Facebook Fallout: The Emotional Response to Being Unfriended on Facebook

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Abstract

Social networking sites allow users to form, maintain and dissolve relationships on the network. This investigation examines the factors that predict the emotional response a Facebook user may experience when they are unfriended. Facebook users who valued the peak of the relationship more highly were more negatively affected by the unfriending. Facebook users who displayed high levels of network vigilance were more negatively affected when unfriended. Users who discussed the unfriending with others after the relationship dissolved were less negatively affected by the dissolution. Facebook users who discussed the difficulty in the relationship prior to the friendship dissolution were less negatively affected by the dissolution. Common emotional responses to being unfriended include surprise, bothered, amusement and sadness, in this order by level of agreement.

1. Introduction

Facebook is the single most popular website in the United States; globally, over one billion active users average 130 friends each, yielding 48 billion dyadic connections that span the site's online network [18][1]. Although these connections are formed under a variety of contexts, ranging from maintaining existing relationships, forming new romantic connections, and creating new online friendships [24], any one of them can be dissolved with the click of a button. Unfriending has become a widely-used feature of social networking sites; Pew Internet found that 63% of users unfriended at least one member of their online social network in 2011 up from 56% in 2009 [16].

The word *unfriend* was named the word of the year by the New Oxford American Dictionary for 2009 [7]. The dictionary defined *unfriend* as follows: "unfriend – verb – To remove someone as a 'friend' on a social networking site such as Facebook"[2]. The word clearly suggests that such a digital change in status between two nodes in the network has social and emotional significance, but to date there is sparse research to confirm this view. In addition, it is unknown whether the extensive literature on relationship dissolution of, for example, romantic unions, marriages [14], or high school and college students acquaintances [19] in any way informs the new phenomenon of unfriending on social networks.

This research examines the potential emotional consequences to being unfriended on Facebook. Facebook users communicate in a computer-mediated environment and the consequences of using the site may have a significant impact on the emotional state of its users. The research examines the relationship of four constructs to predict the affective response to being unfriended. Facebook's users who value the relationship highly, have a high level a network vigilance, and have discussions about the event both prior to being unfriended and after being unfriended were examined. The research may classify the ways in which face-to-face relationships and computer-mediated relationships are similar and dissimilar. The results may inform user experience engineers regarding the phenomena of unfriending - e.g. should users be informed if an existing tie is broken, should users send the person who is being unfriended a justification for the tie dissolution, etc.

1.1. The User Experience of Unfriending and Being Unfriended

Facebook users interact with the unfriending functionality through the Facebook interface. Users must go to each individual's page, scroll down and click the link "unfriend" to unfriend; there is no way to mass unfriend. This link is placed in a relatively obscure location compared to the prominently placed "Add as Friend" button that is displayed prominently next to a person's name. The process to add a friend requires that the invited person grant permission for the union; unfriending is unilateral and no permission is needed to unfriend. In most cases the person who was unfriended does not receive notification that they have been unfriended. Facebook users may use 3rd party applications to receive notification that they have been unfriended. Thus many people only notice they have been unfriended when they go to view a member of their network and

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[1]http://www.facebook.com/press/info.php?statistics
[2]http://blog.oup.com/2009/11/unfriend

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that person is no longer displayed as a friend, or when they compare their friendship list to recent memory to find additions and absences.

Some research suggests that this process, including whether a notification is sent to the unfriended person, is not clear to all users, thus creating some uncertainty about the etiquette of the unfriending process, what is the best way to unfriend, what are the existing social norms [15]. Perhaps for this reason, some users elect to hide others' posts from being displayed rather than officially unfriend them. To some degree the word "unfriend" is a nomenclature choice that arises from the decision to refer to connections on Facebook as "friends." Other social networks have used more generic words like "connect" and "block" for essentially the same process. Indeed, having the ability to control the contact with and content from other users is an essential part of the terms of use and privacy policies of most social networking sites.

1.2. Comparing Friendship On and Off Facebook

Research evidence is still emerging to clarify how Facebook friendships do and do not resemble offline friendships in their formation, characteristics, and dissolution. After users join Facebook, they are asked to identify others in the network with whom they have an existing relationship. Thus Facebook users tend to maintain existing social ties with people they know rather than seek out new friends on the social network [6]. However, although these relationships may vary from weak- to strong-ties, there is some consensus that the majority of ties on Facebook are weak [6, 15]. Friendships on Facebook may be seen as supplementing other forms of contact like face-to-face or telephone conversations versus replacing these forms of contact [26, 23]. Facebook's own data acknowledge that the number of reciprocal and maintained connections are fewer than all connections[3]. This may be because of the ease at which friendship can be maintained through low levels of commitment [15], or because strong-ties are more likely to be maintained with face time, thus obviating a need for social media. Another influence may be in the design: Facebook issues no guidelines embedded in the interface whether to accept friendship requests or not, unlike other sites like LinkedIn that discourage users from accepting invitations to people with whom there is no offline connection.

