and Stephen B. Wicker. 2015 of Conference. Do Birds of a Feather Watch Each Other?: Homophily and Social Surveillance in Location Based Social Networks. in 18th ACM Conference on Computer Supported Cooperative Work & Social Computing, (Vancouver, BC, Canada, ACM, 1010-1020. <http://dx.doi.org/10.1145/2675133.2675179>.
17. Eszter Hargittai and Y. P. Hsieh. 2012. Succinct survey measures of web-use skills. *Social Science Computer Review*, 30(1).95-107. <http://dx.doi.org/10.1177/0894439310397146>.
18. Eszter Hargittai and danah boyd. 2010. Facebook privacy settings: Who cares? *First Monday*, 15 (8).
19. Eszter Hargittai, Jason Schultz and John Palfrey. 2011. Why parents help their children lie to Facebook about age: Unintended consequences of the 'Children's Online Privacy Protection Act'. *First Monday*, 16 (11).
20. Anne Hewitt and Andrea Forte. 2006. Crossing boundaries: Identity management and student/faculty relationships on the Facebook (Poster). in *Proceedings of Computer Supported Cooperative Work*.
21. Grace C Huang, Daniel Soto, Kayo Fujimoto and Thomas W Valente. 2014. The interplay of friendship networks and social networking sites: longitudinal analysis of selection and influence effects on adolescent smoking and alcohol use. *American journal of public health*, 104 (8). e51-e59.
22. Mizuko Ito, Sonia Baumer, Matteo Bittanti, danah boyd, Rachel Cody, Becky Herr-Stephenson, Heather Horst, Patricia Lange, Dilan Mahendran, Katyanka Martinez, C.J. Pascoe, Dan Perkel, Laura Robinson, Christo Sima and Lisa Tripp. 2010. *Hanging out, messing around, and geeking out : kids living and learning with new media*. MIT Press, Cambridge, Mass.
23. Denise B Kandel. 1978. Homophily, selection, and socialization in adolescent friendships. *American journal of Sociology*. 427-436.
24. Airi Lampinen, Sakari Tamminen and Antti Oulasvirta. 2009 of Conference. All my people right here, right now: management of group co-presence on a social networking site. in ACM 2009 international conference on Supporting groupwork, 281-290. <http://dx.doi.org/10.1145/1531674.1531717>.
25. Elizabeth Mazur and Lacey Richards. 2011. Adolescents' and emerging adults' social networking online: Homophily or diversity? *Journal of Applied Developmental Psychology*, 32 (4) 180-188. <http://dx.doi.org/10.1016/j.appdev.2011.03.001>.
26. Miller McPherson, Lynn Smith-Lovin and James M Cook. 2001. Birds of a feather: Homophily in social networks. *Annual review of sociology*. 415-444.

27. Jennifer A. Rode. 2009 of Conference. Digital parenting: designing children's safety. in Proceedings of the 23rd British HCI Group Annual Conference on People and Computers: Celebrating People and Technology, (Cambridge, United Kingdom, British Computer Society, 244-251.
28. Everett M Rogers. 2010. *Diffusion of innovations*. Simon and Schuster.
29. A. Schutz. 1967. *The Phenomenology of the Social World*. Northwestern University Press.
30. Frederic Stutzman and Woodrow Hartzog. 2012. Boundary regulation in social media. in ACM 2012 conference on Computer Supported Cooperative Work, 769-778. <http://dx.doi.org/10.1145/2145204.2145320>.
31. Jessica Vitak and Jinyoung Kim. 2014 of Conference. You can't block people offline: examining how Facebook's affordances shape the disclosure process. in Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing, (ACM, 461-474.
32. Brooke Foucault Welles, Anne Van Devender and Noshir Contractor. 2010 of Conference. Is a friend a friend?: investigating the structure of friendship networks in virtual worlds. in CHI '10 Extended Abstracts on Human Factors in Computing Systems, (Atlanta, Georgia, USA, ACM, 4027-4032. <http://dx.doi.org/10.1145/1753846.1754097>.
33. R. K. Yin. 1994. *Case study research: Design and methods*. Sage, Thousand Oaks, CA.
34. Hui Zhang, Munmun De Choudhury and Jonathan Grudin. 2014 of Conference. Creepy but inevitable?: the evolution of social networking. in 17th ACM Conference on Computer-Supported Cooperative Work & Social Computing, 368-378. <http://dx.doi.org/10.1145/2531602.2531685>.