Assimilate or Differentiate? Contributors' Choice of Subjects in User-Generated Content

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ABSTRACT

A key to the content diversity on user-generated content platforms is what subject users choose to contribute on. This research investigates how two factors can shape contributors' subject choice decisions, namely, the amount of existing content and content contributed by online friends or "friend content." Our experimental findings show that both the amount of existing content and friend content can shape a contributor's subject choice decisions: ceteris paribus, contributors prefer subjects with less existing content and ones with friend content when the amount of existing content is the same. In addition, contributors' preference for subjects with friend content weakens as the amount of existing content on other subject's decreases. Our findings hold important implications for research and practice in user-generated content platforms and beyond. [Submitted: November 13, 2018. Revised: April 24, 2019. Accepted: July 8, 2019.]

Subject Areas: Assimilation, Differentiation, Subject Choices, Social Network Friends, and User-Generated Content.

INTRODUCTION

People contribute to online user-generated content (UGC) platforms for many reasons. Such contributions can be a result of spontaneous self-expression, for example, to "let off steam" or "have something to say about it." Alternatively, contributions can also be purposeful, such as helping others, gaining recognition/respect, group commitment, and signaling an identity (Wang and Fesenmaier, 2003; Koh et al., 2010; Kim et al., 2011; Tong et al., 2013). Research has shown

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that purposeful contribution is a significant driving force for UGC (Liu, 2007; Van House, 2007; Zeng and Wei, 2013).

In the case of purposeful contribution, it is important for contributors to choose what *subject* to contribute to. By "subject," we broadly refer to a topic, a product/service, a problem, or a perspective to write about. For example, in political blogging, bloggers have shown strong preferences for subjects where they can offer an alternative view to mainstream reporting (Ekdale et al., 2010). In the volunteered geographic information community, contributors are motivated to contribute to subjects where their contribution can be quickly adopted (Coleman et al., 2009). In online reviews, contributors care about reviewing products that make them look distinctive (Dichter, 1966; Dellarocas et al., 2010). These studies suggest that purposeful contributors to UGC often face a subject choice decision: among several candidate subjects, which one to contribute to?

The subject choice decision is especially important for recurring contributors on UGC platforms. As contributors become more involved in UGC, they become more cognizant of the impact of their contribution and needs of their audience. As a result, they are more motivated by specific purposes such as recognition, helping others, group identity, and community benefits (Wang and Fesenmaier, 2003; Kim et al., 2011; Tong et al., 2013). Naturally, such recurring contributors need to choose subjects that advance their goals the most. Meanwhile, as many of these contributors are volunteers, they often have limited time (and budget) to contribute to a selection of subjects that they could possibly contribute to. For example, a recurring Yelp contributor may have been to many restaurants, but she only has time to review a few given her busy life. Some avid Yelpers may even strategically choose restaurants to visit for the purpose of writing impactful reviews. A combination of limited time (and budget) and the pursuit of impact and other goals imply that recurring contributors must be judicious about their choice of subjects to contribute.

The issue of subject choice has important implications for UGC platforms and consumers. At the aggregative level, subject choices determine the diversity of subjects on a UGC platform. Although UGC platforms attract wide participation, many UGC platforms still face a challenge of a "steep tail"—that is, several most popular subjects attract most of the contributions (Tucker & Zhang, 2007; Dellarocas et al., 2010). For example, only 2.2% of restaurants on Yelp receive more than 13 reviews per month, whereas more than 30% receive no review (Luca, 2016). For many platforms, the diversity of content is critical. Having a diverse repository of content encourages more consumers to use the platform, which in turn makes the platform more attractive for contributors and third parties (e.g., advertisers and business partners) (Constant et al., 1996; Jehn et al., 1999; Ray et al., 2014).

In this article, we focus on the impact of the existing content on a contributor's subject choice on UGC platforms. We examine two important factors. The first factor is the *relative amount of existing content*. Purposeful contributors who care about the impact of their contribution may be sensitive to the amount of existing content. On one hand, contributing to a subject with little or no existing content may be viewed as more helpful or distinctive (Ling et al., 2004; Ludford et al., 2004; Tong et al., 2013). We call such a subject choice "*differentiation*"—for it allows

contributors to distinguish themselves from other contributors. On the other hand, contributors may be more drawn to popular subjects as they can gain the benefits of social integration and identification (Sundaram et al., 1998; Hennig-T hurau et al., 2004; Kim and Park, 2011). We call such a subject choice "*assimilation*"—for it allows contributors to assimilate with others. In light of these different perspectives, we investigate how a contributor's subject choice is affected by the relative amount of existing content.

Another factor is *friend content*. By "friend," we mean online friends who share personal interests and use electronic connections and communication as a primary form of interaction with each other (Hiltz & Wellman, 1997; Dennis et al., 1998; Ridings & Gefen, 2004). Many UGC platforms, such as Reddit and Yelp, are also social platforms where people can follow/make online friends. On such platforms, some of the existing content is contributed by friends, that is, *friend content*. Friend content may induce users to contribute to the same subject as their friends, that is, *assimilation*. This could happen because online friends tend to copy each other's behavior and share similar beliefs (Bapna & Umyarov, 2015; Zhang et al., 2015; Dewan et al., 2017; Qiu et al., 2018). On the other hand, friend content may lead to *differentiation* because content contributed by friends is more likely to be redundant; contributors may want to contribute to different subjects to feel distinct (Brewer, 1991; Zeng & Wei, 2013). Therefore, we also examine the effect of friend content on contributor's subject choice. In sum, we focus on the following research question in this article: *How is a contributor's subject choice in UGC jointly shaped by the amount of existing content and friend content*?

