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# Blinded by the light: Illuminating the dark side of social network use through content analysis

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ABSTRACT

The present study reveals the results of a content analysis of the descriptive, textual communication, and photo content found in 208 college student Facebook profiles. An a priori coding scheme was developed for this investigation based on (1) news reports and stories on controversies surrounding online social network use, (2) research on social uses of the Internet, and (3) insights from the author, a longtime Facebook user. Results show that all categories of controversial content were more frequent than any of the prosocial content categories, suggesting that there is an overrepresentation of negative content on Facebook, even though many of the specific frequencies are low. In addition, the vast majority of students did not disclose personal contact information on their profiles, and males and females differed in the amount of personal contact information and controversial content disclosed. The study results document the nature of online social network content and point to possible effects of displaying and/or being exposed to controversial content online.



## 1. Introduction

Social networking sites (SNS) have emerged as one of the most popular forms of Internet communication. These websites allow users to post personal information and communicate with other members through a variety of channels. The number one SNS worldwide, Facebook, has more than 750 million unique monthly visitors (Alexa, 2013). Yet, as Facebook has skyrocketed in popularity, a trail of controversy has followed. 45% of employers are reportedly using the site to screen job applicants (Hill, 2012), and cyberstalkers have used SNS like Facebook to find information on potential victims (Sodhi & Sharma, 2012). In truth, how much potentially "damaging" material is actually on Facebook? Popular media coverage may suggest controversial content (e.g., pictures of and/or references to partying, alcohol, drugs, sex, profanity, nudity, etc.) is rampant, but this is not necessarily the case. Despite the lack of research surrounding Facebook profile content, user interest in the SNS is undeniable. This paper presents the results of a content analysis of the prevalence of controversial content on Facebook.

### 1.1. About Facebook

Facebook was created by Mark Zuckerberg and introduced to the students of Harvard University on Wednesday, February 4th, 2004. News of the social network quickly spread across campus, and over two-thirds of the student population became registered members within the first few weeks of its existance. The "craze" then expanded to other Ivy League colleges, including: Columbia, Cornell, Georgetown, MIT, Stanford, and Yale (Arrington, 2006). Since its launch nearly ten years ago, Facebook has grown to more than 1 billion active users in numerous countries, with more new users joining daily (Ljepava, Orr, Locke, & Ross, 2013; Newsroom, 2013).

Facebook's popularity surge is astounding; according to Shaw (2012), "social media accounts for 18% of all time spent online," with the average American devoting 22.5% of their Internet usage to these sites (Nielsen, 2011). It is nearly impossible to avoid references to Facebook in today's culture. Communication and mass media courses discuss its benefits and drawbacks, evening news stories report on its surrounding controversies, magazine and newspaper headlines amplify the risks and benefits of its use, NASDAQ notes its daily stock price, and even hip-hop artist, Nsami, raps about it in his song *Facebook Livin'*. These are just a few of the ways SNS have captured the attention of the general public, and college students in particular. As of 2009, more than 90% of young adults in the US were routine Internet users (Lenhart, Purcell, Smith, & Zickuhr, 2010). Today, upwards of 8 out of 10

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young adults have a registered Facebook profile (Brenner, 2012), with college students logging in, on average, five times per day for more than 100 minutes in total (Junco, 2012). These figures have clearly multiplied at exponential rates with the addition of new users and novel features available to Facebook members (e.g., creating personal applications, uploading videos, live chat, gaming, etc.).

Although there are similar websites (e.g., Twitter, LinkedIn, Tumblr, etc.), those behind Facebook attempted to maintain the feel of a small, safe, personally networked community and took many precautionary steps in doing so. Unlike other SNS, Facebook membership was originally limited to college and university students, and uploaded photographs were routinely screened for pornography. It was then opened up to high school users in 2005, and for everyone worldwide at the end of 2006 (About Facebook., 2013).

As of today, anyone with access to a valid email address can register for membership and login to the site. Each member creates a profile with photographs and varied degrees of personal information ranging from: college attended, gender, birthday, hometown, and place of employment, to political views, favorite quotes/movies/music/television shows, and relationship status (see Fig. 1).

Members can surf Facebook and browse other profiles of students, alumni, staff, faculty colleagues, family members, and acquaintances, along with making requests to be connected to them as "friends." Once a request link has been made, the other person receives a notification that someone has listed and asked for his or her friendship, and the person has the choice of whether to accept or deny the request. If the request is accepted, the two members are bound together as "friends" and have access to each other's profiles even if one or both are private, and this will remain in effect until one or the other decides to break the connection link by "defriending."

To date, ample academic research has focused on Facebook and other SNS as a virtual space to spread healthcare messages, news stories, and political agendas, grow business and adopt new marketing strategies, impact users' self-esteem and self image, spout hate messages and stalk potential victims, promote learning in higher education, and meet important needs and wants. However, no existing studies have looked specifically at the content of the sites through a content analysis.

