What Makes People Feel Close to Online Groups? The Roles of Group Attributes and Group Types

Robert E. Kraut[12], John M. Levine[2], Marisol Martinez Escobar[3], Amaç Herdağdelen[3]

Carnegie Mellon University[1], University of Pittsburgh[2], Facebook[3]

robert.kraut@cmu.edu[1], jml@pitt.edu[2], marisolmtzesc@fb.com[3], amac@fb.com[3]

Abtract

Most research assumes that the determinants of members' feelings of connection to groups are constant across types of groups. The current paper challenges this assumption by assessing members' feelings of affinity toward a large, diverse sample of online groups. 10,567 members of 6,458 Facebook groups reported on their feelings of connection to these groups. Objectively measured group characteristics and features of members' relationship to the groups explained over 16% of the variance in members' affinity. Being an administrator and being in groups with fewer members, more even communication, and more close friends were the strongest predictors. Half of the independent variables significantly interacted with group type in predicting affinity (e.g., large group size was negatively associated with affinity in task groups and positively associated with affinity in topical groups).

Introduction

Groups are a ubiquitous feature of human society. Over the course of their lives, most people belong to many formal and informal groups, varying on such dimensions as size, composition, norms, status systems, and degree of member interaction. People join groups and remain in them both for evolutionary reasons based on groups' adaptive consequences for our early ancestors (Baumeister and Leary 1995) and because they satisfy a range of contemporaneous needs, including the need to maintain close relationships with others, to exchange information, to maintain a positive social identity, and to accomplish collective tasks (Mackie and Goethals 1987). Although membership in a particular group may not satisfy all these needs, people rarely reject participation in all groups to live as recluses.

Group affinity.

In light of the vital role that groups play in human affairs, it is important to understand why people want to join groups, exert effort on their behalf, and remain loyal in the face of intra-group costs and extra-group rewards. Stated differently, it is important to understand the bases

of "group affinity," defined as members' liking for a group and feelings of connection or attachment to it. (In this paper, we sometimes use the terms 'liking', 'attachment', and 'connection' as synonyms for affinity.) Group affinity, in turn, can be manifested in several ways, including members' commitment to the group (e.g., Klein, Molloy, and Brinsfield 2012), identification with it (Abrams 2013), positive feelings toward other members (Hogg, Hohman, and Rivera 2008), and overall satisfaction with the group.

The present research was designed to identify factors underlying group affinity among people who belong to online groups. Prior research has typically assumed that determinants of group affinity, such as organizational commitment, (Mathieu and Zajac 1990; Meyer 2002), social integration (Horwitz and Horwitz 2007), and group cohesion (de Wit, Greer, and Jehn 2012) are constant across types of groups. In the present research, we examine whether the determinants of group affinity vary in different types of groups. The groups in our sample were created by subscribers to Facebook, the world's largest social networking site. The data were collected in February 2017, when Facebook had over two billion subscribers worldwide, including over a billion who were members of at least one group.

Group affinity in online groups.

The goal of this research was to predict members' affinity to online groups from attributes of the group and aspects of members' relations to it. Like offline groups, online groups must recruit new members, socialize them to accept group norms and values, and provide them with enough rewards to insure continued membership (Levine and Moreland 1994). Because members of online, compared to off-line, groups typically have less face-to-face interaction, are less likely to know one another personally, and can leave the group more easily, online groups face greater challenges in generating members' feelings of affinity (Kraut and Resnick 2012).

Because of the dearth of research on determinants of affinity in different types of online groups, our research was exploratory, examining a wide range of plausible predictor variables only some of which have been investigated in previous research. We examine

characteristics of both the group itself and the relationship between the group and its members.

Group characteristics.

Group type. Based on their frequency in our data set, we focused on four types of Facebook groups, labeled friends and family, identity, task-oriented, and topical. Friends and family groups comprise people who know one another offline and feel close to one another. Identity groups comprise people who share a relatively enduring personal characteristic that contributes to their social identity (e.g., religion, health status). Task-oriented groups comprise members who coordinate to achieve collective or individual goals. Finally, topical groups comprise members who talk about a common interest (e.g., politics, music).

Group size. People often feel more affinity to smaller groups than larger ones (Carron and Spink 1995), because smaller groups are more rewarding on certain dimensions, such as feelings of closeness to other members. However, when achieving a valued goal requires contributions from many people, larger groups may produce more affinity (Oliver and Marwell 1988). Thus, it is likely that the impact of group size on affinity will vary as a function of group type. For example, because larger group size increases coordination costs, it may reduce affinity in task-oriented groups, which require substantial coordination. Similarly, because people divulge less private information in larger groups (Wang, Burke, and Kraut 2016), large size may produce less affinity in friends and family groups, where self-disclosure is important. In contrast, because larger group size increases the information available for sharing, it may increase affinity in topical groups.

