"Is it Weird to Still Be a Virgin?:" Anonymous, Locally Targeted Questions on Facebook Confession Boards

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ABSTRACT

People have long sought answers to questions online, typically using either anonymous or pseudonymous forums or social network platforms that primarily use real names. Systems that allow anonymous communication afford freedom to explore identity and discuss taboo topics, but can result in negative disinhibited behavior such as cyberbullying. Identifiable communication systems allows one to reach a known audience and avoid negative disinhibition, but can constrain behavior with concerns about privacy and reputation. One persistent design issue is understanding how to leverage the benefits of anonymity without suffering its drawbacks. This paper presents a case study analysis of question asking on Facebook confession boards (FCBs), a tool popular on some college campuses. FCBs present a unique configuration in which members of an offline community (e.g., a university) anonymously submit content to a moderator who posts it to a Facebook page where others in the community can view it and respond. Response is via identifiable Facebook comments and likes. Our results show users asking about taboo and stigmatized topics with local others, and receiving relevant responses with little cyberbullying or negativity.

Author Keywords

Anonymity; Identity; Facebook; Social Support

ACM Classification Keywords

H.5.3 Group and Organization Interfaces: Web-based

INTRODUCTION

Facebook, by far the most popular social networking site (SNS) among US college students, offers users a place to create and maintain social ties [5], curate and share memories [25], and gather knowledge and information from online ties [21]. While connecting to real-world friends using real-world names is often a key component of SNS [6], being identified to known others can also lead to

unexpected consequences. People do not always accurately anticipate the audience for their posts or activities [18], and they may refrain from certain behaviors altogether in these environments due to concerns about reputation. Morris and colleagues [21], for example, saw few participants asking their networks questions about health or other sensitive topics (e.g., "Why do I have these red bumps on my thigh?"), for which they instead turned to search engines, presumably out of privacy considerations.

There are many cases, however, where it can be useful to anonymously reach out to one's peers rather than relying on search engines. Consider, for example, a college student who wants to connect with other members of her university community in an abstinence support group, but doesn't know any offline friends who can help. This student may wish to remain anonymous in asking this question, as student attitudes around sexuality often do not hold abstinence in high regard, and although she can't turn to her friends she needs a response that is locally germane. Other people with potentially stigmatized identities [9], such as students at elite universities from a low or middle socio-economic class background (e.g., [15]), may similarly want to find like-minded others, but do so anonymously to avoid negative social or reputational consequences.

Using existing SNS like Facebook or Quora, maintaining privacy while making such queries is difficult because verifiable names are required (e.g., [31]). Services like StackOverflow [19], Twitter and Google+ provide some additional anonymity by not necessarily requiring a real name, but nonetheless create a persistent identity. They also do not facilitate easily reaching a specific offline community, such as members of a college campus.

In contrast to these examples, we have recently observed anonymous information sharing and querying on "Facebook Confession Boards" (FCBs). FCBs are Facebook community pages targeted at a specific offline community (e.g., a university campus) that have been appropriated to allow for anonymous posting. They are managed by a moderator, who sets up an external web form (e.g., via SurveyMonkey) via which anybody may anonymously submit content that is then re-posted to the FCB by the moderator. Response to these posts is via ordinary, identifiable Facebook comments and likes.

FCBs have been characterized both positively (e.g., [3]) and negatively (e.g., [20]) in the press, and informal observations on our campus suggested an intriguing mix of anonymity, identification and community targeting that can be used in pro-social ways. To our knowledge, however, this phenomenon has not been empirically explored. In the paper that follows, we present a case study examination of FCBs at 35 US colleges and universities. Results show clear evidence of the utility of these boards for question asking and discussion of taboo or stigmatized topics, with very little evidence of cyberbullying or negativity.

BACKGROUND

Since long before SNS became common, people have directed questions to online communities centered around particular interests or topics. These have ranged from early Usenet newsgroups (e.g., [7]) to topically-focused web-based communities such as StackOverflow [19]. These sites typically involve persistent pseudonyms, but there have also been some attempts by researchers to allow for anonymous question asking, such as privacy-aware or anonymous ad hoc network configurations (e.g., [14, 22]). As was typical of the time, these online communities allowed members to digitally cross geological boundaries and unite based on specific interests or experiences.

More recently, tools have become available for information sharing and question asking among members of local communities. Some of these tools, like Cyclopath [26] and EveryBlock, provide pseudonymous, persistent identities. Others, such as Ask.com, Yik Yak and Secret, allow members of offline communities, such as high schools or colleges, to anonymously ask their friends questions [32].