Several articles explored the subject of treating SNS as unconventional healthcare platforms since they are available not only for private use, but for professional networking in the healthcare field as well (Luo, 2007). Through both quantitative survey and qualitative interview data, Vyas, Landry, Schnider, Rojas, and Wood (2012) found that Latino adolescents perceive public health messages on SNS as credible and as an essential way to receive them. Bull, Levine, Black, Schmiege, and Santelli's (2012) trial experiment attempted to determine whether SNS could be used for health education interventions regarding sexually transmitted infections (STI). Data revealed that STI prevention "push" notifications posted on Facebook could, in fact, help "facilitate prevention of declines in condom use among high-risk youth in the short term" (p. 471). Wolynn (2012) also discussed the use of SNS to promote and support breastfeeding through push notifications:

> We have to go where the people are, make ourselves available and relevant and valuable in their social networks and in their social media platforms, and then push our information to them every month, every week, every day…Pushing is fast, convenient, almost effortless, and highly effective at reaching its target(s). It's the kind of communication at which social media excels and the kind to which Generation Y—and, if those staggering numbers are any indication, a whole lot of other generations—is happy to consume, to consider, and to adopt as their own. (p. 365)

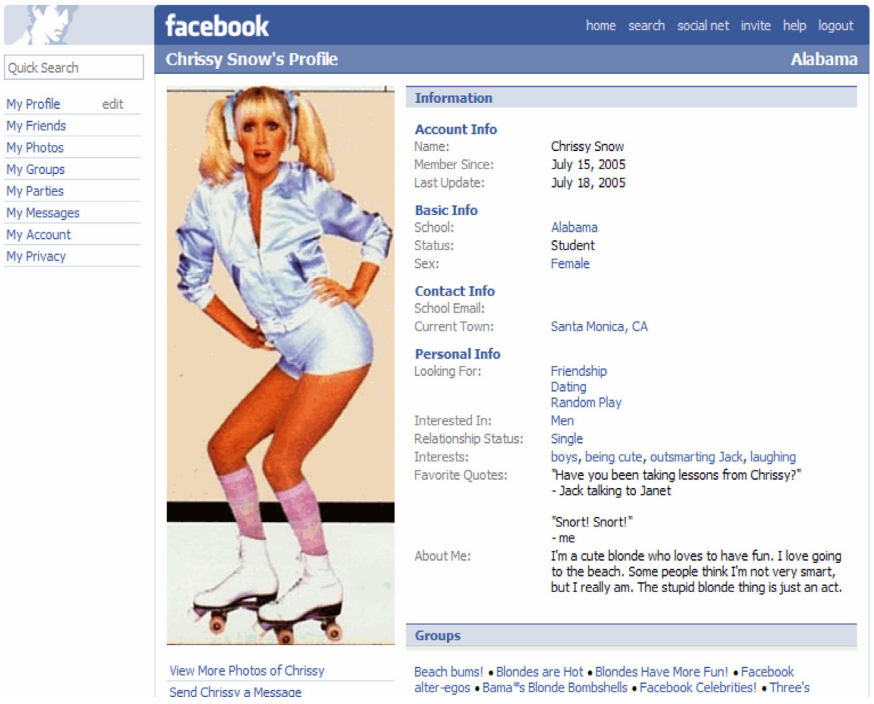


**Fig. 1.** *Note*: Facebook profile example from 2006.

There has also been research conducted on SNS and source credibility. Two studies examined the strength of ethnic identity of a spokesperson promoting health messages (Spence et al., 2013; Spence, Lachlan, Westerman, & Spates, 2013). The results indicated strong evidence for tailoring messages based on the target audience in question. Additionally, Edwards, Spence, Gentile, Edwards, and Edwards (2013) investigated the effects of Klout score (overall influence on a social network) on source credibility, competence, and character and found that online users are able to make credibility judgments about others, even with limited exposure or contact.

Another line of research has focused on SNS as a means to disseminate both print and television-based news. Oeldorf-Hirsch (2012) conducted an experiment to evaluate the potential benefits of seeing and sharing news content on Facebook, and how this can lead to further engagement. The results suggest that feelings of involvement increased when a user shared a news story accompanied by his/her own opinion about the topic. In addition, users who tagged friends felt a greater sense of community and influence, and more "likes" led to greater interest, involvement, positive psychological outcomes, and feeling informed about the topic. Glynn, Huge, and Hoffman (2012) found that extroverts, younger people, those with lower life satisfaction, and women were significantly more likely to use Facebook for news purposes (e.g., reading news, posting links to news stories, commenting about news events, etc.). Another interesting finding was that these relationships could, in part, be driven by the fact that these types of people are more likely to spend significant time and post more content on Facebook. Holton and Chyi (2012) also noted that news stories accessed through Facebook can lead to news surplus or overload, which can ultimately cause people to shut down cognitively. This indicates that a delicate balance must be struck between using SNS to broadcast news and the amount that is presented to users.

Nonprofit, for-profit, and government agencies have also followed suit and are now using SNS to take audiences from passive bystanders to interactive consumers and engaged political activists (Kelly, 2007). Businesses and corporations are relying heavily on the word-of-mouth marketing that can take place through these sites. It allows companies to share content, create opportunities, build a network of contacts, and increase relationship management and sales performance (Rodriguez, Peterson, & Krishnan, 2012). Lovejoy and Saxton (2012) observed that nonprofit organizations focus on information, action, and community messages when using SNS to engage the public and stakeholders. Another study found that these organizations use social media "to inform and educate viewers about their missions, programs, and services...[and] discuss the organizations' advocacy, volunteering, and fundraising efforts" (Waters & Jones, 2011, p. 248). Politicians and government agencies are also using SNS as an influential marketing tool. During the 2008 presidential election, more than 1,000 Facebook groups were created centering on Barak Obama and John McCain (Woolley, Limperos, & Oliver, 2010). Conroy, Feezell, and Guerrero (2012) discussed the implications of SNS political group membership and political engagement (e.g., knowledge and participation), noting that SNS group involvement transferred to political participation offline. De Zúñiga (2012) found similar results, stating that political knowledge and efficacy, along with frequency and size of political discussion networks, are significant predictors of on- and offline political participation.

