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Facebook Reactions: Impact of introducing new features of SNS on Social Capital

Rama Adithya Varanasi.*, Elaine Dicicco, and Andrew Gambino

[1] Department of Information Science, Cornell University
[2] Department of Psychology, Pennsylvania State University.
[3] College of communications, Pennsylvania State University

Abstract. Receiving feedback from connections is an important aspect of Social Network Sites (SNS). 'Likes' in Facebook (FB) is one such feature which allows users to receive feedback for their posts. However, due to likes restrictive ability in expressing feedback, FB released a new feature called 'Reactions'. In this paper, we conducted a between-subjects experimental study (N = 44) that compares the effects of Facebook likes and reactions on perceived social capital. The results suggest that users who received reactions on their posts perceived higher levels of bridging and bonding social capital. Additionally, the effect of novelty was shown to be a mediator of these effects on social capital. These results help us understand the relationship maintenance, group cohesions, and user benefits of introducing a new feature into an SNS ecosystem.

Keywords: Social networking sites; Facebook groups; Reactions and likes; Social capital; Novelty

1 Introduction

The Social Networking Sites (SNS) arms race has seen constant evolution, with individual features being consistently introduced that engage users and aid them in maintaining online relationships. SNS is a homogeneous system composed of many features which allow users to interact with each other. One such feature is FB 'likes' which allow users to express and receive positive feedback on their content. Recently, Facebook has released a new feature in Facebook called 'reactions.' The reactions feature affords a more varied reaction to posts than likes- users can select "love", "haha", "wow", "sad", and"angry" in addition to the like in response to another user's post. Previous studies have shown that receiving likes leads to positive relational outcomes [1]. In this paper, we build upon those studies by exploring the effects of FB reactions. In a between-subjects experiment, we show that users who received feedback in the form of reactions (as opposed to likes) showed a significant difference in their perceived bridging and bonding social capital. Furthermore, we find that novelty is a key mediator in the relationship between feedback and perceived social capital.

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2 Background

2.1 Facebook Likes and Reactions

SNS use has been extensively studied to understand how users in the online ecosystem maintain relationships. However, studying use or a cluster of variables together makes it difficult to discern individual effects of specific technological features. Recently, research in the SNS domain has shifted to effects of more specific features like comments, likes and wall posts [9]. As [9] noted, studying SNS at the feature level allows researchers to capture granular diversity among users which is obscured at the SNS level. The feature of Facebook likes has been studied prevalently in the context of providing support and increasing online relationship maintenance. For example, [1] found that receiving direct communication such as FB likes increases user's perceived bridging social capital, thereby improving relationship maintenance. Additionally, [4] argued that engaging with one's Facebook connections using activities such as 'likes' builds trust among relationships and hence social capital [4]. Facebook reactions, on the other hand, are new Facebook features which can be used to provide more diverse emotional feedback towards the posts. They provide users with an opportunity to leave the additional feedback of love', 'haha', wow', 'angry' and 'sad'. Given this added functionality, it behooves researchers to study the independent effect that Facebook reactions may have on users.

2.2 Novelty

Considering the dynamic nature of current information systems, the effects of the general newness of features is a bit understudied. As [12] noted, a perception that a feature is novel can in and of itself have effects on user experience. Given that this study took place very soon after the introduction of Facebook reactions (introduced February 24th, data collected April 12th 2016), it allowed us to capture the effects of a novel feature, which is assumed to decrease over time [7]. Given the sparse amount of research on novelty, we are left to wonder about their effects and direction. However, given user's propensity for new products, we do posit perceived novelty as a mediating link between the technological feature and the perceived effects. [12, 13]

2.3 Social Capital

Social capital can be defined as benefits derived and accumulated from relationship existing between different people in various social scenarios [2]. In the context of social networks, social capital is considered a process of forming positive bonds and trust in relationships amongst people in online spaces [3]. Social capital generally takes two forms, bridging and bonding. Bridging social capital refers to external relations formed between individual of different backgrounds, whereas bonding social capital refers to close relations and usually exist between strongly knit communities[15]. Additionally, bridging social capital help users in

feeling part of bigger community while bonding social capital involves strong ties and emotional support. SNSs also afford users the opportunity to expand and improve their social networks, by enabling socially relevant interactions. Thus, the study of social capital in SNS is quite prevalent and extends to a diverse range of topics [10]. Facebook usage, cultural background, and various affordance provided by Facebook [11] have been found to be related to bridging social capital.First, very few studies have found a positive relationship between an SNS variable and bonding social capital [8]. Second, there is a need for additional research on the individual features of SNS like Facebook reactions and their associated effect on social capital.This study reveals the specific impact of likes and reactions on a user's perceived social capital. Based on the literature reviewed above, we present two research questions for our study.