While little work has been done on the nature of question asking in these systems, Morris and colleagues have examined how people ask questions using their real names in SNS, which they refer to as "social question asking" [21]. This phenomenon, tied to the rise of SNS, is widespread, with about 50% of participants in [21] reporting having posed questions to their network. People route questions to their social networks, instead of search engines, because: they believe their network is reputable and better able to answer subjectively, they seek personalized or contextualized knowledge, and they have some sense of what others in their networks know [11, 21, 24]. At the same time, Morris and colleagues reported that few participants asked their networks about some topics – generally personal or sensitive matters such as health.

FCBs occupy a unique corner of the design space relative to these other tools and this makes it an interesting place to examine question-asking behavior. As noted above, FCBs allow for anonymous posting of information, but require persistent Facebook identity (usually tied to one's real-world identity, per Facebook policy) for response. They are also targeted at a local community, usually a high school or university. Our informal observations of FCBs suggested that, despite the word "confessions" in their name, FCB

users also posted questions to which members of their local community might be expected to have answers. Given this unique configuration of anonymity and identifiability, and the geographic targeting of FCBs, it's important to understand their possibilities as spaces for information exchange. We first sought to systematically determine how and how often FCBs were used for question asking:

RQ1: *How many and what types of questions are asked on FCBs?*

Anonymity and Disinhibition

A persistent debate in the study of online interaction has been about whether anonymity has a net-negative or net-positive effect on the nature and quality of discourse. On the one hand, le Bon, an early theorist on crowds, suggested that the anonymity afforded by becoming "lost" in a crowd can lead to irresponsible behavior [17]. Freedom from accountability and self-presentation concerns while anonymous can create a disinhibited feeling where behavior is monitored less closely [29]. Online, this can result in behavior that is negatively valenced, such as "flaming" attack messages (e.g., [23], [33]).

When anonymity is combined with locally targeted forums, moreover, these negative effects can be amplified as attacks or gossip can be targeted at known, local individuals, as in the case of cyberbullying [32]. These negative effects have been evident in some online information sharing tools, such as Secret, Yik Yak or Ask.fm, with some reports of these tools being used for cyber-bullying or other negative behaviors. Their use has been actively discouraged (e.g., [27]) or even disabled (e.g., [4]) in some places.

On the other hand, however, disinhibition effects stemming from online anonymity can also be positive. The freedom afforded by anonymity can allow additional disclosure [16], identity exploration [30], risk taking [28] and revelation of the "true self" without fear of damage to social standing [1]. Combining these ideas with Goffman's [8] work on self-presentation, which positions each person as an actor who carefully performs their social persona, anonymous online spaces like FCBs may serve as "backstage" spaces in which careful self-presentation is relaxed and people can engage more freely with a local audience.

Taboo Topics

Anonymity could enable posters to ask important questions that they would not or could not ask if they were identified to their peers. In particular, such questions may include normatively taboo topics that are uncomfortable or difficult to discuss in identified or face-to-face settings. Baxter and Wilmot [2] defined topics as taboo if they are "off limits" to one party or another in a social relationship because one person anticipates negative outcomes from discussing the topic. Goodwin and Lee [10] devised culture-specific lists of potential taboo topics, suggesting that taboo can vary contextually. Common taboo topics for Westerners include family matters/details, hygiene, prejudice, sexuality,

finances, and feelings of attraction between friends. Our informal observations of one FCB suggested that these topics were frequently discussed, but we did not have a systematic sense of this. We wondered:

RQ2: *To what extent are taboo topics discussed on FCBs?*

Stigmatized Identity
A second positive effect of anonymity can be exploration or disclosure of personal or identity information. Freed from the constraints of their offline identity, people may also be more willing to explore aspects of themselves that they otherwise keep hidden [1, 30]. This may include aspects they fear may be stigmatized by peers or members of their community. In additional work by Goffman, [9] he describes the notion of stigmatized identities as those people may hesitate to reveal for fear of being judged deficient or inferior on some dimension. Importantly for our purposes, stigma is different from taboo in that taboo is an uncomfortable *topic* for discussion, whereas stigma is something that reflects on the *person.* Discussing teenage pregnancy as a topic, for example, may not be taboo; but a teenager may hesitate to reveal that she is pregnant for fear of being labeled irresponsible or promiscuous.

Goffman identified three categories of stigma: *external*, in which the cause of the stigma is manifest on the body and can be difficult to hide (e.g., obesity, scars); *character*, which includes behaviors indicative of individual flaws or deficiencies (e.g., drug use, fiscal irresponsibility, virginity or promiscuity); and *group*, which includes static identities that people are frequently born into and have difficulty changing (e.g., race, sexual orientation). Given anonymity on FCBs, people may reveal stigmatized identities:

RQ3: *To what extent do people reveal or explore stigmatized identities on FCBs?*

Audience and Response
As noted by Morris and colleagues [21], people ask questions of their networks to get useful, personal and contextually relevant answers and recommendations. In terms of the types of responses that are likely on FCBs, we explained earlier that a unique attribute of FCBs is that question askers are anonymous but the responders are identified via their Facebook likes and comments. This means responses linked to a user profile with what is putatively the responder's real name.