Forming friendship connections on Facebook may also differ from making friends. Variations in how directly or indirectly friendship requests are made offline [9] are somewhat eliminated on Facebook, where a

request is sent or not sent. So too, the requests are either accepted or "ignored." Perhaps these reasons underlie the observation that it can be difficult to reject a person's overtures of friendship because of the social costs involved [2]. Undoubtedly, some Facebook users accept friend requests simply because it is socially awkward to say, "No." Interestingly, however, one similarity has been suggested between online and offline friendships: the initiator of the friendship request tends to have lower status than the recipient [9]. Consistent with this, Lewis [15] noted that some Facebook users preferred to receive more friendship requests than the number they extended to others as an indicator of status.

Finally, relationship dissolution, as it is understood by the social sciences, may or may not resemble unfriending. Indeed, basic research is still needed to clarify the social causes and emotional consequences of this event [15], which is the goal of this research.

Friendship dissolution is not the same process of friendship formation in reverse and is distinctly different [5]. Steve Duck [5] developed a four phase process model for relationship dissolution. The *intrapsychic* phase is the first phase of dissolution where a person reflects on the relationship and evaluates its costs and benefits; the person tends to discuss the relationship with third parties who do not know the individual (such as a classmate, coworker, or bartender). The *dyadic* phase is where the dyad discusses the difficulties in the relationship directly in order to resolve any issues. The relationship may still be repaired at this stage. The *social* phase begins when the dyad begins to discuss their dissatisfaction with the relationship with others in their social network (e.g. family and mutual friends). The social network may provide support to one side or the other, mediation, and advice and may help maintain the relationship or speed up its dissolution. The final phase, *grave-dressing*, occurs when the dyad discusses the end of the relationship with others to indicate that the relationship is indeed over. Grave-dressing occurs because people feel a need to publish a record of the relationship's demise, work through a post-mortem of the relationship so that other future relationships may not develop the same issues.

Sibona and Walczak [20] found four common online reasons and two common offline reasons for unfriending on Facebook. The four online reasons were frequent/unimportant posts, polarizing posts (politics and religion), inappropriate posts (sexist, racist remarks, etc.) and everyday life posts (child, spouse, eating habits, etc.) and in that order of frequency. The two offline reasons were disliked behavior and changes in the relationship. The research also showed that 55% of people unfriended someone for their online posting behavior, 28% for their

[3]http://www.facebook.com/note.php?note_id=55257228858

offline behavior and 17% unsure.

To some extent the Sibona and Walczak [20] common reasons for online unfriending resemble the top reasons provided for the end of dating partnerships. Sprecher [21] showed the top 10 reasons for breakups included those referring to the self (I desired to be independent. I became bored with the relationship.), those referring to the partner (My partner desired to be independent. My partner became bored with the relationship. My partner became interested in someone else.) and those referring to the couple's interaction (We had different interests. We had communication problems. We had conflicting sexual attitudes and/or problems. We had conflicting marriage ideas. We had different backgrounds.).

As to the emotional reactions to the end of friendships, the psychological literature, again, may offer some guidance, but there may also be important differences. Hatfield et. al's [10] review of the literature reveals reactions including shock, disbelief, denial, anger and bitterness, guilt, sadness and depression, loneliness, desperation, indifference, relief, euphoria. The reactions are moderated by gender, culture, self-esteem and overall approach to the relationship. Cognitive reactions include the devotion of considerable attention to the question of what caused the dissolution, so called attributional-search or account making [25]. The partners may also have very different versions of the cause of the dissolution, preferring those that present themselves in the most positive light. This process of account making often involves both discussing the dissolution with the partner, and "going public" about it with others in the immediate network. Duck [3] and Weber & Harvey [25] argue that this is the key to gaining a sense of finality and completion of the event, and to the restoration of positive affect.

Because the friendship dissolution research is largely based on close relationships including close friends, romantic partners and divorce [17], emotional reactions to unfriending on Facebook may differ simply due to the greater preponderance of weak-ties [6]. However, just because the majority of connections on Facebook are unlikely to be intimate, this may not necessarily mean that the phenomenon of "unfriending" is the severance of weak ties – perhaps it's the opposite. Some real-world friendships end in conflict but most simply fade away [22]. Facebook users might only hide the posts of weak ties, rather than choose to unfriend them, and instead reserve that action when one is making a point about the end of formerly meaningful relationships, not unlike the process of going public proposed by Duck [4]. And since one is not automatically alerted that one has been unfriended by Facebook, but only discovers this through an effortful process of comparing one's friend list to recent memory, this again suggests that unfriending may indeed be more frequent among more intimate relationships. Another assumption implicit to the emotional reactions to the end of a relationship is that the unfriended connection comes as a surprise. Many of the emotional reactions of disbelief, denial, and anger presume this to be true [10].

2. Research Methods

2.1. Data Collection

Survey recruitment was conducted by sending Twitter users who posted about unfriending a reply asking them to take a survey about the topic. Twitter was used to recruit survey participants for several reasons: Twitter has a large user population where the majority of users have publicly accessible messages; Twitter users had a good fit with research (social network sites); it is a simple process to contact a person on Twitter through the @reply mechanism; and the tweets can be screened for recruitment purposes. The researchers did not seek expert opinions on social network sites because those responses might be biased. There is not a random sample in this research; a purposive sampling method was used to recruit participants.