The issue of subject choice decisions (i.e., *what subject* to contribute to?) should be distinguished from the issue of contribution decisions (i.e., *whether* to contribute?). There have been many studies on contribution decisions on UGC platforms (e.g., Chen et al., 2010; Goes et al., 2014; Burtch et al., 2018), but few have studied subject choice (Zhang & Wang, 2012; Zeng & Wei, 2013). We argue that studies of contribution decisions can mask the subject choice decisions for at least two reasons. First, a study of total contribution may not provide insights on what subject's users choose to contribute to. Thus, we would not know whether increased contribution leads to more or less diversity. Second, a study of total contribution may confound different motivations for contribution. For example, one may find that users are more likely to review a popular product (e.g., Dellarocas et al., 2010) because more people are familiar with this product. This does not necessarily mean a user who has been exposed to both a popular product and a niche product would necessarily choose to review the latter. A focus on the subject choice decisions requires accounting for the choice set, which is helpful for clarifying the motivations behind the contribution behaviors.

Drawing upon optimal distinctiveness theory and the literature on UGC contribution motivations, we formulated hypotheses regarding the effect of the amount of existing content, the effect of friend content, and their joint effect on subject choice decisions. We tested our hypotheses using a laboratory experiment. Our experiment was set in the context of online reviews for songs, a popular form of UGC. To focus on users' subject choice decisions, we instructed users to listen to two songs (the *focal* song and the *alternate* song) and choose one to offer a review. To examine the effect of the relative amount of existing content,

we maintained one review at the focal song and manipulated the alternate song to have either no review or one review. To examine the effect of friend content, we matched participants with friends based on their music interests and primed the friendship between them using a pre-experiment game. We manipulated the author of the review for the focal song to be either from a friend or from a stranger while maintaining the reviewer for the alternate song to be a stranger. Using this experiment setup, we studied whether the amount of existing content and the friend content affects which song they choose to offer a review and whether the friend effect is moderated by the amount of existing content.

Our findings show that both the relative amount of existing content and friend content can shape a user's subject choice decisions: ceteris paribus, users prefer contributing to subjects with less existing content; users also preferred to review a subject with friend content only when other subjects did not have less existing content. In addition, users' preference for subjects with friend content attenuates as the amount of existing content on other subjects is reduced.

RELATED LITERATURE

Research on Contribution and Subject Choice in UGC

A user's subject choice decision (i.e., what subject to contribute to?) is related to the contributing decisions (i.e., whether to contribute?). What drives a user to contribute to a particular subject may also drive the user to contribute as a whole. However, there is a significant difference between contribution to specific subjects and overall contribution. The latter has been extensively researched in the UGC literature (e.g., Chen et al., 2010; Goes et al., 2014; Slivko, 2014). The UGC literature shows that users' contributing decisions are affected by characteristics of the subjects (Dellarocas & Narayan, 2006; Dellarocas et al., 2010; Berger & Milkman, 2012) and contributor characteristics (Moe & Schweidel, 2012; Rui & Whinston, 2012; Goes et al., 2014; Wang et al., 2017). Among these, several recent studies examine the impact of the number of peers and the number of peer contributions, on users' tendency to contribute (Chen et al., 2010; Goes et al., 2014; Slivko, 2014; Burtch et al., 2018). Specifically, Chen et al. (2010) and Slivko (2014) find that the more peers contribute, the more users tend to contribute. Research also finds that people have a higher tendency of contributing to popular subjects (Dellarocas et al., 2010). As we have argued earlier, these studies provide insights on what factors drive contribution behaviors, but they do not specifically address how a user would choose among several different subjects.

A very small fraction of research has focused on contribution choices related to subject choice (Zhang & Wang, 2012; Zeng & Wei, 2013). For example, Zeng and Wei (2013) show that on Flickr socially connected users post increasingly similar photos when they differ greatly in popularity but increasingly dissimilar photos when they enjoy similar popularity levels. Zhang and Wang (2012) suggest that contributors' network position on the Wikipedia platform affects whether they contribute to articles created by themselves or by others. Our research adds to this literature stream by highlighting the issue of subject choice and by studying new antecedents—the relative amount of existing content and friend content.

Assimilation and Differentiation Behaviors

Differentiation and assimilation behaviors, in general, have been examined in the optimal distinctiveness literature. Optimal distinctiveness theory suggests that people simultaneously seek to assimilate with and differentiate from others in domains such as fashion and classrooms (Brewer, 1991; Chan et al., 2012). Whether people display assimilation or differentiation behaviors is determined by whether they are more activated by the pursuit of personal identity—driven by a need to be unique or the pursuit of social identity—driven by a need to belong. If the social (personal) identity is more activated, people tend to assimilate (differentiate) (Kim & Park, 2011).

The existing literature of optimal distinctiveness has examined a few antecedents for differentiation/assimilation behaviors including group size, need state, and in-group status (Pickett & Brewer, 2001). For example, individuals tend to assimilate with small groups because small groups satisfy both inclusion (social identity) and differentiation (personal identity) needs, whereas a large group activates needs of personal identity, thus. leading to differentiation behaviors (Bikhchandani et al., 1992; Snyder, 1992; Thompson & Haytko, 1997; Tian, 1997; Berger & Heath, 2007, 2008). Our research is partly informed by the optimal distinctiveness theory, but differs in that we examine differentiation and assimilation behaviors in a relatively new domain of UGC and we focus on new antecedents of such behaviors, namely, the amount of existing content and friend content.

