

“I LOVE THIS SITE!” vs. “It’s a little girly”: Perceptions of and Initial User Experience with Pinterest

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ABSTRACT

Pinterest is a popular social networking site that lets people discover, collect, and share pictures of items from the Web. Among popular social media sites, Pinterest has by far the most skewed gender distribution: women are four times more likely than men to use it. To better understand this, we examined two factors that generally affect whether people try a social site and whether they continue using it: the external *perception* of a site (e.g., as conveyed in popular media) and the site’s initial user experience. For the latter, we focused on the role of *social bootstrapping*, importing contacts from one social site to another. We conducted a survey study, finding that: perceptions of Pinterest among users and non-users of the site differed significantly; trying Pinterest led to substantial changes in user perceptions of the site; social bootstrapping affected users’ initial impression of Pinterest, generally improving it for women and harming it for men. We present implications of our findings for design and research.

Author Keywords

Pinterest; social networks; social media; perception; social bootstrapping; gender

ACM Classification Keywords

H.1.2 User/Machine Systems

General Terms

Human Factors

INTRODUCTION

Pinterest is a popular social network site. It has been one of the fastest growing sites in the United States [15] and according to Pew Internet Research, now is the third largest social network site in the US [17], behind Facebook and LinkedIn and ahead of Twitter. Pinterest is built around the metaphor of a pin board. Users “pin” pictures with links to items they find on the web and organize them into boards representing interests like recipes, crafts, fashion, arts, etc. Like many other sites, users can follow each other: if you

follow someone, their new pins show up in your home page’s feed.

One interesting aspect of Pinterest is that women make up a large majority of its users: the recent Pew report finds that women in the US are four times more likely than men to use Pinterest [19]. Quantitative research [2, 8, 15] has found a number of different behavioral patterns among female and male users.

Let us be clear: the fact that most Pinterest users are women is not a “problem.” Indeed, one trend on the Web is sites that are not targeted toward “everyone” (unlike Facebook), but instead appeal to particular populations and interests.

However, we believe that it still is worth seeking out the *why* behind Pinterest’s demographics and gender differences in its users’ behavior for several reasons:

- Pinterest claims to want to reach everyone, so why is it much less appealing to men?
- Pinterest in fact contains an extremely broad range of content that should appeal to just about any interest that anyone, woman or man, might have.
- The appeal of a social network based around collecting pictures of and links to web items certainly is not limited to women; indeed, the success of Pinterest has inspired a host of copycat “Pinterest for men” sites [22].

Our own experience and prior research suggest two factors that likely play a role in creating and maintaining Pinterest’s demographics and behavior patterns: (1) perceptions of the site, e.g., in the popular media, and (2) design affordances of the site, particularly those contributing to the initial experience of new users. If potential users of Pinterest see it as “for women” and about topics of interest to women, that certainly will influence who chooses to use it. And if the initial experience – the visual design and the content that is displayed – reinforces a “traditionally feminine” image, that will influence who chooses to continue using Pinterest.

In this research, we used an open-ended survey to study perceptions of Pinterest among users and non-users of the site, then directed the non-users to sign up and explore Pinterest, and finally surveyed these users to investigate their perceptions after their initial experience. We present findings showing differences in perceptions between users and non-users and between men and women. When studying the

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initial experience, we focused on the role of *social bootstrapping*, the importing of one's social contacts from one social site (e.g., Facebook) to another (e.g., Pinterest). This is the ever-so-familiar "Sign up with Facebook" (or any other source social network) option offered when signing up for a new social site. To the best of our knowledge, we are the first to study how this common practice actually affects users: we found it affects men and women differently.

In the rest of the paper, we survey related work, motivating the factors we chose to study and showing how we extend previous research; present our research questions and describe our study design and methods; present our results and conclude by discussing inspiration for future work.

RELATED WORK

We discuss how we frame gender in our research; survey prior work on people's perceptions of social media sites, the gender demographics of Pinterest and gender differences in Pinterest usage; discuss how social bootstrapping can influence a new users' initial impressions of a site; and then situate our work explicitly against previous research.

Gender and This Research

Our treatment of gender here follows that of our prior work [2]. Of the three positions for engaging with gender discussed by Rode [20], we identify our work with the approach that "takes the issue of gender differences seriously," treating "gender as a variable" that *might* have explanatory power. This is appropriate because – despite good reason for studying whether perception and social bootstrapping relate to the gender gap in Pinterest – we do not *know* that these are actually contributing factors. Therefore, we study various ways these factors might affect users, including being open to identifying any differences between men and women actually present. In discussing other related work, we further motivate our reasons for studying the factors we chose.

Perception: Who and What is a Site for?

People often have impressions of social media sites that they do not use: for example, the authors of this paper do not use Snapchat, but we have ideas of what it is like and the sort of people who use it, and these ideas influence the probability that we will try it out.

Antin [1] studied this issue in the context of Wikipedia to see if perceptions were contributing to the pattern of slowed growth of new contributors. He conducted interviews with Wikipedia readers and casual contributors to probe their perceptions of contributors to Wikipedia. He discovered a number of recurring perceptions; while these included positive attributes such as generosity and a love of knowledge, they also included negative stereotypes, notably that Wikipedia contributors were "solitary techno-geeks." He argued that these perceptions can constitute a barrier to participation: people are not likely to join a group when they cannot or do not want to identify with its members. Antin's work motivated our choice to study perception with respect to Pinterest, but we aimed to further identify whether gender

plays a role in people's perceptions and whether this impacts men's and women's choice to participate in different ways.

Zarro et al. [26] did a qualitative study of Pinterest users. They presented a number of interesting findings, but most relevant to our concerns was that different Pinterest users had quite different perceptions of what Pinterest is for. For example, some of their participants perceived Pinterest in terms of *discovering* and *collecting content of interest* rather than primarily for social interaction.

Like this work, Chang et al. [2] investigated the role that gender plays in Pinterest. Their study used quantitative methods, finding that men and women differed significantly in the types and diversity of content they pinned. However, they also considered how gendered representations of Pinterest in popular media (see [13, 24, 25] for discussion) may shape perceptions of what Pinterest is and who it is for, and thus may influence who chooses to use – or not to use – Pinterest. In particular, it may encourage women and discourage men from trying the site. This point directly influenced our choice to study perceptions of Pinterest among both users and non-users of the site.

