Chapter 2
Social Networks and Privacy

"You have zero privacy anyway. Get over it."

– Scott NcNealy, Sun Microsystems (January 1999)

"If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place."

– Eric Schmidt, Google (December 2009)

"People have really gotten comfortable not only sharing more information and different kinds, but more openly and with more people. That social norm is just something that has evolved over time."

– Mark Zuckerberg, Facebook (January 2010)

"What children post online or search as part of their homework should not haunt them as they apply to colleges or for jobs. YouTube should not be turned into YouTracked."

– U.S. Representative Edward J. Markey (November 2012)

"Privacy is not dead. ... The kind privacy that is becoming more of the norm is dependent on our ability to move freely among the myriad services and apps, and to opt in selectively, both in what we use and how we choose to use them."

– Author Jack Cheng (June 2013)

"I have felt that my own communications were probably monitored, and when I want to communicate with a foreign leader privately, I type or write the letter myself, put it in the post office and mail it."

– President Jimmy Carter (March 2014)

"Would you rather have your first kiss on YouTube? Or a transcript of everything you said on your first date available on Google?"

– *Forbes* writer Jordan Shapiro's 9-year-old son (May 2014)

"Privacy is dead. Ownership is not dead. Everyone cares about owning their conversations and their pictures. I think that's the word we need to start using instead of privacy, because privacy has been tainted."

– Nico Sell, DEF CON and Wickr (June 2014)

2.1 Zero Privacy and the Central Intelligence Agency

On May 7, 2013, the Central Intelligence Agency (CIA) selected undercover officer Frank Archibald as the new head of its National Clandestine Service and kept his identity secret while he remained undercover as the agency chief in Latin America.

However, within 24 hours, his name was outed on Twitter by Columbia University journalism professor John Dinges (1) who successfully pieced together publicly available information: *The Washington Post* described the new head as "a longtime officer who served tours in Pakistan and Africa and was recently in charge of the agency's Latin America division, according to public records and former officials." The *Associated Press* added that he "once ran the covert action that helped remove Serbian President Slobodan Milosevic from power" (2). Prof. Dinges said in a telephone interview with *Mashable*, "It was pretty obvious who he was. It took me about five minutes to find out. It wasn't secret, nobody leaked it; it was not a big secret" (3).

On May 9, 2013, 48 hours after the CIA appointment, one website used Intelius to find Archibal's address, date of birth, and names of relatives. The site also posted online photos of his house taken from Google Maps and Google Street View (4).

Half a year earlier in November 2012, CIA director David Petraeus resigned as head of the spy agency after the FBI uncovered his private emails that confirmed his secret extramarital affair with his biographer Paula Broadwell. *CNN's* John D. Sutter asked, "When the CIA director cannot hide his activities online, what hope is there for the rest of us?" (5).

Way back in January 1999, Scott McNealy, co-founder and CEO of Sun Microsystems for 22 years, told a group of reporters and analysts: "You have zero privacy anyway. Get over it" (6). A decade later in December 2009, Google's then-CEO Eric Schmidt said, "If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place" (7). In defense of the NSA surveillance programs, President Barack Obama said in June 2013, "It's important to recognize that you can't have 100% security and also then have 100% privacy and zero inconvenience" (8).

2.2 The Archer, Carrier Pigeons, and President Jimmy Carter

A college friend of my wife, in his twenties, graduated from a well-known university with a Master's degree in computer science. Instead of looking for a well-paying job, he prefers to spend most of his time living in the remote countryside without a cell phone or Internet connection. He is a skilled archer who hunts for food in the forest. He is also a self-proclaimed magician (think Tim Kring's *Heroes*, not David Copperfield). He enjoys a life of solitude and privacy. Nevertheless, even an eccentric person like him cannot completely escape the temptation of social networks. He has a Facebook profile with a small handful of photos of himself and his hand-made enchanted objects. He updates his Facebook page rarely, but when he does, his

small circle of college friends would be glued to the computer screen to find out what he is up to. He has limited social interaction by offering limited glimpses into his life to a limited number of friends. As a result, he enjoys reasonably good privacy.

In the year 2012 when more than two billion people were connected online (9), an Arizona man in Phoenix distrusted technology so much that he refused to use a phone or computer altogether. In order to communicate with his business partner who lived across town in Phoenix, the Arizona man sent his messages via carrier pigeons (10). We could call it old-fashioned or paranoia. During World War II, about 250,000 pigeons were used by all branches of the U.K. military and the Special Operations Executive to deliver messages between mainland Europe and Britain (11).

Andrea Mitchell of *NBC News* interviewed President Jimmy Carter in March 2014. On the topic of privacy, Carter said, "As a matter of fact, you know, I have felt that my own communications are probably monitored. And when I want to communicate with a foreign leader privately, I type or write a letter myself, put it in the post office, and mail it" (12). Taking the president's words to heart, Google began testing in June 2014 a new super-secure email feature with end-to-end encryption. "We recognize that this sort of encryption will probably only be used for very sensitive messages or by those who need added protection," said Google product manager Stephan Somogyi (13).

The archer, the pigeon man, and President Jimmy Carter are among the few who are determined to safeguard their own privacy with strong convictions, while the overwhelming majority of people are willing to give up some part of their privacy in exchange for being connected. An old English proverb says, "If you can't beat them, join them."

Most people have families, friends, and business acquaintances that they keep in constant contact with through in-person meetings, emails, phone calls, and online social networking services such as Facebook, Google+, and Twitter. Most people enjoy making new friends. However, social interaction inevitably raises the privacy issue. Online social networks only exacerbate privacy concerns. The risk is often outweighed by the consumer's need to communicate.

Facebook CEO and co-founder Mark Zuckerberg told a live audience in a January 2010 interview with *TechCrunch*: "Why would I want to put any information on the Internet at all? Why would I want to have a website? In the last 5 or 6 years, blogging has taken off in a huge way. There are all these different services that have people sharing more information. People have really gotten comfortable not only sharing more information and different kinds, but more openly and with more people. That social norm is just something that has evolved over time" (14).

Zuckerberg's view resonated with Robert Scoble, a former technology evangelist at Microsoft best known for his blog Scobleizer. "I make everything public on my Facebook account, and I'm not worried about privacy because the more I share about who I am and what interests me, the more Facebook can bring me content that I care about," said Scoble, "Yes, people have lost jobs because of things they have posted on Facebook, but you can also end up getting jobs and making all kinds of great connections because you've posted about your passions" (15).

2.3 The Pervasiveness of Facebook

Facebook's mission is "to give people the power to share and make the world more open and connected" (16). Launched in February 2004 by Mark Zuckerberg, Facebook has quickly become one of the most pervasive interpersonal communication tools. One month after its official launch, Facebook expanded from Harvard to Stanford, Columbia, and Yale University. Within one year, in December 2004, Facebook reached nearly 1 million active users (17).

In September 2011, Facebook's chief technology officer Bret Taylor confirmed that Facebook has more than 800 million active users, 350 million of whom use Facebook on mobile devices each month (18). In February 2012, the Facebook IPO filing revealed that the company has reached 845 million users, 483 million of them use the site every day (19) and 425 million of them access Facebook on mobile devices (20). By June 30, 2014, Facebook revised the total number of monthly active users to 1.32 billion and daily active users to 829 million on average during the month of June (17).

In August 2013, more than 128 million Americans – one out of three people in the United States – visited Facebook every day (21). According to a study done earlier in May 2011, Americans spent a total of 53.5 billion minutes a month on Facebook, more than Yahoo! (17.2 billion minutes), Google (12.5 billion), AOL (11.4 billion), MSN (9.5 billion), YouTube (9.1 billion), eBay (4.5 billion), Blogger (724 million), Tumblr (624 million), and Twitter (565 million) (22).

A 2011 research from NM Incite, a Nielsen McKinsey company, reveals no surprise that knowing someone in real life is the top reason (82%) cited for "friend-ing" someone on Facebook (23). The second main reason (60%) is to add friends of their mutual friends online. Other reasons include business networking (11%), physical attractiveness (8%), increasing friend count (7%), and friend everyone (7%). The so-called "friend collectors" send requests out of curiosity and nosiness.

Many Facebook addicted users are afflicted with the oh-so itch-able question, "I wonder what so-and-so is doing now" (24). In May 2014, Facebook added an "Ask" feature to let users inquire about their Facebook friends' relationships and other personal information (25). Facebook also rolled out an audio-recognition feature that can identify what song is playing or what show or movie is on TV, making it easier for users to share what they are listening to or watching without typing (26).

Omar L. Gallaga, a reporter for *Austin American-Statesman*, admitted his Facebook addiction on *CNN*, "More than just a daily habit, Facebook has become the place where I get important, often surprising glimpses into the lives of the 1,365 people with whom I've chosen to connect. (That's not counting friends-of-friends, for Facebook's tentacles are ever-extended)" (27).

Most people have the unquenchable need to communicate and share information. As Mark Zuckerberg wrote in his letter for the Facebook IPO filing on February 1, 2012, "We live at a moment when the majority of people in the world have access to the internet or mobile phones –the raw tools necessary to start sharing what they're thinking, feeling and doing with whomever they want" (28).

"People don't want to be talked to, they want to be talked with," said Roy Sekoff, founding editor of *The Huffington Post* (29). However, the busy lifestyle and

fast-paced society have deprived people of the face-to-face quality time among friends, families, and acquaintances. *CNN* producer Kiran Khalid, a self-admitted social-media addict, tried to disconnect from all electronic communications for five days in December 2011. Her conclusion was that severing her dependency on social networks removed an obstacle to real conversations (30).

26-year-old Paul Miller, a senior editor for *The Verge*, decided to leave the Internet for a year beginning on May 1, 2012 (31). "I think there are two kinds of people who live with technology constantly in their face: people who freak out when they're forcefully separated from their devices or connectivity, as if their arm has been cut off, and people who feel really chill when they're forcefully separated from their devices or connectivity, as if they've been let out of prison. I've spoken to many of both kinds as I've prepared for leaving the internet, and thankfully I fall in the latter camp" (32).

After a year of Internet hiatus, Miller came back online May 1, 2013 to find 22,000 unread emails in his inbox (33). He described the offline experience "existential and introspective" and the back-to-online experience traumatic: "I got on Facebook I didn't know how to use Facebook. I almost had a panic attack that night. ... Now that I'm back on the Internet I really want to be the shining example of what it's like to actually pay attention to somebody and put away your devices" (34).