Geographical dispersion. Group members' geographical dispersion (or *physical distance* from one another) may influence group affinity via its impact on *psychological distance* (Trope and Liberman 2010). If so, affinity might vary inversely with their geographical dispersion, with greater affinity in less dispersed groups. Dispersion could also influence affinity though its negative effects on coordination. If so, the association between dispersion and affinity may be weaker in groups where coordination is easier, such as groups with substantial face-to-face interaction (e.g., friends and family groups and some task-oriented groups).

Group maturity. How long a group has existed may influence group affinity via its relationship to the group's developmental stage, stability, and homogeneity. For example, older groups may produce more affinity because they have developed a stable membership of like-minded people (Tuckman and Jensen 1977).

Leadership structure. Offline groups have formal or informal leaders, and better leadership produces greater member satisfaction (Burke et al 2006). In the current research, the number of group administrators was used as a proxy for formal leadership. Administrators may be especially important in task-oriented groups, where leaders are useful in developing group goals and coordinating members' actions, and in topical groups, where their large size may require substantial membership management.

Group privacy. Privacy has many benefits, including control over who belongs to the group and can see its content, which in turn can lead to more trust among members and willingness to share personal information. Because communication in friends and family groups and in certain identity groups (e.g., parenting, LGBT) often involves sensitive content, privacy may lead to more affinity in these groups than in task-oriented or topical groups.

Amount and equality of communication. Many benefits that people receive in online groups derive from the communication they exchange. Therefore, it is likely that members feel greater affinity with groups that exchange more overall communication. However, the benefits associated with communication may be reduced and even reversed by the cognitive overload associated with attending to a large number of messages (Jones, Ravid, and Rafaeli 2004). Thus, the direction of the association between overall communication and group affinity may vary as a function of other factors. For example, high levels of communication may lead to more affinity in groups that value frequent interaction, such as friends and family and task-oriented groups, than in those that do not, such as identity and topical groups.

In addition, affinity may be related to how evenly communication is distributed among members. Early research (summarized in Shaw 1964) demonstrated that members of small problem-solving groups were more satisfied when they could talk relatively freely to one another, even though centralized communication is often more efficient in problem solving. Interestingly, despite the preference for evenness of participation, inequality is the rule in most groups and increases with group size (Johnson, Faraj, and Kudaravalli 2014). It is plausible that members of friends and family and task-oriented groups may value equal communication, in which all members contribute to group success, whereas members of identity and topical groups may value unequal communication, in which a small number of people takes responsibility for the group.

Range of content discussed. How the range of content discussed affects group affinity may also be influenced by the type of group. Members of groups with a "social" orientation, namely friends and family groups, may feel

more affinity with groups that discuss a variety of topics. In contrast, members of task-oriented, identity, and topical groups may feel more affinity with groups that discuss only topics relevant to the group goal (Ren and Kraut 2014).

Relationship between the group and its members.

Tenure in the group. Due to their high investment in the group, members with relatively long tenure may feel more affinity toward the group than may members with a relatively short tenure (Levine and Moreland 1994). This relationship is likely to obtain regardless of group type.

Friendship ties and similarity. Group affinity is substantially influenced by how much members like each other (Prentice, Miller, and Lightdale 1994). Thus, members should feel greater affinity with groups in which they have more friends. And because people like others who are similar to them (Byrne 1997), members should feel more affinity with groups containing similar people.

Respondents' leadership status. Administrators are often group founders, who are likely to feel strong affinity with the group and to work hard on its behalf. Moreover, their efforts may further enhance their affinity with the group through a dissonance-like process (see Hinojosa, Gardner, Walker, Cogliser, and Gullifor 2017 for a recent review).

Method

Members of over 6,000 Facebook groups completed a voluntary survey containing questions about their group. We used regression analyses to predict respondents' self-reported affinity with their group from (a) respondent-level control variables, (b) group characteristics, and (c) the relationship between the group and its members.

Sample

The survey was launched on the Facebook platform in February 2017. Approximately 500,000 English-speaking users in the US who were active in Facebook in the previous 28 days and were subscribers to at least one Facebook group received an invitation in their Facebook NewsFeed. Of these, 17,437 volunteered and answered questions about one randomly selected group to which they subscribed. Invitations went to members of groups stratified by size at the beginning of the research period (5-10 members, 11-25 members, 26-100 members, 101-250 members, 251-1,000 members, more than 1,000 members). We dropped respondents with missing data. Moreover, because some predictor variables measured characteristics of the group content (e.g., topics per post), we dropped "dormant" groups in which no one had posted content in the 30 days before the survey. The final sample

comprised 10,567 members of 6,458 Facebook groups. Forty percent of the groups had more than one respondent (mean=5.6, sd=10.8; mode=1; median=2).

