Adolescent friendship challenges in a digital context: Are new technologies game changers, amplifiers, or just a new medium?

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Abstract
The authors analyzed 300 stories about adolescents’ friendship challenges in order to explore the roles of digital technologies in contemporary friendship conflicts. An initial round of analysis facilitated the identification and subsequent classification of stories by five commonly described challenges: betrayal, isolation, meanness and harassment, concern about a Friend, and Maintenance Challenges. Drawing on previously identified features of exchanges in and through digital contexts, including scalability, persistence, replicability, and anonymity, the role of technology was then explored in the context of the five friendship challenges. Scalability, leveraging the affordance of efficiently reaching a broad audience, was the most common way technology amplified friendship challenges. However, technology also often functioned solely as the medium for communication. Additionally, adolescents described difficulties related to sexting as a contemporary friendship challenge. Implications for supporting youth in their friendships are discussed.

Keywords
Adolescent, cyberbullying, digital technology, friendship, mobile phones, roles of technology, sexting, social media

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For researchers and practitioners who study and work with youth, the continued rise in adolescents’
digital media use (Anderson, 2015; Lenhart, 2015; Pew Research Center, 2012) raises a host of
questions and puzzles. In the current article, we tackle two broad questions: descriptively, what
shifts do adolescents in the digital era experience in the topography and dynamics of their
friendships? Theoretically, what evidence might suggest that new media technologies function as
cultural ‘game changers’ in how digital youth relate to one another?

Psychologists have a long-standing interest in the development and dynamics of adolescent
friendships (Berndt, 1982; Berndt and Hoyle, 1985; Sullivan, 1953; Van Dyne, 1940). Over the last
several decades, researchers focused considerable attention on the challenges adolescents face in
their peer relationships, including issues of bullying and relational aggression – and for good
reason: the competencies developed in and through adolescent relationships pave the way for
sustaining mutual, rewarding close relationships in later life (Crick and Grotpeeter, 1995; Olweus,
1997; Prinstein et al., 2001; Sharp, 1995; Sullivan, 1953).

More recently, digital technologies (DT), which include mobile phones, computers, and tablets,
afford adolescents unprecedented connectivity to their peers (Nicol and Fleming, 2010). Import-
tantly, the rise of smartphone ownership and mobile access provides adolescents with new kinds of
private lives. There is therefore a pressing need for research on the range of relational challenges
and associated (and possibly enhanced) affective experiences adolescents navigate as they use DT
(Smart, 2015; Subrahmanyam and Greenfield, 2008).

**Friendship in adolescence**

**The developmental importance of friendship**

Adolescence – representing the developmental stage for people between the ages of 10 and 19 – is
a time of significant cognitive, relational, emotional, and biological changes (World Health
Organization, 2016). Cognitive and interpersonal competencies that begin to develop in late
childhood consolidate during adolescence (Sullivan, 1953). Emerging relational capacities, which
distinguish adolescent friendships from earlier relationships, include sustained mutuality, per-
spective taking, intimacy, loyalty, reciprocity, commitment, and equality (Hartup, 1993; Savin-
Williams and Berndt, 1990; Selman, 1980; Sullivan, 1953). These developmental milestones set
the stage for meaningful future relationships as well as for healthy adjustment in other domains
(Sullivan, 1953).

Adolescents seek greater autonomy from parents, and they navigate the complex task of
developing individual, romantic, and group identities (Bagwell and Schmidt, 2011; Furman and
Buhrmester, 1992). By the time adolescents enter high school, they spend a significant amount of
time with each other – and in the United States, adolescents spend nearly twice as much time with
their peers as with their families (Csikszentmihalyi and Larson, 1974; Larson et al., 1996). In
addition to the crucial role that friends play in adolescents’ social, emotional, and cognitive
development, friendship quality is also a critical predictor of psychosocial adjustment during
adolescence (Selman, 1980; Bagwell and Schmidt, 2011; Burk and Laursen, 2005; Sullivan, 1953).

**Relational conflict in adolescent friendship**

Most adolescents generally enjoy the benefits of companionship and intimacy as a result of
their close friendships, yet conflicts invariably arise (Hartup, 1993). Relational aggression (RA)
includes acts intended to harm another’s social standing and is repeatedly described among female adolescents (Crick and Grotputer, 1995). In one study of approximately 500 youth, over 70% of the female participants had been victims of RA (Crick and Nelson, 2002). RA can transpire within the general peer group, between friends, and/or related to romantic relationships (Crick et al., 2001). Well-documented RA behaviors include socially excluding peers or friends, spreading rumors, and betraying others’ trust. Other frequently reported behaviors are engaging in revenge, publicly embarrassing others, and criticizing others’ personality or looks (Archer and Coyne, 2005; Crick and Grotputer, 1995; Young et al., 2006).

As the emergence of romantic relationships becomes more relevant within adolescent peer groups, RA acts often spread to involve romantic partners (Crick et al., 2001). For example, trying to steal a friend’s romantic partner, spreading lies about a friend’s romantic history, cheating, and trying to make friends or partners jealous are other ways that adolescents can be relationally aggressive (Crick et al., 2001). Jealousy often emerges when adolescents feel that outsiders are threatening the quality, strength, or survival of their friendships (Parker et al., 2005).

**Adolescent friendship in the digital context**

*Unprecedented connectivity for youth*

Not only is adolescence a ‘sensitive’ period from a developmental perspective, it is also a period during which individuals are highly sensitive to cultural shifts, including those rendered by innovations in technology (Blakemore and Mills, 2014). The use of DT is widespread among US-based youth: fully 88% of adolescents aged 13 and 17 own cell phones and nearly 75% have access to smartphones (Lenhart, 2015). Young Americans have been dubbed a ‘smartphone-dependent population’, and roughly one-quarter of US adolescents reports they are online ‘almost constantly’ (Lenhart, 2015; Smith, 2015).