Most people simply cannot survive without their digital fixations. Facebook is the prolific communication tool that fills the void created by the lack of real face-to-face conversations. As far back as September 2005, *TechCrunch* reported that 85% of college students use Facebook to communicate with friends, both on campus and from their former high schools (35). Today, it is almost inconceivable for a university student not to have a Facebook page.

Facebook is more convenient than emails and less intrusive than phone calls. Someone may wake up at 3 in the morning, post a new photo and write some comments on Facebook. The information goes out to all their online friends. However, there is no distinction between best friends who can keep a secret, casual friends who may laugh at it, and strangers who either do not care about it or use the information for malicious purposes. "We are close, in a sense, to people who don't necessarily like us, sympathize with us or have anything in common with us," Prof. Jon Kleinberg of Cornell University told *The New York Times*. "It's the weak ties that make the world small" (36).

2.4 Chairs Are Like Facebook

On October 4, 2012, Facebook released a new 91-second video *The Things That Connect Us* depicting chairs, doorbells, airplanes, bridges, dance floors, basketball, a great nation, and the universe (37):

> *Chairs. Chairs are made so that people can sit down and take a break. Anyone can sit on a chair, and if the chair is large enough, they can sit down together. And tell jokes. Or make up stories. Or just listen. Chairs are for people. And that is why **chairs are like Facebook**.*
> *Doorbells. Airplanes. Bridges. These are things people use to get together so they can open up and connect about ideas, and music, and other things people share.*

Dance floors. Basketball. A great nation. A great nation is something people build, so that they can have a place where they belong.

The universe is vast and dark and makes us wonder if we are alone. So maybe the reason we make all of these things is to remind ourselves that we are not.

Directed by acclaimed Mexican filmmaker Alejandro González Iñárritu, the cleverly crafted video has been described by some critics as "puzzling" and "disingenuous" (38). Nonetheless, it is not difficult to see that the video alludes to the rise of Facebook nation with over 1 billion cybercitizens (39). It is truly a global phenomenon since the majority of Facebook users (81%) live outside the U.S. and Canada.

"Chairs are like Facebook" — Chairs are the most basic, ubiquitous, and indispensable furniture in most parts of the world. Facebook is one of the most prevalent social networks today. However, sitting in stationary chairs puts stress on spinal disks and increases the chance of lower-back injury, resulting in $11 billion a year in workers' compensation claims (40). Unlike stationary chairs, Facebook must be quick to adapt to changes.

"We are not [alone]" — Facebook users tell jokes, make up stories, or just listen to other Facebook friends. In an interview with *Ad Age's* Ann-Christine Diaz, Facebook's head of consumer marketing Rebecca Van Dyck linked Facebook with the innate human desire to connect. Dyck said, "We make the tools and services that allow people to feel human, get together, open up. Even if it's a small gesture, or a grand notion — we wanted to express that huge range of connectivity and how we interact with each other" (41).

On Facebook, people volunteer their personal information such as their gender, birthday, education, workplace, city of residence, interests, hobbies, photos, friends, families, schoolmates, coworkers, past histories, relationship status, likes, dislikes, and even current location. By satisfying the insatiable desire for communication with others who seem to be willing to listen, people have voluntarily sacrificed some degree of personal privacy. "Have one's cake and eat it too" does not apply to personal privacy in the world of ubiquitous social networks.

2.5   Facebook and Personal Privacy

Facebook headquarters' address is 1 Hacker Way, Menlo Park, California 94025. (17) 1 Hacker Way was apparently the second choice after 1 Social Circle (42). Both of which fit the Facebook culture and product quite nicely.

"Hacking is core to how we build at Facebook," the company said in a blog post announcing Facebook's 2012 Hacker Cup competition (43). "Whether we're building a prototype for a major product like Timeline at a Hackathon, creating a smarter search algorithm, or tearing down walls at our new headquarters, we're always hacking to find better ways to solve problems" (44).

In 2003, Mark Zuckerberg hacked into the Harvard computer network and stole private dormitory student ID photos in order to create Facemash, the predecessor to Facebook. Similar to the Hot or Not website founded in 2000 by James Hong and

Jim Young, Facemash placed two photos next to each other at a time and asked users to choose the hotter person. Facemash attracted 450 visitors and more than 22,000 photo views in its first day of launch before the website was forced to shut down. Zuckerberg was charged by the Harvard administration with breach of security, violating copyrights and individual privacy (45). Zuckerberg wrote in an email to *The Harvard Crimson* in November 2003, "Issues about violating people's privacy don't seem to be surmountable. I'm not willing to risk insulting anyone" (45).

Zuckerberg, an ingenious hacker, has been known for meeting with prospective investors wearing pajamas. He remains true to himself and does not answer to anybody. "Mark and his signature hoodie: He's actually showing investors he doesn't care that much; he's going to be him," said Michael Pachter, an analyst for Wedbush Securities. "I think that's a mark of immaturity. I think that he has to realize he's bringing investors in as a new constituency right now, and I think he's got to show them the respect that they deserve because he's asking them for their money" (46).

Although Facebook became a publicly traded company in May 2012, Zuckerberg continues to hold majority control over the company. Firstly, his 23% shares of Facebook stock carry outsized voting rights that give him 31% voting power. Secondly, he has "irrevocable proxy" over the voting power of almost 56% of Facebook's shares held by other stakeholders. The U.S. Securities and Exchange Commission (SEC) asked Facebook in February 2012 to "more fully explain how the risk of Mr. Zuckerberg's control affects … the Class A common stockholders on a short-term and long-term basis" (47).

Based on Zuckerberg's history and his personal attitude towards people's privacy, it came as no surprise that Facebook was charged by the U.S. Federal Trade Commission (FTC) for failing to keep privacy promises and violating federal law – the Federal Trade Commission Act (48). The FTC eight-count complaint lists a number of instances in which Facebook allegedly made promises that it did not keep (49). The charges include the following:

1. In December 2009, Facebook changed its website so certain information that users may have designated as private – such as their Friends List – was made public. They didn't warn users that this change was coming, or get their approval in advance.
2. Facebook represented that third-party apps installed by the users would have access only to user information that they needed to operate. In fact, the apps could access nearly all of users' personal data – data the apps didn't need.
3. Facebook told users they could restrict sharing of data to limited audiences – for example with "Friends Only." In fact, selecting "Friends Only" did not prevent their information from being shared with third-party applications their friends used.
4. Facebook had a "Verified Apps" program and claimed it certified the security of participating apps. It didn't.
5. Facebook promised users that it would not share their personal information with advertisers. It did.
6. Facebook claimed that when users deactivated or deleted their accounts, their photos and videos would be inaccessible. But Facebook allowed access to the content, even after users had deactivated or deleted their accounts.

7. Facebook claimed that it complied with the U.S.-EU Safe Harbor Framework that governs data transfer between the U.S. and the European Union. It didn't.

Without putting up a legal fight, Facebook in November 2011 agreed to the proposed settlement (50) that the company is (51):

1. barred from making misrepresentations about the privacy or security of consumers' personal information;
2. required to obtain consumers' affirmative express consent before enacting changes that override their privacy preferences;
3. required to prevent anyone from accessing a user's material more than 30 days after the user has deleted his or her account;
4. required to establish and maintain a comprehensive privacy program designed to address privacy risks associated with the development and management of new and existing products and services, and to protect the privacy and confidentiality of consumers' information; and
5. required, within 180 days, and every two years after that for the next 20 years, to obtain independent, third-party audits certifying that it has a privacy program in place that meets or exceeds the requirements of the FTC order, and to ensure that the privacy of consumers' information is protected.

Apart from the accusations from the U.S. government, several lawsuits were filed in February 2012 against Facebook for tracking its users even after they logged out of the service (52). Computer blogger Nik Cubrilovic explained, "Even if you are logged out, Facebook still knows and can track every page you visit that has Facebook integrated. The only solution is to delete every Facebook cookie in your browser, or to use a separate browser for Facebook interactions" (53). Facebook engineers have issued numerous fixes but none to the complete satisfaction of privacy advocates.

In addition, five Facebook members in California sued Facebook for publicizing their "likes" of certain advertisers on the "sponsored stories" feature without paying them or giving them a way to opt out. In May 2012, Facebook agreed to pay $10 million to charity in settling the would-be class-action lawsuit for violating users' rights to control the use of their own names, photographs, and likenesses (54). In December 2013, two Facebook users, Matthew Campbell and Michael Hurley, filed a lawsuit against Facebook for scanning "private" messages between users for links and other information that can be sold to advertisers, marketers, and data aggregators (55).

In fact, according to *The Zuckerberg Files* created and maintained by Prof. Mike Zimmer at the University of Wisconsin-Milwaukee, Facebook CEO Mark Zuckerberg has uttered the word "privacy" or "private" only 68 times in public between 2009 and early 2014. "Facebook is causing us to rethink so many things about our views on privacy and information," said Zimmer. "Looking at what Zuckerberg says can help us understand Zuckerberg's position and also why Facebook is what it is" (56).

2.6   **Facebook Friends and Personal Privacy**

Although Facebook has been found liable for some of the online privacy issues, many Facebook users have not been vigilant in safeguarding their own privacy. A May 2010 report by Pew Internet indicated that only two-thirds of Facebook users said they had ever changed the privacy settings to limit what they share with others online (57). A January 2012 study by *Consumer Reports Magazine* revealed, "Almost 13 million users said they had never set, or didn't know about, Facebook's privacy tools. And 28 percent shared all, or almost all, of their wall posts with an audience wider than just their friends" (58).

In November 2011, Lars Backstrom from the Facebook Data Team reported that an average user had 190 online friends (59). A Georgetown University study shows a much higher number among college students – young adults reported an average of 358 Facebook friends, with young women reporting 401 friends and young men reporting 269 friends (60). However, according to the GoodMobilePhones survey in January 2011, the average Facebook user does not know one fifth of the people listed as friends on the site (61).

To prove the point, a group of students at Millburn High School in New Jersey created a Facebook account in 2009 for a fictional new student in their school (62). They named her "Lauren" and gave her a fake profile including a picture of a random high school girl downloaded from the Internet. This "Lauren" requested to be Facebook friends with 200 of her classmates. Only two students messaged "Lauren" to question who she was. Nearly 60% of the 200 students accepted her friendship, and an additional 55 Facebook users requested "Lauren" to be their friends, even though they obviously did not know her.