Social Influence and Social Bootstrapping

Chang et al. [2] also noted that since women dominate Pinterest, much of the content on the site appeals to "traditionally feminine" interests, such as crafts, fashion, and hair and beauty. While in reality Pinterest content is quite diverse, covering a broad range of topics, the Pinterest user interface tends to promote the display of content that is most popular among most users. According to the theory of social proof [4], this is likely to result in users re-pinning that content, thus creating a positive feedback loop further increasing its popularity. In fact, 80% of pins in Pinterest are re-pins of content already pinned by other users, and 92% of all pins are made by women [7]. This effect has been observed in other online social interactions, including rating movies [5] and tagging movies [21]. The cumulative effect of this is that it is plausible that men who try Pinterest are more likely to be exposed to content that they are not traditionally interested in. Crucially, this will be true during their initial experience, when they are forming first impressions and deciding whether to continue using the site.

Due to the resulting initial social context, this effect may be amplified by what Zhong et al. [27] termed "social bootstrapping" – "copying one's social ties or links from a source social network to a target social network." Zhong et al. did a quantitative study of large datasets representing Pinterest and Last.fm users who had "socially bootstrapped" using their Facebook accounts. They compared the subgraph of connections imported from Facebook to the subgraph formed by connections created within Pinterest and Last.fm over time. They found that the Facebook subgraph has a giant component, higher reciprocity and clustering and was useful for initiating social interaction in the target social networks.

This Research

To summarize, we build on Antin [1], Zarro et al. [26], and Chang et al. [2] by studying perceptions of both users and non-users of Pinterest concerning who Pinterest users are and what Pinterest is for. This previous work, particularly Antin and Chang et al., suggests that non-users of a site can have a biased impression of the site based on popular stereotypes; we thus directly compare the perceptions of Pinterest by users and non-users. Building on Chang et al. and Zhong et al. [27], we examine the initial context – both content and people – encountered by new users of Pinterest. We examine whether their initial context is gender-skewed, whether it changes their perceptions of Pinterest, and whether it affects their intention to continue using Pinterest. Finally, building upon all of this work, we explore both perception and initial context (social bootstrapping) as they may relate to the gender gap in Pinterest, something that is not explicitly done in any of the works cited.

RESEARCH QUESTIONS

We organize our research around the two main themes we have introduced: (1) *perceptions* of Pinterest and (2) the influence of *social bootstrapping* on people’s initial experience of Pinterest.

Perceptions of Pinterest

How do Pinterest users perceive what the site is for, and who uses it? How do non-users perceive the site and its users, and are their perceptions significantly different than those of users? Do men and women differ in their perceptions, for example regarding the “femininity” of the site? Do non-users’ perceptions change after they sign up?

Social Bootstrapping

How does social bootstrapping affect a user’s social context on Pinterest? How does social bootstrapping affect users’ initial experience with Pinterest, their perception of it, and their intention to continue using it? Are women and men affected differently by social bootstrapping?

STUDY DESIGN AND METHODS

We addressed our research questions with a three-part study:

1. We administered a survey on perceptions of Pinterest to a set of participants including both current Pinterest users and non-users.
2. We then instructed non-users to sign up for Pinterest; in one condition, they signed up with Facebook, in the other with email. We then instructed them to explore the site
3. We administered a second survey to these users about their initial impressions of Pinterest and whether they intended to continue to use Pinterest.

Our primary analytic method was qualitative coding of participant responses to the survey questions. We also collected basic descriptive statistics to better understand the context of social bootstrapping. Figure 1 gives a road-map of our study, including the number of participants for each condition. We elaborate on it in the following sections.

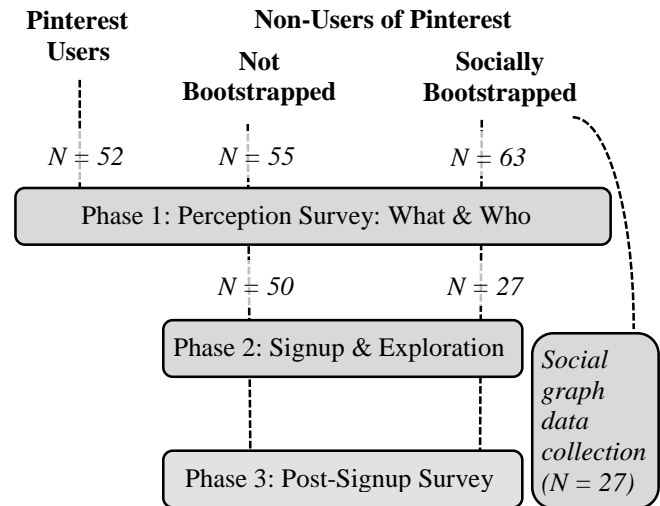


Figure 1: Overview of Study

Participants

We used Amazon Mechanical Turk to recruit participants. Participants were directed to a web-based survey that we hosted. We recruited one set of participants that had used Pinterest (N=52), and a second set that had not used Pinterest. For the second phase of the study, the non-user participants were divided into two groups: one signed up with Facebook (N=63) and the other with email (N=55). Not all participants completed the second phase: 50 of the 55 email participants, and 27 of the 63 Facebook participants did (see below for more discussion). Since participants in the different groups did different amounts of work, we paid different incentives to each: \$0.50 to Pinterest users, \$2.00 to the non-users who signed up with email, and \$3.00 to the non-users who signed up with Facebook.

The average age of participants was 32.4 (SD = 10.2; min = 19; max = 82). We also asked participants whether they used any of seven other social media sites, with the following results: 170 used Facebook¹, 130 used YouTube, 110 used Twitter, 78 used Google+, 71 used LinkedIn, 57 used Instagram, and 40 used Tumblr. The mean number of social media sites used was 3.9 (SD = 1.5). A majority of the Pinterest users (77%) were women, roughly consistent with general Pinterest demographics. A smaller majority of the non-users were men (57%).

We asked the Pinterest users how often they used the site. Of the 52 participants, 20 reported using it daily, 19 weekly, 9 monthly, and 4 less than monthly. We asked the non-users of Pinterest their attitude towards the site.

¹ We required all non-users of Pinterest to be on Facebook: in Phase 2 of the study, half of them would be assigned to sign up for Pinterest using their Facebook account, and we wanted all the participants to be eligible for this condition.