Part one of the survey asked questions about the type of person unfriended, whether it was for online or offline behavior, questions about the friendship and questions about online and offline behavior. Part two mirrors part one of the survey and asks questions about the type of person who unfriended the survey respondent, their perception of whether it was for online or offline behavior, questions about the friendship and questions about their offline behavior. Part two adds additional questions to part one to determine how the survey respondent was affected by the unfriending. Part three asks questions about how many friends the survey respondent has, how many people they have unfriended, how many people they regularly interact with, and questions about their online posting behavior. Part three also asks questions about satisfaction, perceived usefulness and perceived ease of use of Facebook. Part four asks demographic questions: age, gender, education, the number of years of social network use and whether the person lives in the United States of America.

Surveys were collected between April 17th and September 15, 2010 for 151 total days. 7,327 recruitment tweets were sent during the time period. A total of 2,865 surveys were started and 1,552 were completed; 54% of those who started the survey completed the survey. The surveys were started by 39.6% of those who were sent tweets and completed by 21.3%. Twitter respondents were gathered by screening tweets that had the term

"unfriend," "defriend," or "unfriending." Tweets that met a screening criterion were sent replies inviting the person to take the survey about unfriending. The tweet reply sent was retweeted by many people who received the initial tweet.

2.2. Method

The raw data was collected from a commercially available survey tool and analyzed with a statistics application. The survey used methods such as factor analysis to find commonalities among the questions, Cronbach's alpha to measure reliability and linear regression to determine the relationship of independent variable on the dependent variable. Factor analysis was used to partition questions into meaningful groups. Constructs were generated based on the factor analysis and interpretation of the results. Cronbach's alpha measure of reliability was calculated for each construct. Constructs were generated by averaging the individual Likert-type questions into a single composite variable. Linear regression was used to determine how the independent factors predicted the dependent variables (affect).

The constructs *network vigilance, dyadic discussion about unfriending, grave-dressing, offline behavior, geographical distance, peak tie strength* and *personal responsibility* were generated and used to predict *affect*. The constructs represent both internal motivations for affect and dyadic motivations. That is, network vigilance is not related to the person who unfriended them but an internal motivation. Measuring the peak tie strength is dependent on the perception of one member of the dyad about the other.

Statistical tool selection is based on the appropriateness to the model and unit of analysis. Linear regression was used to determine how both continuous and discrete variables are related to the dependent variable. The dependent variable in this study is continuous and may be determined by the independent constructs which are continuous and the independent discrete variables (age, gender, education, etc.). Variables were coded into discrete dichotomous variables for the linear regression that were not continuous, e.g. education had 5 categories from less than high school to doctorate. Each discrete variable was entered into the linear regression equation to determine its coefficient and statistical significance. Linear regression was used in a forward stepwise fashion to include the variables that met statistical significance criteria ($p \leq .05$). The regression equation was analyzed in multiple steps to include the constructs first, then the discrete variables related to the study (e.g. number of friends in common) then the demographic variables. In each subsequent step of the analysis a variable would be removed if its statistical significance was greater than .10.

3. Results

3.1. Factor Analysis

Confirmatory factor analysis was performed to determine appropriate clusters for the individual questions. Factor analysis provides a method to condense the information from a number of original variables into a smaller set with minimal losses of information [8]. Principal component analysis was used to determine whether the affect/behavior questions asked were distinct factors based on Eigenvalues greater than 1. The factors were rotated using the Varimax function to determine factor loadings. Component groupings were then analyzed and named according to the questions in the group. Two constructs were confirmed and generated for affect and behavior: *affect* & *network vigilance*. Two constructs were confirmed based on Duck's dissolution model: *dyadic* phase and *grave-dressing* phase.

The overall model fit was assessed on two models - the affect/behavior model and Duck's Dissolution Model and are considered acceptable. KMO measure of sampling adequacy for the affect/behavior model and Duck's Dissolution model are .708 and .640, respectively, and are considered acceptable by Hair Hair et al. [8]. The two factors in the affect/behavior model explain 68% of the variance for the factors. The two factor loadings for Duck's Dissolution model explain 75% of the variance for the factors. Factor analysis is considered acceptable for social science research where more than 60% of the variance is explained [8]. Bartlett's Test of Sphericity is statistically significant for the both factor models at the .001 level.

3.2. Construct Creation & Reliability Results

Constructs were generated based on the factor analysis results. Table 2 shows the details. The Cronbach's alpha for the constructs were calculated. The six constructs are considered reliable: Cronbach's alpha measures above .70 are considered acceptable [8]. Table 2 shows the reliability of the nine constructs and number of questions in the construct. Fifteen types of friends were analyzed in the research; these friend types are: church, college, common interest, family member, friend of a friend, friend through a child, friend through a parent, friend through a spouse, grade school, graduate school, high school, neighbor, romantic partner, work and *other*.