In fact, of all the reasons why a Facebook user removes a friend online, 41% of the users answered, "Don't know him/her well." (23) Those unknown friends, or rather strangers – a more accurate description, have access to photos and information that are meant for only the intended audiences or trusted friends and families. A February 2012 report from Pew Internet & American Life Project indicates that less than 5% of users hide content from another user on their Facebook feed (63).

In June 2013, Alexandra Cetto and fellow researchers from the University of Regensburg in Germany launched "Friend Inspector" – a serious game aimed at 16-25 year olds to improve their privacy awareness on Facebook. The game had been downloaded over 100,000 times within five months of its launch (64).

In March 2014, Facebook started sending out "Privacy Checkups" using a cartoon dinosaur as the messenger to alert users about safeguarding their privacy (65). "Sorry to interrupt," the message reads, "you haven't changed who can see your posts lately, so we just wanted to make sure you're sharing this post with the right audience." Facebook would then ask the user to select either "Friends," "Public," or "More Option" for the new posts.

2.7   Facebook, Children, and COPPA

In a 2011 interview with the *PEOPLE* magazine, President Barack Obama and the First Lady said that they did not allow their daughters Sasha and Malia on Facebook. Their reason was, "Why would we want to have a whole bunch of people who we don't know knowing our business? That doesn't make much sense" (66). Sasha and Malia were only 10 and 13 years old at the time.

The American public, however, paints a different story about Facebook usage. More than 55% of parents help their underage children to lie to get on Facebook, violating the site's terms of service that prohibit kids under 13 from joining. A 2011 survey conducted by Harris Interactive shows that one in five parents acknowledged having a 10-year-old on Facebook, 32% of parents allowing their 11-year-olds and 55% of parents allowing their 12-year-olds to use Facebook (67). According to *Consumers Reports* in May 2011, there are at least 7.5 million children under 13 and 5 million children ages 10 and under who are actively using Facebook (68).

Perhaps parents are not the only ones to blame, because children of all ages are facing increasing peer pressure from their friends and schoolmates. "I need your advice," a mother posed a question to Danah Boyd, coauthor of *Why parents help their children lie to Facebook about age: Unintended consequences of the Children's Online Privacy Protection Act*, "My 11-year-old daughter wants to join Facebook. She says that all of her friends are on Facebook. At what age do you think I should allow her to join Facebook?" (69).

Children are also most vulnerable to advertisements. In September 2010, *The Wall Street Journal* investigated 50 popular websites aimed at teens and children and 50 most popular U.S. sites overall (70). The investigators found that popular children's websites install 30% more tracking technologies (e.g. cookies and beacons) than do the top U.S. websites (71). Although the tracking data does not include the children's names, it can include their ages, races, hobbies, online habits, posted comments, likes and dislikes, as well as their general locations such as the cities of residence.

In 1998, the U.S. Congress enacted the Children's Online Privacy Protection Act (COPPA), requiring the Federal Trade Commission (FTC) to regulate commercial websites targeted at children and web operators who have actual knowledge of a child's participation (72). COPPA requires web site owners to notify parents and obtain their consent before collecting, using, or disclosing children's personal information.

I was a senior staff engineer and senior producer at Disney Online between 1996 and 2006. Being a family-oriented company, Disney took COPPA and children's online safety very seriously. We made sure that the Disney websites were COPPA-compliant and addressed COPPA-related issues at the weekly senior staff meetings.

The first-ever Disney MMORPG game *ToonTown Online* debuted in 2003 allows players, most of whom are children, to communicate with other players in *ToonTown* via a free-form chat if and only if the players know each other outside the game world (73). A "True Friends" verification involving a six-digit secret code is required to gain access to free-form chat.

Online safety for kids is number one in the website design and business decisions at Disney Online. Moreover, Disney is highly selective in accepting advertisements to display on its websites targeted for families and children. When I was a senior producer at Disney, I worked closely with strategic partners Google, Yahoo!, and WebSideStory. I had to write special software code to filter out the inappropriate ads before any sponsored ads are displayed among the search results on the Disney websites such as Disney.com and FamilyFun.com.

In August 2007, Disney Online purchased Club Penguin with 700,000 paid users (74). By mid-2011, Club Penguin has 12 million members, essentially becoming the world's largest social network for kids (75). A combination of games, educational resources, and social networking, Club Penguin presents a fictional world made up of user-created penguins that act as avatars for the millions of kids aged 8 to 11 in more than 190 countries around the world (76).

In July 2010, Disney Online acquired social-gaming company Playdom with 42 million players (77). Less than a year later in May 2011, the Federal Trade Commission charged that Disney's Playdom violated COPPA since 2006 as children under the age of 13 were able to register for the site, share their ages and email addresses, all without parental consent. Playdom continued to violate COPPA after the merger with Disney in August 2010, resulting in a tarnished reputation and a $3 million fine (78).

"Let's be clear: Whether you are a virtual world, a social network, or any other interactive site that appeals to kids, you owe it to parents and their children to provide proper notice and get proper consent," said Jon Leibowitz, Chairman of the Federal Trade Commission. "It's the law, it's the right thing to do, and, as today's settlement [with Disney's Playdom] demonstrates, violating COPPA will not come cheap" (79).

COPPA, however, does not address the issue that addiction to social networks at an early age can be detrimental to normal child development. A 2012 Stanford University study examined the children's behaviors from a sample of nearly 3,500 girls aged 8 to 12. The researchers concluded that tween girls who spend much of their waking hours switching frantically between YouTube, Facebook, television, and text messaging are more likely to develop social problems (80). Spending too many hours online takes away the time for face-to-face personal interactions that are essential for normal mental development.

At the 119th Annual Convention of the American Psychological Association held in August 2011, Professor Larry D. Rosen at California State University, Dominguez Hills, gave a plenary talk entitled, "Poke Me: How Social Networks Can Both Help and Harm Our Kids." Rosen discussed the disturbing findings that "teens who use Facebook more often show more narcissistic tendencies while young adults who have a strong Facebook presence show more signs of other psychological disorders, including antisocial behaviors, mania and aggressive tendencies" (81).

Ironically, a May 2013 Pew Research Center report on "Teens, Social Media, and Privacy" indicated that teens' enthusiasm for Facebook was waning due to the increasing adult presence, people sharing excessively, and stressful "drama" (82). "We did see a decrease in [teenage] daily users [during the quarter], especially

younger teens," Facebook chief financial officer David Ebersman admitted during a conference call with analysts in October 2013 (83).

In an effort to hang on to the coveted teen demographic, Facebook in October relaxed its privacy settings for teens to allow 13- to 17-year-olds to share photos, updates, and comments with the general public (84). Facebook defended its new policy by stating, "We take the safety of teens very seriously, so they will see an extra reminder before they can share publicly. When teens choose 'Public' in the audience selector, they'll see a reminder that the post can be seen by anyone, not just people they know, with an option to change the post's privacy" (85).

As federal regulators have been preparing to update COPPA since 2012, big companies like Apple, Disney, Facebook, Google, Microsoft, Twitter, and Viacom have all objected to portions of a federal effort to strengthen online privacy protections for children, citing the negative impact on economic growth and job creation. In response, U.S. Representative Edward J. Markey, Democrat of Massachusetts and co-chairman of the Bipartisan Congressional Privacy Caucus, said in a phone interview, "What children post online or search as part of their homework should not haunt them as they apply to colleges or for jobs. YouTube should not be turned into YouTracked" (86).

When Facebook introduced Graph Search at a press conference in January 2013, a Facebook employee stood on stage and searched for "friends of my friends who are single and living in San Francisco" (87). Facebook's Graph Search lets users search for others by common interest, location, age, and other criteria. To protect minors, information on Facebook users under 18 is hidden from the search results (88).

2.8   Facebook, Peer Pressure, and Social Issues

Facebook can extend peer pressure from the physical world to the larger online world. Live artist-researcher Louise Orwin said, "There's always going to be peer pressure but I think [social media] makes these issues worse" (89).

Marlon P. Mundt from University of Wisconsin, Madison, studied the influence of peer social networks on adolescents. The findings suggest that adolescents are more likely to start drinking alcoholic beverages when they have large social networks of friends (90). Soraya Mehdizadeh from York University, Toronto, published revealing research results that "individuals higher in narcissism and lower in self-esteem were related to greater online activity" and that women in particular used pictures that "include revealing, flashy and adorned photos of their physical appearance" (91).

In March 2012, *CNN* columnist Amanda Enayati reported on a story of a college student named Amanda Coleman who decided to quit Facebook. Being the president of her sorority, Coleman has counseled many young girls at her university. "They would call or come in to see me for advice, crying that they were stressed out," Coleman said. "At some point I began noticing that Facebook was being mentioned in some way in just about every conversation. … It's as if somewhere along

the line, Facebook became the encyclopedia of beauty and status and comparisons. …
[The young girls, many of them college freshmen] were walking around saying,
'I'm not good enough. I'm not enough this or that'" (92).

The story reminds us of Facemash, the predecessor to Facebook, which placed
two photos next to each other at a time and asked users to choose the hotter person.
In spite of Facebook's sophistication over Facemash, users can still compare them-
selves to their friends and their friends' friends in terms of looks, fashion, popularity,
and so forth.

Children and young teens are particularly susceptible to messages and images
coming from their friends on Facebook. How are they going to react to their "ene-
mies" on Facebook? The Facebook app "Enemybook," developed in July 2007 by
Kevin Matulef at MIT, could exacerbate peer pressure by bonding like-minded haters
online. Enemybook is a Facebook application that you can "add people as Facebook
enemies, specify why they are your enemies, notify your enemies, see who lists you
as an enemy, and even become friends with the enemies of your enemies" (93).

In May 2013, Facebook was called "hatebook" by some women's groups protest-
ing against Facebook pages that promoted rape, domestic violence, and sexual deg-
radation of women. Women, Action, and the Media (WAM!) complained, "It
appears that Facebook considers violence against women to be less offensive than
non-violent images of women's bodies, and that the only acceptable representation
of women's nudity are those in which women appear as sex objects or the victims
of abuse" (94). When a dozen companies started pulling their ads from Facebook,
the social network responded swiftly by removing the offensive pages (95).

In his 2009 book *The Dumbest Generation: How the Digital Age Stupefies Young
Americans and Jeopardizes Our Future*, Professor Mark Bauerlein at Emory
University argues that the younger generation today is less informed, less literate,
and more self-absorbed because the immediacy and intimacy of social-networking
sites have focused young people's Internet use on themselves and their friends
instead of on learning new knowledge and useful skills. He observed that the lan-
guage of Internet communication, with its peculiar spelling, grammar, and punctua-
tion, actually encourages illiteracy by making it socially acceptable (96).