Measuring group affinity

Nine questions measuring affinity were adapted from prior research assessing peoples' perceptions of groups and organizations to which they belonged. Three were designed to measure overall satisfaction with the group (e.g., "I am satisfied with [groupname]"); three were designed to measure bond-based attachment to individual members (e.g., "I feel very close to some of the people in [groupname]", Prentice, Miller and Lightdale 1994); and three were designed to measure "identity-based" attachment to the group as a whole (e.g., "I identify with [groupname]", Prentice, Miller and Lightdale 1994). A confirmatory factor analysis differentiating overall satisfaction, bond-based attachment, and identity-based attachment was a very good fit to the data (CFI=.973). Because the three factors were highly correlated (mean r=.90), we constructed an overall affinity score based on the mean response to the nine questions (Cronbach's alpha= .95).

Group characteristics.

Group type: Coders classified each group as a friends and family group, an identity group, a task-oriented group, or a topical group. *Friends and family groups* support communication among family members and friends who know each other offline. *Identity groups* are organized around relatively enduring personal attributes (e.g., common religion, gender, health status, sexual orientation, parental status). *Task groups* accomplish activities that serve group goals (e.g., writing a joint report) and/or individual goals (e.g., helping members lose weight). Topical groups support communication about a particular topic (e.g., photography).

Two undergraduate research assistants classified public and closed groups (see descriptions below), whose names and descriptions are visible to the public. To comply with Facebook's terms of service, two Facebook employees classified secret groups, whose names and descriptions are not visible to the public. At least two coders classified each group by looking at the group name and the description that 72% of groups had posted. Coders had no access to the communication in groups. Coders assigned each group a type score of 1 if they believed it was of a particular type and a score of 0 otherwise. Group types are not mutually exclusive. For example, a parenting group might be classified as both an identity and a topical group. We calculated group type by taking the mean of the coders' binary ratings. The classification

of group type was reliable, with the Cronbach's alpha for the four types ranging from .88 to .94.

Group size is the number of people who had registered for the group and were still members of Facebook at the beginning the survey collection. Because group size is skewed (median=200, mean=4866), analyses use logged values.

Geographical dispersion is based on the approximate distance of a group member in kilometers from the average location of all group members, determined by the location users included in their Facebook profile and device and connection information. Because distance to the group centroid is skewed, with most groups relatively compact (median distance=37 kilometers), analyses use logged values.

Group maturity is the number of days between the group's creation and the start of the survey. Because group maturity is skewed (median=270 days old; 90% more than 1615 days old), analyses use logged values.

Leadership structure (number of administrators). Group administrators are members with special rights, including the right to remove content and members. The modal group has a single administrator, but large groups often have more. Because the number of administrators is skewed (median=2), analyses use logged values.

Group privacy type. Administrators can assign a group to one of three privacy types. For *public groups,* anyone can join and see the group's membership list and content before joining. For *closed groups*, anyone can search for the group, see the group's description and membership, and ask to join it, but only current members can see its content. For *secret groups*, members must be added or invited by a current member, and only members can see the group's name, description, membership, and content. In the sample, 15.2% of groups were public, 55.4% were closed, and 29.4% were secret.

Amount of communication (text per member) is the total number of posts and comments members posted to the group during the 60 days before the survey was launched, divided by group size. As noted previously, we dropped inactive groups with no posts or comments. Because texts per member is skewed (median texts per member=101; mean=1,835), analyses use log transformed values.

Evenness of communication. We measured evenness of participation as the entropy of the number of posts and comments per group member during the 60 days prior to the survey. Entropy is at a minimum when all content comes from a single member and at a maximum when all group members contribute equally. Before entropy was calculated, the total number of posts and comments was normalized to equal 1 so that contribution per member is expressed as a proportion of all content created in the group. Because entropy scores were skewed, with most groups having concentrated participation (e.g., 17% of groups had only a single contributor), analyses use a square-root transformation of the original entropy score, which produced a more normal distribution than a log transformation.

Topics per post is a measure of the topical diversity of the discussions in the group. We first used a classifier to identify the topics semantically closest to topics used by group administrators to describe their groups. Then, we counted the number of distinct topics that were identified in the group posts in a 90-day period, normalized by the total number of posts in the same period. A low topic per post count indicates the discussions tend to revolve around a small number of topics, while a high count indicates more topical diversity.

Relationship between the group and its members.

Tenure in the group is the number of days that the respondent had been a group member at the time of the survey. Because this variable is skewed, with the majority of members having been members less than half a year (median=188 days; mean=335 days), analyses use logged values.