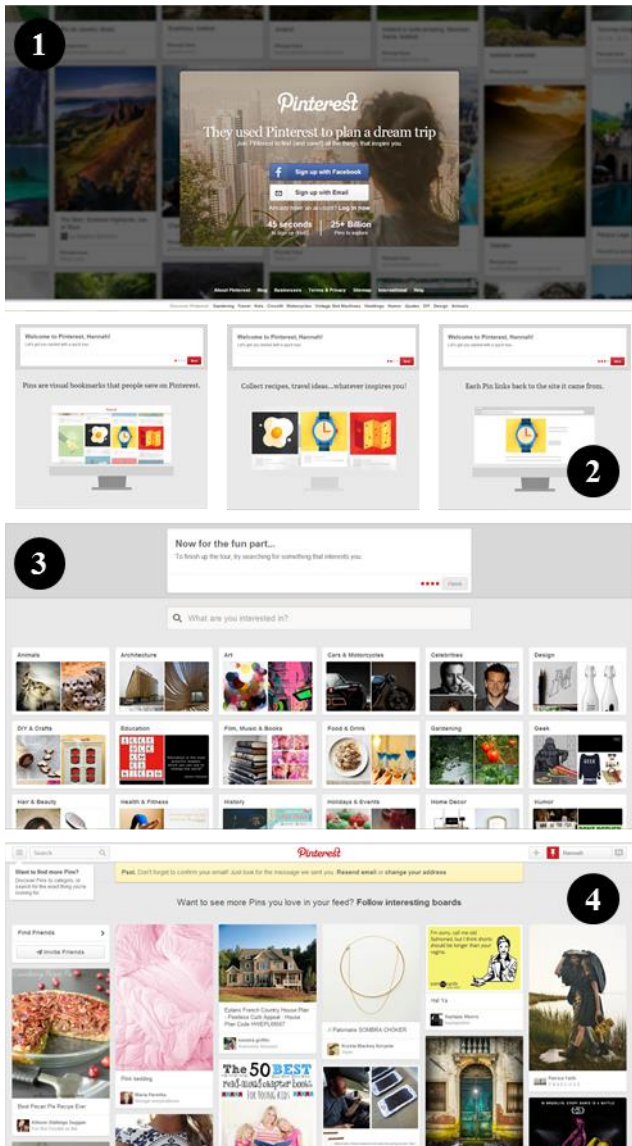


Figure 2: Screen sequence experienced by participants that signed up for Pinterest. (1) Pinterest.com screen to sign up. (2) A “quick tour” of Pinterest. (3) A prompt to search for something of interest with a display of example categories. (4) The Pinterest home feed.

Of the 118 participants, 59 reported that they had not tried Pinterest, but were interested in doing so; 51 said they had not tried, and were not interested; 5 said they had tried in the past, but had stopped; and 3 did not respond to this question.

Phase 1. Perception Survey

We asked participants in all three groups several open-ended questions regarding their perceptions of Pinterest and Pinterest users:

S1. How would you describe what you think Pinterest is and what it is used for?

S2. How would you describe a person that uses Pinterest? That is, when you think of a person that uses Pinterest, what comes to mind?

Phase 2. Signup and Exploration

After the non-users completed the perception survey, they were instructed to sign up for Pinterest. The instructions were delivered through a sequence of screens proceedings directly from the end of the perception survey. Thus, participants kept the instructions for our study open in one web browser window, while opening Pinterest in another window or tab.

As noted above, one group was directed to sign up with email and the other with Facebook; the latter is the social bootstrapping group. (We talk about the social bootstrapping process in more detail below.) Figure 2 shows the sequence of screens the participants saw as they went through the signup process:

1. The initial screen where participants choose to sign up with Facebook or Email.
2. A “quick tour” of Pinterest explaining how it works and what you can do.
3. A prompt to “search for something that interests” the user, with a variety of categories displayed for search inspiration.
4. The Pinterest home feed.

We instructed participants to observe the home feed:

When you complete the sign up process and click "Finish," observe the initial screen you are provided with. Feel free to scroll down the page.

Phase 3. Post-Signup Survey

We then administered a second set of survey questions; operationally, participants now shifted their attention back to the web browser window containing our experimental instructions and survey questions. All the participants who signed up for Pinterest were asked the first question:

S3. Now that you have completed the signup process and observed the initial screen, what is your first impression of Pinterest? Does your first impression differ from what you thought before you signed up? Please explain.

The next question was only for social bootstrapping participants. They were instructed to look through the list of users they were following (i.e., the Facebook friends they imported), then were asked:

S4. What is your impression of the group of users that you are initially following? Do you like the group you are provided with? Why or why not?

Social bootstrapping participants also were instructed to make a count of the number of women and number of men they were following. We used this to compute descriptive statistics about the effect of social bootstrapping (see below).

All participants were asked a final survey question:

S5. At this point, would you continue using/exploring Pinterest? Why or why not?

Social Bootstrapping: Process and Descriptive Statistics

Social bootstrapping projects the social graph from one site (the origin) onto another site (the destination). In our study, Facebook is the origin and Pinterest the destination. For a given user, the social bootstrapping process begins with that user's Facebook friends as the source social graph. But the social graph narrows throughout the bootstrapping process: you only can follow your Facebook friends who actually are on Pinterest. The user controls which ones to follow once on the site, but Pinterest makes it easy to follow many of them at once during signup.

Given our research interests, we wondered whether narrowing the social graph also might skew it. In particular, we were interested in whether the gender composition of the social graph changed.

However, we first discuss why (as shown in Figure 1) only 27 of the participants assigned to the social bootstrapping condition completed the process, i.e., actually imported Facebook friends. Given that they were participating in a web-based process, we do not have an exact answer. Perhaps they did not have any Facebook friends who used Pinterest, maybe they dropped out², or perhaps there was an error in Pinterest's import process, but we cannot account for all the bootstrapping "failures." However, for our purposes we want to explore the effect of social bootstrapping precisely for those people who do have Facebook friends who use Pinterest and who do import them into Pinterest.

To understand the overall Facebook social graph of social bootstrapping participants, we instructed participants how to use Facebook features to gather the relevant data (they did this after completing question S5):

- The total number of Facebook friends, which is visible in one's Facebook profile.
- The percentage of Facebook friends who are female and who are male, available through the Friends & Profile Statistics app in Facebook.
- The number of female and male Facebook friends who use Pinterest, available by using Facebook Graph Search.

They entered these numbers to finish the survey.

Together with data about participants' Pinterest social graphs that they entered earlier, we can examine whether social bootstrapping skews social graphs. The data presented in Table 1 give an answer: the social context for bootstrapping users becomes predominantly female. In our sample, the typical user's Facebook friends were about 57% female. However, their initial Pinterest social graphs consisted of over 80% women (mean: 81%, median: 89%). Users might

² Perhaps they were unwilling to pay the "social cost" of potentially bothering friends whom they included in their social graph or the "privacy cost" of giving Pinterest access to their social graph, so they gave up when they encountered this step.

find this surprising. At the least, even though they imported from Facebook, the projection of their Facebook friends onto Pinterest results in a significantly different social context.