In 2012, former U.S. Secretary of State Condoleezza Rice issued an alarming
report in which she warned that "although the United States invests more in educa-
tion than almost any other developed nation, its students rank in the middle of the
pack in reading and toward the bottom in math and science. On average, U.S. stu-
dents have fallen behind peers in Korea and China, Poland and Canada and New
Zealand. This puts us on a trajectory toward massive failure" (97).

It is high time for a major overhaul of the U.S. educational system. Peter Thiel,
co-founder of PayPal, argues that colleges and universities do a poor job promoting
innovation. He predicts that higher education is the next bubble waiting to burst
(98). In a provocative move, Thiel awarded each of the 24 winners of the 2011 Thiel
Fellowship $100,000 not to attend college for two years but to develop business
ideas instead (99).

2.9   Reality TV and Social Media

Popular television programs have shown to increase online social activities on Twitter, Facebook, and other social networks (100). Super Bowl XLVI on February 5, 2012 created an all-time record high of 17.46 million tweets, public Facebook posts, GetGlue check-ins, and Miso check-ins (101). Analyst Nick Thomas at Informa wrote in a recent report on the future of TV worldwide, "Many [are] already using Facebook and Twitter and other tools to communicate via the handheld devices about the content they are simultaneously viewing on the TV" (102).

Beginning in the year 2000, we have witnessed the exploding popularity of reality television shows such as *Big Brother*, *Survivor*, *American Idol*, *America's Next Top Model*, *Dancing With the Stars*, *The Apprentice*, and *Fear Factor*. A 2010 study showed that 15 of the top 20 highest-rated television programs among young adults 18 to 49 were reality shows (103).

Following the footsteps of Donald Trump's *The Apprentice*, other businesses are also taking a page from reality TV shows to discover new stars. The world's largest retailer Walmart launched its "Get on the Shelf" program on the same day *American Idol* began its eleventh season on January 18, 2012 (104). The "Get on the Shelf" contest allows anyone in the U.S. to submit a video online pitching his or her invention. The public will vote on the products and three winners will have their products sold on Walmart.com, with the grand prizewinner also getting shelf space in select stores. Unlike *The Apprentice*, Walmart chose the Internet, instead of television, as the reality show medium.

While some reality shows have a certain amount of entertainment and educational values, others have little to no redeeming quality at all. *The Real Housewives of Beverly Hills*, for instance, is a prime example of legalized voyeurism and exhibitionism where the television viewers are the voyeurs and the participants in the reality show are the exhibitionists. Millions of people seem to enjoy access to private information that is really none of their business; and quite a large number of people want to expose their private lives to strangers in spite of potentially dangerous consequences including suicide (105) and murder (106).

In fact, a Brigham Young University study in 2010 reported that a reality show on average contains 52 acts of verbal, relational, or physical aggression per hour (107). Reporter Irin Carmon opines that sadism is a recurring theme in *America's Next Top Model*: "The series has pioneered a whole new standard of placing women in danger. ... Right from the get-go, *ANTM*'s producers began manufacturing moments that would inevitably result in pain or injury to the girls. ... As the series progressed, pain became not only a by-product but a basis upon which the girls were judged, in contests requiring the women to repeatedly fall from platforms and crash onto barely padded surfaces, recline in bikinis on ice sculptures in frigid rooms, and so on" (108).

Apart from reality television, user-generated reality shows on social media are on the rise. Acquired by Twitter in October 2012, Vine is a popular mobile app that lets users create and post 6-second looping video clips (109). Former cashier Jessica Vazquez (aka Jessi Smiles) and video gamer Curtis Lepore became Vine's first reality stars in the summer of 2013 (110). Sponsors such as Wendy's and Virgin Mobile paid

them handsomely for their online video endorsements. Millions of followers watched their romance unfolded like a reality show, which unfortunately ended on a tragic note when Lepore was accused of raping Vazquez.

Social commentator Dean Obeidallah opined that "there's a connection between a willingness to share private aspects of our lives and the reality TV show world in which we have been immersed for over a decade. On a nightly basis, we see people share their triumphs and tragedies, be it on shows like *Big Brother* or *The Real World* or more contrived ones like *Honey Boo Boo* or *Keeping up with the Kardashians*. They have made it easier and more acceptable for us to do the same. To me, the best thing about this new trend is that you get to control it. It's your choice whether to disclose deeply personal information. Those who find it unnerving or inappropriate can keep that information secret. But for the rest, social media may end up being a less expensive but helpful form of therapy" (111).

2.10   YouTube and Facebook Videos: Am I Pretty or Ugly?

In a May 2014 *Forbes* article titled "The 'Sex Talk' for 21st Century Parents," Jordan Shapiro, shared some intimate conversations with his 9-year-old son who asked, "Would you rather have your first kiss on YouTube? Or a transcript of everything you said on your first date available on Google?" Shapiro answered with a bit of anxiety, "I choose my first kiss on YouTube. No matter how awkward that looks, it is not as bad as the clumsy ways we try to express confusing feelings to people before we really know how" (112).

While reality television may be losing steam (113) and the percentage of U.S. homes with a television set is declining (114), the Internet is flourishing with reality content and attentive audiences. Mahir Çağrı, for instance, became an Internet celebrity in 1999 for his infamous homepage (115) and arguably was the main inspiration for British comedian Sacha Baron Cohen as the fictional Kazakhstan reporter "Borat" (116).

With the launch of the video-sharing website YouTube in February 2005, the Internet is becoming the new reality TV. Touted as "The Beast With A Billion Eyes" by the Time Magazine (117), YouTube reports in January 2012 that 4 billion online videos are viewed every day (118). More than tripling the prime-time audiences of all three major U.S. broadcast networks combined, over 800 million unique users visit YouTube each month, 30% of whom are from the U.S. Users upload the equivalent of 240,000 full-length films every week. In fact, more video is uploaded to YouTube in one month than the 3 major U.S. networks created in 60 years (119).

In December 2011, more than 100 million Americans watched online video on an average day, representing a 43% increase of a year ago (120). The numbers continue to skyrocket. In January 2012, some 181 million U.S. Internet users watched about 40 billion online videos (121). Internet marketing research firm comScore's Video Metrix shows that YouTube has over 50% share of content videos viewed, followed by the distant second Vevo, Hulu, Yahoo!, Microsoft, Viacom, AOL, Netflix, ESPN, Mevio, and others (122). Thanks to Netflix, Amazon Prime, and Hulu, Americans watched more online movies than DVDs in 2012 (123).

Facebook took fifth place in the U.S. online video rankings in December 2011, with 238 million videos viewed in a month (124). Together with Facebook, YouTube has ushered in the new era of exhibitionism and voyeurism. Not everyone can be on TV, but everyone can be on YouTube. The HTML title of youtube.com is "YouTube – Broadcast Yourself" and the description meta tag reads "Share your videos with friends, family, and the world."

Google video head Salar Kamangar said at News Corp.'s D: Dive Into Media 2012 conference, "We want YouTube to be the platform of these next generation of channels" (125), referring to bringing its audiences more high-quality content in partnership with Disney and other media companies (126).

Nevertheless, the lion's share of YouTube videos has been and will continue to be unscripted content created by amateurs (127). Pew Research Internet Project reported that "the percent of American adult Internet users who upload or post videos online has doubled in the past four years, from 14% in 2009 to 31% in 2013" (128).

As of May 2014, the most subscribed YouTube channel of all time is PewDiePie featuring video game commentaries by 24-year-old Felix Arvid Ulf Kjellberg and Marzia Bisognin (129). The channel's 27 million subscribers have logged a staggering 4.5 billion video views (130).

Although it takes time and energy to grow a YouTube channel, anyone can literally create a "15 minutes of fame" on YouTube. Aspiring young singers hope to become the next pop star Justin Bieber who was discovered via his homemade YouTube videos (131). Kate Upton's YouTube video of herself at a Los Angeles Clippers game "doing the Dougie" helped catapult her onto the cover of *Swimsuit Illustrated* (132).

In addition to individuals showcasing their talents, YouTube has also become an outlet for many teenagers seeking approval. Videos asking "Am I Pretty or Ugly" have popped up all over YouTube, some of them have accrued millions of views, rivaling blockbuster movie trailers and hit music videos. In the opening of one "Am I Pretty or Ugly" video, the YouTuber says: "Hey guys, this is my first video … but before I post any more videos making a fool of myself, and I know there's hundreds of videos like this. … I just wanna know, am I pretty or ugly? Cuz at school I get called ugly all the time" (133).

Indeed, many of those YouTubers are victims of bullying. Naomi Gibson's 13-year-old daughter Faye is constantly bullied by schoolmates who call her ugly. Faye went to YouTube to get a second opinion from strangers and received mixed reactions with nearly 3,000 comments (134). Her mother appealed to YouTube to try to take down all those "Am I Pretty or Ugly" videos, but to no avail. Gibson told *ABC Good Morning America*, "I took away her Facebook and Twitter account because of bullying. She needs to stop putting herself out there. Now people are walking around asking her if she's pretty to her face. It's hurting her more in the long run, I think" (135).

On February 19, 2013, Canadian poet and writer Shane Koyczan published a YouTube video titled "To This Day" to confront bullying (136). It has garnered over 13.5 million views as of June 2014. Sending out one new poem each month to his readers, Koyczan wrote, "If you can't see anything beautiful about yourself, get a better mirror" (137).

Bullying victims are not limited to a young age group. On June 21, 2012, a 10-minute YouTube video showed a 68-year-old bus monitor named Karen Klein being verbally bullied by a group of middle schoolers, on their way home from the Athena Middle School in Greece, New York (138). The video was viewed one million times within a week. Klein received widespread support from sympathizers and nearly $650,000 in donations (139).

Another high-profile case is a graphic video uploaded to YouTube in October 2011 by 23-year-old Hillary Adams, showing Aransas County Court Judge William Adams viciously whipping her with a strap seven years earlier when she was 16 (140). The video has been viewed almost seven million times as of January 2012 (141). It is debatable whether the victim wanted to raise public awareness of child abuse or to retaliate against her father for withdrawing his financial support seven years after the incident (142).

YouTube has become the reality TV broadcast medium for the masses, and Facebook is the effective tool to disseminate the YouTube videos. Christopher Carpenter from Western Illinois University conducted research on the link between Facebook and narcissism. He concluded, "Facebook gives those with narcissistic tendencies the opportunity to exploit the site to get the feedback they need and become the center of attention" (143). Self-promoters show signs of two narcissistic behaviors: grandiose exhibition (GE) and entitlement/exploitativeness (EE). GE refers to people who love to be the center of attention. EE indicates how far people will go to get the respect and attention that they think they deserve.