Top 10 friends in group. Facebook uses machine learning algorithms to estimate users' self-reported connections to other Facebook users, known as the friend coefficient. Although the algorithm for calculating this coefficient is proprietary, it is similar to algorithms used in published research (M. Burke and Kraut 2014; Gilbert and Karahalios 2009) based on a weighted average of such features as the amount of private communication sent to or received from the other user, the way the respondent labeled the interpersonal connection (e.g., in-a-relationship, close friend, acquaintance), and the number of times the respondent searched for the user or viewed his or her profile. Friend coefficient scores are ranked ordered for all of a respondent's friends, and the *Top 10 friends in group* measure is the number of group members who are among the top 10 in the rank-ordered list.

Taste similarity is the distance between a respondent and a sample of other group members in an 128-dimensional embedding space of Facebook objects (e.g., distinct users, groups, pages, videos). In general, embedding is a learned vector representation of an object, such as a word, image, or Facebook entity, that converts discrete objects in a very high dimensional space (e.g., all words in a text corpus or all Facebook entities) into a lower dimensional latent space based on co-occurrences in the original data. With a "good" embedding, semantically similar entities are located nearby in the embedding space, while semantically dissimilar entities are located further apart (Globerson, Chechik, Pereira, and Tishby 2007). Our 128-dimensional embeddings are

based on a multi-relational graph between users and entities, such as pages, with the associations being actions, such as a user liking a page.

*Social Simila*rity is the average number of components resulting from a partition of the Facebook graph that members of a group share with each other. To optimize Facebook's worldwide traffic routing decisions, Facebook uses a graph partitioning algorithm to split its social graph into 21,000 components, or buckets, and assigns whole buckets to different web clusters (Shalita et al. 2016). The partitioning goal is to produce components that are equal in size and maximize edge locality, the number of graph edges that are fully contained within a component. In the context of Facebook, increasing edge locality has the consequence that users who are assigned to the same component are socially similar to each other

Respondent's leadership status. "Administrator" is a binary variable coded "1" if the respondent is an administrator in the target group and "0" otherwise.

DV: Affinity	Model 1: Controls				Model 2: Group characteristics				Model 3: interactions			
	Coef.	SE	z	P>z	Coef.	SE	z	P>z	Coef.	SE	z	P>z
Intercept	.00	.02	.22	.823	.00	.02	.14	.888	-.08	.03	-3.27	.001
R age	.06	.01	6.33	.000	.06	.01	5.96	.000	.07	.01	7.51	.000
R female	.02	.02	.94	.350	.00	.02	-.08	.935	.01	.02	.43	.665
N other groups	.04	.01	4.58	.000	.03	.01	2.88	.004	.03	.01	3.36	.001
R Facebook tenure	-.24	.01	-25.31	.000	-.15	.01	-16.48	.000	-.15	.01	-16.10	.000
Group size					-.35	.02	-19.59	.000	-.33	.03	-12.22	.000
Geographical dispersion					.02	.01	1.91	.056	.02	.02	1.01	.314
Group maturity					.00	.01	.17	.869	.00	.02	-.24	.813
N administrators					.03	.01	2.20	.028	-.01	.02	-.65	.518
Group privacy					.06	.02	3.73	.000	.04	.03	1.41	.159
Amount of communication					.01	.01	.87	.387	.02	.02	1.01	.311
Evenness of communication					.26	.01	17.91	.000	.26	.02	12.27	.000
Topics per post					.03	.01	3.12	.002	.02	.01	1.81	.070
Tenure in group					.01	.01	1.27	.203	.01	.02	.40	.686
Top 10 friends in group					.16	.01	17.39	.000	.19	.01	13.20	.000
Taste similarity					.03	.01	2.86	.004	.03	.02	1.55	.121
Social similarity					.03	.01	2.27	.023	.03	.02	1.62	.104
Leadership status					.47	.03	14.63	.000	.42	.05	8.74	.000
Close group									.68	.24	2.87	.004
Task group									-.02	.09	-.19	.845
Identity group									.13	.08	1.51	.132
Topical group									.00	.10	.02	.983
Close X Group privacy									.26	.10	2.62	.009
Task X Group size									-.09	.04	-2.14	.032
Task X Group admins									.08	.03	2.80	.005
Task X Geographical dispersion									.07	.03	2.14	.032
Task X Top 10 friends in group									-.06	.02	-2.59	.010
Topical X Group size									.15	.05	2.93	.003
Topical X Group admins									.08	.03	2.50	.012
Topical X Group topics per post									.06	.03	2.32	.020
N respondent	10,567				10,567				10,567			
N groups	6,458				6,458				6,458			
df	4				19				78			
R-square	0.079				0.227				0.242			
Change in r-square					0.148				0.012			

Table 1. Multi-level regression predicting affinity from group characteristics, group type and their interactions
Note. Continuous variables have been standardized with a mean of zero and standard deviation of one, while binary variables, group privacy (0=public, 1= private, 2=secret) and group types (0=no, 1=yes) have been left in their original units. For reasons of space, non-significant interactions between group type and the other variables were omitted from Table 1

Respondent-level controls.