This configuration could have both positive and negative effects. On the positive side, identifying responders could discourage negatively disinhibited behavior such as flaming so may increase the overall quality of replies [16]. Moreover, having identified peers – even strangers – from one's local community may enhance the belief that the FCB could be a good information source [21].

On the negative side, however, FCB responders lose the advantages of anonymity mentioned earlier such as risk-taking, freedom to experiment with identity, discuss taboo

topics, etc. [28]. It is therefore possible that people asking important questions about taboo topics or stigmatized identities will not get the responses they need, because some potential responders are not comfortable addressing these topics or revealing their own stigmatized identities. We wondered how active response is and if these responses are influenced by factors like taboo and stigma. We asked:

RQ4: *How active is the responding audience on FCBs and is response affected by questions?*

METHOD
Data consisted of FCB posts and responses gathered using Facebook's Graph API, which gives developers access to publicly visible Facebook content. To gather data from a range of FCBs, we searched for FCBs (using keywords "confession" or "confessional" and college names) for US News & World Report's 2013 top-ranked 100 universities and 100 liberal arts colleges in the United States. Of the 200 universities and colleges, 90 had FCBs. We eliminated those that were empty or inactive, or had slight variations in their configuration (e.g., anonymous comments). This left 38 active FCBs from 35 colleges (some had multiple FCBs) in 19 states (plus Washington, DC), ranging in size from 1205 to 43,058 students (per their web sites). FCBs ranged in post volume from 12 to 20,171 posts. There was no correlation between post volume and college size.

For each post, we collected the content, date, and the numbers of likes and comments. For each comment, the date and number of likes were collected, along with the name, entity type (e.g., user, community, event) and gender (where visible) of the responder so repeat responders could be identified. As posts were anonymous, we could not gather posters' demographic data. This process, completed in April 2014, yielded 90,329 posts and 403,150 responses.

Even when data are publicly visible, it is critical for researchers to consider user privacy [35] and the possibility of inadvertent identification out of context [34]. For this reason, we removed individual or university identifiers in this paper, and avoid examples with identifying details.

Analysis
As our focus is on questions, we identified 15,157 posts containing potential questions by searching for question marks (excluding those within URLs). It was not possible to have human coders rate our entire data set, so we randomly selected 2803 potential questions for deeper analysis. Compared to non-coded posts, there were no significant differences in post length or comment volume. There was a small difference in number of likes, [($M_{Not\ Coded}$ = 16.34, SD=27.99; M_{Coded}=14.83, SD= 25.95), $F_{(1,15156)}$ = 6.86, $p < .01$], but we do not believe this affects our arguments due to the very small effect size.

Two coders applied a three-level (question type, taboo, stigmatized identity) coding scheme. Each post could be assigned to no more than one category for each level. Coders first went through a 700-message (separate from the

2803; not used in later analyses) training phase until agreement was better than 80% for all categories. After training, 2803 messages were coded. Of these, 500 were rated by both coders (agreement > 80%) and the remaining 2303 were coded by a single coder.

Question Type. Each potential question was coded for whether it contained a question or not, with 80% rated as questions. Question type was coded using a modified version of the coding scheme from [21], with 5 categories: 1) subjective answers/impressions (e.g., "Any ideas for good running songs?"), 2) factual knowledge/ questions with objective answers (e.g., "Anyone know a way to put Excel charts into LaTex?"), 3) social connections and invitations (e.g., "I am hiring on my team. Do you know anyone who would be interested?"), 4) rhetorical questions, which invite discussion and/or may not have an answer (e.g., "Why can't I feel pretty?") and 5) offers, where others can accept something (e.g., "Anybody need size 4 jeans?").

Taboo. We developed a detailed coding scheme based on literature cited above and discussion among researchers with research assistants on topics that would likely be uncomfortable for undergraduates. It included: 1) death and dying, 2) excretions and bodily functions, 3) sex, 4) illegal substances (e.g., drugs, including controlled substances used in an illicit manner), 5) protected social categories (e.g., gender, race), 6) medical issues, 7) finances/ socioeconomic status, 8) mental health and 9) academic performance. While not an exhaustive list of taboo topics, these represented most of those that arose in our data.

Stigma. Based on Goffman [9] we developed a coding scheme for stigmatized identities revealed by posters. As stigma represents a cultural and social value system, discussion with undergraduate coders was employed to update these categories to represent modern conceptions of stigmatized identity. We coded for: external, character and group, noting that the poster him or herself had to identify as having the potentially stigmatized identity.