Although the GE and EE readings may be off the scale on many Facebook users and YouTubers, the situation is not necessarily as nefarious as some media have portrayed. Carol Hartsell, comedy editor of *The Huffington Post*, commented at the 2012 South by Southwest Interactive festival that social media has democratized comedy by giving everyone a platform to be funny. "People just naturally want to make other people laugh," said Hartsell. "It's hard to find an audience when you want to be funny. When you're a kid, it's your family. But when you're an adult, the Internet gives you a constant audience. It may just be 20 friends on Facebook, but it's an audience" (144).

A September 2010 survey by the Interactive Advertising Bureau (IAB) shows that one-third of the online population is on both YouTube and Facebook (145). With over a billion users on both social networks since 2013, the seamless integration of Facebook and YouTube videos offers a powerful communication tool for hundreds of millions of people to disseminate and consume information, both private and public (146).

2.11 Netflix and Social Apps on Facebook

In September 2011, Facebook began rolling out new "Read. Watch. Listen. Want." features that let "social apps" broadcast every interaction users have with them (147). The apps are opt-in, but few users read the fine print or adjust the default settings (148). Some users might be surprised to find applications like Spotify, Kobo eBooks,

Hulu, Yahoo! News, and Nike+ GPS broadcasting every song they stream, book they read, video they watch, news story they glance over, or place they visit (149).

Back in December 2007, Facebook launched Beacon, resulting in a class-action lawsuit against Facebook, Fandango, Blockbuster, Overstock, and Gamefly for violating the 1988 Video Privacy Protection Act (VPPA) that aims at preserving the confidentiality of people's movie-watching records. Facebook shut down Beacon in 2009 and agreed to pay $9.5 million to create a new foundation for promoting privacy and security (150).

Notwithstanding the fiasco of the defunct Facebook Beacon program, Netflix, with 26 million subscribers (151) and 1 billion hours of video views in June 2012 (152), allows Facebook users see what films or television content friends are watching and will let users watch as well via Facebook (153). To clear the hurdle of the Video Privacy Protection Act (VPPA), Netflix has successfully lobbied the U.S. House of Representatives in passing a measure in December 2011 to amend the VPPA, allowing Netflix to integrate with Facebook more easily (154). And in December 2012, the U.S. Senate passed a legislation allowing Netflix users to share what movies they had watched with their Facebook friends (155).

In spite of the legislative victories, Netflix was accused in 2011 of violating VPPA that requires video rental services to destroy users' personal information "as soon as practicable, but no later than one year from the date the information is no longer necessary for the purpose for which it was collected." In February 2012, Netflix settled a class-action privacy lawsuit for $9 million (156); and in May, Netflix announced that it would "decouple" former customers' movie rental history from their personal information within one year after they cancel their accounts (157).

In September 2014, Netflix added a privacy feature to let users control which shows they want to share with their Facebook friends. "Starting today, we're launching our new social recommendation feature that allows you to easily and privately recommend the shows you love to the people you care about," said Cameron Johnson, Netflix's director of production innovation.

With Netflix and social apps' integration with Facebook, we no longer need to call up our friends to ask what they were doing last weekend or what they are doing at the moment. Everything is on Facebook in real time. The "all-knowing" persuasive social network has diminished the necessity for real-life personal conversations. Other flourishing social apps such as the microblogging Twitter and the virtual pinboard Pinterest reinforce the popular trend of public sharing of information on the Internet (158).

2.12   Facebook Timeline and Open Graph

Not only does Facebook enable users to share current activities with one another, the social network has introduced at the 2011 f8 Conference new Timeline and Open Graph to facilitate "frictionless sharing" or "auto-share".

The new Facebook Timeline displays a user's life stories, sharing and highlighting their most memorable posts, photos, and life events (159). "No activity is too big

or too small to share," said Mark Zuckerberg. "You don't have to 'Like' a movie. You just watch a movie. … We think it's an important next step to help you tell the story of your life" (160).

Indeed, "to tell the story of your life" resonates with millions of Facebook addicts. But some critics have cautioned that Facebook may be invading too much into one's personal life, as the user will be asked to add date of birth, key events, memories, personal events and feelings that happen outside of the social network (161).

To help users tell the story of their life with minimal effort, Facebook's Open Graph technology allows third-party apps and websites to tell Facebook what people are doing, and to automatically publish information to their Timelines without having to ask for permission to post content to Facebook over and over again. *Mashable* calls it "real-time serendipity" (162).

By January 2012, sixty apps had been launched with Facebook's auto-share; they include Hulu, Yahoo! News, *Wall Street Journal*, *USA Today*, *The Washington Post*, Digg, Soundcloud, Turntable.fm, Rhapsody, and Spotify (163). Apple's iTunes and Pandora, however, did not plan to participate in the Facebook Music auto-publish feature (164).

In March 2012, Facebook announced that nearly 3,000 Timeline apps have launched in the past two months (165). The apps makers include foursquare, Nike, *The Onion*, Vevo, Fandango, Viddy, Endomondo, RootMusic, Foodspotting, Pose, and Votizen. Fandango, for instance, claimed to have tens of millions of online visitors and 1.4 million Facebook fans (166). Launched on March 13, 2012, the Fandango Timeline app "Movies with Friends" allows Facebook fans to share:

1. Movies they've rated and reviewed on Fandango, from "Must Go" to "Oh No!"
2. Movies they want to see, indicated by the "I'm In!" button
3. Movie trailers, clips and celebrity interviews they have just watched
4. Articles they've read on Fandango's "Freshly Popped" blog

By using Facebook's Timeline and social apps with Open Graph, an average user is knowingly communicating with an average of 130 online friends. Unknowingly, however, many of the popular apps on Facebook have been transmitting user information such as names and their friends' names to dozens of advertising and Internet tracking companies. *The Wall Street Journal's* investigation in October 2010 uncovered that Rapleaf, a database marketing company in San Francisco, compiled and sold profiles of Facebook users based in part on their online activities (167). Facebook has since cracked down on apps that sold user data and banned Rapleaf from data scraping on Facebook (168).

2.13 Ambient Social Apps

Ambient social apps are the new generation of mobile apps that automatically share information about the user's whereabouts with nearby people in their social networks by broadcasting their locations at all times to friends.

Launched in March 2009, foursquare is a location-based social networking website and mobile app that allows users to check in at a venue, thereby posting their location

based on the GPS hardware in the mobile device. In June 2011, foursquare had 10 million users (169). By August 2014, foursquare has grown to 50 million people worldwide with 6 billion check-ins; and over 1.9 million businesses have claimed their locations to connect with their customers (170). President Barack Obama is one of its high-profile users. "The White House is now on foursquare, which is the latest way for you to engage with the administration," Kori Schulman, Deputy Director of Outreach for the Office of Digital Strategy, wrote in *The White House Blog,* "Now you'll be able to discover tips from the White House featuring the places President Obama has visited, what he did there, plus historical information and more" (171).

The growing popularity of foursquare has ignited a slew of new ambient social apps. Sonar, for instance, is a mobile app that analyzes Facebook, Twitter, and LinkedIn networks to see if any online friends are nearby physically. According to the Sonar website, they "bottle the 1000s of connections that you miss every day – friends, friends of friends, fellow alumni, likeminded strangers – and put them in the palm of your hand. Sonar helps you use the information you share about yourself online to connect with the person sitting next to you" (172). A screenshot displayed on the Sonar homepage shows who, among friends and friends of friends, are currently in the Museum of Modern Art and how long they have been there.

Glancee was created to be both a Facebook app and an iPhone/Android app that explores the Facebook profiles of people nearby and notifies the user when someone nearby has common friends or mutual interests (173). The Radar function on Glancee displays how close the friends are in proximity, from steps away to hundreds of yards apart. Glancee was acquired by Facebook in May 2012 and subsequently closed down (174).

Banjo started out as an ambient social app that alerts its user about friends who are nearby and pinpoints their locations on a street map. Nine months after its launch, Banjo has registered 1 million users in April 2012 (175). The Banjo website posted a story that inspired the creation of the app: "Banjo founder Damien Patton was in the Boston airport waiting for a flight to Vegas. A buddy he hadn't seen in years was waiting for a different flight just one gate over. Damien tweeted. His friend checked in. Both posted about their locations, yet they missed connecting simply because they were using different social networks" (176). In January 2014, Banjo rebranded itself as "The Live Internet"™ for its 6 million users to discover and experience live events in real time (177).

Highlight is a free iPhone app that enables its users to learn about each other when they are close by. Using Facebook's data, the users can see each other's names, photos, mutual friends, hobbies, interests, and anything they have chosen to share. Highlight states in its website: "When you meet someone, Highlight helps you see what you have in common with them. And when you forget their name at a party a week later, Highlight can help you remember it" (178). Eric Eldon, Editor of *TechCrunch*, speculated that business cards would soon be replaced by Highlight (179).

And now for something completely different (in a Monty Python-esque sense of humor), Hell Is Other People is an experiment in anti-social media. Using foursquare, the site will track your "friends" and calculate optimally distanced locations for avoiding them (180).

2.14   Stalking Apps and Facebook for Sex

In May 2012, Facebook acquired Glancee and closed down its app (181). On June 25, 2012, Facebook quietly tested a new mobile feature "Find Friends Nearby" (aka "Friendshake") that allowed users to find other Facebook members nearby using the mobile web as well as iOS and Android apps (182). Facebook engineer Ryan Patterson said, "I built Find Friends Nearby with another engineer for a hackathon project. … For me, the ideal use case for this product is the one where when you're out with a group of people whom you've recently met and want to stay in contact with. Facebook search might be effective, or sharing your vanity addresses or business cards, but this tool provides a really easy way to exchange contact information with multiple people with minimal friction" (183).

However, Dave Copeland of *ReadWriteWeb* called Find Friends Nearby "Facebook's Newest Stalking App" (184). Facebook quietly pulled the feature off its website and mobile apps after a few hours of testing. A Facebook spokesperson told *Wired*, "This wasn't a formal release – this was just something that a few engineers were testing. With all tests, some get released as full products, others don't. Nothing more to say on this for now, but we'll communicate to everyone when there is something to say" (185).