These sites have also motivated investigations into the link between SNS use and self-esteem. Valkenburg, Peter, and Schouten (2006) investigated the impact of SNS on teenagers' sense of worth and confidence, arguing that "positive feedback on the profiles enhanced adolescents' social self-esteem and well-being, whereas negative feedback decreased their self-esteem and well-being" (pp. 585). Over a course of three studies, Forest and Wood (2012) found that those with a low self-esteem considered Facebook to be a good platform for self-disclosure; however, their pessimistic and depressing posts prompted unwanted negative responses from other people. Conversely, Gonzales and Hancock (2011) observed that people who updated and viewed their own Facebook profiles experienced a greater sense of self-esteem. In addition, Mehdizadeh (2010) revealed that people who rate higher in narcissism and lower in self-esteem were more active on Facebook and frequently posted self-promotional content (e.g., flattering photos, positive comments about themselves, inspirational quotes, etc.). Similarly, Kalpidou, Costin, and Morris (2011) found that having a large number of Facebook friends thwarts academic and emotional adjustment among college freshman, though the opposite relationship exists for upper-classmen. Results also indicated that spending a lot of time on SNS is related to low self-esteem.

An additional area of research has focused on the implications of using social media in higher education settings to enhance learning and social connectedness (see Cardona-Divale, 2013; Everson, Gundlach, & Miller, 2013; Hung & Yuen, 2010; Nobles, 2012; Ractham, Kaewkitipong, & Firpo, 2012). Most recently, however, the social networking hype has shifted towards cyberbullying and cyberstalking. This form of harassment is considered to be crueler and more damaging than traditional bullying because of "an increased potential for a large audience, an increased potential for anonymous bullying, lower levels of direct feedback, decreased time and space limits, and lower levels of supervision" (Sticca & Perren, 2013, p. 739). Many users place personal information on the Internet, fully expecting it to remain private; however, uploading photos or information on the World Wide Web allows the entire online universe to access it at any time, even when it has been hypothetically "deleted." This generally unknown reality has led to personal problems and legal situations for numerous users. SNS are essentially "replacing the street corner and playground discussions of the past [and] any digital record can confront its author again as an e-discovery document in a court of law" (Ponschock, 2007, p. 4371). Moreover, cyberbullying and cyberthreats are causing much trepidation in schools and concern for parents. Willard (2007) predicted the real-life online risks that teenagers take when they log on to SNS: offensive posts, malicious rumors, bigotry and hate, exclusion from online groups, intimidation and harassment, and the disclosure of one's own personal intimate information by other peers online. Kwan and Skoric (2013) found that engagement in risky online behaviors (e.g., disclosing personal information, posting controversial content that could compromise safety, friending or accepting friend requests from strangers, etc.) was positively related to bullying. They also noted that 59.4% of users experienced at least one form of bullying on Facebook in the last year (e.g., receiving offensive messages, insults or threats, being made a spectacle to laugh at, experiencing exclusion from groups, and being tricked or coerced into revealing confidential information).

With the plethora of studies concerning social media as a healthcare platform, news source, business and political lobbying venue, classroom tool, and self-esteem obstacle, one cannot deny Facebook's popularity and importance in interactive communication now and in the future. Previous studies on SNS have been successful at incorporating marketing strategies, adolescent self esteem issues, and fear tactics. By posing good questions and tackling touchy topics, researchers have created the stepping-stones for further examination; nevertheless, no prior research has empirically documented content posted on Facebook profiles through a content analysis. Answers to this question could help predict the nature and pervasiveness of information that users choose to place on their Facebook profiles, as well as strengthen our understanding of how and why people use SNS.

### 1.2. Controversy surrounding Facebook

Some high-profile cases involving Facebook have recently received unfavorable news coverage. Students have posted controversial material (e.g., alcohol, drugs, partying, profanity, sexual contact), and the media, parents, and authority figures have generalized such misconduct to a sizable segment of the student population. Critics are making the assumption that most Facebook users are tactless, irresponsible, and reckless "kids" who are out of control.

Although these kinds of antics online may appear to be harmless fun, the fact that many Facebook members are unaware that their profiles are now being scrutinized by faculty members, potential employers, athletic officials, and even public safety officers is a major concern because this scrutiny may expose damaging information about their lives (Bedi, 2013). Revealing posts and exceedingly risqué pictures online can not only lead to embarrassment but often bring much more detrimental consequences.

Employers are now using Facebook to get a better feel for and learn as much as they can about an applicant (Black & Johnson, 2012; Brown & Vaughn, 2011; Slovensky & Ross, 2012). Research suggests that judgments of other peoples' personality characteristics based on information posted on SNSs may be accurate (Back et al., 2010). Moreover, close friends of other SNS users indicate that their friends have accurately portrayed themselves on their profiles (Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011). This is consistent with the assertion that people present a more truthful impression or identity to larger audiences (Schlenker, 1980). However, students whose profiles detail weekend beer-binges and photos of their latest pole-dance extravaganza could be turned down for employment even before making it to the first round of interviews. Such an instance occurred when a promising applicant and recent graduate of Illinois University was denied a high-quality consulting job in Chicago after his potential employer logged onto Facebook and discovered his explicitly vulgar interests: "smokin' blunts, shooting people and obsessive sex" (Finder, 2006, p. 7). Unfortunately, posts like this are often viewed out of context, and snap judgments could be made with adverse consequences for the applicant.