Age is the respondent's age in years.

Female is a binary variable coded as "1" if the respondent is a female and "0" otherwise.

Number of groups is the total number of Facebook groups the respondent belongs to. Because responses were highly skewed (most respondents belonged to few groups), analyses use logged values.

Facebook tenure is the number of days the respondent was a registered Facebook user at the time of the survey.

Results and Discussion

Differences among group types

Because a major goal of this research was to examine how group type in combination with other predictors influences respondents' affinity with their group, it is useful to examine the associations between the type of group and these predictors. In this section, we report correlations between the mean of the judges' ratings of each type of group and other predictors. To facilitate categorical comparisons between different types of groups, we assigned a group to a type if any coder labeled it as that type. We employed this lenient decision rule because, in light of the exploratory nature of our study, we deemed false positives to be preferable to false negatives. In the following, we report those associations in which the absolute value of the correlation between group type and another predictor is at least .10.

Table 1 shows that friends and family groups were substantially smaller than other group types (correlation with group size $r=-.20$, $p<.001$; median size for friends and family groups=24 vs. 215 for other group types). Despite being smaller, because they are based on personal relationships, friends and family groups contained more of the respondents' closest Facebook friends (r=.08, p<.001; 13% of members' top 10 friends vs. 3% for other group types). In addition, friends and family groups were substantially more private than other group types ($r=.10$, p<.001; 55.1% of friends and family groups were secret and 3.7% were open compared to 26.1% and 13.6% respectively for other group types).

Members of task-oriented groups lived closer to each other than did members of other group types (correlation with distance to group center=-.19, $p<.001$; median distance for task-oriented groups=17.8 kilometers vs. 82.5 for other group types). They also tended to be more mature (correlation with group age=.11; median group age=514 days vs. 257 for other group types). Finally, task-oriented groups tended to be less private than other group types (correlation with group privacy =-.10,

$p<.001$). Task-oriented groups were less likely to be secret (24.0% vs. 29.3 % for other group types) and more likely to be open (13.8% vs. 12.7 % for other group types)

Identity groups had more even communication than did other group types (correlation with communication entropy $r=.12$, $p<.001$, mean entropy for identity groups= 4.04 vs. 3.30 for other group types). In addition, identity group were more mature than other group types (correlation with group age=.10, p<.001; median=326 days vs. 263 for other group types.)

Topical groups were substantially larger than other group types (correlation with group size $r=.22$, $p<.001$, median size for topical groups= 373 vs. 158 for other group types). Communication was also distributed more evenly in topical groups than in other group types (correlation with communication entropy $r=-.22$, $p<.001$, mean entropy=4.68 vs. 3.14 for other group types). Topical groups were more spread-out geographically than other group types (correlation of distance to group center $r=-.21$, $p<.001$; median distance kilometers=341.9 vs. 26.2 for other group types.) In addition, topical groups had fewer female members than did other group types ($r=-.17$, $p<.001$, mean percent female members=63% vs. 73% for other group types). Presumably because of their relatively large size, topical groups had more administrators than did other group types ($r=.11$, $p<..001$; median number of administrators=3 vs. 2 for other group types). Finally, members of topical groups were less similar to each other in terms of the Facebook content they looked at than were members of other group types (correlation with taste similarity=-.13, $p<.001$; mean correlation with taste similarity=.32 vs. .35 for other group types).

Predicting affinity with groups.

Table 1 shows the results of a hierarchical regression analysis predicting respondents' affinity toward their groups from characteristics of the respondent (treated as control variables), characteristics of the group, and characteristics of the relationship between the respondent and the group, with respondent nested within group to account for non-independence in the data. The intra-class correlation on the affinity measure, the dependent variable, computed among groups containing at least two respondents was 34.2, indicating that 34.2% of the variance in affinity was attributable to differences between groups and not differences among respondents within groups or other sources of error.

Respondent-level control variables.