Ambient social apps on GPS-enabled devices can be useful and fun, but the tools inadvertently empower stalkers as well. "Girls Around Me" is an epitome of such controversial mobile apps in 2012. At the push of a button, the app would go into radar mode and fill the map with pictures of girls in the neighborhood: girls who have checked into the nearby locations using foursquare, and who have public pictures on their Facebook profiles.

After "Girls Around Me" had been downloaded 70,000 times, foursquare cut off access to the app, rendering the app useless. A foursquare spokeswoman said, "The application was in violation of our API policy, so we reached out to the developer and shut off their API access. foursquare has a policy against aggregating information across venues, to prevent situations like this where someone would present an inappropriate overview of a series of locations" (186).

"Girls Around Me" developer had no choice but to remove the app from the iTunes Store, but the developer defended itself in a public statement, "Girls Around Me does not provide any data that is unavailable to a user when he uses his or her social network account, nor does it reveal any data that users did not share with others. The app was intended for facilitating discovering of great public venues nearby. The app was designed to make it easier for a user to step out of door and hang out in the city, find people with common interests and new places to go to" (187).

The demise of "Girls Around Me" only fueled the growing popularity of Badoo – the world's largest social network for "meeting new people" with 218 million members as of August 2014 (188). Relatively unknown in the United States, Badoo has become a mass phenomenon in Brazil, Mexico, France, Spain, and Italy after the site launched in 2006. Inspired by the nightclub known as "Telephone Bar" in St. Petersburg, Badoo's founder Andrey Andreev created the social network to be like a nightclub on the phone (189).

The Badoo website and its mobile app enable users to meet people nearby. The app's "hook-up" feature accounts for an overwhelming 80% of usage, and a third of a million U.K. users admitted to using Badoo to find sexual partners (190). Around the world, Badoo has earned the notorious nickname "Facebook for Sex" (191).

Andreev defended his company amid controversy over heavy sexual overtones, "Badoo is not for sex, it's for adventure. If you go to a nightclub, of course you've got the opportunity to find a girl or a boy – but it's not necessarily for sex, it could be to enjoy five mojitos and nothing else. Badoo simply continues the offline lifestyle. Badoo is just a casual way to hook up with people, as you do in the street or nightclub. But we make the world work faster" (192).

Other sex apps include Bang With Friends, Pure, and Tinder. "We wanted an easy way to find sex, basically," said Pure's co-founder Roman Sidorenko (193). As more people are broadcasting their real-time location and personal information, however, privacy and personal safety are becoming an issue. There have been reports of assaults and rapes of Skout and Grindr members while the majority of crimes tied to location-based apps may go unreported (194).

Pete Cashmore, founder and CEO of Mashable.com, questions whether ambient social networking is "the scariest tech trend of 2012" (195). Paul Davison, CEO of Highlight, told *CNN* at the 2012 LeWeb London conference, "People freak out, they say it's creepy. And if they don't want to share, then that's fine, they don't have to. But the social benefits to this far outweigh any cost to privacy" (196).

In April 2014, Facebook (re)introduced a new mobile feature called "Nearby Friends" that enables Facebook friends to track each other in real time using location information (197). For privacy reason, users have to opt in in order to activate the feature.

2.15 Facial Recognition Apps

In October 2011, Alessandro Acquisti, professor of IT and public policy at Carnegie Mellon University's Heinz College, demonstrated a proof-of-concept iPhone application that can snap a photo of a person and within seconds display their name, date of birth and social security number (198). "To match two photos of people in the United States in real time would take four hours," said Acquisti. "That's too long to do in real time. But assuming a steady improvement in cloud computing time, we can soon get much closer to that reality than many of us believed" (199).

In June 2012, Facebook acquired Face.com – a preeminent provider of facial recognition technology on the Internet (200). Face.com wrote on its website, "Face.com builds facial recognition software that is not only highly accurate, but also works efficiently at web-scale. Our facial recognition analytics are able to identify faces well, despite difficult circumstances like poor lighting, poor focus, subjects wearing eyeglasses, facial hair, and even Halloween costumes. Face recognition isn't just for the government or in the movies – you can use it yourself in all kinds of ways, from tagging photos to social networking" (201).

Two years before Facebook's acquisition, face.com rolled out its free facial recognition API (application programming interface) in May 2010 to encourage

developers to tap its facial recognition technology for use in their own websites and applications (202). By November 2011, more than 35,000 developers have built apps to detect and recognize more than 37 billion photos (203).

Some of the popular applications include "Photo Finder," "Photo Tagger," and "Celebrityfindr." "Photo Finder" is a Facebook app that scans the public photos in the user's social network and suggests tags for the photos that are currently untagged or partially tagged (204). The app recognizes people even if they are making odd facial expressions or are turned to the side. "Photo Tagger" searches through the user's photo albums or the albums of their friends, and tags people in batches (205). And "Celebrityfindr" scans Twitter and looks for photos of celebrities and looka-likes that have been posted publicly (206).

Other facial recognition software applications in a prototype stage include "HoneyBadger," "Facialytics," and "Emotional Breakdown" (207). Using face.com's technology, "HoneyBadger" sends an alert text message to the registered owner if the laptop is being used by someone else, "Facialytics" tracks a crowd's emotions over time, and "Emotional Breakdown" examines how happy or sad someone is in a photo.

In October 2013, Meitar Moscovitz (aka maymay) released "Predator Alert Tools" for OkCupid, FetLife, Facebook, and Lulu that use CreepShield's facial rec-ognition API (208) to scan user profile pictures against the National Sex Offender Registry (209).

In December 2013, FacialNetwork.com announced the beta release of "NameTag" – the first real-time facial recognition app for Google Glass (210). The app allows Google Glass users to capture images from their live video and scan them against photos from social media, dating sites, and a database of more than 450,000 registered sex offenders.

In September 2014, the FBI launched its Next Generation Identification (NGI) sys-tem for law enforcement agencies to identify people by their faces using photos from Facebook, Google images, police, surveillance cameras, and DMV records. In fact, more than half of all state DMVs have already installed facial recognition systems.

2.16   Facial Recognition on Facebook, Google+, and iPhone

"We wouldn't exist without Facebook," said Gil Hirsch, CEO of face.com. "By far the biggest scale for face recognition is your friends on Facebook" (211).

Indeed, by April 2009, Facebook users had uploaded over 15 billion digital photographs to the social network, making Facebook the single largest repository of photographs in the world (212). The growth rate is 220 million new photos per week. Every day, Facebook users are adding more than 100 million tags to photos on Facebook (213).

In December 2010, Facebook began to roll out its own facial recognition technol-ogy, Photo Tag Suggest, which scans users' and their friends' photos for recogniz-able faces, and suggests nametags for the faces by matching them with users' profile photos and other tagged photos on the social network (214). Facebook automati-cally opts its users into the Photo Tag Suggest service, which prompted a security

firm to issue a warning in June 2011 that Facebook is eroding the online privacy of its users by stealth (215). Although Facebook users can disable "Suggest photos of me to friends" in the Facebook account's privacy settings, many people are unaware of this extra privacy setting.

When *Engadget* published an article on Facebook's facial recognition in April 2011, a commenter beneath the story quipped, "Awesome! Now I can take pictures of cute girls at the grocery store or at the park, upload them and Facebook will tell me who they are!" (216).

Lee Tien, a senior staff attorney at the Electronic Frontier Foundation, wrote in his email to *PCWorld*, "Facial recognition is especially troubling because cameras are ubiquitous and we routinely show our faces. And of course, one can take pictures of crowds, so it scales a bit better than, say, fingerprints. … If Facebook misidentifies someone, the consequences are not the same as when a police video-camera misidentifies you as a suspect" (217).

Facebook's acquisition of face.com in June 2012 solidifies the importance of facial recognition in social networking. The move can also be viewed as Facebook's preemptive tactic against Google and Apple.

Back in September 2008, Google deployed facial recognition technology to its online photo service Picasa (218). Similarly, Apple released the "Faces" feature in iPhoto in January 2009 (219). With a reasonable success rate, Picasa and iPhone helped users label their photos with the names of subjects. As facial recognition technology began to mature, Apple added the Faces feature to its professional photography software Aperture in 2010 (220).

In December 2011, Google followed the Facebook footstep and introduced "Find My Face" as a tagging suggestion tool for its Google+ social network (221). The tool has the same functionality as Facebook's Photo Tag Suggest. Unlike Facebook, which activates its Photo Tag Suggest by default, Google prompts users to opt into the service before Find My Face is activated. Moreover, if the tagger is not in the tagee's circles of friends, Google requires the tagee to approve the name tagging before it goes public. Facebook, on the contrary, does not require pre-approval for tags. Facebook allows all tags to go live before notifying the tagees, who are then allowed to remove unwanted tags.

Amid concerns raised by privacy advocates and U.S. Federal Trade Commission, Benjamin Petrosky, product counsel for Google+, said, "Privacy has been baked right into this feature [Find My Face]. … We've been researching vision technologies for many years, including pattern recognition, facial detection, and facial recognition, and our approach is to treat this very carefully. We don't want to deploy a technology until it's ready and the appropriate privacy tools are in place" (222). Meanwhile, Erin Egan, Facebook's chief privacy policy officer, defended the company by claiming that it does enough to safeguard its members' privacy by notifying them when they have been tagged and allowing them to remove tags once they have been made (223).

While Prof. Alessandro Acquisti's 2011 proof-of-concept iPhone application is not yet a commercial product, face.com released a free iPhone app called Klik in March 2012 (224). When Klik detects a face, it connects to the user's Facebook account and scans all the friends' photos in order to identify the person in view.

Given the limited number of Facebook friends that a user may have, facial recognition can be done in real time.

As smartphones and iPads are connected to cloud computing services over the Internet, it is a matter of time for companies to introduce new mobile applications that can run millions of face comparisons in seconds, even without tapping into the power of the supercomputers at the National Security Agency or San Diego Supercomputing Center. Google has developed a distributed computing infrastructure for training large-scale artificial neural networks to detect objects based on self-taught learning and deep learning research (225). By scanning YouTube videos, the artificial neural networks have been learning how to recognize faces of animals and people.

Privacy concerns with the growing adoption of facial recognition have prompted Adam Harvey at New York University to create *CV Dazzle*, a computer vision (CV) camouflage project that combines makeup and hair styling with face-detection thwarting designs (226). Some of the camouflage techniques include wearing oversized sunglasses, avoiding enhancers such as eye shadow and lipstick, and partially obscuring the nose-bridge area and ocular region (227).