Additionally, campus police are using Facebook as an undercover law enforcement tool to investigate illegal student activities. Feffer (2006) explained that the Ann Arbor Department of Public Safety and Police Department admit their investigative use of Facebook at the University of Michigan. Security at Penn State also used Facebook profiles and photos "to identify students who rushed the school's football field after a victory against Ohio State University" (Tambe, 2006). From the gathered information and incriminating photographs, officers amassed grounds to investigate, and even punish and make arrests.

Another example is the reprimanding of four college students attending Northern Kentucky University. The students posted an incriminating photograph of themselves surrounding a beer keg in their dorm room; an on-duty Resident Advisor (RA) saw the photos and immediately phoned authorities. All four students received a one-year on-campus probation, $50 fines, and orders to take an Alcohol Awareness class focusing on the dangers of binge and underage drinking (Davenport, 2005). Additionally, two top-ranked swimmers from Louisiana State University lost their athletic rights and scholarships and were removed from the team because of their affiliation with a Facebook group that ridiculed and belittled their swim team coaches (Brady & Libit, 2006).

Furthermore, over 100 students from Eden Prairie High School in Minnesota were reprimanded and suspended from sports and other extracurricular activities due to the "partying" nature of their online photos (Smith & Blanchard, 2008). Lastly, a 19-year-old male was arrested in February of 2013 and put in jail on a $500,000 bond because of a Facebook argument over a video game. The sarcastic post could land him years in prison: "I'm fucked in the head alright. I think I'ma shoot up a kindergarten and watch the blood of the innocent rain down and eat the beating heart of one of them" (Gross, 2013, p. 1). As of July 2013, the 19-year-old was still incarcerated and was on suicide watch as he awaited his trial. These specific cases of controversy and mayhem surrounding Facebook have led to bans on many athletes and students across the country from using the website; and the cases have sparked heated debates of privacy issues.

However, police officials, college administrators, and prospective employers are not the only people using Facebook to search for information about student members. Jones, Mitchell, Wolak, and Finkelhor (2013) note that in 2010, 1 in 10 young adults reported receiving unwanted sexual solicitations online. An instance in Fox Lake, Illinois involved the arrest of a 23-year old male who masqueraded as a high school girl on Facebook to lure a 15-year old boy to his residence for sex (Wischnowsky, 2007). "Internet sex crimes involving adults and juveniles more often fit a model of statutory rape—adult offenders who meet, develop relationships with, and openly seduce underage teenagers—than a model of forcible sexual assault or pedophilic child molesting" (Wolak, Finkelhor, Mitchell, & Ybarra, 2010, p. 13). In other words, some people are using SNS to seduce, groom, and manipulate potential victims.

Consequently, social network concerns shifted not only to sexual predators and inappropriate material, but also towards issues of privacy invasion. Perhaps two of the largest Facebook debacles to date occurred in September of 2006 and December of 2011 with the implementation of "News Feeds" and the "Timeline," respectively. These features give logged in members a list of the most recent information about their friends, along with all past uploaded posts, events, and photos. Although this information can be sought out by going through a number of steps, the News Feed and Timeline allow members easy access to personal information about each Facebook friend. Users are automatically informed when their friends add new photos, update their status, write on another friend's Wall, or even end a relationship with their significant other. All of this gives Facebook a slightly "stalker-esque" feel. At the onset of the News Feed and Timeline, there were countless complaints, official petitions, anti-News Feed and Timeline groups, and even boycotts against the website.

Students are beginning to feel their confidentiality has been breached. Student government leaders at the University of Dayton and Princeton University have gone so far as to enforce public safety policies that forbid the use of Facebook exclusively for collecting controversial material on students (Students plead for Facebook privacy, 2006). Ironically, however, all posted information, including profile details, contact information, photographs, friends, groups, and even Facebook membership, is *all voluntary*, under control of the user. Users of this service actively choose what to place on their profiles, and in turn, "undergraduates are susceptible to social phishing, identity theft, cyberaggression, and erosion of personal privacy" (Dillard, 2011, p. 3705).

In line with the uses and gratifications perspective (Blumler & Katz, 1974), one can assume the choices are made to satisfy social (and other) needs. Xu, Ryan, Prybutok, and Wen (2012) discussed that people use SNS to meet several needs in particular: "utilitarian (rational and goal-oriented) gratifications of immediate access and coordination, [and] hedonic (pleasure-oriented) gratifications of affection and leisure" (p. 210). Kapidzic (2013) found a significant relationship between narcissistic personality traits and the

motivation to post pictures that highlight attractiveness and character. Hart (2010) observed that high school students used Facebook to pass time, and college students used the SNS for relationship maintenance. Several other studies noted that Facebook users tend to be more extroverted, narcissistic, and neurotic than nonusers (Ryan & Xenos, 2011; Seidman, 2013).