Model 1 in Table 1 shows the effects of the respondent-level control variables. The negative coefficient for Facebook Tenure in Model 1 indicates that respondents
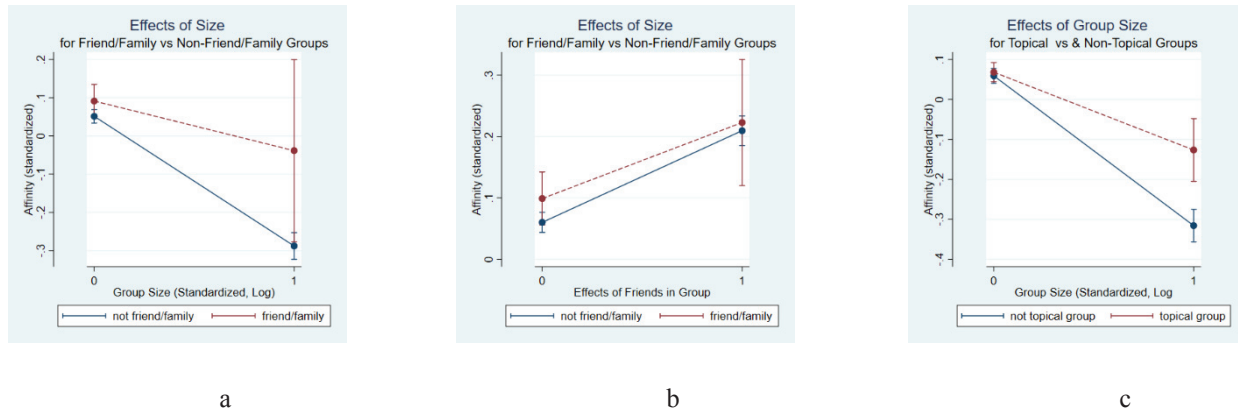
Figure 1. Interactions of group size for different group types

who had been members of Facebook a standard deviation longer than average felt .24 standard deviations less affinity with their group than average. Since old-timers on many Internet platforms tend to resent changes to their platform (e.g., Jeffries, Kiesler, Goetz, and Sproull 2000), more experienced Facebook users feel relatively little affinity to groups because they are a relatively new feature, compared to the basic person-to-person exchanges on which it was founded. In addition, older respondents (β=.06) and respondents who were members of more groups (β=.04) felt more affinity toward their target group. The latter result suggests that a general "sociability" factor may underlie both enjoyment of group activity and proclivity to join groups. Interestingly, this result is inconsistent with the thesis (Cress, McPherson, and Rotolo 1997) that people have a fixed carrying capacity for the number of voluntary groups in which they can participate and, therefore, group memberships are competitive. There was no association of group affinity with the respondents' gender, even though women in the sample were members of more Facebook groups than were men (median number of groups for women=52 versus 36 for men).

Group characteristics.

Model 2 adds the main effects of group characteristics (other than group type) and the relationship between the respondents and their groups. Model 3 adds interactions between group type and the other predictors.

Group size. In general, respondents felt less affinity to larger groups (in Model 2, β=-.33, p<.001), perhaps because of the information overload associated with them. Consistent with this speculation, the correlation between the log transformed group size and the amount of group content was .78, p<.001. In addition, as suggested previously, respondents may prefer smaller groups because they offer more opportunities for repeated

interaction and intimacy with other members. The negative relationship between group size and affinity was moderated by group type. As Figure 1a shows, this relationship was relatively weak for friends and family groups (β =.27. p=.06), perhaps because they are already small, almost an order of magnitude smaller (median size=23) than other group types (median size=215). In addition, because people generally already feel close to family members, they don't need the additional intimacy brought about through small group size.

In contrast, Figure 1b shows that the negative association of group size with affinity is reliably larger for task-oriented groups than for other types of groups, perhaps because larger size increases the coordination costs associated with the larger task-oriented groups.

Finally, Figure 1c shows that the negative relationship between group size and affinity was reduced substantially but not eliminated in topical groups relative to other types, perhaps because larger groups provide more content, which is especially important in topical groups.
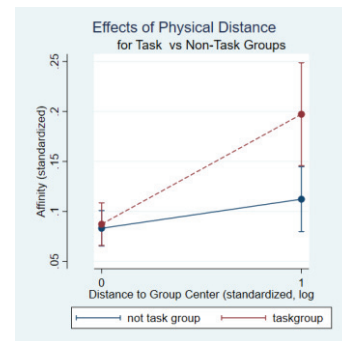

Figure 2. Effects of geographic dispersion with task vs non-task groups

Geographical dispersion. In general, respondents felt more affinity to more physically distributed groups compared to more compact ones (in Model 2, β=.03, p=.014). Even though geographic distance between group members is generally associated with more difficulties in completing work (e.g., Espinosa, Slaughter, Kraut, and Herbsleb 2007), the positive association of dispersion and affinity was unexpectedly larger in task-oriented groups than in others, as shown in Figure 2. We speculate that the main effect of geographic dispersion and its interaction with group type occurred because electronic groups have more value when members are physically dispersed, and communication is otherwise more difficult to achieve.

Group maturity. The age of the group was not reliably associated with affinity overall (β=.00, p=.998) directly or in interaction with group type.