Table 2
CONSTRUCT DESCRIPTIVES

Measure	Questions	Cronbach's Alpha	Mean	Std. Dev	N
Affect	bothered, sad, surprised, amused	.794	4.20	1.58	609
Network Vigilance	look at *friends* number, find person who unfriended	.750	3.19	1.83	609
Dyadic Discussion	stated dissatisfaction with relationship, stated friendship in trouble	.846	2.30	1.64	611
Grave-Dressing	common friends know relationship is over, mutual friends know through Facebook, unfriended person told others	.748	4.20	1.66	611
Offline Behavior	did misdeed, distrust, dislike, disliked behavior, betray broke rule, disliked personality, new information	.840	3.03	1.23	599
Geographical Distance	lives far away, do not see often, will probably not see again	.707	4.66	1.71	598
Peak tie strength	very good friends, committed to relationship, spent lots of time together	.907	4.16	2.00	590
Personal Responsibility	could have tried to maintain relationship, could have eased tension in relationship	.747	3.50	1.17	584
Valid (listwise)					**571**

All questions are based on a 1-7 Likert-type scale

Table 1
FACTOR ANALYSIS

Affect/Behavior Factors		
Question	Affect	Network vigilance
It *bothered* me that this person unfriended me	.878	
I felt *sad* after this person unfriended me	.841	
I was *surprised* to be unfriended by this person	.744	
I was *amused* to be unfriended by this person	-.642	
I look at the number of friends I have on Facebook to see if someone unfriended me		.894
I tried to find out who unfriended me		.876

Duck's Dissolution Model		
Question	Dyadic	Grave-Dressing
Person who did the unfriending stated dissatisfied with relationship	.923	
Person who did the unfriending stated friendship in trouble	.919	
Common friends know the relationship is over		.851
Mutual friends know through Facebook		.790
Unfriended told others		.782

No cross-loading above the threshold (.200) in the summary table

3.3. Peak Tie Strength Histogram

Peak tie strength is mostly uniform but a large percentage of survey respondents who were unfriended stated that the tie strength of the dyad was in the highest category (22%) – see Figure ??. This research shows that there

Table 3
FREQUENCIES

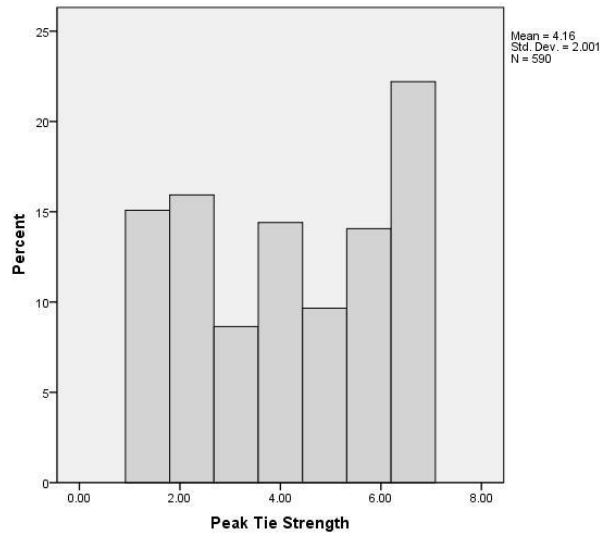| Category	N	Valid %
Age		
18-29	707	45.5
30-39	533	34.4
40-49	250	16.1
50-59	53	3.4
>60	9	0.6
Gender		
M	495	31.9
F	1057	68.1
Category	N	Valid %
Live in the U.S.A.		
Yes	1082	69.7
No	470	30.3

is a wide range in the peak tie strength of friends on Facebook and those who are unfriended appear to value the relationship from low to high but the largest group valued the relationship highly.

3.4. Affect Histogram

Affect appears to have a normal distribution where there is a wide range of reactions. A majority of survey respondents said they were not particularly affected by the unfriending, and a minority of survey respondents indicated that they experienced a strong positive or negative emotion – see Figure ??.
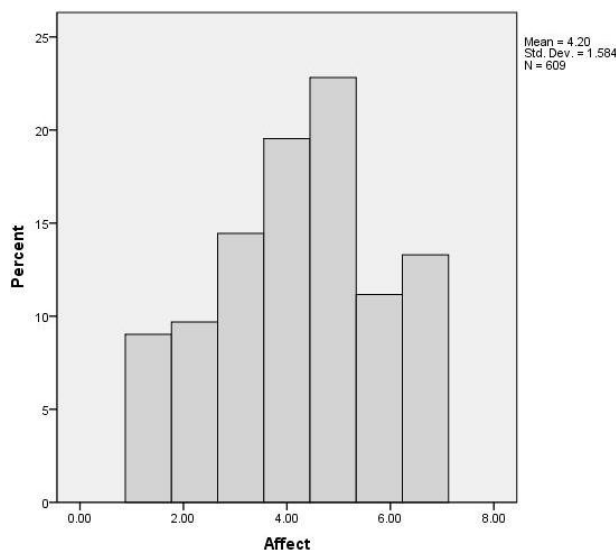
3.5. Affect Descriptives

Four questions were used to determine a survey respondent's emotional response to being unfriended; survey

Skewness is -.099 and Kurtosis is -1.288.