Coding stigma required some nuance. Homosexuality, for example, can describe both an identity (e.g., identifying as gay, a possible "group" stigma) and an act (e.g., a one-time same-sex fantasy, a possible "character" stigma). And some settings may not stigmatize homosexuality while others do. We did our best to infer the poster's meaning. If a post revealed fear around a gay identity, for example, it was coded for stigma, whereas posts with references to being gay that were orthogonal to the post's focus were not.

Comments. We coded a subset of comments on coded posts. One coder rated 3779 comments on 481 randomly selected questions, in which 20 of the 35 universities were represented. Comments were coded for whether they were viable or relevant responses to the posted question, whether they were unkind or negative in nature, and whether they contained taboo or stigma. Negativity was assessed by examining the words used, the tone of the post, and whether the poster's intent seemed negative or destructive in nature.

RESULTS

What kinds of questions do people ask?

To address RQ1 we first looked at the types of questions asked on FCBs. Consistent with Morris et al.'s results, we saw a substantial number of opinion and recommendation (51.7% in our data vs. 51%) questions, which we collapsed into one category. However, we saw relatively fewer factual knowledge questions than they did (9.4% in our data vs. 17%). As the example in the table indicates, those who sought facts were often looking for specific local information about events, services or individuals. We also saw more rhetorical questions (37.2% in our data vs. 14%).

Question Type	Count (%)	Example
Opinion/ Recommendation	1172 (51.7)	what do you women think about guys who smoke weed? turn off? turn on? neutral? …
Rhetorical	843 (37.2)	Why can't I ever feel pretty? The guys always go for my friends
Factual Knowledge	214 (9.4)	Can anybody tell what happened today near university drive at around 8:15?
Social Connection	35 (1.5)	Anyone good at chemistry and wanna teach me buffers? Help a girl out, yo.
Offer	4 (.2)	Does anyone have rollerblades and want to be the star in our Extra Credit project? It's a Spaghetti Western parody … We will be shooting next weekend. We'll make you spaghetti. This is for real.

Table 1. Frequency and examples of question types.

We then considered whether the proportions of question types with and without taboo topics differed. A Chi-square test for independence comparing question type distribution for those with and without taboo revealed a non-random distribution, $\chi^2 = 40.04$ df = 4, $p < .000$. Examining the distribution revealed that a disproportionate number of factual questions did not contain taboo, while a disproportionate number of opinion questions did (see Table 2). Results were similar for the remaining categories.

	Taboo	No Taboo
Factual Knowledge	29 (68.9)	185 (145.1)
Offer	1 (1.3)	3 (2.7)
Opinion/Recommendation	413 (377.1)	759 (794.9)
Rhetorical	278 (271.5)	566 (572.5)
Social Connection	9 (11.3)	26 (23.7)

Note: $p < .000$, expected count in parentheses

Table 2. Crosstabulation of taboo content with question type.

Exploiting Anonymity: Taboo and Stigma

We knew from prior work that people in named SNS largely did not ask about health or other topics that might

make the asker uncomfortable. In contrast to this, however, we saw that 783 (34.5%) of the 2269 questions contained content coded for taboo or stigma.

Taboo Topics

To address RQ2, taboo was the most common element in coded posts, present in 730 questions (32.2%). Sex and protected social groups were the most common taboo categories (see Table 3), accounting together for 56.5% of all taboo posts. We focus on these in our analyses below.

Taboo Type	Count (%)	Example
Sex	221 (30.3%)	Any girls down to fuck a guy with a strap on? I wanna be dominated by a powerful woman.
Protected categories	192 (26.3%)	What do white guys think of Hispanic girls? I feel as though they just look right past us…
Illegal substances	61 (8.4%)	Am I an evil, vicious person because I am so weak that drugs have become more vital than water for me?
Finances/SES	47 (6.4%)	How many people have signed their lease at [apartment]? It seems like all the rich kids are going to live there and have their own clique and I don't want to be the odd one out.
Medical	32 (4.4%)	Are there any other diabetics on campus whose meter I can use? My insurance company isn't letting me get more test strips right now and I'm out.
Mental Health	38 (5.2%)	Is there anyone here who was depressed but somehow got out of it? I just want things to go back to normal and there's no reason for me to be depressed. I'm just tired all the damn time even though I sleep so long every night…
Death/Dying	14 (1.9%)	I didn't go to my father's funeral. He was never there for me, so why should I be there for him?
Bodily Functions	86 (11.8%)	Anyone remember how boring pooping was before smartphones?
Academic Performance	39 (5.3%)	I am on the verge of failing 2 classes. fml I just started my edu at <school>!!! what is this!? Its not like im f*cking around im trying really hard. Ugh the extreme depression im going to get soon will be brutal.

Table 3. Frequency and examples of taboo topics.