Leadership structure (number of administrators). In general, *r*espondents felt more affinity with groups that had more administrators *(β=.04, p=.003),* presumably because their presence improves group performance (e.g., groups with more administrators have longer introductions describing the purpose of the group and clarifying group norms, r=.21, p<.001). However, interactions with group type in Model 3 show the number of administrators was important primarily for task-oriented and topical groups (see Figures 3a and *3b*). Task-oriented groups have a relatively high need for coordination and hence need administrators to pull together the activities of multiple contributors. In contrast, topical groups, which typically have a large and open membership, need administrators to make sure content is appropriate to the group's topic and to ensure that members, who are likely to be strangers to each other, behave appropriately and follow group norms.
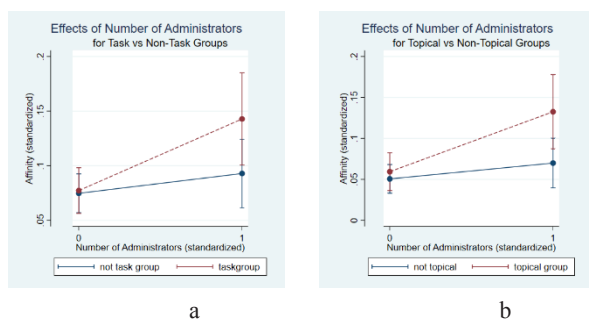

a   b

Figure 3. Effects of number of administrators for different group types

Group privacy. In general, respondents felt more affinity with groups that were more private (β=.06, *p*<.001). However, the interaction illustrated in Figure 4 shows that this relationship was restricted to friends and family groups. This is not surprising, since friends and

family groups often exchange personal information they do not want outsiders to see. Consistent with this interpretation, 55% of friends and family groups chose the highest privacy level (secret) compared to 26% of other types of groups (gamma=.54, *p*<.001).
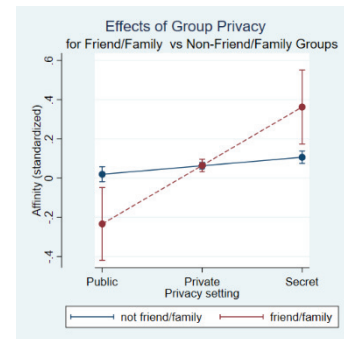

Figure 4. Effects of privacy for close vs non-close groups

*Amount and evenness of communication. T*he number of messages posted per member had no reliable association with affinity as either a main effect (β=.01, p=.385) or in interaction with group type. In terms of evenness of participation (i.e., post entropy), respondents generally felt more affinity with groups with more even communication (i.e. higher entropy; β=.26, p<.001), that is, groups in which communication was not dominated by a subset of members. These findings suggest that early laboratory experiments showing that members preferred relatively equal participation in small, task-performing groups generalize to much larger online groups (median size= 200, with interquartile range of 53 to 824) of varying types. This preference may come about because respondents in *those groups have more opportunity to talk with, obtain information from, and hear the viewpoints of a* larger fraction of the group's membership.

Range of content discussed (topics per post). In general, respondents felt more affinity with groups whose messages contained more topics (β=.03, p=.003). However, as Figure *5* illustrates, affinity was positively associated with topics per message primarily for topical groups. This result is surprising, as members of topical groups might primarily value communications relevant to the focal topic of the group. Indeed, administrators of topical online groups often try to get members to stay on topic, and research shows that members tend to leave online groups that contain many off-topic messages (Gu, Konana, Rajagopalan, and Chen 2007). Instead, our results suggest that members of topical Facebook groups have rather broad interests.
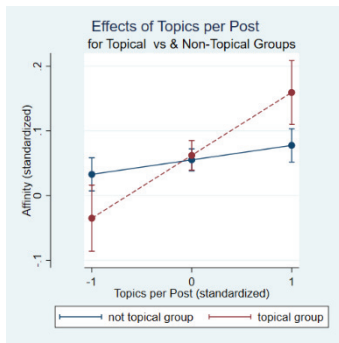
Figure 5. Effects of topics per post
for topical and non-topical groups

Relationship between the group and its members

Tenure in the group. The length of time a respondent has been a group member was not reliably associated with affinity to the group overall (β=.01, p=.686) or for any of the group types.