RQ1 *- What are the effects of FB reactions on the perceived bonding and bridging social capital?*

RQ2 *- Does novelty mediate the relationship between Facebook reactions and bridging & bonding social capital?*

3 METHODS

To answer the aforementioned research questions, we conducted a between-subjects experiment. Exposure to feedback in the form of likes and reactions came within a controlled Facebook group. A total of 44 participants were recruited from a large east-coast university for this study. The participants constituted both undergraduate and graduate students from two separate classes. The average age of the participants was 26.5 years old. Participants identified as 71% White, 14% Asian or Asian American, 9% Latino, 4.5% Black, and 2.3% Middle Eastern. Additionally, a group of students (13) was recruited to serve as 'confederates' in the study. Confederate students were recruited from a different department to reduce the chance of prior interaction or familiarity with the experimental participants. All participants were given extra credit for their participation. In addition, they were also provided with a 50$ gift card in the form of lucky draw.

3.1 Procedure

Two FB groups were created called Social Proceedings for (a) Likes and (b) Reactions respectively. The 44 participants were randomly assigned to either the 'likes' group or 'reactions' group regardless of the class from which they were recruited. From here on we refer to these groups as likes/reaction group. The participants in the likes group received only likes whereas the participants in the reaction group only received reactions (wow, love and sad). Each Facebook group was strictly visible to only participants assigned to that respective group. Participants were tasked with posting status updates three times per day in

their respective Facebook groups. Their interaction with other group members was structured and controlled by fixing the amount of posting they could do in one day and interacting with other group members by observing how many likes/reaction they got in their posts. Aside from these instructions, participants were free to use Facebook functionalities such as notifications, chat etc.

The following rules were given to participants regarding their individual posts:

1. The post must be about one of the following topics - Music, Movies or Politics.
2. The post needs to contain a personal opinion and be longer than nine words.
3. The post could also be a shared link as long as it satisfied condition number

Specific topics mentioned in point 1 were chosen as they are topics which students are interested in and post about frequently. The confederate teams used the whole day to like or react to the posts. Confederates had the strict instructions to not to communicate with participants in their group in any form apart from liking or reacting. Confederates were provided with the actual motivation of the study to make the idea more concrete. The amount of feedback given to each post was controlled and documented (Refer to appendix). As a participant posted, the confederates gave a specific amount of predetermined feedback. The amount of feedback given was randomly determined. This process of experiment participants posting in their appropriate groups and confederate group responding with likes or reactions to the posts lasted for two days. The study spanned across two days. At the end of each day the participants were tasked with observing the Facebook group.

As instructed, participants interacted with the others posts by the notifications they received (a) when other participants posted on the group or (b) when they received likes/reactions. The participants were told that the study's goal was to understand how new users of Facebook interact with the posts in a Facebook group.At the end of the second day the participants completed a post study questionnaire, which lasted approximately 15 minutes.

3.2 Social Capital

Social capital was measured using an adapted version of Williams's Internet social capital scale. The instrument is a 10-item, five-point, likert-type scale that measures (a) bridging and (b) bonding social capital. The items were slightly altered, by adding words such as "in the FB group" to correctly identify the network. Bridging social capital example items include: Interacting in FB group...made me want to try new things. Participants were asked to rate their agreement with the statement from 1 (strongly disagree) to 5 (strongly agree). The bridging sub-scale showed high reliability ($\alpha = 0.86$). Example items for the bonding social capital include: When I feel lonely, there are several people on the Facebook group that I could talk to; The people I interacted within the Facebook group would put their reputation on the line for me. The bonding social capital sub-scale showed high reliability. ($\alpha = 0.91$).

3.3 Novelty

Novelty was measured using a 10-item, five point, adjective based, and semantic-differential measure adapted from [12]. The instrument contains questions such as: Facebook reactions/ Facebook likes are distinct; Facebook reactions/ Facebook likes are unique; Facebook reactions / Facebook likes are new. The reliability for this instrument was high ($\alpha = 0.90$).

3.4 FB use, FB friends, and FB attitudes

Prior to participation in the experiment, a pre-test questionnaire was distributed to measure Facebook use, Facebook friends, and Facebook attitude. FB use was measured with the question: In the past week, on average, approximately how many minutes per day have you spent on Facebook? Number of Facebook friends was measured as: How many total Facebook friends do you currently have? The participants were allowed to check Facebook if they wanted to in order to get the details. The FB attitudes measure contained 11 five-point, likert-type scale questions. The scale was adapted from the standardized questions provided by [8]. It included questions such as: I feel I am part of Facebook and I feel out of touch when I haven't logged into Facebook for a while. The users could answer on a five point scale from 1 (strongly disagree) to 5 (strongly agree).

4 RESULTS

In order to test RQ1, a series of ANCOVAs were conducted, controlling for FB use, FB friends, and FB attitudes, on the dependent variables of bridging and bonding social capital. The ANCOVA for bridging social capital showed that participants in the reactions condition (M = 3.18, SD = 0.56) showed significantly higher bridging social capital than those in the like condition (M = 2.71, SD = 0.74), F (1, 39) = 7.72, p = .008, p2 = .17. Additionally, participants in the reaction group (M = 2.06, SD = 0.76) perceived higher bonding social capital as well (Likes, M = 1.56, SD = 0.65), F (1, 39) = 4.27, p = .045, ηp2 = .10. Overall, we can conclude that receiving Facebook reactions engendered higher levels of both bridging and bonding social capital.