Sex. We were not surprised that sex was a common topic, given that college students are commonly sexually active and also exploring their sexuality. Some questions were simply ones that would be uncomfortable to ask face-to-face because they reveal inexperience, such as:

My boyfriend and I have been going out for 3 1/2 years now (he's my high school sweetheart) and we just started having sex during the winter break. ... I literally have no clue what to do other than make noises and run my hands over his back. What are girls usually supposed to do in that position?

There are many anonymous forums where young adults can ask about sex, however, so this post is not unique to FCBs. We also found examples of people requesting local sex information, such as about the campus health center:

Does anyone know if you can get checked for STDs at [NAME OF HEALTH CENTER]? and is it expensive?

In other cases, students sought novel or alternative sexual experiences and wanted information about where to go or how to find others with shared interests:

I know for a fact that [NAME OF CITY] has orgies. I want to join a swingers club or something similar, can anyone point me on the right direction?

In general, posts about sex reflected questions about sexual behavior, resource information, and locating potential partners or groups for particular sexual experiences.

Protected Social Groups. As it is often uncomfortable to discuss prejudice or issues related to commonly protected social groups (i.e., race, gender, sexual orientation, etc.), we coded posts containing references to these types of groups, finding that most posts focused on race and gender. Some of these posts seemed to be less about exploiting anonymity to discuss an uncomfortable topic than they were about exploiting a larger local audience than a person might ordinarily have. For example, one student asked in a factual knowledge question, "Is there a Rastafari group here? I'm Jamaican but I haven't found another Jamaican yet!?" The FCB allows the poster to reach a larger campus audience.

Some posts did raise aspects of race or gender that would likely be uncomfortable to discuss in an identified environment. Some involved members of minority groups asking others for advice about issues within or between groups. This user, presumably a woman, wondered about her appearance relative to stereotypes:

Im mixed hispanic and white and 95% of the time I get hit on by guys its because they say I have a nice black girl ass and it is black guys that hit on me. I have only dated black guys just because they are the only ones who have ever shown interest. Is a size 7 considered fat? I feel that my size is whats turning off guys. That or maybe I'm just ugly.[1]

In the category of rhetorical questions, many posts provoked or continued discussions about issues of race relations on campus. In this post, for example, students debate the use of racially infused language on the FCB:

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[1] In all quotes, spelling and grammar errors are original.

To the person who said white people can't say the N word. Okay so I'm going to rant about this a little bit. I went to a black predominant school in Elementary and High School and you know what? I hate it when black people say the N word. Why? Because if a black person says it why not a white guy? I'm Asian and you don't see us saying oh hey chink or other races call themselves what ever negative race word implies to them. ...

Stigmatized Identities

Investigating RQ3, which focuses on stigmatized identities, we found that 226 of the 2269 questions (10%) had evidence of stigmatized identity (see Table 4). Most were in the character category, with smaller numbers related to group and external stigma.

Stigma	Count (%)	Example
Character	159 (70.4%)	does anyone else like peeing on dudes after sex?
Group	53 (23.5%)	is it wrong that i hate being referred to as a minority and rather, a person of color? i wonder if anyone else feels some sense of weirdness from that word.
External	14 (6.2%)	If I show you my scars would you think any less of me?

Table 4. Frequency and examples of stigmatized identities.

Character We noticed that many posts (134 or 84.3%) coded as character stigma also involved taboo topics. We decided to use the taboo topics to get a better sense of the types of stigmatized identities being revealed. Of posts coded for stigma, 64 were about sex and mostly involved people describing their experiences with or desires for non-mainstream sexual behavior (see Table 4). Another 27 were related to mental health. Users talked about stress and depression, as with this post:

Anyone ever get caught in an endless loop of depression? You feel bad about something, but then feel even worse for feeling bad ...

Next, 23 character stigma posts were about illegal substances. These mostly discussed experiences with or asked about drug use. A few sought drugs, such as "does anyone in the lib have adderall? --I'll be in the [X] floor map room at 9pm." Thirteen posts were about medical conditions, mostly pregnancy, which can be a stigmatized identity in a younger population. This student, for example, worried about her family's reaction to her pregnancy:

I'm 3 weeks pregnant and I don't know how to tell my family without them freaking the fuck out…

Twenty-five character stigma posts were not about taboo topics. Many of these were about topics like fantasies or virginity that were potentially stigmatizing (e.g., "What do guys think of a 19 year old female virgin?").

Group Stigma. Posts coded for group stigma also overlapped with taboo, particularly for protected groups, with 24 coded as such. For example:

…I am mixed [race] but I appear more black than anything, and since coming here, I seem to ONLY attract black guys, which is fine and everything but is that my only option? Are non-black [UNIVERSITY] guys generally not attracted to black girls or something? I don't get it."

Another 5 were about sexual minorities, such as this person who wonders about stigma associated with asexuality:

I think I may be asexual. I want a relationship, a companion, but have no desire to have a physical relationship. One night, I was researching it and one of my friends read over my shoulder and saw what I was reading about. They laughed at the idea of it, and made it out to be a bad thing. It's not, is it?