Adolescents primarily use DT to strengthen and maintain their existing relationships via texting and social media, and youth experience myriad social benefits from their digital interactions (Davis, 2012; McEwan, 2013; Mikami et al., 2010; Subrahmanyam et al., 2008). DT allow adolescents and emerging adults to connect with friends whom they see regularly as well as to reconnect or stay connected with friends and family members who live elsewhere (Lin et al., 2012; Subrahmanyam et al., 2008). Digital communication with friends also facilitates self-disclosure and peer-to-peer communication and supports a sense of belonging (Davis, 2012; O’Keeffee and Clarke-Pearson, 2011).

**Relational conflict in digital spaces**

Although interactions via DT can strengthen interpersonal relationships, they can also facilitate exchanges that challenge or even damage relationships. One-quarter of social media-using adolescents report that they have had an experience on social media that resulted in a face-to-face argument, and 22% have had an experience that ended a friendship (Lenhart et al., 2011).

Research that examines conflicts involving DT often focuses on cyberbullying (e.g. see Levy et al., 2012; Li, 2007). Levy and colleagues explain that cyberbullying is frequently conceptualized as bullying that occurs on or through electronic or digital media, and it is generally defined in relation to the common operationalization of bullying. Bullying is aggression that is characterized by (1) the aggressor’s intent to harm the victim, (2) an imbalance of power between ‘aggressor’ and
‘victim’, and (3) repetition over time (Levy et al., 2012). According to the 2011 US High School Youth Risk Behavior Survey, 16.2% of high school students had been victims of cyberbullying (CDC, 2011). Across all ethnic groups, females were more likely to be victims of cyberbullying than males (CDC, 2011). Being a victim and a perpetrator of cyberbullying has been associated with lower levels of self-esteem, poor social problem-solving skills, and maladjustment to school (Levy et al., 2012). Victims of cyberbullying are at an increased risk for anxiety, low self-esteem, and loneliness, and perpetrators of cyberbullying are more likely to experience interpersonal difficulties in adulthood (Hawker and Boulton, 2000; Levy et al., 2012).

However, cyberbullying does not encompass the full breadth of technology-related relational challenges. Conflicts are not always marked by the destructive use of a power imbalance, as participants may be members of the same friendship group and ostensibly hold similar positions of social power; additionally, challenging social issues that transpire via DT may not necessarily be repeated (Marwick and boyd, 2014). Marwick and boyd (2014) adopt the term ‘drama’ – a term used by teens to describe various kinds of conflicts on social media – to describe interactions that outsiders might view as cases of cyberbullying. Marwick and boyd found that adolescents engaged in drama online because it increased the entertainment value gained from the visibility and publicity associated with social media. Youth also reportedly preferred the term drama to describe their experiences because it distanced them from the malicious intent and experience associated with bullying.

In addition to cyberbullying and drama, Weinstein and Selman (2014) also point to sociodigital stressors that arise as youth navigate intimate, close relationships in a digital ecology. They describe youths’ reports of challenges related to determining the appropriate quantity of communication in contemporary friendships, managing requests for digital access, and negotiating the bounds of digital privacy. Weinstein and Selman argue that adolescents’ experiences of ‘digital stress’ in their peer relationships include, but are not limited to, hostility-oriented issues.

**Features of the digital context**

How do the communicative contexts supported by DT differ from the offline context, and how might these differences connect to relational conflicts? Boyd (2008a) highlights persistence, replicability, Searchability, and Invisible Audiences as features of networked publics that influence peoples’ interactions and experiences. Persistence refers to the idea that content remains in the digital realm over time; this content is replicable because it can be easily copied in and from its original form. Digital content is easily searchable, and because the changing number and identities of the witnesses is often unknown, online content is subject to ‘invisible audiences’. Boyd (2008b) also highlights the ease of scalability, which enables expansive audiences in digital contexts. That is, the number of people who view digital content can increase exponentially with minimal effort and time and no additional cost. In their book *Digital Youth*, Subrahmanyam and Smahel (2011) point to the disembodied nature of communication and the related potential for anonymity as key characteristics of digital communication that influence adolescents’ experiences and interactions. Indeed, anonymity can facilitate greater self-expression among adolescents and contribute to their feelings of self-determination, competence, and autonomy (Keipi and Oksanen, 2014). Suler (2004), however, notes that opportunities for anonymity, the absence of nonverbal feedback, and asynchronous communication associated with DT collectively contribute to both the salutary and toxic repercussions of the online disinhibition effect.
How, and to what extent, do replicability, Searchability, scalability, persistence, and anonymity capture the roles of DT in friendship conflicts that implicate new media? The aforementioned features of DT and the ways in which they structure online interactions have been defined and widely cited, yet they have not – to our knowledge – been comprehensively operationalized. Operationalizing these features in the context of youth friendship challenges provides a timely, grounded entry point for exploring the impacts and influences of DT in adolescents’ interactions. Moreover, exploring these features in the context of lived experiences can enhance and refine our understanding of their relevance – both within relationships and the broader literature.

Method

The current study

In order to obtain a nuanced portrait of how the affordances and features of DT intersect with adolescent friendship challenges, we conducted two distinct rounds of analysis. We began with an examination of the topical friendship challenges that contemporary adolescents report, both connected and unrelated to DT. In this first round of analysis, we asked: what topical friendship challenges do adolescents report on an online forum, designed as a place to share social stressors? We adopted an emic approach to coding youths’ posts, in an effort to explore the insider perspective – in this case, the perspectives voiced by adolescents in their posts – with minimal interpretation and inference (Morris et al., 1999). Thus, while we were aware of challenges documented in the previously mentioned literatures on RA and cyberbullying, we attempted to set aside assumptions about the kinds of behaviors or challenges that we would find in the data set in order to identify the challenges salient to youth.