THEORETICAL BACKGROUND AND HYPOTHESES

To develop an understanding of a user's subject choice decision, we leverage the optimal distinctive theory and research on motivations for UGC contributions. Optimal distinctive theory suggests that individuals have two distinct and fundamental identities: personal identity pertains to a sense of individuated self or "me," whereas social identity pertains to a collective sense of self or "we" (Turner et al., 1987). Optimal distinctiveness theory suggests personal identity is achieved by differentiation from others, which gives the individual a sense of distinctiveness whereas social identity is achieved by assimilation with others, which provides a sense of inclusiveness. The theory further argues that individuals seek an optimal balance between inclusiveness and distinctiveness. When the level of inclusiveness is high, the need for differentiation is more activated to preserve a sense of personal identity. Conversely, if the sense of distinctiveness is high, individuals may resort to assimilation to obtain a sense of security and belonging (Brewer, 1991). The optimal distinctiveness literature finds that small social groups, compared with large ones, are better at satisfying both social identity and personal identity (Bikhchandani et al., 1992; Snyder, 1992; Thompson and Haytko, 1997; Tian, 1997; Berger & Heath, 2007, 2008).

Personal and social identities are affected by one's association with certain social categories. A social category is a collection of individuals who share common characteristics (e.g., what they say, do, or wear). Exemplary social categories include those defined by sports teams, political affiliation, nationality, hobbies, and shared interests and beliefs. Subject of a user's contribution can signify a social

category. For example, users who contribute to gourmet food subjects may be viewed as "foodies," and people who contribute to discussions around business traveling may be viewed as "business travelers." According to optimal distinctiveness theory, users' choice of subjects has implications for their personal and social identities in the online UGC community. When a user contributes to a subject that has more existing content, the subject is already discussed by more people and may not afford the user a sense of personal identity. Moreover, because most of the existing content is contributed by strangers, contributing to such a subject may not grant a much higher level of social identity than contributing to a less-discussed subject. In contrast, contributing to a subject with less existing content is akin to participating in a small group, which can provide individuals a strong sense of personal identity (for the subject being unique enough) and some sense of social identity (for being part of a social category as defined by the subject).

The benefit of personal identity is also aligned with several known motivations of contributors in UGCs. Contributing to a less-discussed subject makes the contributors look savvy and intelligent and such contributions are also perceived as more valuable and helpful by content consumers (Ling et al., 2004; Ludford et al., 2004; Dellarocas et al., 2010; Zeng & Wei, 2013). Therefore, when there are several equally accessible subjects to choose from, contributors will likely choose less-discussed subjects that best align with their goals (e.g., to be most helpful to others and to make them look intelligent). We expect that:

> *H1:* A user is more likely to choose a subject with less existing content (over one with more existing content) to make a contribution.

While contributing to a less-discussed subject heightens the sense of distinctiveness and impact, contributing to a subject with friend content may heighten the sense of inclusiveness. Users inherently prefer to be in the same social categories as their friends (Terry & Hogg, 2001). Because online friends on UGC platforms tend to share similar interests and tastes (Underwood & Findlay, 2004; Lee et al., 2016), when a friend has made a contribution to a subject, it signals to the focal user that the subject is of potential interest. Users are often unsure about the desirability of a certain subject. A friend contribution, which may be seen as an endorsement of the subject, can reduce such uncertainty (Simon & Brown, 1987; Mullen, 1991; Nelson & Miller, 1995). Furthermore, when a group of friends contributes to the same subject, there can be a positive network effect derived from shared consumption experiences and conversations. For example, a group of friends is incentivized to watch the same videos and movies so that they can discuss them in online social encounters (Qiu et al., 2015). By contributing to the same subject, a group of friends can support their shared norms, values, and social identities, which in turn reinforce their common bond (Cartwright & Zander, 1953; McKenna & Green, 2002; Utz, 2003; Ren et al., 2007). Hence, we offer the following hypothesis:

> *H2:* A user is more likely to choose a subject with existing friend content (over one without friend content) to make a contribution.

In the above discussion, we have argued that friend content heightens the sense of inclusiveness and drives assimilation, whereas a less-discussed subject heightens the sense of distinctiveness and drives differentiation. What if both

forces are present and pull the user in different directions (e.g., one subject has friend content and the other is less-discussed)? How would the two factors interact with each other? Per optimal distinctiveness theory, the needs for distinctiveness (personal identity) and inclusiveness (social identity) coexist as opposing forces. Whether an individual chooses to assimilate or differentiate depends on which identity is more activated. We further argue that the two opposing forces can undermine each other. When a user is more activated to pursue distinctiveness by a less-discussed subject, she will focus more on the differences from the friend content as a way of supporting her intention (Mussweiler, 2001; Suls et al., 2002). This would weaken, or even reverse, the assimilation effect of friend content. Conversely, when a user is more activated to pursue inclusiveness by friend content, she will place less emphasis on the distinctiveness of a less-discussed subject, which undermines the subject's appeal. Therefore, we argue a negative interaction between the two effects:

> *H3:* The positive effect of friend content on a user's subject choice decision is reduced when there is an opportunity to contribute to another subject that has less existing content.

RESEARCH DESIGN

To study the effect of the amount of existing content and friend content on users' subject choices, we conducted a choice experiment in a laboratory setting. The experimental design follows the discrete-choice framework frequently used in consumer studies (Louviere & Hensher, 1983; Louviere et al., 2008). Choice experiments are a natural fit for studying subject choice decisions because they present explicit choices for users. Such a design allows us to study the extent to which the preference between subjects is affected by our treatments. In addition, because users always chose one from each set of alternates, we can capture shifts in preferences with relatively few data points.[i]

We chose song reviewing as our task because it is short and can easily fit into an experimental session. Many common reviewing tasks, such as restaurant and movie reviews, were not used because they are difficult to accommodate in a lab session. We purchased five pairs of songs from Amazon based on four criteria: (i) each pair were from the same genre (pop or rock, the two most popular genres reported by Nielson [2014]); (ii) they all had five-star ratings on Amazon, to minimize the impact of song ratings on review choice; (iii) each pair of songs had similar lengths; and (iv) they were relatively new.