Figure 1. **Peak Tie Strength Histogram**

Skewness is -.120 and Kurtosis is -.729.

Figure 2. **Affect Histogram**

Table 4

AFFECT DESCRIPTIVES

Question	A1 %	A2%
I was *surprised* to be unfriended by this person	73.0	70.1
It *bothered* me that this person unfriended me	68.5	60.6
I was *amused* to be unfriended by this person	64.6	56.8
I felt *sad* after this person unfriended me	51.7	41.4

A1 - Expressed agreement: the survey respondent answered somewhat agree to strongly agree
A2 - Agree or strongly agree: the survey respondent answered agree to strongly agree

agreed or strongly agreed to this statement. The ten percent drop between *somewhat agree* and *agree and strong agreement* is the largest of the four questions and indicates that while a majority of people agree that their emotional response included some sadness there is a large difference between some sadness and deeper sadness. A large majority (64.6%) of survey respondents agreed that they were *amused* by the unfriending. *Amusement* was statistically significantly (p = .001) negatively correlated with the other three *affect* questions. The correlations between *amusement* and *bothered, sad* and *surprised* were: -.405, -.464 and -.274, respectively, and indicates that those who were *amused* tended to not be *bothered, sad* or *surprised* by the act. The regression analysis to predict how a Facebook user will emotionally respond to being unfriended uses *affect* as the dependent variable.

3.6. Regression Analysis for Affect

Linear regression was used to determine whether the seven constructs *(network vigilance, dyadic discussion about unfriending, grave-dressing, offline behavior, geographic distance, peak tie strength* and *personal responsibility)* are significant factors in how a person is affected by being unfriending by someone. There are nine discrete (dichotomous) variables included in the regression equation: (1) the number of friends a person has on Facebook, (2) the number of friends with whom the person interacts, (3) number of times the person has unfriended others, (4) frequency that the person looks at Facebook for updates, (5) frequency that the person updates their own Facebook account, (6) the number of friends in common between the dyad, (7) the type of friend, (8) frequency that the person was seen in the last year, and (9) the length of the friendship. The discrete variables were developed to compare one specific group to the rest of the results in that variable. For example the number of friends a person has on Facebook included categories of 1-10, 11-20, 21-50, etc. The second category (11-20) was compared against the

respondents were asked if they were *bothered, sad, surprised* and *amused* after being unfriended – see Table 4. The four questions were combined into a single construct *affect* with factor analysis and reliability shown in Table 1 and Table 2. The most common reaction to being unfriended on Facebook is *surprise*; 73.0% of people who expressed an opinion about being unfriended agreed that were *surprised* by the act. Slightly over a majority of people (51.7%) expressed that they were *saddened* by being unfriended; however, only 41.4%

grouping of all other categories (1-10 and 21->1,000) to determine if this category had a statistically significant impact on the dependent variable. There are four demographic variables included in the regression equation: age, gender, education, and whether the person lives in the US. The number of survey responses analyzed for this regression analysis is 583. The difference in the total number of completed survey collected (N = 1,552) and this analysis (N = 583) resulted from users who took different paths through the survey (skipped a section) and those who answered *not applicable* to a given measure.

The analysis uses *affect* as the dependent variable to model how the independent continuous and discrete variables may predict a Facebook user's emotional response to being unfriended. All of the constructs were measured by combining multiple 1-7 Likert-type scale items; the construct affect was measured from 1 (not sad) to 7 (sad) by averaging four measures: bothered, sad, surprised and amused (amused was reverse coded). The coefficient of determination was measured using R^2 and adjusted R^2 measures. The R^2 for the 12 variable equation is .271 and the adjusted R^2 is .256 which means that approximately 27% of the variance in the construct *affect* may be explained by the factors in the equation. The residuals of the regression equation are heteroscedastic and show no signs of bias in the equation. Four of the constructs were statistically significant: *peak tie strength, network vigilance, grave-dressing* and *dyadic discussion* and seven discrete variables were statistically significant. Personal Responsibility was omitted from the regression analysis because it had missing correlations with the dependent variable *affect*. Positive coefficients indicate that the person was more negatively affected as the construct increased and negative coefficients indicate that the person was less negatively affected. See Table 5 for details. Column *B* is the variable coefficient and column *Beta* is the standardized coefficient which makes it easier to compare the effects of the variables in the equation to each other.