Harvey might be overreacting, but Edward Snowden's NSA leaks have revealed that the NSA intercepts "millions of images per day" including about 55,000 "facial recognition quality images" in 2011. "The government and the private sector are both investing billions of dollars into face recognition research and development," said Jennifer Lynch at the Electronic Frontier Foundation. "The government leads the way in developing huge face recognition databases, while the private sector leads in accurately identifying people under challenging conditions" (228). In fact, Facebook's DeepFace system outperforms the FBI at facial recognition (229). Yaniv Taigman and colleagues reported that DeepFace "reaches an accuracy of 97.35% on the Labeled Faces in the Wild (LFW) dataset, reducing the error of the current state of the art by more than 27%, closely approaching human-level performance" (230) (see Fig. 2.1).
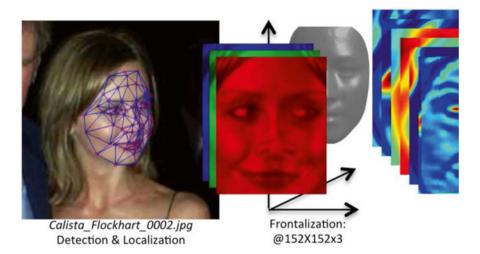

Calista_Flockhart_0002.jpg
Detection & Localization

Frontalization:
@152X152x3

Fig. 2.1 DeepFace Analysis of Calista Flockhart (Courtesy of Facebook)

On a lighter note, animals are not concerned with privacy, and facial recognition can be quite useful. In May 2014, Finding Rover released an iOS app that uses facial recognition for dogs to help owners find their lost dogs (231). Facebook users can register their dogs for free; and if their dogs ever get lost, they can use the Finding Rover app to find the missing pets. (Not only that "every dog has its day", but also that "every dog has its data" in the digital information age.)

Although computer vision can help identify just about any objects of interest, non-facial image recognition has a much better chance of mass adoption. In April 2014, Pete Warden, founder of Jetpac, released the open-source DeepBeliefSDK and demonstrated how to build object recognition into an iOS app (232). In June 2014, Amazon's chief executive Jeff Bezos announced the new "Fire" smartphone. "The Firefly button lets you identify printed Web and email addresses, phone numbers, QR and bar codes, artwork, and over 100 million items, including songs, movies, TV shows, and products – and take action in seconds," said Bezos (233).

2.17   Virtual Passports: from Privacy to Data Use

Mark Zuckerberg told a captive audience at the 2014 f8 Conference, "'Login with Facebook'... We know a lot of people are scared of pressing this button" (234).

When Spotify, a popular music streaming service, announced in September 2011 that all new Spotify accounts would require a Facebook login, the company justified the requirement by asking the users to think of it as a virtual "passport" (235). The idea is reminiscent of Microsoft's Passport in 1999 to provide consumers a single login and wallet for communication and commerce on the Internet (236). Privacy concerns, public distrust, and software security issues contributed to the failure of Microsoft's Passport in 2004 as an Internet-wide unified-login system (237).

With the rise of social networks, Facebook has become a large-scale consumer identity provider (IdP) that allows users to access multiple websites with a single login (238). Unlike Microsoft, Facebook has succeeded in convincing media websites and users to adopt its unified-login system ("passport") such that personal information can be easily shared across the Internet. Even Microsoft's new social search network So.cl uses Facebook authentication (239).

As we know, countries issue passports. In the 2012 TEDGlobal conference, Navy Admiral James Stavridis said, "The six largest nations in the world in descending order: China, India, Facebook, the United States, Twitter, and Indonesia" (240). With over 1.32 billion monthly active users as of June 30, 2014, Facebook as a nation is about to overtake China as the largest country in the world (17). Facebook even offers a memorialization feature for families and friends to leave posts on the deceased's profile Walls in remembrance (241). Cybercitizens are becoming as real as citizens; and their Facebook pages are more revealing than their real-life passports.

In the Facebook nation, "power users" dominate the online space by excessively tagging photos, sending messages, "like"-ing things all the time, and obsessively "friend"-ing new people on Facebook. Power users make up between 20% to 30% of the Facebook population (242).

Approximately 81.7% of the daily users reside outside the United States and Canada (17). In the U.S., Facebook ranks No. 1 in time spent and ad impressions, and No. 2 in total internet visits (behind Google) (243). And the most popular free iPhone app of all time is Facebook (ahead of Pandora, Instagram, YouTube, and Skype) (244).

Each Facebook user is sharing personal information among an average of 130 online friends, roughly 25% of whom are strangers. 20% to 30% of the Facebook populations are considered "power users" that have between 359 and 780 online friends. Without invoking complex mathematics, we can infer from the numbers that millions of people have access to information that is not really meant to be publicly shared.

Even if a Facebook user has zero online friends, they are still sharing all of their personal information with Facebook. In fact, Facebook has quietly renamed its "Privacy Policy" to "Data Use Policy" in September 2011 to reflect more accurately what Facebook does with the data collection (245).

At the January 2012 Digital Life Design (DLD) conference in Munich, Facebook's chief operating officer Sheryl Sandberg said, "We are our real identities online" (246). Cybercitizens are becoming as real as citizens. Our online identities are more revealing than our own passports.

In light of Facebook's Timeline, social apps auto-share, facial recognition photo tagging, and violation of the Federal Trade Commission Act, a *Los Angeles Times* article in September 2011 declared, "Facebook has murdered privacy" (247).

Nevertheless, Facebook is not the only culprit.

2.18   Social Search: Google, plus Your World & Microsoft's Bing

In December 2009, Google's then CEO Eric Schmidt told CNBC's Maria Bartiromo in an interview, "If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place, but if you really need that kind of privacy, the reality is that search engines – including Google – do retain this information for some time, and it's important, for example that we are all subject in the United States to the Patriot Act. It is possible that that information could be made available to the authorities" (248).

On January 10, 2012, Google began to roll out its most radical transformation ever with "social search" – a new search engine that understands not only content, but also people and relationships (249). Google search provides not only results from the public web, but also personal content or things shared on social networks such as Google+ and YouTube. Google Fellow Amit Singhal wrote in the Google Blog: "Search is pretty amazing at finding that one needle in a haystack of billions of webpages, images, videos, news and much more. But clearly, that isn't enough. You should also be able to find your own stuff on the web, the people you know and things they've shared with you, as well as the people you don't know but might want to … all from one search box" (250).

In January 2012, Google announced its new privacy policy, effective March 1, that replaces more than 60 different privacy polices across Google. They admitted that the company has been collecting and compiling data about its users based on their activities across Google products and services including search engine, Gmail, YouTube, and Android cell phones (251). In regard to search particularly, Google states in its policies and principles that "if you're signed into Google, we can do things like suggest search queries – or tailor your search results – based on the interests you've expressed in Google+, Gmail, and YouTube. We'll better understand which version of Pink or Jaguar you're searching for and get you those results faster" (252). Some may argue that the new Google search is way too personal, as editor Brent Rose expressed in a January 2012 *Gizmodo* article: "The fact that you can't opt-out of shared search data, and that Google will know more about you than your wife? That's a little creepy" (253).

A letter signed by 36 state attorneys general was sent to Google co-founder and CEO Larry Page. The letter reads, "On a fundamental level, the policy appears to invade consumer privacy by automatically sharing personal information consumers input into one Google product with all Google products" (254). In particular, questions were raised about whether users can opt-out of the new data sharing system either globally or on a product-by-product basis (255). Google responded that by folding more than 60 product-specific privacy policies into one, the company is explaining its privacy commitments in a simpler and more understandable manner (256).

The Electronic Frontier Foundation explained, "Search data can reveal particularly sensitive information about you, including facts about your location, interests, age, sexual orientation, religion, health concerns, and more" (257). Nick Mediati wrote in *PC World*, "This grand consolidation means that all of your Google account data will live in a single database that every Google service can access. Google Maps will have access to your Gmail data, which will have access to your YouTube history, and so on" (258). Users who log on to Google, Gmail, and YouTube cannot opt out of Google's new privacy policy (259).

Before Google plus Your World, Microsoft's search engine Bing has been collaborating with Twitter since 2009 and Facebook since 2010 to surface more personalized content in search results. Microsoft pays Twitter to obtain a real-time feed of tweets for its search engine Bing (260). Bing users have the ability to see what their friends have liked across the web, including news articles, celebrities, movies, and music (261).

The idea behind the search integration is the "Friend Effect" – a decision made when someone obtains a friend's stamp of approval (262). For example, critics may pan a movie that you are interested in, but if your friends say the movie is worth seeing anyway, you are more likely to watch that movie. A Nielsen report titled "Global Trust in Advertising and Brand Messages" has validated the "Friend Effect" by showing that an overwhelming 92% of consumers around the world trust recommendations from friends and family above all other forms of advertising (263).

In 2011, Microsoft spruced up its mobile Bing site with Facebook integration (264) and deepened the ties between Bing and Facebook by displaying the social search results along with Facebook friends' pictures, cities of residence, education, employment details, travel locations, and even shopping lists (265).

In response to Google, plus Your World, Microsoft redesigned Bing in 2012 to feature the new "Sidebar," a social search function to scour user's social networks to surface information relevant to the search queries (266). For instance, a search for "Los Angeles Chinese restaurants" will return existing posts from friends talking about a similar topic on Facebook, Twitter, and Google+.

In a 2012 interview with *The Guardian*, Google co-founder Sergey Brin complained, "all the information in [the Facebook and iPhone] apps – that data is not crawlable by web crawlers. You can't search it" (267). Indeed, all search engines have the same mission of prying into every detail in every corner of the world in order to unearth as much information as possible. However, the walled garden of Facebook and social media have been increasingly driving more referral traffic than traditional search. Tanya Corduroy, digital development director for *The Guardian*, reported in March 2012 that Facebook made up more than 30% of the newspaper's referrals compared to a mere 2% eighteen months ago (268).

Social search – such as Google, plus Your World, and Microsoft's Bing – is shaping the future of search engines, making search results more personal, more comprehensive, and hopefully more useful. It is shifting the landscape of search engine optimization (SEO) to incorporate "Friend Effect" in addition to keywords, meta tags, cross-linking, and other traditional SEO techniques. Google co-founder Larry Page once said, "The ultimate search engine is something as smart as people – or smarter" (269).

2.19   Self-Destructing Messages

Self-destructing messages were popularized by the Mission Impossible TV series starring Peter Graves (270) and the motion pictures of the same title starring Tom Cruise (271). Like the seemingly impossible moon landing, Hollywood has repeatedly predicted the future, including self-destructing messages.