We adopted a 2×2 full factorial design. The first factor, the *relative amount of existing content* has two levels: *More* (the focal song has relatively more existing content) and *Same* (the focal song has the same amount of existing content). The second factor, *the presence of friend content*, also has two levels: *Friend* (the focal

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[i] We note that because we asked subjects to contribute a review for every other song, the rate of contribution was fixed and much higher than the rate of contribution in the field. Nevertheless, the choices still provide useful information because we are not interested in the absolute rate of contribution but the relative preference across subjects as a result of our treatment. We discuss the potential limitation of this design in the conclusion section.

song has a friend review) and *Stranger* (the focal song has a stranger review). The details of our experimental task, users, and procedure are discussed below.

Task

Each user went through five song-review tasks. In the first task (the *lead-in task*), the two songs were displayed without any existing review (Figure 1[a]), because one would not expect an existing review at this point. For each of the remaining four tasks, we randomly chose one song as the *focal* song and the other as the *alternate* song (users did not know this). We then manipulated the number of existing reviews and the presence of friend content for each user according to his assigned treatment conditions (Figures 1[c-f]). Specifically, we manipulated the amount of existing content by varying the number of existing reviews for the *alternate* song: under the *More* (*Same*) condition, the alternate song displayed no review (one stranger review)—thus, the focal song has *more* (the *same*) amount of existing content. We manipulated the presence of friend content by varying the displayed author of the *focal* song's review while keeping the review content the same (which was written by an Amazon reviewer). Under the *Friend* (*Stranger*) condition, the focal song displayed a review with the user's friend (a stranger) as its author.

Each user went through all four treatment conditions, namely *Same-Stranger*, *More-Stranger*, *Same-Friend*, and *More-Friend*, but in a randomized order. We also randomized positions (i.e., left or right display) of the focal songs. For example, user 1 may be assigned the *More-Stranger* condition in task 2 with the focal song displayed on the left whereas user 2 may be assigned the *Same-Friend* condition in the same task with the focal song displayed on the right. We recorded whether a user chose to review the focal song as our dependent variable, *Chosen*.

The choice experiment was designed as a web application using open-source software PHP and MySQL. In addition to allowing users to listen to the songs and write a review, we also allowed users to rate existing reviews along three dimensions: relevance, helpfulness, and informativeness, which mimics the design of Yelp, a popular online review platform.
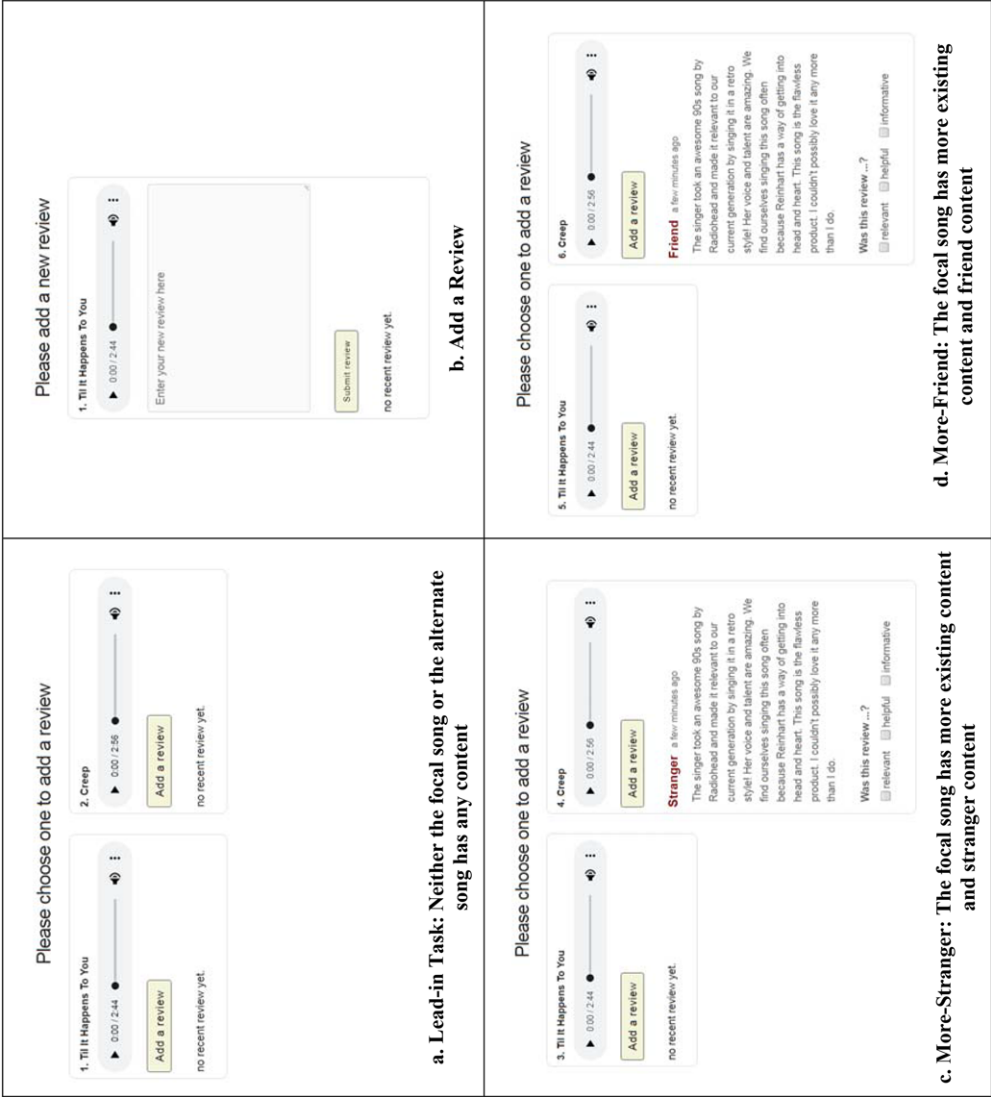
Users

We recruited 65 users from a participant pool at a large U.S. research university, using the standard web-based listing service provided by the pool. The participant pool was open to all students, staff, and faculty in the university. We paid each user $10 for participating in this experiment. Our post-hoc interviews with users suggest that they were mostly music fans who were interested in (or at least not opposed to) writing song reviews. This was in line with our study context, which is more relevant to recurring UGC contributors.