In our second phase of analysis, we sought to connect our grounding in adolescents’ voices and experiences (based on phase 1 coding) to the broader conversation in the literature about DT. We explored: how DT relate to each of the different topical aspects of friendship challenges. We wondered: do DT simply offer a new space for adolescents to engage with friends, do they amplify dimensions of youths’ relational experiences, or do they fundamentally alter the types of challenges adolescents face and the ways in which those challenges are experienced?

Whereas we adopted an emic analytic approach for phase 1, we instead began our phase 2 coding with an etic exploration of key features of DT already identified in the literature: replicability, Searchability, scalability, and persistence (boyd, 2008a; 2008b) and anonymity (Subrahmanyan and Smahel, 2011). When researchers adopt an etic analytic approach, they take an ‘outsider perspective’ and describe experiences in comparison to external standards or frameworks (Morris et al., 1999). In the context of the current study, we were curious whether and how the previously defined features of technology might provide useful insights in the context of adolescents’ friendship challenges. Although the etic approach is often viewed as in tension with an emic perspective, employing etic and emic perspectives in tandem – as we do in the current work – can facilitate a greater understanding of a phenomenon than either perspective can provide alone (Morris et al., 1999).

The sample

Both rounds of analysis were based on a qualitative investigation of 300 personal accounts of friendship challenges, posted by adolescents to an online forum on MTV’s A Thin Line website.
We culled the stories from ‘Over the Line?’, a forum designed as a place where adolescents could anonymously share stories of digital drama (up to 250 characters) and receive peer feedback. The forum prompt reads:

Ever typed something you wouldn’t say in person? Ever had someone trash you online, then later claim they were ‘just joking’? Think your digital drama might be over the line? Submit your story, rate others’ stories, and help define the line between innocent and inappropriate.

Using online forums for data collection is an increasingly popular research method, given the ease with which Internet data can be collected, and that these data are often less likely to be affected by social desirability and inhibition (Im and Chee, 2006; Strickland et al., 2003). In some cases, ethical concerns about collecting identifiable information from unknowing participants delimit research opportunities (Henderson et al., 2013); the lack of identifiable information in the Over Thin Line? data set functioned as a protective advantage in this regard. As part of a licensing agreement with Viacom, we gained access to the collection of 7146 accounts posted between March 2010 and July 2013.

Forum participants are not required to enter personal information, though they have the option of self-reporting first name, age, and gender. Of 7146 personal accounts, 62.5% of posters reported gender and 61.8% reported age. The median reported age was 15 years old, and 86.3% of those who reported their gender reported that they were female; posters therefore predominantly portrayed the perspectives of adolescent females. Anonymous commenters are also invited to publicly respond to the stories with over/under/on the line ratings and open-ended comments (up to 250 characters).

In a previous investigation of the data set, Weinstein and Selman (2014) conducted a thematic content analysis of a systematic random sample of stories. They coded accounts based on main issue(s) described and achieved inter-rater reliability on the thematic codes (κ statistics ≥ 0.7 for each code). These issue codes included, for example, pregnancy, weight and body image, friendship, romantic relationships, and school climate. Although the forum’s prompt specifically elicited stories of digital drama, youth posted stories both with and without explicit mention of a ‘digital’ aspect. Specifically, 1352 stories of a 2000 story subsample (67.6%) did not explicitly refer to DT.

In their original systematic sample of 2000 accounts, Weinstein and Selman (2014) classified 237 personal accounts as involving friendship challenges, that is, stories in which the author explicitly mentioned a platonic friend or friend(s) in the context of the disclosed challenge. This category included both stories with and without digital elements. For example: ‘I think my fren is trying to steal away three of my frenns cuz they r ignoring me more now.we use to be so close. But idk way to do now. I wanna cry but I can’t. I need advice:(‘ is a friendship challenging story without an explicitly described digital element. An example of a story with an explicit mention of DT is:

so one night one of my so called friends posted a picture of me on Facebook, it was embarassing (nothing bad) so i asked to take it down, they didnt. So i texted them and they went off on me calling me ‘fat’ ‘ugly’ some friends they are . . .

For the current study, we utilized the full 7146-story data set to compile a sample of 300 stories. We included instances in which the word ‘friend’ was used in the context of describing sexual relationships, in contrast to Weinstein and Selman’s (2014) study, which excluded such cases as:
My best guy friend who I’ve liked forever told me he wanted to have sex with me. So, being stupid I said yes. When I was sleeping afterwards he took naked pictures of me and sent them to his friends. Now he wants to be bffs again. What do I do?

We decided to include such cases so as not to inadvertently exclude challenges that youth themselves may consider related to friendships. After we refined our definition of friendship challenges to include all stories described as transpiring with a friend(s) and achieved sufficient inter-rater reliability for the presence of a friendship challenge (κ statistic = 0.89), we began our resampling process.

Bronk (2008) argues that the best way to understand how constructs operate in practice is to analyze them in their most intense forms; in keeping with this rationale, we began our sampling by selecting stories with the highest number of Over the Line ratings, where stories of relational challenges were focused. We collected every story involving a friendship challenge (with and without explicit reference to DT) until we reached a total of 300 stories, marking the top 20% of stories with the most severe Over the Line ratings.

**Sample characteristics.** Across the final sample of 300 personal accounts used in the current study, just over 66% of users reported their gender: 21 users are self-reported males, 179 reported are females, and 100 did not indicate gender. The high proportion of females in the sample is reflective of the previously described gender distribution across the full sample. The median age among the 198 posters (66%) who provided this information is 15 years, also mirroring the median age of users in the full data set. Over 90% of users in the sample who reported their age were between 13 and 19 years.