Eight group stigma posts were about finances, reflecting potential stigma from socio-economic status. This person, for example, expresses feeling isolated or different when her friends without financial aid talk about expenses:

I feel weird whenever my friends [say] 'We're paying $50,000 tuition, and you're complaining about the cost of THAT?' I have 100% financial aid, and I do have trouble affording trivial things because it adds up…

Other group stigma posts included topics such as coming out, as with this poster who fears stigma for bisexuality:

I'm a bisexual guy, but I don't even bother to come out to many people, because I know no matter what I do, I am going to be labled gay in denial…

External Stigma. The small number of questions coded for external stigma mostly contained no taboo (11 of 13). These were about physical appearance, such as acne, scars and tattoos, with a particular focus (7 of 11) on weight, such as:

I am so self conscious about my thighs. I feel like a look like a cow. Do guys hate girls with some thigh and not just skinny mini like the girls soccer team?

How Do Audiences Respond?

To address RQ4, we first looked at the average number of likes and comments per post. Questions had 13.77 (SD=24.47) likes and 6.33 (SD=9.22) comments, on average. As indicated by the high standard deviation values relative to the means, the distributions for both comments and likes were skewed due to significant numbers of posts with of zero comments (414) and zero likes (416).

We next wondered if the comments were plausibly helpful and if there was evidence of negative behavior in the responses. To understand this we turned to the subset of 3779 coded comments, of which 3577 were on questions. These were overwhelmingly positive in nature, with only 203 (5.4%) marked as negative. We further found that 2938 (77.74%) were plausibly relevant. This suggests that there is positive activity and that people are getting responses to questions on FCBs. For example, the woman (see above) concerned about her thighs received comments reading "It

is normal to be self-conscious about certain body parts" and "soccer girls do not have skinny mini thighs."

In some cases, comments were used to route questions to individuals who might be able to answer them or who were being sought. One user, for example, said "A young lady named [NAME]. You're the most beautiful lady I've ever met in my life … Are you single?" In this case, the person's name was uncommon; a commenter tagged her (or somebody with that name) in the comment, and the final comment is from her, reading "thank you but no lol." While this may not be an ideal dating technique, it does show the power of a local peer network in locating information.

Who is Responding?
To examine responders, we first looked at publicly available data about those who commented on the 15,167 possible questions. There were 19,947 unique commenters, of whom 10,745 were male and 8748 were female. 120 did not specify gender, 266 had no public profile information and 68 were non-human Facebook entities. There were also more male commenters per post (M=3.32, SD=5.43) than female (M=1.95, SD = 3.59), $t(15163) = 44.97$, $p < .001$. When we consider only relevant, coded comments, the difference between the number of male (M = 3.52, SD = 4.26) and female (M = 2.12, SD = 3.82) commenters per post is smaller, but still significant, $t(451) = 8.438$, $p < .001$. We also looked at the ratio of negative to positive comments for both male and female commenters, but these did not differ significantly.

Question Type	Parameter Estimates	
	Comments	Likes
Factual Knowledge	-1.96	-13.15***
Opinion/Recommendation	9.58***	-14.69***
Rhetorical	1.30	0.42
Social Connection/Invite	-1.42	-9.34
Offer	0.14	-2.42

Notes: *N*=2803. Reference category is "no question. " * p < .05, ** p < .01, *** p < .001.

Table 5. Zero-inflated negative binomial regression results for question types and commenting/liking activity.

Question Type and Response
We were first interested in whether different types of questions were more or less likely to get responses. To test this, we regressed the number of comments and likes on the different question types. Because of the large number of posts with zero comments/likes, we used zero-inflated negative binomial regression models fit using the maximum likelihood method in these analyses. In interpreting these models, note that the coefficient indicates the increase/decrease that would be expected for each unit increase in the reference variable. In our case, the reference variable was "no question" (i.e., the 534 (20%) coded posts that did not contain a question). The coefficient itself indicates how posts of each type compare with those that have no question, but the coefficient values are relative to each other so the categories can be compared to each other

by examining the relative values of the coefficients. Note also that these models do not have an R^2-type model fit statistic, as with OLS regression.

As Table 5 shows, we found that opinion/recommendation questions were more likely to receive comments than posts without questions. This was the only category for which there was a significant parameter, though this is encouraging in that opinion/recommendation questions are both common and dependent on readers for response. Factual knowledge questions and opinion/recommendation questions were less likely to get "likes" than posts without questions. While "likes" are not usually useful responses to questions, we were still puzzled by this as liking could still be a signal of support or agreement for some questions.