Friendship

We primed the friendship among users in the following way: Before the experiment, we asked users to fill out a questionnaire about their music preferences. At the beginning of the experiment, we showed each user the music preferences of other users and asked the user to choose four as their "friend candidates." Then,

Figure 1: Experimental conditions.

Please choose one to add a review

1. Til It Happens To You
▲ 0:00 / 2:44 ● ⏻ ⋯
Add a review
no recent review yet.

2. Creep
▲ 0:00 / 2:56 ● ⏻ ⋯
Add a review
no recent review yet.

a. Lead-in Task: Neither the focal song or the alternate song has any content

Please add a new review

1. Til It Happens To You
▲ 0:00 / 2:44 ● ⏻ ⋯
Enter your new review here

Submit review
no recent review yet.

b. Add a Review

Please choose one to add a review

3. Til It Happens To You
▲ 0:00 / 2:44 ● ⏻ ⋯
Add a review
no recent review yet.

4. Creep
▲ 0:00 / 2:56 ● ⏻ ⋯
Add a review

Stranger a few minutes ago
The singer took an awesome 90s song by Radiohead and made it relevant to our current generation by singing it in a retro style! Her voice and talent are amazing. We find ourselves singing this song often because Reinhart has a way of getting into head and heart. This song is the flawless product. I couldn't possibly love it any more than I do.

Was this review ...?
☐ relevant ☐ helpful ☐ informative

c. More-Stranger: The focal song has more existing content and stranger content

Please choose one to add a review

5. Til It Happens To You
▲ 0:00 / 2:44 ● ⏻ ⋯
Add a review
no recent review yet.

6. Creep
▲ 0:00 / 2:56 ● ⏻ ⋯
Add a review

Friend a few minutes ago
The singer took an awesome 90s song by Radiohead and made it relevant to our current generation by singing it in a retro style! Her voice and talent are amazing. We find ourselves singing this song often because Reinhart has a way of getting into head and heart. This song is the flawless product. I couldn't possibly love it any more than I do.

Was this review ...?
☐ relevant ☐ helpful ☐ informative

d. More-Friend: The focal song has more existing content and friend content

Note: "Stranger" and "Friend" added for illustration purposes.

Figure 1: Continue

Please choose one to add a review

7. Til It Happens To You

▲ 0.00 / 2.44 ●

Add a review

Stranger several days ago

This song is raw, honest and captures the emotions one experiences after a traumatic event. Depression, guilt, and shame is expressed through the somber music that runs through out. Anger is expressed throughout the lyrics, but the tone of the delivery is such that it is telling us it's okay to be angry: it's our right.

Was this review ...?
☐ relevant ☐ helpful ☐ informative

8. Creep

▲ 0.00 / 2.56 ●

Add a review

Stranger several days ago

Her voice touches not only some special part of my brain by delivering a visual and audio performance that now puts all others second best for this song too, but delivers an emotional experience like that of a roller coaster as she takes you up and down with her voice from the softest soft to one filled with a deep tone and raspy delivery that rips with emotion

Was this review ...?
☐ relevant ☐ helpful ☐ informative

e. Same-Stranger: The focal song has the same amount of existing content and stranger content

Please choose one to add a review

9. Til It Happens To You

▲ 0.00 / 2.44 ●

Add a review

Stranger several days ago

This song is raw, honest and captures the emotions one experiences after a traumatic event. Depression, guilt, and shame is expressed through the somber music that runs through out. Anger is expressed throughout the lyrics, but the tone of the delivery is such that it is telling us it's okay to be angry: it's our right.

Was this review ...?
☐ relevant ☐ helpful ☐ informative

10. Creep

▲ 0.00 / 2.56 ●

Add a review

Friend several days ago

Her voice touches not only some special part of my brain by delivering a visual and audio performance that now puts all others second best for this song too, but delivers an emotional experience like that of a roller coaster as she takes you up and down with her voice from the softest soft to one filled with a deep tone and raspy delivery that rips with emotion

Was this review ...?
☐ relevant ☐ helpful ☐ informative

f. Same-Friend: The focal song has the same amount of existing content and friend content

we matched each user with two friends from their friend candidates. After matching, we let friends meet and greet each other and play a "two truths and a lie" game. In this game, friends took turns to make three statements about their music preferences, which included two true statements and one lie, and the other party guessed which one was a lie. Our friendship priming approach is based on shared interests, which reflects the nature of online friendships in many UGC communities (Merry, 2014). As a manipulation check, we asked users to rate each of their friends in terms of their *willingness to discuss music with them*, *to listen to songs recommended by them*, and *to join the same music club*.

Procedure

Each user completed five song-reviewing tasks. After each reviewing task, we asked users to rate their familiarity with the two songs in that task. At the end of the experiment, users answered several manipulation check questions as described previously. They also answered background questions including gender, age group, race, and review writing experience (see the Supporting Information Appendix S1 for detailed questions).