The regression equation coefficients for the continuous and discrete variables may be interpreted as follows. Four of the constructs were statistically significant and an examination of the coefficients indicates the magnitude and direction of the effect. How the person valued the *peak* of the relationship was the biggest factor in the regression equation and indicated that the more strongly the person valued the relationship the more negatively affected they were about the unfriending, i.e. if a person valued the relationship highly the person was *more* likely to be negatively affected by the unfriending. The second construct, *network vigilance* is the factor that had the second largest effect in the regression equation. The *more* the person monitored their friends' list the *more*

Table 5
AFFECT REGRESSION RESULTS

Construct	B	Beta	Sig.
Continuous Variables			
Constant	3.181		.001
Peak tie strength	.321	.406	.001
Network vigilance	.240	.278	.001
Grave dressing	-.146	-.152	.001
Discussed unfriending in dyad	-.091	-.094	.015
Discrete Variables			
Friends in common (3)	-.471	-.107	.003
Num unfriend (6)	-.104	-.095	.008
Yrs soc networking (1)	-1.23	-.103	.004
Num friends (7)	-.328	-.078	.031
Friendship length (7)	-.361	-.082	.027
Friend seen (6)	-.445	-.069	.058
Type: friend of a friend	-.447	-.079	.029
Age (7)	.579	.080	.027

Friends in common (3): 6-10 friends, *Num unfriend* (6): 101-200, *Yrs Soc Networking* (1) <1 year of social network site use, *Num friends* (7): 501-1000, *Friendship length* (7): between 10 and 20 years, *Friend seen* (6): 20-49 times in the last year, *Age* (7): 45-49.

likely they were experience a negative emotion by the unfriending. *Grave-dressing* had the third largest effect in the equation and indicates that if a person talked to someone about the unfriending they were *less* likely to be negatively affected by the unfriending. The last construct of statistical significance is whether the person who did the unfriending discussed the relationship issues or concerns prior to the unfriending. If the individual who did the unfriending discussed the issues or concerns in the relationship prior to unfriending then the person who was unfriended was less likely to be negatively affected by the unfriending. The discrete variables are all negative in their direction so when the variable is present it means the person is less likely to be negatively affected. Table 5 has the case where the survey respondent was unfriended by the friend type *friend of a friend*. Compared to all other friend types, when a survey respondent was unfriended by a *friend of a friend* then the survey respondent was less negatively affected by the unfriending. No other friend type had a statistically significant relationship with affect.

4. Discussion

The results of the study revealed four continuous factors predicting whether somebody will develop an emotional

response to being unfriended on Facebook. They are: (1) how much the person valued the peak of the relationship, (2) the person's level of network vigilance, (3) whether difficulties were discussed within the dyad, prior to the event, and (4) whether the event was discussed after it occurred.

Peak tie strength was the strongest predictor, overall, where the closer a participant felt to someone at the height of their relationship together, the more intensely the Facebook user experienced an emotional reaction following the unfriending. In addition to predicting one's emotional experience, generally, peak tie strength was found to be the single best predictor of experiencing the specific states of feeling bothered, sad, and surprised, where all three were found to increase as peak closeness increased. In contrast, participants found themselves less amused at having been unfriended by those whom they once considered close. Together, these findings make clear that the dissolution of a once close relationship through Facebook is not taken lightly – at least not by the party who has been unfriended.

The effect for network vigilance indicates that the more often a person checks their friends list, the more bothered, sad, and surprised they feel, and the less amused they are. Vigilance, generally, has been proposed as a strategy employed by people with a self-regulatory style that is concerned primarily with ensuring the absence of negative outcomes (as opposed to the presence of positive outcomes [11]). Presumably, the goal of regularly checking one's friend list is to reassure oneself that no friendships have been dissolved since the last time they checked (the number of Facebook friends can decrease unexpectedly, but not increase unexpectedly); therefore, to have been unfriended represents a failure to achieve their desired end-state. Research on regulatory focus theory has shown that when someone with a prevention goal fails to realize their desired outcome they tend to experience more agitation-related emotions than dejection-related ones [12]. In the present study, however, network vigilance was associated both with agitation (bothered) and dejection (sad) in roughly equal measure. Although these effects are clearly being driven by some motivational tendency, a more precise understanding of this tendency will require additional study.

Finally, emotion was related to two factors that have previously been conceptualized in relation to the breakup of romantic relationships. Duck [5] has hypothesized that relationship dissolutions pass through at least four stages before achieving closure. These are an *intrapsychic* stage, a *dyadic* stage, a *social* stage, and a *grave-dressing* stage. Each of these refers to a specific means of coming to terms with problems in the relationship,

depending on whom a dissatisfied partner discusses their problems with, and whether this discussion occurs before or after the breakup. Both the dyadic and grave-dressing stages were examined in the present research in order to test whether Facebook unfriending is at all related to the current understanding of relationship breakups. It was found that respondents who engaged in either strategy experienced less negative emotion, overall, following the unfriending, suggesting that each represents a successful mechanism for helping to cope with the end of a relationship. Those who discussed problems within the dyad, prior to the event, registered less surprise after the unfriending took place, and suggests that the person anticipated the dissolution. On the other hand, respondents who discussed the end of the relationship with others, after the dissolution had occurred, tended to feel less sad about being unfriended, and more amused.