Levels of Social Bootstrapping	Total		% female		
	mean	SD	mean	median	dist.
Facebook friends	276	288	57%	55%	
Facebook friends on Pinterest	54	58	83%	88%	
Pinterest following	50	54	81%	89%	

Table 1: Social bootstrapping and gender – descriptive statistics for the 27 participants who imported Facebook friends into Pinterest. Participants averaged over 275 Facebook friends, with about 54 of them on Pinterest, and they imported nearly all of them into Pinterest (mean of 50). On average, 57% of their Facebook friends were female, but 83% of their Facebook friends who used Pinterest were female, and 81% of the friends imported into Pinterest were female.

As we shall see, social bootstrapping played a large role in participants' initial perceptions of Pinterest and their intention to continue using Pinterest, and men's and women's reactions to social bootstrapping were more or less directly opposite.

Methods

We first qualitatively analyzed the raw data responses from the participants. The first two authors of this paper coded the responses to the five survey questions, generally taking an inductive approach as is described in [23]. This approach is appropriate because it "allow[s] research findings to emerge from the frequent, dominant, or significant themes inherent in raw data" [23]. Though this work was motivated by identifying likely contributing factors to the gender gap, the analysis conducted is sufficient for several reasons. First, we used the approach where we treated gender "as a variable," so we did not influence the participants' responses by directly asking gender-prompted questions in the survey. Further, as a result of the inductive approach, our findings are data-driven, coming from the content of the participants' responses *only*. In addition, prior to completing the coding, we prevented preconceived notions from biasing the results by randomly ordering the responses for each question and hiding the gender and experimental condition of participants. Finally, it is acceptable within the general inductive approach to have specific objectives that guide data collection and analysis [23].

Each researcher openly coded the first 20 percent of the responses to each question independently. We then discussed the results to agree on codes and definitions. We next revisited the original 20 percent of responses to confirm our understanding, and then finally coded the rest of the responses individually.

While coding the responses to S1 (What is Pinterest for?), we noticed that many responses touched on categories from the analysis of Pinterest in [26]. These categories were (illustrated with terms our participants used): *collecting* (“saving” and “organizing”), *discovering* (“searching” and “finding”), *publishing* (“sharing” and “posting”), and *interaction and identity* (“friends” and “social”). We thus included these categories in our code catalog.

We calculated a Kappa coefficient to evaluate inter-coder agreement and characterize the reliability of our results. Since we had a relatively small sample size and our data were sparse (due to having broad, open-ended questions), we calculated Kappa for each individual code. We then averaged the Kappa scores for each survey question: S1 – 0.850; S2 – 0.831; S3 – 0.786; S4 – 0.889; and S5 – 0.797. These results indicate that the coding was reliable: according to Cichetti [5], Kappa scores above 0.75 indicate “Excellent” agreement.

If only one of the coders assigned a code to a response, we decided at random (with 50% probability) whether to include that code for the response. Because of the high agreement between the coders, this did not happen often. Also, for each response there were some codes in the code catalog that were infrequently applied and for which the coders had low agreement. We did not use these codes in our analysis.

After the coding process was complete, we employed a more quantitative method for analyzing the coding result. This was appropriate due to the complexity and scale of our study:

- We had 170 total participants and associated responses in our study, which is much larger than most qualitative studies.
- Our study is a 2x2x2 design with Pinterest user versus non-user, male versus female, and social bootstrapping versus not variables.

In order to most effectively analyze the large number of responses with respect to each of the variables of interest, we examined aggregate response patterns. An example of such a pattern would be observing that a particular type of response was much more common among social bootstrapping users. Then, we performed statistical tests, specifically Fisher’s Exact Test, to determine which differences in response patterns were significant. Finally, we identified particularly telling quotes from participants for each of the patterns identified. This mixed method analysis resulted in identifying three main themes.

RESULTS

We organize our results around three main themes:

1. How Pinterest users and non-users differ in their perceptions of *what Pinterest is for* and *who uses Pinterest* (survey questions S1 and S2).

2. Non-users’ perceptions of Pinterest after their initial experience with Pinterest, including impressions of their social graph (survey questions S3 and S4).
3. The factors that influence new Pinterest users’ intention to continue (or not) using Pinterest (survey question S5).

Each theme is broken down into more specific sub-themes. Sometimes female participants responded differently than male participants or social bootstrapping participants responded differently than non-bootstrapping participants; we report on these differences where relevant. We illustrate each theme through a combination of quotes from survey participants and aggregate responses of participants to the survey questions. Finally, we note whether differences in aggregate responses are statistically significant (and report p values if they are).

For ease of reference, Table 2 maps the research themes to the survey questions and participant information they are based on.

Research Theme & Corresponding Survey Questions	Pinterest users		Non-users of Pinterest			
	F	M	Email		Facebook	
			F	M	F	M
1. Perceptions: what/who Survey: S1 and S2	40	12	23	32	28	35
2. Post-signup perceptions Survey: S3 and S4	N/A		21	29	16	11
3. Intent to continue use Survey: S5						

Table 2: The survey questions and participant information used for each of our research themes. “F” indicates “Female,” and “M” indicates “Male.”

Perception of Pinterest: Users vs. Non-Users

We first report on how Pinterest users and non-users differ in their perceptions of what Pinterest is for and who uses it.

What is Pinterest for?

Figure 3 summarizes the codes resulting from our analysis of responses to the question “What is Pinterest for?” It shows the proportion of participants with a response assigned to each code, with responses from Pinterest users and non-users shown separately.

Discovering and Collecting Ideas vs. Publishing

The first difference we observed was that Pinterest users mentioned *collection* and *discovery* – activities done primarily for oneself – more frequently than non-Pinterest users. 40% and 25% of Pinterest user responses were coded for *collection* and *discovery*, respectively, compared to 25% and 11% for non-users.

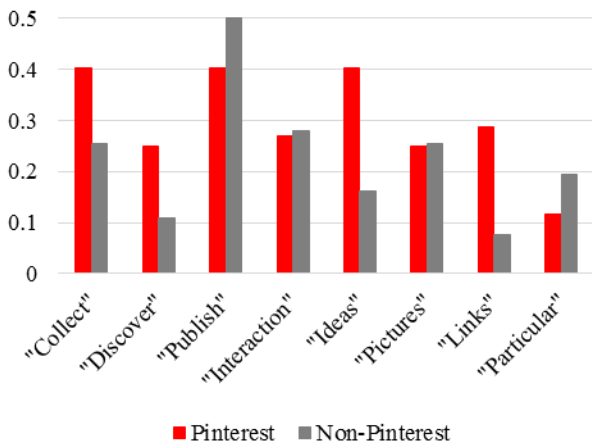


Figure 3: What is Pinterest for? Responses from Pinterest users and non-users (170 responses, 352 codes assigned).