RESULTS

A total of 65 users completed the study. Six people were excluded because they spent less than 10 minutes on the reviewing tasks (the average was 25 minutes). Another user was excluded because he/she was one of the researcher's students. We excluded five users who scored less than 4 (on a 1–7 scale) on all three manipulation-check questions: *willingness to discuss music with the friend*, *listen to songs recommended by the friend*, and *join the same music club*. For these users, we failed to successfully prime a friendship. In the end, 53 users remained in our analysis. Among 53 users, 51% were female and 49% were White. The age distribution was 63% between 18 and 24, 25% between 25 and 34, 6% between 35 and 44, and 6% above 45. In terms of reviewing experience in the last 3 months, 63% did not have any experience, 2% posted more than four reviews, and the remainder posted between one and three reviews. The average length of reviews was 203 characters, and 90% of the users listened to both songs in the pair.

Model-free Evidence

We first conducted a model-free analysis by comparing the means of the dependent variable (*Chosen*), that is, percentages of users who chose to review the focal songs. As shown in Figure 2, the difference between *More* and *Same* conditions is marginally significant ($p = .07$), suggesting that fewer users chose the focal song to review when it had more content, than when it had the same amount of content as the alternate song. However, the difference between *Friend* versus *Stranger* conditions was not significant ($p = .331$).

Results of Regression Models

We conduct a regression analysis to further test our hypotheses, and our unit of analysis is at the person-task level. Table 1 provides definitions of our variables,

Figure 2: Comparison of means (*Chosen*).

a. **Relative Amount of Content for the Focal Song**   b. **Presence of Friend Content for the Focal Song**
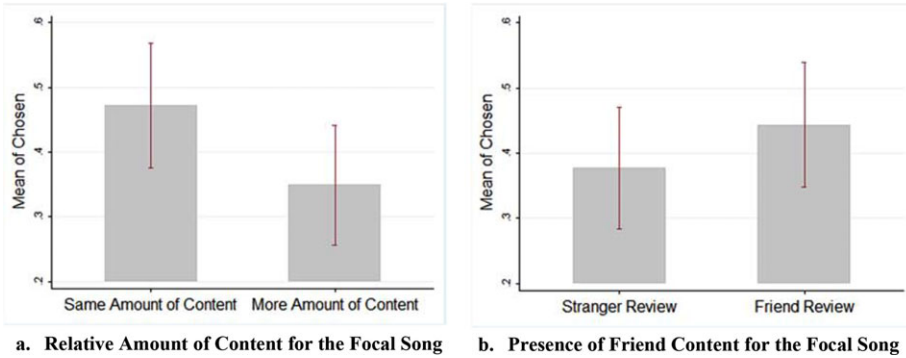
Table 1: Variable definitions and descriptive statistics.

Variables	Definition	Mean	Std. Dev.	Min.	Max.	N
Left	Whether focal song is positioned on the left: 1 yes; otherwise 0	0.533	0.500	0	1	212
SongFamiliar	Whether the contributor is familiar with focal song: 1 yes; 0 otherwise	0.231	0.423	0	1	212
AgeGroup	Which age group user i belongs to[a]	1.623	1.035	1	4	212
GenderFemale	Gender: 1 = female; 0 = male	0.509	0.501	0	1	212
RaceWhite	Race: 1 = white; 0 = non-White	0.491	0.501	0	1	212
ReviewingExperience	How many online reviews contributor i have written in the last 3 months?[b]	1.642	0.975	1	5	212
Chosen	Whether the contributor chose to review the focal song: 1 yes; 0 otherwise	0.410	0.493	0	1	212
Friend	Whether focal song is shown a friend review: 1 yes; 0 otherwise	0.500	0.501	0	1	212
Content Amount	Whether the focal song has more reviews than the alternate song: 1 yes; 0 otherwise	0.500	0.501	0	1	212

Note:
[a] AgeGroup: 1, 18–24 years old; 2, 25–34 years old; 3, 35–44 years old; 4, 44 years older.
[b] ReviewingExperience: 1 = 0 review; 2 = 1 review; 3 = 2–3 reviews; 4 = 4–10 reviews; 5 >10 reviews.

including whether the focal song is on the left (*Left*), familiarity with the focal song (*SongFamiliar*), the user's age group (*AgeGroup*), gender (*GenderFemale*), race (*RaceWhite*), and reviewing experience (*ReviewingExperience*). Though we collected data on user characteristics (i.e., *AgeGroup*, *GenderFemale*, *RaceWhite*,

and *ReviewingExperience)*, we did not include them in our regression analysis because the same user appeared in each treatment condition and the effects of user characteristics were canceled out.

Our dependent variable is whether the user chose to review the focal song (*Chosen*). Our independent variables of interest are (i) *Friend*, indicating whether the focal song had a friend review (1 = Yes, 0 = No), (ii) *Content Amount,* indicating whether the focal song had more content than the alternate song (1 = More, 0 = Same), and (iii) *Friend * Content Amount*, an interaction term.

For our main analysis, we estimated a logit model with song-pair fixed-effects. Such a fixed-effects specification is standard for choice experiments and allows us to control for unobservable characteristics of songs in each pair (e.g., their popularity). Because of the interaction term, we cannot directly interpret the estimated coefficients. To aid interpretation, we mean centered *Friend* and *Content Amount*. When *Content Amount* and *Friend* are mean centered, the coefficients of *Friend* and *Content Amount* can be directly interpreted as the main effects of two factors, respectively (Schielzeth, 2010).

As a robustness check, we also estimated a linear probability model with song-pair fixed effects. In addition, to address the concern that our estimations may be biased due to a relatively small sample size, we re-estimated the logit model using the bootstrapping method (Davison & Hinkley, 1997) with 200 bootstrapped samples. Bootstrapping is a nonparametric method and does not rely on asymptotic assumptions. Therefore, it can ease concerns arising from a small sample size.