**Coding Process**

**Round 1: Coding for friendship challenges.** Following our compilation of the 300-story sample of friendship challenges, we conducted an emic thematic analysis to identify emergent categories of friendship challenges (including both kinds of challenges and their saliency) raised by adolescents on the forum (Boyatzis, 1998; Given, 2008). After two close readings of the full set of stories, the first author conducted an in vivo, descriptive coding process focused on identifying the salient friendship challenge in each story. This resulted in a preliminary list of seven themes: Betrayal, Revenge, Exclusion, Insecurity, Concern about a Friend, Feeling Torn, and Questioning the Friendship. The first author operationalized these themes in a codebook that included, for each code, (1) a code name, (2) an operational definition with inclusion criteria, (3) exclusion criteria, and (4) illustrative anchor cases. Friendship challenges that did not fall into one of the aforementioned categories were coded as ‘Other’.

The first author trained a second coder using the codebook, and the second coder then independently coded a random sample of 40 stories (13% of the sample). After independently coding, both coders met to discuss renaming, merging, or dropping codes. This process resulted in several modifications to better describe the posters’ range of experiences and ultimately resulted in the five codes used in our analysis (Table 1): Betrayal, Isolation, Meanness and Harassment, Concern about a Friend, and Maintenance Challenges. The codes are not mutually exclusive. After revising the codebook accordingly, both coders independently coded another 40 cases; we then used N*Vivo 9 to confirm sufficient inter-rater reliability (κ statistics > 0.70 for each code) before coding the entirety of the data set.
Identifying specific references to DT. In addition to achieving sufficient inter-rater reliability for the five friendship challenge codes, we also confirmed inter-rater reliability for the straightforward identification of ‘digital friendship challenges stories’, or stories explicitly involving a DT element (κ = 1.0). Among the 300 friendship challenge stories, 162 (54.0%) stories include no explicit reference to DT, while 138 (46.0%) stories describe a digital component. While the 162 stories with no stated reference to DT could indeed have involved DT, they were not grouped in the digital category because they lacked explicit mention of DT to determine its role.

**Round 2: Coding for the role of DT.** Next, we asked, ‘How do DT relate to each of the different topical aspects of friendship challenges?’ We drew on existing literature on the notable features of DT to inform a subsequent etic analysis of personal accounts that explicitly implicated DT. In contrast to the emic coding we used to explore our first research question, we began this aspect of our analysis by drawing upon previous analytic (boyd, 2008a, 2008b) and theoretical work (Subrahmanyam and Smahel, 2011). That is, we began by exploring the stories for elements of six characteristics of DT that affect online interactions: scalability, replicability, Searchability, persistence, and Invisible Audiences, as described by boyd (2008a, 2008b), and anonymity, as discussed by Subrahmanyam and Smahel (2011). The first and second authors first independently coded 30 of the digital friendship stories (10% of the sample). We then met for an open discussion of the ‘fit’ of these characteristics in order to refine the categories in the context of our ‘raw’ data (Boyatzis, 1998).

<table>
<thead>
<tr>
<th>Type of friendship challenge code</th>
<th>Definition</th>
<th>Anchor cases (examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betrayal</td>
<td>Instances of betrayal, including disloyalty (e.g., stealing a boyfriend, money; cheating) or a breach of confidentiality and trust (e.g., telling secrets; looking through a phone).</td>
<td>One of my Best friends forever (BFF) told my deepest darkest secret and now the whole school knows. She even promised she wouldn’t. Tell. How should I confront her?</td>
</tr>
<tr>
<td>Isolation</td>
<td>Feeling socially excluded, isolated, or ignored by friends or former friends. Also captures incidences of people trying to ‘fit in’ with peer group norms.</td>
<td>If u really knew me u would know tht i have no true friends. i only have god and my family. // everytime i try to hang out with my friends i get judged by the boys that likes my friends. i get bashed on like a dog.</td>
</tr>
<tr>
<td>Meanness and harassment</td>
<td>Meanness and harassment in the form of teasing, gossiping, and other bullying behaviors. Sexual harassment through the unwanted request of nude photographs is also included.</td>
<td>I have friends who say their my friends but then constantly harass and tease me, they call me gay. I am an in the closet gay but I don’t want to come out because i’m scared. But everyone at school makes fun of me in person + the internet.</td>
</tr>
<tr>
<td>Concern about a friend</td>
<td>Concern about what a friend(s) is doing or what is happening to a friend(s).</td>
<td>I have a few friends who cut themselves and i am worried about them but i dont know what to say to them</td>
</tr>
<tr>
<td>Maintenance Challenges</td>
<td>Challenges related to efforts/desires to maintain a friendship or situations related to the dissolution of a friendship.</td>
<td>So i be talk to my bestfriend boyfriend and now im have his baby and i dont know how to tell her i sill want to be friend and i dont want him what to do????</td>
</tr>
</tbody>
</table>
In our effort to operationalize DT features, we coded stories for *scalability* when posts made reference to the way DT expanded the audience privy to the issue. Boyd (2008a) describes audiences as ‘invisible’ because DT users often do not see or, perhaps, even know who comprises the audience of their online content, but stories in our sample primarily implicate visible (rather than invisible) audiences; invisible audiences may certainly constitute an additional aspect of the challenge, but audiences were seldom explicitly mentioned except with respect to size and, therefore, covered by our *scalability* code. We used the *replicability* code to capture stories in which the challenge was connected to copying a message or post. We decided to merge *searchability* and *persistence*, as we could not distinguish between them in the sample; we used this category to mark stories in which technology contributed to the accounted challenge because digital content endured and could therefore be found or accessed after the initial exchange. The following previously described example is a case in which the *persistence* code captured the feature of searchability as well:

My bf broke up with me because my best friend posted pictures of me and my ex from like a year ago claiming they were present. She also called me a ***** slut and easy, everyone believes her I don’t know what to do.