These differences were significant ($p < 0.04$, $p = 0.02$ respectively). Two quotes from Pinterest users illustrate this:

*Pinterest is a place where you can go and **browse** things that are of relevance and interest to you, such as recipes, fashion **ideas**, makeup tips, art, furniture, etc. When you see something you like, you are able to "pin" it to your own board, **saving** it for when you want to refer to it later.*

*It's a site where I **collect** things that I like on a virtual pin board. I can **group** them and **share** with others. I can also look at other people's boards to **find** things that interest me and **save** them to my board.*

On the other hand, non-users mentioned *publishing* or *sharing* content with others 50% of the time, much more often than they mentioned discovering or collecting. Pinterest users also mentioned *publishing* (40%), but not as often as non-users, although this difference was not statistically significant. However, looking at the textual responses of non-users in more detail illustrated this perspective, as shown by two quotes from non-users:

*It's a place you can **share pictures** with friends.*

*I think it's a **photo sharing** thing...All I've seen are lots of different **photos** with captions.*

Thus, while Pinterest users see Pinterest as a place to *discover* and *collect information*, and *share it with others*, non-users see it more as just a place to *share* with others. This might help explain why some people choose not to use Pinterest: they do not see how to derive personal benefit from the site, but only that they would provide it to others.

A related observation is that users had a more developed notion of what one can discover, collect, and share on Pinterest, namely *ideas* – 40% of their responses were coded as mentioning *ideas*, compared to 16% of responses from non-users ($p < 0.01$). For example:

*Pinterest is used to **find** new **ideas** for your household, wedding, children, etc. It is great for **finding** craft **ideas** and even meal recipes.*

*Pinterest is for **sharing ideas** with your **friends** and for **bookmarking ideas** and **pictures** that you see and like.*

The “ideas” theme is consistent with the “everyday ideation” concept of Linder et al. [12]. They interviewed 20 Pinterest users, finding that they used items they found through Pinterest to develop ideas with practical and emotional value for their lives.

(Visual) Bookmarks vs. Pictures

Obviously, a prominent and compelling aspect of Pinterest is that pictures are front and center: every pin is depicted as a picture, and while textual comments are supported, there is relatively little annotation or discussion.

However, a pin also is a link to the external website from which the picture was collected. Participant responses showed that this was clear to Pinterest users – nearly 30% of their responses were coded as referring to a “link” (to content) – but not to non-users – less than 8% of their responses were so coded. This difference was significant ($p < 0.01$). For example, compare the two following quotes, the first from a Pinterest user and the second from a non-user:

*Keeping **collections** of **images** of things you like, **images** that **link** to various things, from recipes to products you'd like to buy.*

*I think I've seen Pinterest before. It seems to be like a **photo blog**. Kind of like twitter, but with **just photos**.*

The Pinterest users understood that their actions on Pinterest were not just curating pictures, but actually managing visual representations of web content. Meanwhile, the non-user manifested a (literally) superficial understanding of Pinterest: it's just about pictures! A rough analogy is that Pinterest users see Pinterest as a visual *bookmarking* site, while non-users see it more as a photo-sharing site, like Instagram or “Twitter just with photos.”

Who are Pinterest users?

Figure 4 summarizes the codes resulting from our analysis of responses to the question “Who uses Pinterest?” The first part of the figure shows the proportion of participants with a response assigned to each code, with responses from Pinterest users and non-users presented separately. In the second part of the figure we further divide responses by the gender of the respondent (female or male).

Creative and Crafty vs. Social

About 44% of responses from Pinterest users described users as *creative* (or “artistic” or “artsy”) and about 40% described users as *crafty* or *Do-It-Yourselfers* (“DIY”). These characterizations were mentioned less frequently by non-users (about 25% for both codes). These differences were significant ($p < 0.02$, $p < 0.05$ respectively). Two users described Pinterest users as:

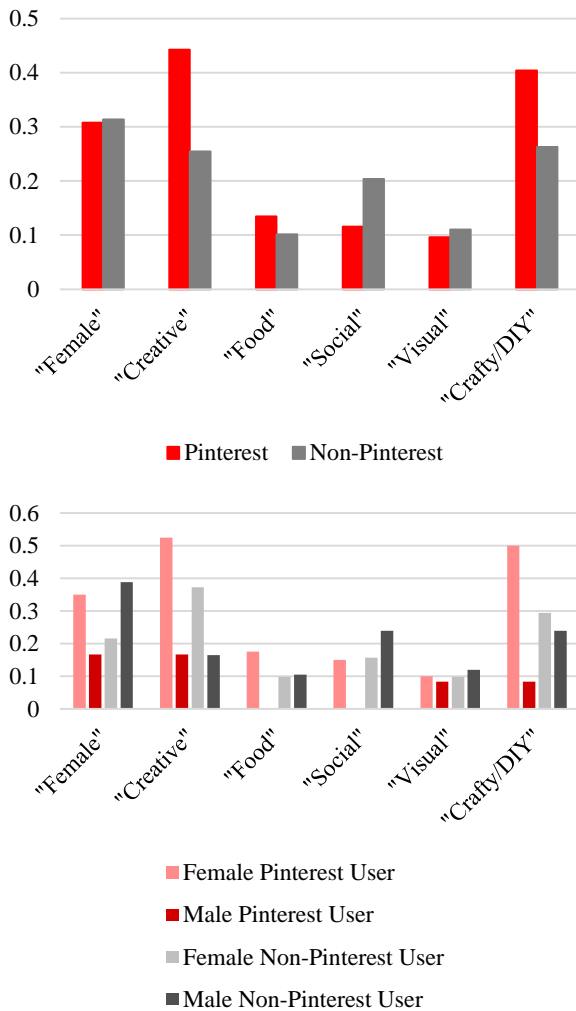


Figure 4: Who are Pinterest users? (170 responses, 225 codes assigned) Categories of responses by Pinterest users and non-users, then further divided by gender.

Creative, resourceful, DIY person, crafty, inspired.

A creative person uses Pinterest. Someone who wants to try new things, and do-it-yourself'ers.

However, breaking down responses by gender lets us understand this pattern more clearly: women were significantly more likely to characterize Pinterest users as *creative* than men whether or not they used Pinterest ($p < 0.01$) Indeed, both the above quotes were from female users. Female participants also were significantly more likely to characterize Pinterest users as *crafty* ($p < 0.05$), although male users were more likely than male non-users to use this characterization. These results resonate with quantitative results from Chang et al.[2], who found that women pinned content to the “DIY & Crafts” category more often than men.