### 1.3. Effects of controversial Facebook content

Recent research on the effects of controversial media content has focused on cultivation-related responses to television. Shanahan, Scheufele, Yang, and Hizi (2004) argued that frequent exposure to controversial content, such as smoking on television programs, would positively correlate to prevalence estimates of smoking in society. Additionally, findings of an experimental study by Kean and Albada (2003) revealed that exposure to alcohol consumption on TV influenced mental constructs concerning alcohol use. Riddle (2010) found that people who watched violent television programs gave higher estimates of real-world crime rates and police corruption. Furthermore, Beullens, Roe, and Van den Bulck (2011b) noted that people with a greater exposure to action programs were more likely to engage in reckless driving or taking risks in traffic. Although cultivation theory was developed to address the effects of television content, it has recently been applied to newer, more interactive media, such as online video games (Beullens, Roe, & Van den Bulck, 2011; Cicchirillo, 2010; Van Mierlo & Van den Bulck, 2004; Williams, 2006), and may apply to SNS as well. The question remains whether exposure to anti-academic (e.g., alcohol consumption, drug use, partying, etc.) or pro-academic (e.g., studying, reading, sitting in class, etc.) behaviors ultimately affect the users of Facebook.

While no research to date has examined the effects of controversial content occurring on SNS, it is probable that long-term exposure to such content would lead to higher estimates of the occurrences of certain behaviors in the real world, in line with cultivation theory predictions (Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002). This should be especially true among users with little direct experience with college, such as high school and middle school students, who may internalize these perceptions and use them as future guides for behavior (Van Baaren, Maddux, Chartrand, de Bouter, & van Knippenberg, 2003). And on a more fundamental level, employers (and other power brokers) who see controversial content online would presumably be less likely to hire students who display it, to the determent of an as yet undetermined percentage of the population of student users. It remains unknown what specific information college students are disclosing on their Facebook profiles.

Until now, the content of Facebook and other SNS profiles came from speculation or case example evidence in university newspapers or news broadcasts. A careful look into the types and nature of information students choose to place on their profiles can begin the process of documenting the prevalence of certain forms of content as well as answering questions about why people use these sites. Given the lack of research on controversial content on SNS, the present investigation was directed by four research questions stemming primarily from the controversies discussed earlier and interest in gender differences in Facebook use:

RQ1: How prevalent is controversial content on Facebook?
RQ2: How frequent is anti-academic behavior compared to pro-academic behavior?
RQ3: How much personal information do Facebook users disclose?
RQ4: Are there differences between genders in amount of personal information and controversial content disclosed?

## 2. Methods

Content analysis has been applied to virtually all forms of communication, including: newspapers, magazines, books, radio broadcasts/commercials, speeches, literature, television, video games, blogs, and the Internet (Gunter, 2000; Holsti, 1969; Krippendorf, 2004). Developing a systematic coding scheme is imperative to launching a content analysis (Kaid & Wadsworth, 1989; Krippendorf, 2004; Nuendorf, 2002; Weber, 1990). In the present study, controversial content on Facebook was coded using an a priori content analytic coding scheme that incorporated category features of significance based on a search and examination of (1) news reports and stories on controversies surrounding online social network use, (2) research on social uses of the Internet, and (3) personal experiences of the author, a longtime Facebook user.

### 2.1. Sample

College student profiles were drawn from the Facebook website using the "browse" option available in 2006, which allowed for the selection of random profiles (in increments of ten) from the University of Minnesota network; every tenth profile was selected for coding. The front profile page was the unit of analysis for all non-photo content. Photographs were drawn from the "view more photos of" option, which presented a page of different snapshots of the profile user. This provided a sample of user photo content, with the page of photographs serving as the unit of analysis in this case. The "view more photos of" selection was also the first link to photos on a Facebook profile, and is likely the first link viewers would click on to see the user's photographs. Following a reliability check with 50 profiles, a considerably larger sample of 161 undergraduate student Facebook membership profiles was randomly selected from the Facebook database, to be added to the reliability sub-sample. Upon examination of the coding sheets and remote name identifications, it was found that the coders coded three identical Facebook profiles. The redundant coding sheets were deleted, for a final n of 208. Analysis was based on both male and female students (male: 49%, $n = 102$, female: 45%, $n = 94$, not identified: 6%, $n = 12$) ranging in age from 17 to 28, with a mean age of 21.12 years ($SD = 2.17$).

### 2.2. Measures

All content variables (except sex and age) were dummy coded with "1" indicating "present" and "0" indicating "absent." Each variable was defined in detail in the codebook, based in part on pilot examinations of Facebook content by the author. Brief descriptions of each variable are given below, by category.

#### 2.2.1. Interests/Wall post content

The same four variables were coded for in interests and Wall posts. (1) *Reference to Partying* included words such as barbecue, bash, fiesta, gathering, get-together, partying, etc. (2) *Reference to Alcohol Use* included words and phrases such as hitting the bottle, getting trashed, boozed up, drunk, being tanked, wasted, plastered, etc. (3) *Reference to Drug Use* included words and phrases such as getting high, smoking a joint, hitting a blunt, tripping out, coked, wigged out, ripped, etc. (4) *Profanity* included the words bastard, bitch, damn, fuck, hell, shit, slut, whore, etc. Example words that did not count included suck, jerk, dang, etc.