For each of the models, we ran two versions, one with only independent variables of interest and the other with additional control variables, including whether the focal song is on the left (*Left*), whether the user is familiar with the focal (*SongFamiliar*), and three song pair dummies.

Table 2 reports the results of the logit, linear probability, and bootstrapped regressions. Since all models produced similar results, we mainly interpret results from model 1. Our results show the odds ratio of *Content Amount* is less than one and significant (*odds ratio* = .13, *p* < .001), ***supporting Hypothesis 1*** that contributors prefer subjects with less existing content. Specifically, the odds of a contributor reviewing a focal song decreases by 87% when the focal song has more content, compared with when it has the same amount of content as the alternate song.

The effect of *Friend* is not significant, suggesting that holding the amount of content constant, friend content does not motivate users to contribute to a subject more than stranger content. Thus, ***Hypothesis 2 is not supported***. There are two possible explanations for this: first, in our context, contributors who are recurring contributors and are more likely driven by personal identity, unlike occasional contributors who are more likely driven by social identity and, thus, are more likely motivated to assimilate (inclusion with friends), they may be more likely driven by differentiation than inclusion. Second, in our setting, users are making a public content contribution, and content generated by a friend is stronger substitutes for each other as friends share similar interests and views (Underwood & Findlay, 2004; Lee et al., 2016), thus, highlighting a need for differentiation.

Table 2: Regression results.

| Independent variables	Logit		Linear probability		Bootstrapping Logit	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Odds Ratio (Robust SE)	Odds Ratio (Robust SE)	Coefficient (Robust SE)	Coefficient (Robust SE)	Observed Odds Ratio (Bootstrap SE)	Observed Odds Ratio (Bootstrap SE)
Content amount	0.130***	0.139***	−0.444***	−0.404***	0.130***	0.139**
	(0.066)	(0.074)	(0.092)	(0.095)	(0.076)	(0.085)
Friend	1.254	1.279	0.056	0.060	1.254	1.279
	(0.386)	(0.401)	(0.063)	(0.062)	(0.452)	(0.479)
Friend* content Amount	0.231*	0.269*	−0.304*	−0.261*	0.231*	0.269*
	(0.142)	(0.170)	(0.125)	(0.127)	(0.139)	(0.174)
Left		1.342		0.056		1.342
		(0.431)		(0.062)		(0.449)
SongFamiliar		2.788*		0.210*		2.788*
		(1.103)		(0.081)		(1.308)
SongPair 3	6.780***	7.806***	0.419***	0.424***	6.780**	7.806**
	(3.651)	(4.486)	(0.105)	(0.105)	(4.036)	(5.045)
SongPair 4	1.316	1.680	0.046	0.083	1.316	1.680
	(0.762)	(1.071)	(0.098)	(0.102)	(0.813)	(1.170)
SongPair 5	0.236***	0.348*	−0.328***	−0.240*	0.236**	0.348*
	(0.101)	(0.161)	(0.091)	(0.100)	(0.109)	(0.182)
Constant	0.648+	0.369**	0.414***	0.307***	0.648	0.369*
	(0.164)	(0.139)	(0.046)	(0.066)	(0.175)	(0.160)
Log-likelihood	−124.14	−120.37	−129.93	−126.02	−124.14	−120.37
Pseudo R-squared	0.135	0.161	–	–	0.135	0.161
Adjusted R-squared	–	–	0.152	0.174	–	–
N	212	212	212	212	212	212

Notes: (1) DV = whether contributor i reviews the focal song in pair k ($Chosen_{ik}$).
(2) The value in parenthesis is robust standard errors.
$^{+}p < .10; {}^{*}p < .05; {}^{**}p < .01; {}^{***}p < .001.$

Table 3: Effects of friend content under two different conditions.

	Author of the Focal Song's Review	Margin	Std. Err.	Chi-Square	*p*
Two songs have the same amount of existing content	Stranger	0.351	0.070	5.35	.021
	Friend	0.585	0.072		
The focal song has more existing content	Stranger	0.386	0.073	1.29	.256
	Friend	0.275	0.066		

Figure 3: Interaction between friend content and the amount of existing content.
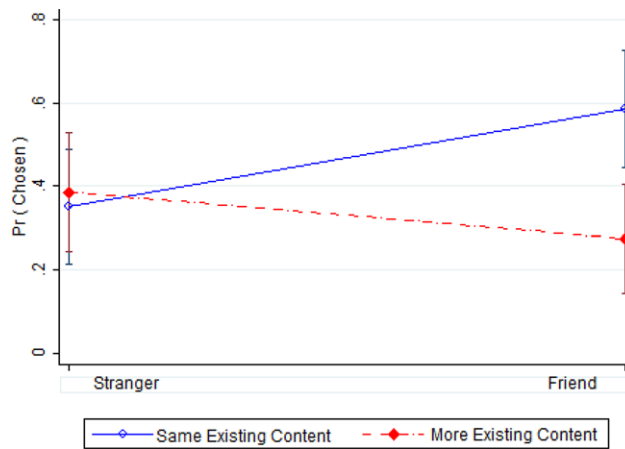
The interaction between *Friend* and *Content Amount* is negative and significant (*odds ratio* = .231, *p* = .018), meaning that the effect of friend content is reduced significantly when the focal song has relatively more content. Thus **Hypothesis 3 is supported.** We additionally note that *SongFamiliar* has a positive effect, suggesting that contributors are more likely to review songs which they are familiar with.