On the other hand, male non-users were more likely to describe Pinterest users as *social*, seeking to “share” or “connect” with others or just as active participants in social media. (Note that this is consistent with the previous finding

that non-users were more likely to say that Pinterest was for publishing/sharing.) For example:

I think a person who loves to connect with others using visual images that they find appealing.

A person who uses Pinterest is a person who wants to be socially connected to many people. They want to share many aspects about their life to the world...

Just basically someone who uses all sorts of different social media platforms. They probably have a Google+, twitter & myspace too along with facebook and Pinterest. They are just a person who enjoys using social media as much as possible.

The differences in perception between users and non-users regarding the role of “social” vs. “discovery” and “collection” deepens and extends the results of Zarro et al. [26]. Many of their participants emphasize the utility of Pinterest for finding and collecting information over its social features. Indeed, as one of our Pinterest users said:

The typical Pinterest user is someone who likes to make things but isn't very social necessarily. Someone who likes to catalog ideas.

More generally, since Pinterest is part of the social media ecosystem, it may be that non-users – who are not familiar with Pinterest’s unique affordances – perceive it more in terms of general stereotypes of a social media site. But people who begin using a site will learn about its unique affordances, thus refining their perception. For Pinterest, this can mean a shift from perceptions of it as a place for social interaction to a place for content discovery and curation.

Female(?)

Finally, about 30% of all responses to “Who are Pinterest users?” mentioned that they were *female*, or “women,” “moms,” or “girls”:

I think of a mom with young kids, who uses it for decorating tips, recipes, kids projects, consumes, and similar. In my mind the typical Pinterest user is female.

Pinterest seems to be used mostly by females, at least that's my perception of it.

When we divide the responses only by user vs. non-user, the two groups mention *female* equally often. For non-users, this is the single most common response. However, breaking down the responses by gender, as shown in the second part of Figure 4, reveals a different and rather puzzling pattern. Female Pinterest users and male non-users are more likely to characterize users as female than male Pinterest users and female non-users.

We find this pattern striking. They may be related to Antin’s observation about group identity: people will not want to belong to a group that they do not or do not want to identify with [1]. Based on this, we offer several speculations:

- Women who use Pinterest perceive it (accurately) as friendly to women and covering topics that many women

are interested in. Women would be comfortable identifying with a “female site,” so they are comfortable viewing Pinterest users as female. Indeed, the first quote above, with its description of a Pinterest user as a “mom with young kids,” came from a female Pinterest user.

- Men who do not use Pinterest can come to perceive Pinterest as “for women,” due to the gendered depiction of the site in popular and social media (see [2, 13, 24, 25] for discussion). Men are less likely to identify with a site “for women,” reinforcing a choice not to use Pinterest.
- Men who do use Pinterest obviously have overcome any such barrier. And to the extent that they identify with the community, it would make sense for them not to perceive Pinterest as a site “for women” or the typical Pinterest user as a “young mom.”
- The most puzzling pattern is that women who did not use Pinterest did not strongly perceive Pinterest users as female. We do not have any speculation as to why this might be that we find plausible, so more in-depth study is required to see if this pattern is real, and if so, why.

Summary. We found a number of interesting results concerning perceptions of what Pinterest is for and who uses it, with noteworthy differences between users and non-users and between men and women. We now turn our attention to the initial experience on Pinterest for the participants who had not previously used the site.

Post-Signup Perceptions of Pinterest

After the non-user participants completed the sign up process, we instructed them to “look around Pinterest” and then administered the Post-Signup survey asking about their perceptions of Pinterest now that they had joined. We initially coded responses to see whether participants said that Pinterest was the *same* or *different* than they had expected. About half of the participants said it was the same, and about half said it was different. Perhaps not surprisingly, the participants who said it was the same did not elaborate or explain their impression much. Therefore, in subsequent analysis we focus on responses from subjects who said Pinterest was different than they had expected.

More Diverse

The most frequent specific reason that users viewed Pinterest as *different* than expected was that it was more *diverse*: there was a “bigger variety” and “many categories” of content. Just over 40% of users who had a different impression of Pinterest mentioned this reason. Illustrative quotes include:

There is a wider variety of things than I thought there would be.

Lots of categories for many interests. I didn't know it covered so many things. I thought it was just people posting art and recipes.

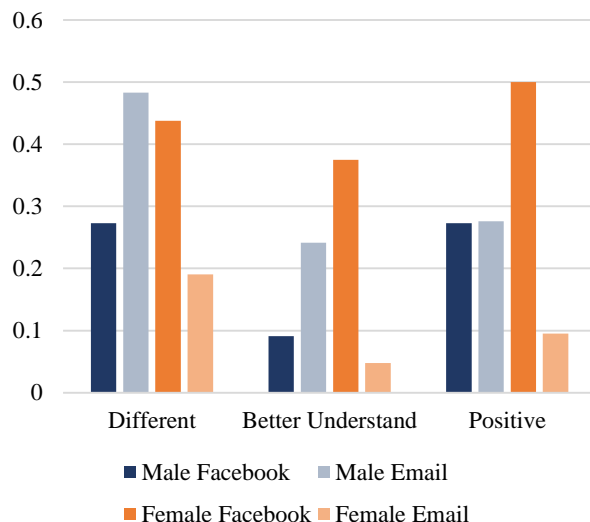


Figure 5: Changes in perception after signing up for Pinterest (77 responses, with 64 coded as “Different,” “Better Understanding,” or “Positive”). “Facebook” refers to participants who signed up using Facebook, and “Email” to those who signed up using Email.

More than just fashion which I had thought it was. It has everything from art, food, fashion, history and more.

These impressions are accurate: Pinterest is diverse, offering a broad range of content in over 33 different categories. But unless and until people experience Pinterest first-hand, their perception is based on fairly narrow stereotypes, such as “art,” “recipes,” and “fashion.”

Social bootstrapping affects men and women differently...

We next broke down responses by two factors, the presence or absence of social bootstrapping, and the gender of the participants. We found social bootstrapping affected men and women differently. First, Figure 5 suggests that social bootstrapping makes women more likely to have a different impression than expected, while the opposite is true for men. Though the difference in means looks large, neither of these differences were statistically significant, likely due to relatively small numbers of participants (see Figure 5).

... Bootstrapping increases women's understanding of Pinterest but not men's understanding

Another theme that emerged from our coding of this question was *better understanding* of Pinterest, for example that pins represent links to web sites, not just pictures:

It is a little different than I thought. I didn't know that all the pictures were links.

I didn't realize that Pinterest was about "pinning" any website you find of interest. It's almost like having your bookmarks be public.