#### 2.2.2. Photo behavior

Eleven variables were coded for within this category. (1) *Partying Shown* included depictions of groups of three or more in a festive-looking atmosphere. (2) *Alcohol Shown* was any photo with persons holding alcohol (bottle/glass/can/cup) or with alcohol in

the background, etc. (3) *Alcohol Consumption Shown* were photos with a bottle/glass/can/cup held up to the person's mouth. (4) *Drugs Shown* included photos with cigarettes, marijuana, marijuana paraphernalia, needles, etc. (5) *Drug Use Shown* included someone smoking a cigarette or joint, using marijuana paraphernalia, injecting needles etc. (6) *Studying/Reading* photos included one or both of those behaviors. (7) *Sitting in Class* involved being in a classroom and/or lecture hall, directing attention at an instructor, etc. (8) *Meeting with a Group* referred to people attending a formally arranged gathering intended for some common purpose, including people working to complete a project, etc. (9) *Physically/Sexually Suggestive Contact* included people deliberately kissing, holding hands, grinding, licking, touching and/or grabbing sexual body parts, etc. (10). *Nudity* included full frontal, partial, or rear nudity/nakedness such as a naked bottom, bare breasts, exposed genitals, etc. (10) *Nonverbal Aggression* was someone hitting and/or kicking another person, physical conflict with others, displaying the middle finger, etc.

#### 2.2.3. Remaining variables

Types of contact info coded for included landline phone number, cellular phone number, IM screen name, and address, which had to be a full and not partial address. Sex was coded based only on information provided by individual users; if they did not include their sex, it was coded as "unspecified." Age was computed based on the month, date, and year information provided by users.

### 2.3. Training and reliability

A team of five trained and reliable coders examined the profiles for the features described above. Coders were provided with a detailed manual containing specific coder instructions and information, comprehensive definitions of the conceptual and operational characteristics to be coded, and coding sheets (Appendix A). Following thorough review of the codebook manual to ensure all coders understood the required tasks and instruction, reliability tests were conducted, using 24% (50/208) of the total sample of profiles, to determine the consistency of their coding assessments.

The preliminary coding revealed a need for the use of separate sets of coders; therefore, the five coders were split into two teams: one team of three coders to code the descriptive variables and textual communication variables, and the other team of two coders to code the photo content/behavior variables. Coders were trained until attaining at least a .70 level of agreement on all variables. Intercoder reliability was computed using Cohen's Kappa. Given the straightforward measures for demographics (e.g., age, sex), coders reached perfect agreement on identifying these specific attributes. The remaining reliabilities are as follows: (a) *interests content*: reference to partying (.66), reference to alcohol use (.82), reference to drug use (.71), and profanity (.92); (b) *wall post content*: reference to partying (.80), reference to alcohol use (.92), reference to drug use (.86), and profanity (.85); (c) *photo content/behavior*: partying shown (.88), alcohol shown (.92), alcohol consumption shown (1.0), drugs shown (1.0), drug use shown (1.0), studying/reading (1.0), sitting in class (1.0), meeting with a group (did not occur), physically/sexually suggestive contact (.93), nudity (did not occur), and nonverbal aggression (.95); (d) *contact information*: AOL Instant Messenger (AIM) screen name (1.0), mobile phone (1.0), landline phone (1.0), and address (.90).

## 3. Results

To answer the first and third research questions (RQ1 and RQ3) advanced in this study, descriptive statistics and frequencies were computed. The second research question (RQ2) was tested using a paired samples *t*-test, and the final research question (RQ4) was tested using an independent samples *t*-test.

### 3.1. Prevalence of controversial content

The analyses began by identifying the amount of controversial content on Facebook. Table 1 summarizes the findings for both controversial (anti-academic) as well as pro-academic content, in three categories: interests, Wall posts, and photos. In terms of interests, 11.1% ($n = 23$) of the users in this sample identified some form of alcohol or "drinking" as an interest, followed in popularity by partying (6.7%, $n = 14$), and drug use references (1.9%, $n = 4$). In addition, 2.4% ($n = 5$) of users included some form of profanity in their interests.

In terms of Wall posts, 36.5% ($n = 76$) of the Facebook users in this sample had profanity in their posts. Common profane words observed by coders included "ass," "bitch," and "fuck." References to partying marked the second most common type of Wall post coded for in this study, mentioned in the posts of nearly one quarter (23.1%, $n = 48$) of users. Alcohol references were nearly as common, mentioned in 19.7% ($n = 41$) of posts, while references to drug use occurred in the postings of a scant 1.4% ($n = 3$) of users.

Shifting to photo content, the most common type of controversial content to appear in photos was alcohol. The majority of Facebook users in this study (52.9%, $n = 110$) had one or more photos with alcohol in them. Of those, 13.5% ($n = 28$) showed alcohol consumption by the user or others. According to coder observations, alcohol appeared in several forms in Facebook photos, including bottles, cans, clear cups, kegs, and even beer bongs, in a few cases. The second most common form of behavior observed, partying, appeared in the photos of nearly half of Facebook users (45.7%, $n = 95$). Sexually suggestive contact was also fairly common, appearing in the photos of nearly a quarter of users (24.5%, $n = 51$). Specific types of contact observed in this category included intimate hugging, kissing, licking, and body grinding. The remaining types of photo content appeared rarely or not at all in this sample of profiles and included nonverbal aggression (4.3%, $n = 9$), drugs (cigarettes in all cases) (3.4%, $n = 7$), drug use (1.9%, $n = 4$), studying/reading (1.0%, $n = 2$), sitting in class (1.0%, $n = 2$), meeting with a school or work group (1.0%, $n = 2$), and nudity (0%, $n = 0$).