The digital quality of the pictures enabled their searchability, and the friendship challenge occurred a year after the pictures were taken, implicating the persistence of digital content. When posters reported friendship challenges tied to the opportunity to mask identity in digital spaces, we coded stories for *anonymity*. After the first round of coding, we added two emic codes to capture distinguishable subgroups of stories that did not fit into the other categories. *Communication medium*, for stories in which technology served only (ostensibly) as the medium through which the challenge occurred, and *sexts as digital currency*, for stories that specifically referenced a challenge related to the digital exchange, dissemination, or threatened circulation of nude photographs. We developed a codebook for these six codes – *scalability*, *replicability*, *persistence*, *anonymity*, *sexts as digital currency*, and *communication medium* – that describe technology’s most salient roles in the digital friendship challenges, as shown in Table 2.

We achieved inter-rater reliability (κ ≥ 0.8 for each code) through two subsequent rounds of coding and then used a primary/shadow coder approach to code the full set of 138 digital friendship challenge stories. That is, following our reliability testing, the first author coded all stories for the role of technology and the second author shadow coded each story. This process surfaced 16 cases of disagreement regarding code application (11.4%), which we reconciled through discussion.

**Findings**

**Friendship challenges and their prevalence in the ATL sample**

To explore our first question about the friendship challenges youth report on the forum, we identified five friendship challenges: Betrayal, Isolation, Meanness and Harassment, Concern, and Maintenance Challenges. More than two-thirds of the personal accounts (67.3%) involved one friendship challenge, 89 stories (29.7%) had two kinds of friendship challenges, and 9 personal accounts (3.0%) involved three kinds of friendship challenges.

Betrayal was the most commonly reported friendship challenge in the sample, present in 134 (44.7%) of the friendship challenge accounts. Meanness and Harassment was a close second, described in 130 accounts (43.3%). Issues of Maintenance Challenges, of Isolation, and of Concern
Table 2. Technology characteristics, operational definitions, and examples.

<table>
<thead>
<tr>
<th>Role of technology</th>
<th>Definition</th>
<th>Anchor cases (examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymity</td>
<td>People engage in behavior in digital spaces without revealing their identities; the friendship issue involves utilizing the affordances of the digital space to mask identity.</td>
<td>Two years ago I posted a really mean gossip blog online all about my best friend. Everyone read it and made fun of her. The whole time, I was pretending to help her through it &amp; she still doesn't know it was me.</td>
</tr>
<tr>
<td>Persistence</td>
<td>Technology’s role is such that (a) digital evidence of the issue remains (e.g., a mocking website stays visible for months) or (b) the fact that digital content persists allows the issue to occur (e.g., text messages are accessible weeks after they were sent).</td>
<td>I have ‘sexted’ a boy and my BFF stole my phone and read the messages and took screen shots and now their on FB. I don’t know what to do!</td>
</tr>
<tr>
<td>Scalability</td>
<td>The actual, expected, or intended size of the audience increases (i.e., beyond the people actually involved in the issue) because of technology. These accounts clearly reference an issue tied to (a) an audience that saw something (e.g., ‘everyone saw it’) or (b) content disseminated for public consumption (e.g., the creation of a public website or SMS posts)</td>
<td>So im a girl and i was datin a girl we kept it to ourselves cause we went to a school where 90% of the students were straight one day i let one of my friends use my phone and she went through my pics n found one of us kisin n fwd it to the whole school</td>
</tr>
<tr>
<td>Replicability</td>
<td>Technology’s role in the friendship issue involves content being forwarded, replicated, or sent on in its original form.</td>
<td>I was having a fight with a friend and we were passing around a forward. It asked questions about things that you hate ex. traits or pizza. This girl took my forward, changed the answers to insults, and forwarded it to my friend.</td>
</tr>
<tr>
<td>Sexts as digital currency</td>
<td>Stories specifically reference an issue relating to the digital exchange, dissemination, or threatened circulation of nude photographs.</td>
<td>Right now im texting my BFF that is 16 n im 14 he always tells me to show him more of my body n **** but since i never do he always gets mad at me n tells me ium a ****! bcuz i dnt do wat he tells me to do. should i still be his BFF?</td>
</tr>
<tr>
<td>Communication medium</td>
<td>Technology functions as the medium through which the friendship issue transpires, and does not otherwise play a role in the issue. This code cannot be paired with another code to describe the same behavior.</td>
<td>I recently had the ****, it’s gone now and im ok. However, my best friend sent a text to the guy i like (who happens to be friends with her) telling him to stay away from me because i had an std. Over the line?</td>
</tr>
</tbody>
</table>

about a Friend were present in 68 (22.7%), 37 (12.3%), and 35 (11.7%) accounts, respectively. All five of the major friendship challenges occurred in both digital and nondigital stories. However, all of the friendship challenges in our sample were described more often in nondigital contexts than in relation to DT, with the exception of Meanness and Harassment.
The role of technology in the amplification of friendship challenges

Beyond documenting the friendship challenges that adolescents described, we were also interested in understanding the specific ways DT influence youths’ friendship challenges. We explored six characteristics – four etic and two emic – that describe the role DT play in the friendship challenge: scalability, replicability, persistence, anonymity, communication medium, and sexts as digital currency. Most accounts with DT (65.9\%) received one role of technology code. We coded one-fifth of stories (20.3\%) with two technology codes, 16 stories (11.6\%) with three codes, and 3 stories (2.2\%) with four codes.

Across the 138 friendship stories that implicate a digital component, the most common role DT play relates to scalability, as shown in Table 3.