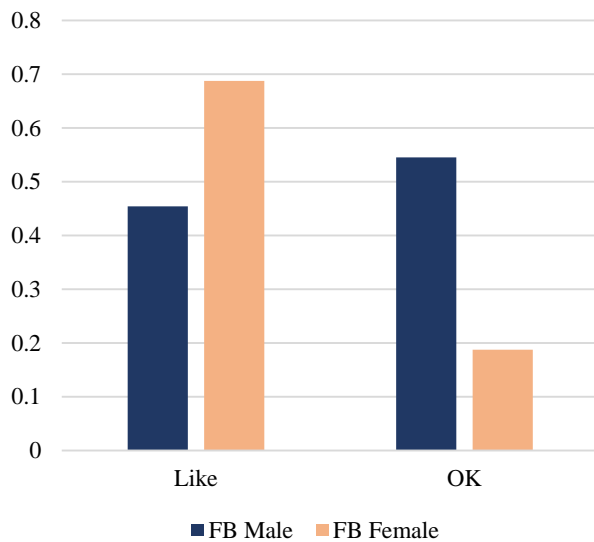


Figure 6: Do socially-bootstrapped users like their initial social graph? (28 responses, 27 were coded as either “Like” or “Just OK”) Women are more likely to say that they like their social graph.

Social bootstrapping again affected women and men differently. Women who signed up with Facebook were significantly more likely than women who signed up with email to say that they understood Pinterest better ($p < 0.03$). For men, the opposite appears to be true, although this result was not statistically significant.

... Bootstrapping makes women more positive about Pinterest and men less positive

Another theme we coded for was *positive* remarks concerning participants’ first impression of Pinterest. Some examples (all from women):

I am seeing some outfits I like, some I don't...I didn't realize I could browse purses on here! Now, I'm excited!

I LOVE THIS SITE!!!!!! - Generally few things impress me; however I was just nicely blown away. Anything and everything of possible interest is nicely categorized. It's set up like a great big collage. Again, very nice, not at all like what I had envisioned.

I now **understand** I can pin something to make it available to me whenever I want. I can explore all kinds of things and can then pin them for my future use. **Pretty amazing.**

In contrast, several men in the social bootstrapping condition remarked on the “girly” nature of the site:

It is a little girly and it looks well kept.

Most of what I see is girly things pinned by female friends like clothes and jewelry, but I do see a few things pinned about food which caught my eye.

Thus, social bootstrapping again affected men and women differently. Women in the Facebook condition were significantly more likely to make positive comments about

their first impressions of Pinterest than women in the email condition ($p < 0.01$), while there was no effect for men.

... Women are more positive about their initial social graph than men

We also asked participants that bootstrapped to look at their initial Pinterest social graph – the users they were following – and give their impression of this group. Responses included:

My impression of the group is very pleased and yes, I do like the group they provided me with. I'm actually quite close to a bunch of the people. (Female)

It's OK. It looks like it somehow linked in with my friends list on Facebook, and I am comfortable following all of these people. (Male)

The aggregate responses in Figure 6 show that women generally were more likely than men to have a positive impression of their social graph, while men were more likely to say that it was just ok. These differences were not significant: again, this may be due to small N (11 men, 16 women; see Table 2).

Summary. Many users’ first impression of Pinterest was different than they had expected. Second-hand stereotypes were replaced by first hand-experience: notably, content was more diverse than expected. Social bootstrapping had a powerful effect, and affected men and women differently. Its effect on women was uniformly positive, and on men negative or neutral.

Intent to continue using Pinterest

Our final survey question was whether participants intended to continue using Pinterest, and why or why not. 60% of men and 65% of women said that they would or possibly would continue using Pinterest.

Social bootstrapping affects men's and women's intention to continue differently.

Figure 7 shows that women who signed up with Facebook were more likely to express an intention to continue using Pinterest than women who signed up with email, while the opposite pattern held for men. This continues the pattern we saw in the analysis of the previous question, suggesting again that the social context created by social bootstrapping enhances the initial Pinterest experience for women, but harms it for men.

While these differences were not statistically significant, a more detailed look at responses revealed two interesting themes, one for participants who said they intended to continue, and another for those who said they did not.

Yes: Discovery

44% of participants who said they would continue using Pinterest mentioned Pinterest’s support for *discovery* as a reason:

Yes, it could be cool finding new stuff.

I think I would continue looking at Pinterest as it looks like I can explore most any area of interest. Can't do that on other social media as far as I can tell.

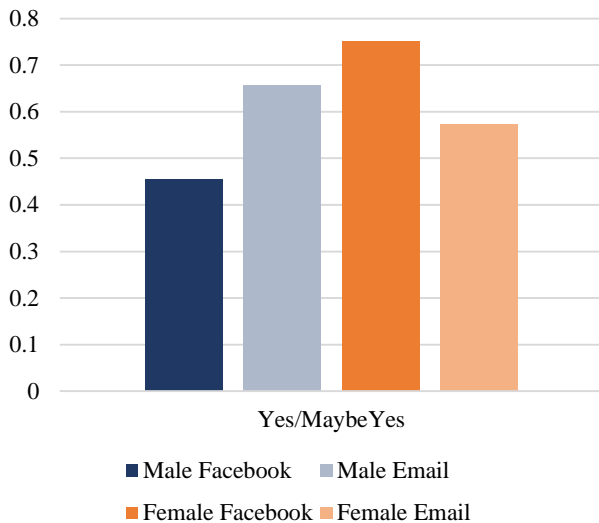


Figure 7: Intention to continue using Pinterest (77 responses, with 49 coded as “Yes” or “Maybe Yes”). A majority of all users say “yes,” but social bootstrapping again affects women and men differently.

There is some evidence that this reaction was directly tied to the extent to which participants’ perceptions of Pinterest were changed. Nearly all the participants who cited *discovery* as a reason for continuing to use Pinterest had not perceived Pinterest as a discovery tool prior to signing up.

No: Use other social media

The most common theme characterizing participants who did not intend to continue using Pinterest was that their social media “plate” already was “full” or that they did not see how Pinterest offered unique value compared to other sites. Such references to other social media appeared in over 30% of *not continuing* responses, for example:

I probably would not. It just seems like a lot more work than I am willing to invest right now. I feel like my social media plate is already full trying to keep up with Twitter, Instagram, and Facebook. Pinterest looks like a mediocre combination of those other three sites.

No, it seems like I get the same information from twitter and instagram.

I just do not see anything that I want to do with this site. Why does it think it is different from anything else? What can you accomplish here?