### 3.2. Anti-academic versus pro-academic content

To answer Research Question 2, two indices were computed: one for "anti-academic content" or depictions of behavior and substances that would likely hurt a student's academic progress, and a second for "pro-academic content" or behavior that would likely help a student's academic career. The anti-academic content category included photos of partying, alcohol shown, and drugs shown, and the pro-academic content category included photos showing studying/reading, sitting in class, and meeting with a school or work group. These variables were dummy coded (with "1" indicating "present in profile") and then summed to create one three-item index of anti-academic content and a second three-item index of pro-academic content. *T*-test results indicated that anti-academic content was significantly more common ($M = 1.03$, $SD = .91$) than pro-academic content ($M = .03$, $SD = .19$), $t(207) = -15.49$, $p < .01$, two-tailed. On average, users in this study had more than one anti-social behavior or substance in their photos versus nearly zero pro-academic behaviors.

### 3.3. Personal information disclosure

To answer the third research question (RQ3), appearance frequencies were computed for four categories of contact information that Facebook users had the option of displaying in 2006: mobile

**Table 1**
Frequency of Facebook content by type of content.

| | Frequency of Profiles with | Percent of Profiles with (%) |
|---|---|---|
| *Interests* | | |
| Alcohol | 23 | 11.1 |
| Partying | 14 | 6.7 |
| Profanity | 5 | 2.4 |
| Drug use | 4 | 1.9 |
| *Wall post content* | | |
| Profanity | 76 | 36.5 |
| Partying reference | 48 | 23.1 |
| Alcohol reference | 41 | 19.7 |
| Drug use reference | 3 | 1.4 |
| *Photo content* | | |
| Alcohol shown | 110 | 52.9 |
| Partying | 95 | 45.7 |
| Sexually suggestive contact | 51 | 24.5 |
| Alcohol consumption shown | 28 | 13.5 |
| Nonverbal aggression | 9 | 4.3 |
| Drugs shown | 7 | 3.4 |
| Drug use shown | 4 | 1.9 |
| Studying/reading | 2 | 1.0 |
| Sitting in class | 2 | 1.0 |
| Meeting with a group | 2 | 1.0 |
| Nudity | 0 | 0 |

*Note*: Profiles/users were the unit of analysis. Percentages indicate the percent of profiles in the sample showing each type of content. Information is presented in descending order within each of the three main controversial content categories.

phone number, landline phone number, AIM screen name, and address. Results indicate that the majority of users chose to give their AIM screen name (55.3%, $n = 115$). The remaining three types of contact information were far less likely to be provided by users, however. Specifically, only 14.4% ($n = 30$) gave their address, and only 13.9% ($n = 29$) and 5.8% ($n = 12$) gave their cell phone and landline phone numbers, respectively.

### 3.4. Sex differences in information disclosure and controversial content

The final research question was answered using a series of *t*-tests, with user sex as the independent variable and information disclosure and controversial content variables as dependent measures. The first *t*-tests were conducted with dummy coded and summed indices of each major category, and although no differences were found in overall controversial content between males ($M = 1.04$, $SD = .93$) and females ($M = 1.05$, $SD = .88$), $t(194) = -.11$, n.s., there was a significant difference in overall information disclosure. On average, males provided more contact information ($M = 1.06$, $SD = .94$) than females ($M = .76$, $SD = .80$), $t(207) = -15.49$, $p < .01$, two-tailed.

In terms of individual controversial content types, male and female users differed significantly on four out of the eighteen variables, which is above what would be expected through error-rate chance. Males were significantly more likely than females to have alcohol as an interest (male $M = .18$ $SD = .38$; female $M = .04$ $SD = .20$, $t(194) = 3.02$, $p < .01$, two-tailed), to have profanity on their Walls (male $M = .47$ $SD = .50$; female $M = .22$ $SD = .42$, $t(194) = 3.73$, $p < .01$, two-tailed), and to have photos showing alcohol consumption (male $M = .19$ $SD = .39$; female $M = .09$ $SD = .28$, $t(194) = 2.07$, $p < .05$, two-tailed) and photos showing nonverbal aggression (male $M = .07$ $SD = .25$; female $M = .01$ $SD = .10$, $t(194) = 2.06$, $p < .05$, two-tailed).

## 4. Discussion and conclusions

This study documents the prevalence of controversial and privacy-threatening content on Facebook. In doing so, it provides a baseline for future work examining the use and effects of Facebook and other SNS. More importantly, perhaps, this study provides strong empirical evidence for the presence of particular types of Facebook content, at a time when weaker anecdotal claims about the site seem unbridled in the media and among school administrators, potential employers, and others. Findings of this research suggest that some types of potentially controversial content are common, but perhaps not as widespread overall as critics are suggesting.

### 4.1. The face of Facebook content

Although most controversial content types appeared in a minority of Facebook user profiles, some were frequent enough to raise concern. More than half of user profiles contained photos of alcohol (52.7%), almost 20% of users had alcohol references on their Walls, and the most popular interest uncovered in this research was alcohol/drinking, listed in more than 10% of user "interests" sections. This may simply be a reflection of the ongoing problem of heavy and binge drinking on college campuses (Kuo, Wechsler, Greenberg, & Lee, 2003), but it gives the phenomenon a more public face than ever before, with possible negative effects. Potential employers seem very likely to come across alcohol-related content in screening job applicants, which can limit the career prospects of students who use Facebook. And given that partying was the second most common type of controversial photo content, appearing in nearly half of profiles (45.7%), controversial behaviors such as drinking seem likely to appear in a "fun," favorable light, which can affect the perceptions of college, high school, and middle school student users about normative college behavior. Clearly, there is some reason to be concerned about Facebook content, even though only one controversial content type appeared in the profiles of a majority of users.