Comments and Likes on Taboo and Stigma
We then wondered if taboo topics or stigmatized identities might influence response to questions, as these topics might be uncomfortable for responders using their Facebook identity. As Table 6 shows, we found that taboo type is related to response in terms of both comments and likes. In this case, our reference variable was "no taboo," so coefficients show how posts of each taboo type compare with those that have no taboo. The most significant positive relationships between taboo category and commenting were for protected groups and finances. Posts dealing with body excretions/functions, on the other hand, were significantly less likely to get comments. Other taboo categories were no more or less likely than non-taboo posts to get comments.

Taboo Topic	Parameter Estimates	
	Comments	Likes
Academics	1.38	0.89
Death	2.41	3.81*
Drugs	1.44	5.35***
Excretions	-3.11*	-5.77***
Medical	2.08	-.85
Mental Health	-1.95	-4.34**
Finances	4.77***	6.10***
Protected Groups	7.63***	.18
Sex	-.56	-7.30***

Notes: *N*=2803. Reference category is "no taboo. " * p < .05, ** p < .01, *** p < .001.

Table 6. Zero-inflated negative binomial regression results for taboo categories and commenting/liking activity.

Given the discussions of issues related to race and gender, it is not surprising that posts about groups get more comments. The same is true for finances, where students may feel comfortable posting comments about a situation similar to their own, as opposed to face-to-face situations where one is unsure of status relative to others. The negative result for excretions also makes sense in that this would be an uncomfortable to discuss using names.

There was no significant effect of sex on comments, though sex posts did receive comments. For example, a student who asked if he could submit a work order in the hopes of fixing a bed that squeaked during sex received comments suggesting lubricants and wording for the work order to avoid sex:

"Work order-description: bolts loose on bed. Squeaks loudly. That's all you have to say."

For liking, posts related to drugs, finances and death are more likely to be liked than posts without taboo; and posts related to sex, mental health, and excretions are less likely to be liked. One possible reason is that "liking" is an ambiguous gesture. It shows solidarity or commiseration, without revealing much. Thus, it makes sense that liking would be high for drugs (which are taboo), money (which requires tact) and death (which can be awkward to talk about, but where one would want to express something instead of nothing). Sex, mental health and excretions, on the other hand, are topics that may require more direct response because an ambiguous like could be misinterpreted. These differences are not clear, however, so more work is needed to flesh out this distinction.

Stigma Type	Parameter Estimates	
	Comments	Likes
Character	-1.52	-5.31***
External	0.25	-1.09
Group	1.17	1.06

Notes: *N*=2803. Reference category is "no stigma" * p < .05, ** p < .01, *** p < .001.

Table 7. Zero-inflated negative binomial regression results for stigma types and commenting/liking activity.

We also tested for effects of stigma on both commenting and liking behavior (see Table 7). For liking, only character stigma had an effect, with posts less likely to be liked than those without stigma. There was no effect on commenting.

DISCUSSION
We began by noting that two key distinguishing characteristics of online question asking forums are the extent to which they feature identity transparency [28] or anonymity, and the extent to which they are focused on a particular topic and globally targeted vs. focused on many topics related to one geographic area, organization or network. We focus here on the unique configuration of FCBs relative to other tools and how we saw FCBs used.

Question Topics and Types
We argued that FCBs' unique configuration should affect the nature and types of questions routed to FCBs instead of other possible venues. We wondered if question askers would take advantage of the anonymity on FCBs to seek information on taboo topics and reveal potentially stigmatized identities. We saw substantial evidence of this taking place, with many posts featuring either taboo topics or stigmatized identities. As with any discussion of sensitive topics, this had benefits and drawbacks.

On the positive side, we saw candid, constructive engagement with topics that might not otherwise have been discussed. Allowing conversations about race or socio-economic status, for example, in a constructive but anonymous way could help alleviate tensions around these issues on campus. At the same time, however, we also saw evidence of behavior that – while not socially destructive –

could promote danger. For instance, a post exploiting anonymity and local focus to discuss the use or purchase of Adderall, a controlled amphetamine that is a widespread problem among college-age individuals [13].

While any interaction technology can facilitate both positive and negative behaviors, it is important to recognize that not all questions about taboo topics are of equal benefit, even when conducted in a positive manner. Despite these concerns, there was very little evidence of flaming or other behaviors indicative of negative disinhibition. Rather, posters took the opportunity to ask their local audience questions that they might not be able to answer elsewhere.

We saw some differences in proportions of question types relative to prior studies, with the caveat that methods differ. We saw more rhetorical questions (37.2% vs. 14% in [21]). This was particularly true for questions about taboo topics, fitting our conception of FCBs as a place to spark discussion of locally-relevant potentially awkward topics. Indeed, although the FCBs we looked at had similar levels of opinion questions (51%) to those reported in [21], a disproportionate number on FCBs had taboo topics.