Summary. Participants who intended to continue using Pinterest cited one of the distinguishing features of the site, namely that it supports *discovery*; and these new users had not been aware of this before. On the other hand, participants who did not intend to continue suggested that Pinterest did not offer sufficient unique value over other social media sites. Finally, social bootstrapping again was an influence, and again affected men and women differently.

SUMMARY OF CONTRIBUTIONS AND IMPLICATIONS

We presented many results from studying perceptions of and initial experience with Pinterest, but now we revisit the overarching question of why there is a gender gap. In treating gender as a variable, we wanted to see if perception and social bootstrapping produce gendered effects, ultimately finding that they do.

Perception

The strategy in researching perceptions of Pinterest and its users was to compare those of users with non-users to illuminate potential barriers to participation. Since we treated gender as a variable, we did not ask questions in the survey directly addressing if and how gender plays a role in their perceptions. Instead, we let it rise out of the data while finding multiple differences in perception between users and non-users that allude to reasons people do not participate in Pinterest. Ultimately, we discovered that gender *is* a factor in perceptions of Pinterest.

First, we found that Pinterest users tend to view Pinterest as a place to *discover* and *collect*, and share with others, while non-users view it more as just a place to *share* with others. This result lends itself to speculation that some people may choose not to use Pinterest because they perceive it as a place for providing benefit to others and do not see how to derive personal benefit from it—something that is generally well understood by users [12, 24]. Similarly, we found that non-users’ mental models of the site affordances fall short in thinking that the site content is just a large collection of pictures, when really the site enables *linking* to other web content—represented by a picture. This superficial perception may be another barrier to participation because again it is unclear to some why a site full of pictures is useful to them, whereas users understand and enjoy the richness of curating actual content (not just pictures) [9, 12, 24]. Finally, after signing up and being asked about their first impression of Pinterest, many non-users reported that it was more diverse than they previously perceived. This implies yet another perception barrier for non-users: the impression that Pinterest does not contain diverse content, but instead likely contains a narrow range of topics.

Gender appeared in the “Who are Pinterest users?” survey question responses. In fact, 30% of all responses referred to users as being “female,” “women,” “moms,” or “girls.” However, when stratifying responses by users and non-users and male and female participants, we found that male non-users referred to users being female the most often. This finding together with Antin’s insight [1] provides evidence for a gender gap-specific barrier to participation: men are less likely to (or less likely to want to) identify with a site that they perceive as being for women.

Social Bootstrapping

For the social bootstrapping factor, we first quantified the process by collecting, for each participant, the gender distribution at each level of the process: the source social graph (Facebook friends); the intersection of the source

social graph and the destination user population (Facebook friends that use Pinterest); and the resulting destination social graph (initial users following in Pinterest). This process has not been illustrated level-by-level before, nor has it been analyzed with respect to gender. We showed that in the case of social bootstrapping one's Facebook social network into Pinterest, the process results in an overwhelmingly skewed initial social graph. As a result, both male and female new users are provided with predominantly female social graphs.

Then, based on responses to survey questions, we were able to identify patterns of how social bootstrapping, or not social bootstrapping, affects the initial experience of new users. In particular, we found that social bootstrapping affects men and women differently. Specifically, its effect on women was uniformly positive, and on men negative or neutral, compared to the control condition of not socially bootstrapping. We observed this general pattern in the following aspects of the initial user experience with Pinterest:

- Understanding the site after signing up
- Impression of / reaction to the site
- Degree of liking the initial social graph
- Intent to continue participation in the site

Though many of these results were not statistically significant due to our small sample size, the fact that the pattern was recurring in *all* of the initial user experience aspects identified gives us confidence in the pattern we detected.

By illustrating the skewed social bootstrapping process and recognizing an associated pattern of different impact on male and female users, we provide sufficient evidence that social bootstrapping is a factor of the gender gap in Pinterest. Designers of web sites that use social bootstrapping should consider these results carefully: social bootstrapping may not actually be producing desired social graphs for users, and may be helping or harming users in unintentional, but powerful, ways.

FUTURE WORK

Our results raise a number of possibilities for future research. We discuss three such possibilities that we find especially interesting and actionable.

Do rich studies of early user experiences of social sites

Our study showed the importance of early user experience with a site: for example, some participants changed their impressions of Pinterest substantially, and social bootstrapping played a major role, affecting women and men differently. However, since our study was web-based, we were limited in the data we could collect, the control we could exert over the process, and the duration of the study. An alternative study design could take us deeper into new users' thought process and impression formation. For example, in-person contextual interviews would yield richer observational data and deepen insights into issues around importing one's social graph (such as: Do people worry about bothering their friends? Do they have privacy

concerns? Why are women and men affected differently?) Assigning open-ended at-home activities, followed by a second interview would yield data about actual use of the site, not just intention to use. Such a study would be particularly valuable to inform the next possibility.

Design smarter social bootstrapping techniques

Social bootstrapping is a common practice in current social sites. Our results illustrated its potential power, but also potential downsides. Can a site retain its virtues – giving new users immediate access to familiar contacts and content of (potential) interest – while avoiding the downsides? We think intelligent techniques that help users understand the effects of importing contacts have promise. For example, a “critiquing” approach [3] would let users select contacts to import and follow, then update their content feed in real time. If users don't like what they see in the feed, they could remove contacts. Or more fundamentally, perhaps basing the information feed around a social following model is a bad idea for a site like Pinterest. A content-based recommendation approach [17] might be a better fit for the primary site function of information discovery.

Study how people allocate time and attention across the social media ecosystem

When participants said they were not likely to continue using Pinterest, they often made reference to other social media; specifically they said that Pinterest did not give them anything they could not get elsewhere or that their “social media plate” already was full. This reminds us of an important point: people must decide how to allocate time and attention across a large range of social sites.

How do people do this? What factors drive these decisions? We are aware of very little research on this topic. Oeldorf-Hirsch et al. [14] did a lab experiment studying when users routed questions to search engines or their social network, but this was a very focused topic and thus did not get at the kinds of general factors we are interested in. Hargittai and Hsieh studied use of multiple social sites through analysis of survey data [10, 11], but did not look at why and how people divide their attention across sites. Research on this topic would be of significant practical and theoretical interest.

CONCLUSION

We deepened and expanded upon current research related to Pinterest by qualitatively exploring two factors that we believed to be likely contributors to the gender gap in Pinterest: perception and initial social context (social bootstrapping). We conducted a survey study to investigate perceptions of both Pinterest users and non-users, and to run a controlled experiment of having participants sign up for Pinterest with and without socially bootstrapping their social graph from Facebook. Using mixed methods of analysis, we found interesting insights into the role of perception and social bootstrapping, including evidence that both are contributing factors to the gender gap in Pinterest.

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