Another way of examining Facebook content is to look at the frequencies of controversial or "anti-academic" content as opposed to favorable or "pro-academic" content, and this study demonstrates that even though the frequencies of anti-academic content are low, they are much higher than those of pro-academic content. Since Facebook is commonly used by college students, one might expect it to include depictions of scholarly or intellectual behaviors. But instead, this study points to an almost complete absence of pro-academic behavioral content. This can again affect the perceptions of students and others about what college students do and what college life is like, in line with predictions of cultivation theory (Gerbner et al., 2002).

### 4.2. Privacy threats on Facebook

Facebook users do not disclose much contact information, beyond their mandatory email address (present in all profiles). The majority of users in this study gave their AIM screen name (55.3%), but they were far less willing to disclose more "personal" information such as phone numbers and addresses. This may be a product of the news attention cyberstalking and other online crimes have received in recent years. Most Facebook users are likely aware of the dangers of disclosing too much information, and news coverage of these issues along with factors such as personal experience and high technology literacy may all play a part in this. Or, it may simply be that users of SNS want to keep most of their interactions online, hence the relatively high percentage of AIM screen name disclosure.

### 4.3. Sex differences in Facebook content

The final research question in this study asked about differences in the Facebook content of male and female users, and some interesting differences were found, particularly in amount of contact information given out. Males provided significantly more contact information, perhaps due to less fear of victimization. In addition, males were more likely to exhibit certain types of controversial content, specifically listing alcohol as an interest, alcohol use, Wall profanity, and nonverbal aggression. These findings all seem to be in line with normative expectations for males. Anecdotal evidence suggests that college males are more likely than college females to display beer and other alcohol related signs on their dorm or fraternity walls, for example, and Facebook may be viewed as a virtual extension of this. In addition, males are probably more likely to engage in the types of nonverbal aggression coded for in this research, as a result of socialization and other factors. Existing research indicates that disclosing personal information and online privacy is of greater concern to female SNS users (Fogel & Nehmad, 2009). It is also noted that females use SNS in order to search for information and compare themselves to others, while males use the sites to locate friends or connections, and to look at other people's profiles (Haferkamp, Eimler, Papadakis, & Kruck, 2012). Additionally, Thompson and Lougheed (2012) argued that females felt closer to Facebook friends than those they see on a daily basis. They also discussed that females reported having a negative self body image because of Facebook photos. Moreover, when compared to males, females spent more time on Facebook than planned, which resulted in losing sleep, experiencing stress, and feeling addicted.

Future work should explore sex and gender differences in other types of Facebook content, given the intriguing differences observed in this study.

### 4.4. Limitations

As with most studies, there are several limitations of this research. First, the sample was confined to the Minnesota network of Facebook users, and these users may be different in some ways from users in other networks. There is no reason to expect major differences, however, given that college students in the Minnesota system tend to come from a variety of different backgrounds, states, and countries. Nevertheless, future work should at least try to sample from a different region of the country, if not the entire nation.

Second, some of the profiles sampled in this research were set to "private," meaning they could only be viewed by friends. This only affected a small percentage of the sample (19%) and were simply replaced with the public profiles, but there may be differences between private and public users that will be difficult to get at in studies such as the present one. Furthermore, as sites such as Facebook have opened to outside users, we would expect that fewer profiles are public. Our sample was drawn right before Facebook became public, in August and September of 2006, and it would be interesting to track how the public availability of profiles changed over time.

Third, this study looked at a limited number of categories of controversial and especially pro-academic behavior. Future research should examine additional categories of profile and photo content, such as the media preferences and group memberships of users and well as photos of vacations, sightseeing, and student and athletic group gatherings. These can provide a more complete picture of how Facebook is being used.

Finally, the photo sampling technique used in this research was done for practical and time considerations, and though it provides a somewhat random sample of photos posted by users and others, it may have missed controversial photos buried deep in a user's profile. These findings should therefore be considered slightly conservative estimates of types of Facebook photo content. On the plus side, they are what people saw immediately upon visiting a profile and should therefore be considered a valid indicator of a user's "public" photo content, especially since 16 photos were displayed on a page.

### 4.5. Future directions

Given the plethora of content available in Facebook profiles and groups, future research should attempt to delve further into how the site is being used. A recent area of controversy not addressed here is how Facebook portrays racial and ethnic groups. Indeed, there are a host of content areas from traditional media effects research that can be examined in the new domain of SNS.

Since effects cannot be inferred from content, surveys and experiments should also be conducted. Surveys can further examine motives for online social network use, reasons for posting specific content, relational development through the site, and related measures, while experiments can address the cognitive, affective, and behavioral effects of types of Facebook content. A few experiments have already been conducted on Facebook content (see Haigh, Brubaker, & Whiteside, 2013; Mazer, Murphy, & Simonds, 2009; Spence at al., 2013; Walther, Van Der Heide, Hamel, & Shulman, 2009), and this kind of research is the first step in uncovering the impact of these new communication tools.

As with many forms of new media, SNS such as Facebook are in a continual process of evolution and change, and future research should attempt to track trends in the development and use of these technologies. Facebook is indicative of how young people are relying on social media in increasing numbers, and these are obviously important to them, but will these technologies remain popular in their current form? Or will they become more virtual, like the burgeoning Second Life community? Time and research will provide answers to these and other important questions. Although the present study addressed negative content primarily, social networks also have the potential to strengthen social ties and have other positive effects on users, making their continued study valuable and important.

## Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.chb.2013.08.017.

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