These results suggest commonalities between the dissolution of romantic relationships and the dissolution of friendships, as people going through either may engage in the same behaviors while coming to terms with their interpersonal troubles. However, the extent of these commonalities is poorly understood at present. While there has been a great deal of past research and theory on the end of romantic relationships, there has been little on the ends of friendships. Why might this be? Perhaps because the end of a friendship has traditionally been so difficult to define. Friends often "go separate ways" or "fall out of touch," rather than explicitly calling it quits. Connections that were once quite strong can fade gradually by simply dialing down communications, with people perhaps finding it preferable to maintain these connections as weak ties with their accompanying social capital, as opposed to burning bridges. Without clear indications of the end of a friendship, like is found with romantic relationships (e.g.. going public about a breakup or divorce), social scientists may not have found a good operational definition of 'unfriending,' hindering research on it. In this case, the advent of Facebook has provided new opportunities for studying a previously nebulous phenomenon.

The similarity with relationship breakups is given further credence by the presence of alternatives to unfriending. Sibona and Walczak [20] found that the top four online reasons for unfriending somebody were frequent or unimportant posts, polarizing posts, inappropriate posts, and everyday life posts. These issues could each be resolved by hiding the offending person's posts, rather than making an official split. Likewise, offline reasons for unfriending, such as disliked behavior and changes in the relationship [20], might be dealt with in subtle ways, without imposing the sense of finality. By choosing to do otherwise suggests that the individual wishes to

declare publicly to others that the relationship is over, communicate something to the partner, or otherwise attempt to make a point to others in their social network, as part of moving on. If so, much of the research on the denial, anger, and cognitive search for meaning associated with romantic breakups could be brought to bear on the phenomenon of unfriending.

Alternatively, instead of acting in the same way as a relationship breakup, it could be that unfriending is more akin to social rejection or ostracism. In this case, the person who has been unfriended would perceive the act as a deliberate attempt to exclude them. Particularly if it follows closely upon one's having done something offensive, online or off, the unfriending could indeed be perceived as a means to eject them from the other's social network. Exclusion has been linked to a host of affective responses, ranging from anxiety [1], to jealously, loneliness, depression, and low self-esteem [13]. Although these reactions were not tested directly in the present study, none of them were generated by respondents during informal pretesting. While online social exclusion has been shown to negatively impact mood and sense of belonging [27], it remains to be seen how readily these effects manifest after being unfriended on Facebook.

An additional possibility is that unfriending is new phenomenon altogether. By allowing only two states for a relationship to be in – friend or not – Facebook has applied a binary digital status to what is a naturally continuous analog state. This means that unfriending is a blunt, one-size-fits-all tool, treating all relationship dissolutions equally, regardless of whether two people have been connected as romantic partners, close friends, acquaintances, or family members. It could be that this represents a new social phenomenon with new emotional, behavioral, and cognitive reactions that are need of study.

Indeed, the need to make sense of this phenomenon has grown as Facebook's popularity continues to grow and saturate the online experience. Undoubtedly, many connections may be severed without notice. But while Facebook has been found mainly to promote the accumulation of weak ties [15], the present survey shows that a disproportionately large number of unfriendings occurred for relationships with the highest level of peak closeness. Although the present research was largely exploratory, we have uncovered some initial findings that provide a look into the emotional repercussions of being unfriended on Facebook. The evidence shows that this increasingly relevant tool has complex implications for those whom it is wielded against, which researchers are only beginning to understand.

5. Limitations

Participants in the present study were not recruited randomly. Respondents were recruited via Twitter by approaching users who had used the terms "unfriend," "defriend," or "unfriending." The goal this sampling method was to reach people from whom Facebook's unfriending tool was meaningful and relevant, but it may also have led to the over-representation of those who had been strongly affected by a recent experience. Future studies will work to reach a broader range of participants in order to widen the generalizability of our results. It is also worth noting the correlational nature of the present research. Although participants were asked specifically about their reactions to being unfriended, it may have been difficult to separate feelings about this from feelings about the events leading up to it, potentially leading to some ambiguity between unfriending and the larger process of friendship dissolution. However, as noted above, the unfriending tool provides a unique opportunity to study friendship dissolution, by serving as a definite marker. The present study may serve as a starting point for both the further investigation of the emotional reactions to both unfriending and to friendship dissolution more generally. The present study included only a small range of emotions and it is likely that the affective factors studied do not reflect the full range of experience created by unfriending. Future research will need to examine a greater variety of emotions, in order to more fully explore whether unfriending represents a new form of relationship breakup, social exclusion, or something different altogether.

6. Conclusion

The goal of this research was to investigate factors that predict the presence and nature of a person's emotional response to being unfriended on Facebook. The results indicate four continuous factors that influence whether someone will feel bothered, sad, surprised, or amused after losing a connection in this manner. These are (1) how highly the person valued the peak of the relationship, (2) the person's level of network vigilance, (3) whether they discussed problems within the dyad, prior to the event, and (4) whether they discussed the event after it occurred. Friends who have a high peak in their relationship are more likely to be negatively affected by the unfriending. Facebook users who display high levels of network vigilance are more likely to be negatively affected when unfriended. Those who discuss the unfriending with others after the relationship has dissolved are less likely to be negatively affected by the dissolution. Those who discussed the unfriending prior to

the friendship dissolution are less likely to be negatively affected by the dissolution.