Despite this, we also saw that factual knowledge questions were less likely to contain taboo topics. There are two possible explanations for this. One is that people route non-taboo fact questions to FCBs for local answers, consistent with Morris et al.'s argument that people assess whether their audience has the answer before asking questions. Another possibility is that people still route taboo factual questions to search engines or other anonymous sources, because there is an objective answer, in contrast to opinion or rhetorical questions.

From a design standpoint, these results show that anonymous forums can be used for constructive information seeking. Facebook's recent Rooms tool, which supports anonymous interaction, was developed with these ideas in mind. The popularity of Yik Yak further suggests the utility of this approach though, as mentioned earlier, it has also been characterized as a venue for cyber bullying. Our observations suggest that the combination of identifiable responses and behavioral norms in which questions and confessions were common may have played a role in keeping the FCBs constructive. We urge researchers and designers to further explore these elements.

Audience Response and Behavior
Another key question was whether people got responses to their questions and what types of questions seemed to get response. Many questions did not get a response at all, but a substantial fraction did. Of these, the vast majority of responses were potentially relevant, and only a very small fraction were deemed negative. By focusing on questions we did not look at all FCB posts, so may have missed some negative content. Our point, however, is not that the negative content does not exist, but rather that we saw substantial positive, potentially useful content.

We were concerned, moreover, that the discussion of taboo topics or stigmatized identities might discourage people from responding to questions using their real identities. This did not seem to be the case for most topics, however, as only one taboo topic (bodily functions) had a negative effect on comment volume. People were particularly engaged with posts about race and social groups, implying that some FCB users were comfortable responding to questions about some taboo topics. Additional work is needed to see if anonymous responses would also be potentially useful and to understand any chilling effect that identifiability may have had on responding.

We also saw that a substantial number of posts had no responses or likes at all, though most did. We explored these posts, but found no clear differences between zero-response posts and those that garnered response. Some posts may have no responses simply because of the amount of activity on each board or the time of day/week/year when they were made, etc. Analysis of detailed data which we do not have access to could better explain this issue.

Looking at FCB participation, we know little about those who posted anonymously, but did see comments from many distinct individuals. We also saw a clear gender difference, with significantly more men commenting than women. While we do not know why this is, it is consistent with work by Hargittai and Hsieh [12] finding that men tend to use SNS for what the authors call "weak-tie-type" activities, such as browsing bulletin boards or interacting with strangers; in contrast to women, who use them for "strong-tie-type" activities, such as interacting with existing friends. Additional work is needed to explore motives for FCB response. It may also be that a more gender-balanced response is desirable, in which case finding ways to engage more women in FCBs would be a useful exercise.

Another unique attribute of FCBs is the "like" feature. We saw evidence of people using this differently for different taboo and stigma topics. In particular, it was interesting that "likes" were used less often for questions related to character stigma, and for questions about excretions/bodily processes and sex. A "like" is an ambiguous signal on Facebook, since it appears absent of any linguistic cues. As such, it may seem inappropriate to "like" a post in which a person discloses discomfort or distress over their identity. Additional work is needed, however, to assess actual participant intent and perception in "liking" content.

From a design standpoint, our results suggest that designers and SNS consider the possible utility of combining identified with anonymous participation. Depending on the topics being discussed and the forum, our results suggest both that constructive conversations can happen and that these frequently covered useful and important topics.

Limitations and Future Work
As with any study, there are limitations that urge interpretation of our results with caution. First, we looked at several FCBs sampled from around the United States, but have essentially used a case study method to study a particular technology configuration. This allows for a rich characterization of FCB activity, but does not allow us to make comparative claims about whether or not the content on FCBs is substantively different from that in other environments. Additional comparative study is encouraged, as is examination of FCBs or FCB-like forums in other cultural contexts where norms and values may differ.

Examining a single technology and focusing only on its content also does not allow for understanding FCBs in the context of other tools, forums or venues for question asking or discussion that students may have had available. We also could gather no information about those who posted content, so cannot speak to their motives or whether they were satisfied with the responses received. While we believe our detailed content analysis makes a useful contribution, we urge additional work using survey or other field methods to better understand users and context.

CONCLUSION
We have presented a case study of question asking on Facebook Confession Boards, an appropriation of Facebook pages that target colleges and universities and combine anonymous posts with identified responses. Despite characterizations of FCBs and other anonymous discussion tools as hotbeds of negativity and cyberbullying, we saw evidence of students asking questions and engaging with taboo topics such as sex, prejudice and drug use; and revealing potentially stigmatized identities. We also saw very little evidence of negativity in responses, and found most responses to be potentially useful or relevant to the questions asked. Results suggest that designers and researchers might explore novel combinations of anonymity and identifiability, especially in locally targeted systems, particularly when the goal is fostering engagement with difficult topics in a constructive manner.

ACKNOWLEDGEMENTS

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