Launched in September 2011, Snapchat is a photo messaging app developed by Evan Spiegel and Robert Murphy at Stanford University. Users can send each other ephemeral photos, videos, text, and drawings (collectively known as snaps) that self-destruct after 1 to 10 seconds (272). Snapchat quickly earned a notorious reputation as a tool for sending risqué messages. In October 2013, Snapchat introduced Stories that are rolling compilations of snaps that last at most 24 hours (273).

By April 2014, over 700 million snaps are shared per day on Snapchat – more than Facebook, WhatsApp, and other social networks. Snapchat Stories have amassed 500 million views per day (274).

Although a major goal of Snapchat is to avoid the privacy pitfall of social media, it is far from foolproof. First, the recipient can take a screenshot before the time runs out. Second, "expired" Snapchats can be brought back from the dead. "As a digital forensics firm," said Richard Hickman, digital forensic examiner at Decipher Forensics. "We offer for anyone wanting to retrieve their Snapchats for an affordable price of $300-$600. Parents and law enforcement can mail us phones, and we will

extract the Snapchat data, and send the phone and data back in a readable format" (275).

In May 2014, Snapchat settled charges with the Federal Trade Commission for deceiving customers about self-destructing messages. Moreover, Snapchat also uploaded entire contact lists from users' iPhones without permission. "If a company markets privacy and security as key selling points in pitching its service to consumers, it is critical that it keep those promises," said FTC Chairwoman Edith Ramirez (276).

When Snapchat repeatedly refused Facebook's acquisition offers, Facebook followed suit and released the Facebook Poke app in December 2012 (277). Essentially a Snapchat clone, Facebook Poke lets users discreetly send messages, photos, and videos that are deleted in a few seconds.

In April 2013, following the trend popularized by Snapchat and Poke, Efemr offers an app that posts time-limited messages, photos, and videos to Twitter (278). Tweets are automatically deleted after a set amount of time chosen by its user, but Efemr clarifies on its website that "due to the different time zones and third party server response time, efemr may not be able to delete tweets at the exact time chosen. There may be a delay of approximately 1 to 3 minutes" (279).

In June 2014, Facebook launched the Slingshot app to allow users exchange photos and videos without requiring Facebook accounts (280). Like WhatsApp, users signs up for Slingshot with their mobile phone number. Similar to Snapchat, photos and videos disappear from users' smartphones after they are viewed.

Apple also jumped on the self-destructing message bandwagon in June 2014 when it announced that audio and video messages within iOS 8 will automatically vanish within a few minutes. "You don't want to have to clean these up," said Greg Joswiak, head of iOS product marketing. "Audio and video messages can take up space, so they're set to self-destruct unless you choose to keep them" (281).

2.20   Facebook Anonymous Login

In June 2010, chief political correspondent Declan McCullagh at *CNET* reported that "even if someone is not a Facebook user or is not logged in, Facebook's social plug-ins collect the address of the Web page being visited and the Internet address of the visitor as soon as the page is loaded – clicking on the Like button is not required. If enough sites participate, that permits Facebook to assemble a vast amount of data about Internet users' browsing habits" (282).

Four years later at the April 2014 f8 Conference, Facebook unveiled Anonymous Login that allows users to sign into apps without sharing their identities and personal information contained in their Facebook accounts (283). Circumventing privacy concerns helps to eliminate the potential barrier for many users to try out new apps – a welcome news for both app developers and users.

According to Facebook, Anonymous Login promises to be a great feature for third-party app developers (284):

- The most convenient way for people to log into your app without sharing their personal information.
- An easy way for people to try your app: Increase your conversions by helping people get started with your app quickly. They won't have to create a password or share their personal information.
- One login across every device: Just like Facebook Login, when people log in on one device, they can continue their experience across their other devices. It's the best combination of convenience and privacy.
- Fully compatible with Facebook Login: Anonymous Login is designed to work seamlessly with Facebook Login. People using your app can upgrade from Anonymous Login to Facebook Login with just a few taps.

Shortly after the introduction of Anonymous Login, Facebook announced in May 2014 that it was going to reduce the amount of automatic posts from apps to users' News Feed. In other words, Facebook gave up on automatically posting everything we do online with Instagram, Pinterest, Farmville, Spotify, RunKeeper, and other apps (285). Instead of sharing stories implicitly, users can explicitly share their Open Graph stories and have more control over when they share from the apps that they use (286).

CNN's Doug Gross commented on Facebook's privacy stand in 2014: "Critics have questioned Facebook's commitment to privacy over the course of its 10-year history, claiming the company would prefer users share as openly as possible--which advertisers like--than adjust their settings to be more private. But changes in recent months suggest the social platform has decided on a different tack" (287).

To the privacy advocates, it seems that Facebook is finally heading the right direction!
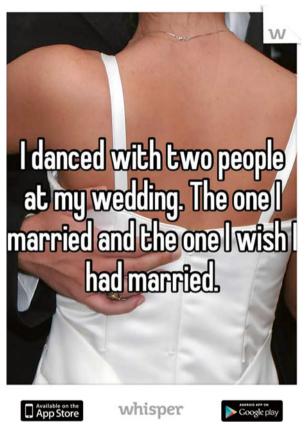
2.21   Anonymous Social Apps

With Confide, Rumr, Secret, Whisper, and Yik Yak, a growing number of anonymous social apps enable people to share whatever they are thinking anonymously without worrying about consequences. As a result, there is no way to tell what posts are true or false. Some messages are brutally honest while some others may be deemed offensive. One of the posts on Whisper said, "I danced with two people at my wedding. The one I married, and the one I wish I married instead" (288) (see Fig. 2.2).

Whisper CEO Michael Heyward told *Business Insider*, "You are who you are when no one else is looking. Anonymity is a really powerful tool. But we think about it like that Spiderman' quote: 'With great power comes great responsibility.' Think about all the things you can do with a hammer. You can build something great ... or you can kill someone" (289).

In June 2014 during the intensifying conflict in Iraq, many Iraqis could not get on Facebook and Twitter, but they were able to use the Whisper app to share real-time information anonymously. Before the media could confirm the U.S. embassy's

Fig. 2.2 An Anonymous Post on Whisper

partial staff relocation, a whisper was posted online: "US embassy in Baghdad is evacuating!!! Yepppppppp!!!!" (290).

A month prior in May 2014, Secret made to the top 10 most popular downloads on the Apple App Store in Russia, Ukraine, Moldova, Latvia, and The Netherlands. Secret user registration requires no real names and no user profile, because "it's not about who you are — it's about what you say. It's not about bragging — it's about sharing, free of judgment" (291).

The anonymous social app is expanding to the United States and China. In an email to *TechCrunch*, Secret co-founder David Byttow wrote, "Secret has caught on in Russia. It climbed to the #1 social network in a number of days. They really love it. ... China is a special market, and one can't expect to just put English product in China or simply translate it and call it a day. It takes a local team to build for the Chinese market. Usually this involves forming a joint-venture or some other arrangement" (292).

Inspired by Secret, Leak is a new service launched in August 2014 to allow people to send anonymous emails without using their own email addresses. "We

wanted Leak to be a really positive and exciting tool," said Leak cofounder Laurent Desserrey. "It's sure that people can send negative leaks, but that is really not what the product is about. It's about saying the truth you're ashamed to say. And if it's getting negative you can block emails from Leak" (293).

Upfront Ventures' general partner Mark Suster opines that "at its best apps like Secret or Whisper can be a place where people can reach out to the community for support. They could be a place to find solace when you're lonely or problem solve when you don't know who else to turn to. But for now Secret is not that. It's something all together different. It is … Perez Hilton. TMZ. Joan Rivers. Geraldo Rivera. All rolled up into one anonymous bitchy session" (294).

In spite of the potential risk of misinformation and disinformation, anonymous social apps can be powerful tools for citizen journalists, whistleblowers, political activists, crime tippers, and other cybercitizens whose online privacy is a matter of the utmost importance.

2.22 Responses to Zero Privacy

Absolute privacy is unattainable. Everything we say can be captured and deciphered remotely by picking up the vibrations on a window, a plastic cup, or a leaf of a houseplant in the room (295) (296). Researchers at Intel and University of California, Berkeley demonstrated that private information can be extracted from encrypted HTTPS communications by searching for patterns in the data stream (297). New York artist Heather Dewey-Hagborg extracted the DNA from a strand of hair, a cigarette butt, or a chewed piece of gum from a public place, and then recreated a 3-D face in the form of a portrait sculpture that resembles the person who left the DNA behind (298).

In response to Scott McNealy's statement, "You have zero privacy anyway. Get over it" (6), *PC World* columnist Stephen Manes wrote, "He's right on the facts, wrong on the attitude. It's undeniable that the existence of enormous databases on everything from our medical histories to whether we like beef jerky may make our lives an open book, thanks to the ability of computers to manipulate that information in every conceivable way. But I suspect even McNealy might have problems with somebody publishing his family's medical records on the Web, announcing his whereabouts to the world, or disseminating misinformation about his credit history. Instead of 'getting over it,' citizens need to demand clear rules on privacy, security, and confidentiality" (299).

In light of Edward Snowden's NSA leaks, author Jack Cheng wrote on *CNN*, "The revelation that the government is snooping on our communications in the interest of national security is nothing new. This latest incident doesn't come as a shocker. ... Privacy is not dead. ... It is not simply a matter of sharing more or less; not merely how much but in what way and with whom. Privacy is contingent on who we're trying to keep something private from – family, friends, acquaintances, employers, strangers. ... Friends of mine will untag themselves from Facebook pho-

tos to hide more unflattering images of themselves if they are 'friends' with their employers. Some refrain from posting to Facebook things they don't want their parents to see, opting for Twitter instead, where their parents don't have accounts. Snapchat is built around a privacy-minded constraint: Mission Impossible-esque messages that self-destruct shortly after opening. ... The kind privacy that is becoming more of the norm is dependent on our ability to move freely among the myriad services and apps, and to opt in selectively, both in what we use and how we choose to use them" (300).

A security expert and longtime organizer for DEF CON, Nico Sell cofounded Wickr, a mobile app that provides military-grade encryption of text, picture, audio and video messages as well as anonymity and secure file shredding features. "Privacy is dead," Sell told Laurie Segall in a *CNN* interview in June 2014. "Ownership is not dead. Everyone cares about owning their conversations and their pictures. I think that's the word we need to start using instead of privacy, because privacy has been tainted" (301).

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