<table>
<thead>
<tr>
<th>Betrayal</th>
<th>Isolation</th>
<th>Meaness/Harassment</th>
<th>Concern about a Friend</th>
<th>Maintenance challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymity (N = 21, 10.1%)</td>
<td>18</td>
<td>1</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Persistence (N = 20, 9.7%)</td>
<td>16</td>
<td>0</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Scalability (N = 55, 26.6%)</td>
<td>37</td>
<td>5</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>Replicability (N = 30, 14.5%)</td>
<td>25</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Sexts as digital currency (N = 29, 14.0%)</td>
<td>10</td>
<td>2</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Communication medium (N = 45, 21.7%)</td>
<td>13</td>
<td>7</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>Other (N = 7, 3.4%)</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total (N = 207, 100%)</td>
<td>121</td>
<td>16</td>
<td>95</td>
<td>16</td>
</tr>
</tbody>
</table>

The role of technology in the amplification of friendship challenges

In scalability cases. DT served to increase the size of the audience (e.g., ‘My friend asked me for a picture of me naked. then i sent him one. a week later, a few other people had it. the next day, my whole school. and my mom. i am now the school **** and i can never get my reputation back. i wish i could take it just back’).

As shown in Table 3, the second most common function technology served – in approximately one-fifth of stories – was as the communication medium through which the friendship challenge transpired. In these cases, DT mediated communication but did not otherwise play a role in or change the issue; the issue could have similarly transpired offline and without DT (e.g., ‘my friend and I were in a fight so she started calling me a **** and since im asian she called me a ****. she felt bad and said sorry but i didnt take it. so she started texting me very bad things and still wont stop’). Although the interaction in question transpired through texting, the friend could have instead articulated her hurtful remarks in person; there is no mention of DT features beyond serving as the communication medium.

The relationship between friendship challenges and features of technology

After coding for friendship challenges across our 300-story sample and then subsequently coding for the features of DT across the 138 DT stories, we analyzed how the particular roles of technology affected each of the friendship challenges. Figure 1 illustrates the relative frequency of each technology feature code for each of the five friendship challenges. In the sections that follow, we describe how these roles of technology function in each of the five friendship challenges.
Betrayal. Betrayal challenges involved perceived disloyalty or breaches of confidentiality and trust. DT were most often described in Betrayal stories as they were related to, or impacted by, scalability. In these cases, which tended to be fueled by anger, friends (or former friends) leveraged the opportunity to reveal secrets to relatively wide audiences or in the service of publicly disgracing the target. For example, ‘I was very angry at my friend [sic] so I revealed his secrets on facebook’ and ‘My senior year of high school a group of girls of whom I used to be friends with created a hate group on fb about me and wrote all my secrets on it. They left it open and invited the whole school – all 500 students. It crushed me and left me vulnerable’.

In some cases, the opportunity for revenge through scalability also involved capitalizing on replicability: ‘my friend slept with my boyfriend. now she likes my new boyfriend and seh [sic] sent him a nude. so me and him sent it to the whole school. even her mom, stepmom and stepdad. she’s known as a ***now. over the line? my friend feels bad about it’. In this case, replicability played a role since the nude picture could be forwarded, and scalability played a role because the picture was sent to the ‘whole school”; both collectively contributed to the Betrayal. 

Replicability was the second most common role technology played in Betrayal challenges and involved not only nude photographs, but also posting ‘ugly’ photos and taking text-based digital content out of context, modifying it, and/or sharing it with unintended audiences to disrupt one’s friendship with another person. For example, ‘I sent a text message to a “friend” telling her how good of a friend she was and how much i loved her, and she forwarded it to half of the people in our highschool telling them that i was a lesbian. None of the girls at my school talk to me anymore’.

Anonymity, the third most common role of technology in Betrayal, often involved efforts to get revenge or to hurt a friend without taking responsibility as the person behind it. For example, one poster described being angry with her best friend after finding nude pictures of her friend on her boyfriend’s computer. She wrote, ‘I copied them and made a fake myspace w/ them on it. everyone saw – I’m still her best friend, though she has no idea i did it’. The opportunity to mask her identity meant that even though she betrayed her friend by releasing nude photographs, the betrayed friend never found out that she was behind the act. The poster’s anger ostensibly cooled, and their friendship continued.

**Figure 1. Frequency of forms of technology amplifications across each friendship challenge.**
Isolation. Challenges of Isolation generally involved feeling socially excluded, marginalized, or ignored by friends or former friends. When stories of Isolation implicated DT, it was most often that the technology served as the communication medium. In these cases, DT extended an offline friendship challenge and was the channel through which Isolation was communicated or played out. For example, friends who were ignoring an individual offline could also ignore the friend’s text messages (e.g., ‘Every friend i have just uses and ignores me. we will all be doing something and it will become where its like im not even there and all of them ignore my texts ... ’). Or, Isolation with technology as the communication medium can involve more active efforts, such as directly using digital modes of communication to tell a friend ‘... Nobody likes you...’

The second most common role DT played in the context of Isolation challenges related to scalability. In these cases, feelings of Isolation transpired because technology enabled an audience and resulted in subsequent ostracism of an individual. This generally involved someone sharing embarrassing content or rumors that damaged the individual’s friendships. The content did not have to be truthful in order to be damaging, as in the following case: ‘Once someone wrote on fb i had herpes and my friends stopped talking to me. And I do not have herpes or anything like that!’

Meanness and harassment. When posters described challenges of Meanness and Harassment, they reported experiences such as teasing, gossip, and meanness from friends. In some cases of harassment, adolescents received repeated, unwanted requests – from people they viewed as their friends – to send nude photographs. For challenges of Meanness and Harassment, technology’s role was most often as the communication medium: DT functioned as the channels through which friends teased and harassed their friends. For example, ‘My old best friend tried to get me to choose between her and my boyfriend. it’s happened before, and now she has her friends texting me terrible things’.