To further understand the effect of friend content, we estimated the effect of separate cases where the focal song has more content and cases where it has the same amount of content as the alternate song. As illustrated by Table 3 and Figure 3, when the focal song and the alternate song have the same amount of existing content, a contributor is more likely to choose the song with a friend review (*p* = .021). However, when the focal song has more existing content than the alternate song, a contributor is not more likely to choose the focal song when it has a friend review than when it has a stranger review (*p* = .256). This finding suggests that a contributor's desire for differentiation (by contributing to a song with fewer existing reviews) dominates the desire for assimilation with friends.

DISCUSSION AND IMPLICATIONS

Motivated by the importance of subject choice decisions for online UGC platforms and consumers, we investigate how the amount of existing content and friend content can shape contributors' subject choice decisions. Our findings establish the roles of the amount of existing content and friend content, especially the former, in contributors' subject choice decisions on UGC platforms. We find that when choosing from a set of potential subjects, contributors prefer subjects with less existing content, or a "*differentiation*" strategy. On average, contributors do not prefer a subject without friend content. They only prefer a subject with friend content (i.e., an "*assimilation*" strategy) when the subject has no more existing content than alternates. In other words, friend content only enhances assimilation in the absence of differentiation opportunities. Moreover, the assimilation effect of friend content weakens as alternate subjects have less existing content. These findings together suggest that when choosing among several subjects, contributors strongly prefer subjects that differentiate themselves, and this preference for differentiation trumps that for assimilation with friends.

Contributions to the Literature

Our research makes a unique contribution to the UGC literature by offering insights on contributors' subject choice decisions, which have received little previous attention. Our findings on subject choice decisions contrast with existing findings on contribution decisions in two ways: First, while the literature has shown that users more likely contribute to subjects with more existing content (Dellarocas et al., 2010), we find that when choosing from different subjects, contributors prefer subjects with less existing content.

   Second, while most of the literature suggests a positive friend effect in contribution decisions (e.g., Bapna & Umyarov, 2015; Zhang et al., 2015; Dewan et al., 2017; Qiu et al., 2018), we do not find a positive effect of friend content when it comes to subject choice decisions, except when the amount of existing content is the same among subject choices. In other words, the effect of friend content in subject choice decisions differs significantly from that in contribution decisions. This suggests that multiple underlying mechanisms may drive friend effects and they could be differentially activated depending on the decision circumstance (e.g., a subject choice decision versus a contribution decision).

   We also contribute to the literature on assimilation and differentiation. The existing literature on assimilation and differentiation has been mostly limited to traditional settings such as fashion and classrooms (Thompson & Haytko, 1997; Berger & Heath, 2007, 2008; Dijkstra et al., 2008). We extend this literature to an important new context: online UGC. While the existing literature has examined antecedents for differentiation/assimilation behaviors, such as group size, need state, and in-group status (Pickett & Brewer, 2001), we study the effect of existing content as a new antecedent. Our study confirms the role of the amount of existing content and friend content in driving differentiation/assimilation behaviors in UGC and also highlights a negative interaction between the amount of existing content (in driving differentiation) and friend content (in driving assimilation).

Our research is also among very few studies that prime friendships in the lab. Our friendship treatment does not rely on existing social relations (which can complicate the logistics of the experiment and create confounds). Instead, we use a matching process and a pre-experiment game to prime a sense of friendship among otherwise socially disconnected participants. Our design can provide a useful framework for future research that hopes to study the role of friendships in controlled lab settings.

Managerial Implications

Our findings hold several managerial implications. First, contributors to UGC platforms do demonstrate a tendency to differentiate and diversify when they have a choice. It is good news for the UGC platforms suffering from the steep tail problem. To turn such tendencies into content diversity, UGC platforms should invest in identifying which less-discussed subjects a contributor can potentially contribute to and recommend them as contribution choices. Because contributions to such subjects are more likely motivated by personal identity and social impact, platforms may benefit from highlighting such personal and social benefits to potential contributors to further drive such differentiation behaviors.

Our findings also hold implications for social network-based content recommendations, which are prevalent on UGC platforms (e.g., "your friend has recently written this, check it out"). For recurrent contributors who may have several subjects to choose from, highlighting friend content may not be an effective strategy for encouraging content contribution because they may be more concerned about differentiation from friends. In such cases, highlighting niche and distinctive subjects in need of contribution can more effectively motivate contribution to content diversity. That said, in a broader context, friend content may still be used to increase content contribution, such as when the friend contribution is on a niche subject or when contributors are new and more motivated by social inclusion.

Limitations and Future Research

A few limitations of this study are worth nothing. First, our findings may not generalize beyond online reviews. Second, our experiment, for simplicity, was limited to displaying at most one existing review. Future research could extend to more reviews. Third, we primed friendships in the lab to mimic an online friendship. While such a design provides good control, our findings should be further tested in field settings such as by tapping into real-life online friendships on Reddit.

Our study also opens avenues for future research. Contrasts between our findings on the effect of the existing content on subject choice decisions and prior literature on contribution decisions suggest that more research is needed for understanding the multitude of mechanisms and the selective activation of them. Moreover, future research could also study the contribution and subject choice decisions in a more integrated manner—for example, as a two-step process of first choosing whether to contribute and then what subject to contribute to. This could further resolve some of the seemingly contradictory findings between our study and existing literature on content contribution. Finally, as the study of differentiation

and assimilation behaviors is still nascent, there is much room for future research to examine whether, when, and how the underlying drivers for differentiation and assimilation behaviors play out in different UGC contexts.

CONCLUSION

The issue of what subjects contributors choose to make a contribution pertains to the diversity of content and, thus, it is crucial for UGC platforms. This research examines the differentiation and assimilation behaviors in subject choice decisions with a focus on how the amount of existing content and friend content can affect such behaviors. Our findings offer interesting contrasts with prior findings about contribution decisions on UGC platforms, suggesting the value of studying subject choice decisions in UGC and a need to move beyond contribution decisions.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Online Appendix

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