Friends in the group. Consistent with theories of group cohesion, respondents generally reported more affinity with groups that contained more of their top 10 Facebook friends (β=.15, p<.001). However, as shown in Figure 6, the impact of friends was about 31% lower in task-oriented groups (interaction β =-.06, p=.010) than in other types of groups (β =.19, p<.001). Note friendship was still important in task groups, but the influence was smaller when groups were based on an explicit goal.
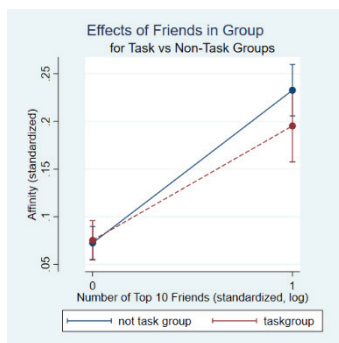

Figure 6. Effects of friends with
task vs non-task groups

Similarity to the group. As predicted, homophily-- respondents' similarity to other group members—was associated with greater group affinity for both measures of similarity. That is, as seen in Model 2, participants' similarity with other group members in terms of taste in Facebook content (i.e., World2Vec (β=.04, p=.001) and their social similarity to other members (β=.03, p=.033) were reliably associated with affinity. Although one might

have expected some interactions with group type,(e.g., with taste similarity most important in topical groups and social similarity most important in identity groups), this was not the case. Instead, the associations of similarity with affinity did not vary with group type -- once the interactions were included in Model 3, the effects of similarity were no longer significant.

Respondents' leadership status. As predicted, administrators felt more affinity with their group than did regular members (β=.42, p<.001). It is interesting that, although occupying the administrator role predicted affinity to the group, as noted above the length of time a respondent had been a group member did not.

Conclusions

The goal of this research was to predict members' feelings of affinity toward online groups from characteristics of the group and characteristics of members' relationship to the group. We were particularly interested how the relationships of affinity with characteristics of the group and members' relationship with it differed by in group type, which, in our sample, included friends and family groups, task-oriented groups, identity groups, and topical groups. Our analysis was successful in that the predictor variables (excluding group type and its interactions with other predictors) explained 23% of the variance in respondents' reported affinity toward their group (see Model 2 in Table 1). Of these, being an administrator and being in a group with fewer members, more even communication, and more close friends were the strongest predictors of affinity. Although we did not predict the strengths of these associations, one possible reason why small group size, even communication, and presence of friends were important is because they facilitate or reflect respondents' liking for other members, which in turn leads to greater liking for the group as a whole.

Consistent with the rationale for the study, the importance of many of the predictors (6/12) varied with the type of group. Model 3 in Table 1 explains 24.2% of the variance in respondents' affinity toward their groups, and 6% of the total variance explained can be attributed to group type and its interactions with the other predictors. Although group type and its interactions explained only a small amount of the total variance, these findings are important, because, as noted earlier, they disconfirm the assumption of much prior research that the determinants of affinity are constant across types of groups.

We suspect that the influence of group type and its interactions was underestimated in the current study because of a lack of precision in measuring group type. Assessments of group type were made by non-member, research assistants, who based their judgments on

relatively impoverished information, namely a group's name and a short description available for only 72% of groups. In future studies, more precise labeling of groups might be obtained from group members themselves or from judges who based their judgments on the group content. Moreover, the group types we identified were intentionally broad. Although useful for the goals of the present study, these four group types all contain potentially important subtypes that themselves are likely to moderate the effects of group characteristics on affinity.

Although our cross-sectional design limits causal claims, our results are consistent with a claim that group type moderates the influence of characteristics of the group and characteristics of members' relationship to the group on affinity toward it. This moderation presumably occurs because group type is a proxy for the major goals that people are attempting to achieve through membership. For example, they participate in friends and family groups to maintain close relationships with valued others, in task-oriented groups to accomplish collective tasks, in identity groups to define themselves, and in topical groups to exchange information and opinions on issues of interest.

According to this "goal-matching" thesis, characteristics of the group and characteristics of the relationship between the group and its members influence affinity via their impact on members' ability to achieve the groups' primary goals. For example, as pointed out earlier, group size may have different effects in task-oriented versus topical groups because large size hinders the coordination necessary for collective action in task-oriented groups but aids the accumulation and spread of information essential to topical groups. Similarly,

multiple administrators may be especially helpful in task-oriented groups because they facilitate task coordination and in topical groups because they enforce norms of civility. And heightened privacy may be especially important in friends and family groups because members desire to share private information with close others. If this logic is correct, subsequent research should carefully delineate the goals associated with different types of groups and investigate the causal mechanisms through which group characteristics influence the achievement of these goals and therefore the benefits that people obtain from group membership.

Despite its heuristic utility, this goal-matching hypothesis cannot account for all of the interaction effects of group type and group characteristics on affinity. For example, the goal-matching hypothesis seems inconsistent with findings that topical heterogeneity is associated most strongly with affinity for topical groups or that friendships seem to be least important in identity groups.

The research presented here breaks new ground in identifying what makes groups attractive to their members. Some results replicate findings of prior research, for example that people like groups composed of similar others and groups in which communication is distributed relatively evenly among members. But this study goes further in demonstrating the generalizability of these results to a much broader range of group settings. Other results are novel, for example that geographic dispersion is associated with greater liking for a group. Perhaps most importantly, this research suggests that the associations between group characteristics and members' feelings of affinity toward their group depend, at least in part, on the type of group.

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