Challenges related to scalability were also prevalent among Meanness and Harassment accounts. This included the creation of mocking websites, posting pictures or hurtful comments on Facebook or gossip blogs, and tweeting damaging remarks about friends. The following case exemplifies Meanness and Harassment that leveraged scalability: ‘My best friends [sic] boyfriend commented on pictures on me on FB and called me a lezbian. There was over a thousand comment of them making fun of me. She didnt stick up for me after he CHEATED on her. I am not a lezbian, but people still call me that’.

Concern about a friend. The two most common roles of DT in friendship challenges that involved the poster’s Concern about another friend were scalability and replicability. In both cases, posters were concerned about friends because other people had posted mean comments about them online, or their private photographs were disseminated. For example, in the following case, the poster was concerned because of meanness and public humiliation directed at her friend: ‘A picture of my friend that she posted on Facebook was reposted on a popular Facebook page calling her a **** and ugly, and people commented saying she was gross and should kill herself. Things aren’t easy right now and I’m doing my best to help her’.

Maintenance challenges. Maintenance Challenges involved situations related to the dissolution of friendships, as well as behaviors done to avoid the termination of friendships (i.e., relationship maintenance). The two most common roles of DT were as a communication medium and as related to sexts as digital currency. Communication medium generally related to dissolution, whereby the termination of a friendship was communicated through technology. In one such case, a friend told
another friend that she was sick of her and yelled at her online; the friend on the receiving end of
the messages then called another friend and cried to her over the phone. Maintenance Challenges
also took the form of literally terminating a digital connection, as in one case when a friend
unfriended another on Facebook and blocked digital communication.

The 12 cases of sexts as digital currency challenges related to Maintenance Challenges
specifically described someone, who was presumed to be a friend or a ‘BFF’, asking for nude
photographs, and the challenges the request posed to the friendship. For example, ‘right now im
texting my BFF that is 16 n im 14 he always tells me to show him more of my body n **** but
since i never do he always gets mad at me n tells me ium a ****! bcuz i dnt do wat he tells me to
do. should i still be his BFF.? ’ The question of whether or not to stay friends with someone after
they have requested nude pictures was also a recurring theme: ‘I haven’t gone out with this guy
and we haven’t even gone out, but he asked me to send him pictures of myself in my bra. I told
him no and he was persistent. I’m debating if I should stay friends with him or not . . . ’ Another
poster described sexting with a ‘friend boy’ (she had a different boyfriend, and he had a girl-
friend who was not her), and the impact it had on her friendships with him and other boys in the
grade.

Discussion

We explored 300 stories of adolescent friendship challenges posted by youth to an online forum
and identified five kinds of friendship challenges: Betrayal, Isolation, Meanness and Harassment,
Concern about a Friend, and Maintenance Challenges. In our sample, challenges of Betrayal and
Meanness and Harassment were most common. Moreover, each of the five challenges was
described in stories that transpired both with and without DT. Looking specifically at stories that
explicitly implicated DT, we identified six roles that DT played in friendship challenges. These
roles were scalability, replicability, persistence, anonymity, communication medium, and sexts as
digital currency. The role of technology codes offers an answer to the question: how do DT relate
to each of the different friendship challenges? Do we merely consider DT primarily a medium for
amplification or intensification, or do the presenting digital friendship issues constitute new and
unique challenges (game changers) altogether?

Most often, technology was discussed in youths’ friendship challenges as related to scalability.
That is, DT amplified the potential audience compared to offline contexts. DT also simultaneously
involved people who likely would not otherwise have been involved. In instances of Betrayal, the
audience changed the extent to which others witnessed the betrayal; for example, an adolescent
could betray a friend by revealing secrets to a large group of people in an instant. With respect to
Isolation, one poignant and painful repercussion of having an audience that bore witness to
damaging digital content was that youth were sometimes ostracized or ignored by their friends en
masse. In challenges related to Meanness and Harassment, public humiliation could heighten the
hope – and even the expectation – that friends would publicly defend each other after highly visible
meanness occurred. The widespread circulation of a friend’s secrets, texts, photographs, or other
digital content left many adolescents in our sample feeling Concern about their friends’ well-being
and uncertainty about how to be supportive.

Marwick and boyd (2014) suggest that youth engage in drama online because of the possibility
of a large audience and heightened impact; challenges played out on social media have entertain-
tainment value that stems from their visibility and publicity. Our finding that the audience asso-
ciated with scalability was the most referenced feature of DT in friendship challenges aligns with
and augments Marwick and boyd’s framing. Indeed, the related opportunities for scalability and an audience served to amplify the collection of friendship challenges we explored.

After scalability, the most common role that DT played was as the communication medium. In these cases, the apparent role of DT was principally as the channel for communication. We could conclude that the DT served simply as a communication tool in these stories and did not otherwise change the presenting friendship challenge; in other words, technology was ‘just’ a new medium. On the other hand, we could draw on Marshall McLuhan (1994) and suggest that in these cases, ‘the medium is the message’ (p. 1). When DT function primarily as the media, exchanges are often devoid of nonverbal feedback and asynchronous in nature (Suler, 2004). These features may inherently amplify the affective experience of the friendship challenge for the sender, the recipient, or both parties. We then might wonder when the ‘message’ will shift yet again as youth turn more readily to forms of DT that are neither devoid of nonverbal feedback nor asynchronous in nature (e.g., FaceTime). Moreover, even though the users may not have described amplifications related to technology or have been cognizant of them, the very fact that the friendship challenge occurred through technology may have amplified the experience in ways that we have yet to uncover.