In order to test RQ2, a product of coefficients approach to mediation was adopted [6]. Using model 4 of Hayes PROCESS Macros in SPSS, two models were tested with novelty as the mediating variable between 1) bridging and 2) bonding social capital. For bridging social capital, the indirect effect (reactions novelty bridging) was found to be significant at the 95% CI level (5,000 bootstrapped samples) b = .22, SE = .12, 95% CI = .030, .514. For the relationship between reactions and bonding social capital (reactions novelty bonding), we found the indirect effect to be not significant, 95% CI = -.289, .747.Therefore, the effect of novelty mediates the relationship between reactions and bridging social capital, but not bonding social capital. In summary, we found that the Facebook reactions had positive effects on both bridging and bonding social capital, and furthermore, it appears that feature novelty is a key mediator of the relationship to bridging social capital.

5 Discussion

The present study focused on the affordances of FB reactions compared to those of FB likes. In particular, we examined how the reception of different feedback variants influences social capital in the Facebook group settings.Based on our results it may be said that FB reactions provide a wider set of affordance due to the presence of options like 'wow', 'sad', etc. as well as their novelty. We also found that receiving FB reactions resulted in greater bridging social capital than FB likes, which was mediated by perceptions of the feature as new. Interestingly, we found that FB reactions even led to greater bonding social capital compared to FB likes. This finding is significant because little existing literature on SNS has found a relationship between features/uses and bonding social capital. Furthermore, our work shows that merely receiving reactions can increase feelings of connection with others (i.e., social capital), and that the effect of novelty may lead to feelings of connection.

5.1 Theoretical Implications

The existing literature has established a strong relationship between FB features (e.g., likes, messages) to bridging social capital, but less of a connection has been made to bonding social capital [1, 3]. This may be because most FB users' friends consist of more weak ties (friends of friends) than strong ties (family and close friends) [22]. Given that the participants in the present study were not likely to be close friends with the confederates, they were likely interacting with weak ties. Weak ties are typically associated with providing new information to others and as sources of bridging social capital[5]. However, [14], suggest that weak ties may provide more support than solely new information - for instance, comments on a post from weak ties provided support to FB users interviewed in Vitak and Ellison's study. They argued that FB lowers barriers to showing support. Given that content posted in the present study was not personal and did not appear to differ between FB reactions or likes groups, we conclude that it is the FB reaction feature itself that allowed users to feel increased trust and support from those who left reactions to their posts. This supports the idea that weak ties can also be sources of bonding social capital, particularly when these weak ties use a new feature to respond to a post. Because novelty did not mediate the relationship between receiving reactions and bonding social capital, there are likely other unmeasured variables that account for this relationship. [4] argued that likes can be thought of as a social grooming activity in that it is a metric of a user's attention to another's post, and that these signals of attention communicate trust. FB reactions appear to be a social grooming practice that can be distinguished from FB likes in the effects they produce for receivers of the reactions or likes. Perhaps positive feelings about users who reacted to participants' posts created perceptions of trust and social support and therefore explain the increased reported bonding social capital of those in the reactions group. Additionally, positive feelings about the self, or feeling validated that the content of their posts garnered a more varied response than a like may also be

a potential mediator for bonding social capital. [4] suggested that likes signal the norm of reciprocity. Users may feel more reciprocal attention when they receive reactions compared to receiving likes. Thus, positive feelings about the other users reacting to their posts, positive feelings about the self, or increased attention may be mediators that could explain the relationship between receiving reactions and bonding social capital.

6 Limitations and Future Directions

There were numerous limitations within this study. First, we could not control for any pre-existing relationships that participants may have had with one another before the experiment took place. All participants were from two classes. Although the reactions and likes were from strangers, it is possible that the extent to which participants felt connected to others in the group (bridging social capital) or felt they could trust others in the group (bonding social capital) was affected by their pre-existing relationship that had been created in the classroom context. However, the fact that participants felt any increase in social capital when given reactions compared to likes suggests that the social capital effects with users that participants do know may have been even stronger. One possible explanation could be content of the posts. If the effects of novelty wear down as the time progresses, it is unclear how for long a period of time a feature such as FB reactions would be perceived as novel. A longitudinal study would increase this study's ecological validity as well as further explicate the effect of novelty (and its likely dissipation). However, the benefit of an experimental study is that it provides a stronger case for the reactions feature as causing increases in social capital compared to the likes feature.

7 Conclusion

This study is one of the first to understand the effects of receiving an SNS feature, particularly the FB reactions feature, on the social psychological elements of users. Our study revealed that a novel feature introduced in SNS had a direct effect on bridging and bonding social capital. We also showed that the effects of novelty significantly mediated the relationship between receiving reactions on bridging social capital.

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