Despite the preponderance of weak ties throughout online social networks, these findings help to place unfriending within the greater context of relationship dissolution. More specifically, it appears that unfriending disproportionately occurs for once close relationships, and that much of the research on breakups can be brought to bear on this phenomenon. However, it is worth considering the ways in which unfriending is unique, including its digital nature and use as a one-sized-fits-all tool. The extent to which these features set it apart from offline relationship dissolutions will need to be examined further in subsequent research, but the present study makes clear that unfriending is meaningful and has important psychological consequences for those to whom it occurs.

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References

[1] Baumeister, R. F. and Tice, D. M. (1990). Anxiety and social exclusion. *Journal of Social and Clinical Psychology*, 9(2):165–195.

[2] boyd, D. M. (2006). Friends, friendsters and top 8: Writing community into being on social network sites. *First Monday*, 11(12):Online.

[3] Duck, S. and McMahan, D. T. (2009). *The Basics of Communication - A Relational Perspective*. Sage Publications, 1st edition.

[4] Duck, S. and McMahan, D. T. (2011). *The Basics of Communication - A Relational Perspective*. Sage Publications, 2nd edition.

[5] Duck, S. W. (1982). *Personal Relationships and Personal Constructs: A Study of Friendship Formation*. John Wiley.

[6] Ellison, N. B., Steinfield, C., and Lampe, C. (2007). The benefits of facebook "friends:" social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12:1143–1168.

[7] Goldsmith, B. (2009). "unfriend" named word of 2009. *Reuters*.

[8] Hair, J. J. F., Black, W. C., Babin, B. J., Anderson, R. E., and Tatham, R. L. (2006). *Multivariate Data Analysis*. Pearson Education, Inc., 6th edition.

[9] Hallinan, M. T. (1979). The process of friendship formation. *Social Networks*, 1(2):192–210.

[10] Hatfield, E., Rapson, R. L., and Rapson, R. (1995). *Love and Sex: Cross-Cultural Perspectives*. Allyn & Bacon.

[11] Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*, 52(12):1280–1300.

[12] Higgins, E. T., Shah, J., and Friedman, R. (1997). Emotional responses to goal attainment: Strength of regulatory focus as moderator. *Journal of Personality and Social Psychology*, 72(3):515–525.

[13] Leary, M. R. (1990). Responses to social exclusion: Social anxiety, jealousy, loneliness, depression, and low self-esteem. *Journal of Social and Clinical Psychology*, 9(2):221–229.

[14] Levinger, G. (1965). Marital cohesiveness and dissolution: An integrative review. *Journal of Marriage and the Family*, 27(2):19–28.

[15] Lewis, J. and West, A. (2009). 'friending': London-based undergraduates' experience of facebook. *new media and society*, 11(7):1209–1229.

[16] Madden, M. and Smith, A. (2012). Privacy management on social media sites. Technical report, Pew Research Center's Internet and American Life Project.

[17] McPherson, M., Smith-Lovin, L., and Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annaul Review of Sociology*, 27:415–444.

[18] Nuttal, C. and Gelles, D. (2010). Facebook becomes bigger hit than google. *Financial Times*.

[19] Owens, R. A. (2003). *Friendship Features Associated wtih College Students' Friendship Maintenance and Dissolution Following Problems*. PhD thesis, West Virginia University.

[20] Sibona, C. and Walczak, S. (2011). Unfriending on facebook: Friend request and online/offline behavior analysis. In *Proceedings of the 2011 44th Hawaii International Conference on System Sciences*, volume 44, pages 1–10.

[21] Sprecher, S. (1994). Two sides to the breakup of dating relationships. *Personal Relationships*, 1(3):199–222.

[22] Sprecher, S. and Fehr, B. (1998). *The dissolution of close relationships*. Edwards Brother.

[23] Vitak, J., Ellison, N. B., and Steinfield, C. (2010). The ties that bond: Re-examining the relationship between facebook use and bonding social capital. In *Proceedings of the 2011 44th Hawaii International Conference on System Sciences*, volume 44, pages 1–10.

[24] Wang, S. S., Moon, S.-I., Kwon, K. H., Evans, C. A., and Stefanone, M. A. (2010). Face off: Implications of visual cues on initiating friendship on facebook. *Computers in Human Behavior*, 26:226–234.

[25] Weber, A. L. and Harvey, J. H. (1994). *Perspectives on Close Relationships*. Allyn and Bacon.

[26] Wellman, B., Haase, A. Q., Witte, J., and Hampton, K. (2001). Does the internet increase, decrease, or supplement social capital? *American Behavioral Scientist*, 45(3):436–455.

[27] Williams, K. D., Cheung, C. K. T., and Choi, W. (2000). Cyberostracism: Effects of being ignored over the internet. *Journal of Personality and Social Psychology*, 79(5):748–762.