Our analysis also highlighted concerns related to sexting and sexuality crosscutting the different friendship challenge categories, especially Betrayal, Concern about a Friend, and Maintenance Challenges. Given what we know from RA literature, it is not surprising that many friendship challenges involved romance: as the dynamics of dating relationships permeate friend groups in adolescence, RA often manifests as efforts to steal a friend’s romantic partner or to spread rumors about a friend’s sexual activity (Crick et al., 2001). Indeed, adolescents described both these acts in our sample. However, we also observed another friendship phenomenon that involved what might be construed as sexuality or romance, but in a different manner, requests for and possession of nude photographs. Requests from friends for nude pictures can take the form of unwanted Harassment or manifest as new challenges for Maintaining friendships, initiating a cascade effect of one issue following upon another. Notably, the exchange of nude photographs did not occur solely between romantic partners; youth described requests that came from people they explicitly labeled as ‘friends’ with whom they were not romantically or sexually involved. In some cases, posters explicitly mentioned having a boyfriend, though the requests came from another friend and did not seem to be interpreted as an obvious challenge linked to infidelity.

We initially considered excluding these sexts as digital currency stories from the sample because of our initial assumption that sexting does not occur between genuinely platonic friends and thus does not constitute a ‘friendship challenge’ nor qualify for inclusion in our sample. However, we ultimately decided not to discard these sexting-related personal accounts when they were described using the word friend and the relationship between the people involved was seemingly distinct from a romantic one. For adolescents wondering whether it is reasonable for a friend to ask for a nude picture, feeling harassed by unwanted requests, or debating about the consequences to a friendship of sending or not sending the picture, sexting indeed seems to function as a friendship challenge – and one that appears to have a ‘high cost’.

Moreover, although nude photographs are likely the most potent form of digital currency – and the only form described with enough frequency in our data set to warrant an individual code – other ‘denominations’ of digital currency that presented in our sample included embarrassing photographs and private passwords. These other forms also represent digital content that carries values and can be exchanged, and they may also increasingly play a role in contemporary friendship challenges. While the broad concept of digital currency merits further investigation, digital
currency, particularly in the form of sexts, may indeed constitute a new challenge – a game changer for adolescents’ friendships.

As our findings illustrate, DT tended not to necessarily facilitate entirely new kinds of friendship challenges, but rather to amplify their experience and impact. DT intensified the experiences of Betrayal; provided another context in which peers could be Isolated; created a new venue in which friends were expected to stand up for each other in the face of Meanness, as well as another channel to actually be Mean – and extended opportunities to do so anonymously. Also of note, Meanness and Harassment was the only type of friendship challenge that appeared more often in the digital context than in the nondigital context. While other friendship challenges certainly involved meanness, Meanness and Harassment could be considered the most overtly hostile behavior directed at the recipient. In keeping with the notion of online disinhibition (Suler, 2004), youth may find it easier to be mean through digital channels.

As a final point, it is worth noting that DT quite often support healthy communication and connection among adolescents (Subrahmanyam et al., 2008; Mikami et al., 2010). In the current study, however, the demand characteristics of the forum elicited stories that primarily described relational challenges associated with DT, rather than benefits; the findings thus highlighted the role of DT in problematized friendship issues. It would be a mistake to interpret this study as evidence that technology’s role in friendship interactions is always linked to problems and conflict.

**Limitations**

Although drawing on stories posted to AThinLine.org enabled us to access a breadth of authentic personal accounts of friendship challenges, selecting our sample from the forum also had several limitations. First, the website’s limit of 250 characters for posts notably constrains the opportunity for posters to elaborate. Second, because we collected the data from an online forum, we applied friendship challenge codes without having a robust understanding of the relationships and people involved, without hearing different sides of the issue, and without the opportunity to probe for related impacts. We were also limited in our analysis by the stories that youth shared on the site; we imagine that the context and demand characteristics might lead to the submission of certain types of stories and not others. The exploratory nature of the study also represents a potential limitation, as some researchers may lament the lack of a more explicit direction and hypothesis at the outset. However, as is often the case in qualitative research, we approached our investigation with an interest in what – rather than whether – we could learn from adolescents’ stories (Gelo et al., 2008). Finally, although our study intentionally honored youth voices in their use of the terms friend and ‘friendship’, it is possible that the inclusion of sexting-related stories in the sample erroneously conflates these challenges with those that occur between platonic friends.

**Conclusion**

This study contributes to a growing body of literature that describes adolescents’ experiences with DT. We illustrate how various features of technology amplify friendship challenges that adolescents have long faced in their interpersonal relationships, most often by providing opportunities for an audience vis-à-vis scalability. In other cases, we highlight technology’s role as simply a new medium of communication, without other obvious influence on the situation. In those friendship stories that described sexts as digital currency, we saw the potential for DT to function as a game changer, rather than simply the ‘amplification’ of friendship norms and concerns. Given that across
the centuries adolescents have worked hard to construct their own peer culture as distinct from the prevailing culture of the previous generation (Shanahan, 2000), whether viewed as the erosion of established norms of decency, or as the harbinger of liberation from anachronistic attitudes, *sexts as digital currency* could be seen as a prime example of a ‘technologically afforded’ rapidly changing cultural value. Or, alternatively, sexting may be simply a temporary perturbation in what counts as a valuable coin. Either way, adolescents may be viewed as at the cutting edge of a digitally infused society and as the canaries in the sociological mine.

Finally, our findings illuminate the need to further explore how communication through technology changes the experience for the participants; they also raise questions about the influence different amplifications may have on adolescents’ mental health. For example, does *scalability* and *persistence* change how long a friendship issue lingers or the resulting psychological effects of it, especially in a context in which many youth engage with their phones and digital spaces almost constantly? Relatively, we also call for additional research on how to best support youth as they navigate relational difficulties in a digital age, as our strategies need to reflect rapidly evolving digital trends. DT afford adolescents impressive opportunities to connect with friends and to enhance their friendships; yet, ensuring that adolescents’ friendships can thrive in a digital ecology requires understanding technology’s salient impact on friendship challenges.

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**Note**

1. boyd’s (2008a) work involving the description of the features of digital technologies has been cited over 1300 times.

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