

**SOCIOMETRIC STATUS AND PEER CONTROL ATTEMPTS:
A MULTIPLE STATUS HIERARCHIES APPROACH**

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ABSTRACT

We study a population of first year midshipmen within an elite military academy to explore the relationship between individuals' sociometric status (e.g., status conferrals based on positive interpersonal affect and perceived competence, and status degradations based on negative interpersonal affect) and their attempts to directly control their peers' behavior over a year's time. Results show that multiple informal sociometric status hierarchies develop early in the organization's life and remain remarkably stable. Control attempts are driven by these status hierarchies: Lower competence status individuals and those who attract negative status degradations are targeted for control by more people early in the group's life, those relatively free of negative status degradations attempt to control greater numbers of others throughout the group's existence, while higher positive status is generally unrelated to control attempts. However, control attempts do not lead to higher future sociometric status, suggesting they are not status signals. Findings also show that individuals targeted for control by many others leave the organization entirely.

Keywords: informal peer control attempts, organizational control theory, positive and negative ties, social network analysis, sociometric status, turnover

A fundamental issue in any group or organization is defining and enforcing the acceptable behaviors that promote the objectives and continuing healthy functioning of the organization and its members. The struggle within organizational status hierarchies between higher- and lower-level members to define and direct members' attention and behaviors is the focus for control theory (e.g., Braverman, 1974; Clegg, 1981; Clegg & Dunkerley, 1980; Sitkin, Cardinal, & Bijlsma-Frankema, 2010). Control theory highlights that this struggle can be resolved through many types of behavioral control, including bureaucratic control, which emphasizes directing lower level members' actions through surveillance and evaluation by managers whose status is rooted in the organization's formal hierarchy. However, the effectiveness of controlling behavior via these bureaucratic principles is diminished in knowledge-intensive organizations (Turner & Makhija, 2006). Many professional, knowledge-based organizations instead increasingly rely on decentralized and self-managing modes of organizing, encouraging, and enforcing behavior based on informal peer control (Alvesson, 1990; De Jong, Bijlsma-Frankema, & Cardinal, 2014; Manz & Sims, 1993).

This shift in the locus of control from the upper echelons of the formal organization hierarchy to the lower-level members themselves is referred to alternatively as concertive control, clan control, lateral control, or more recently as informal peer control (e.g., Barker, 1993; Lazega, 2000; Loughry, 2010; Ouchi, 1979; Kirsch, 1997, 2004; Tompkins & Cheney, 1985). The basis for peer control revolves around value-consensus and norm enforcement among these organizational members, as opposed to strict adherence to the values and rules imposed by management or owners (Barley & Kunda, 2001; Sewell, 1998). Rather than monitor employee behaviors by relying on a small set of managers whose monitoring gaze is often obscured by large spans of control and the need to perform other duties, peer control systems allow every colleague to become a potential controller (De Jong, et al., 2014).

The question that then emerges is whether informal peer control is an egalitarian

process, one in which all members share equally in monitoring and controlling each other's behavior, or is instead one in which the organization's formal status hierarchy is partially or fully replaced with an informal status hierarchy that encourages some individuals to assert their view of acceptable behavior over others. While the general tendency within control theory is to suggest that peer control is an egalitarian process (Johnson, 2011), we will instead argue that while each individual can, in theory, attempt to control others' behavior within an informal peer control system, in practice each member's attempts to control others are limited by that person's sociometric status within the group. Sociometric status is the individual's relative social standing and is driven by the two universal dimensions of interpersonal cognition (Fiske, Cuddy, & Glick, 2007) – their relative competence as perceived by their peers (Magee & Galinsky, 2008), and their warmth, or how liked and disliked they are (Peery, 1979; Carboni & Casciaro, 2016).

Our contribution to control theory is understanding better whether an individual's position in the organization's informal sociometric status hierarchy determines the number of other organizational members whom they will attempt to informally control, while taking into account that the reverse might also be true – i.e., that the degree to which an individual attempts to control others, or is targeted by others for control, might affect the individual's status within the group over time. Our work illuminates whether these control attempts reinforce existing social hierarchies or are attempts that contest and change individuals' relative dominance within the organization (e.g., Bendersky & Hays, 2012; Bothner, Kim & Smith, 2012; Strauss, Schatzman, Ehrlich, Bucher, & Sabshin, 1963).

We study these dynamics over a year-long period within an elite military academy where previously unacquainted recruits develop a *de novo* social hierarchy and attempt to control each other's behavior in a setting with little formally-imposed organizational structural hierarchy. We will show that an informal status hierarchy develops early in the

organization's life span and that higher sociometric status determines control attempts but that there is no evidence for the reverse – i.e., that control attempts are not being used as signals or dominance displays to increase status over time. We further show that there are multiple status hierarchies in the group and that negative status degradations in the form of incoming negative affective ties amongst members most consistently predict control attempts. We will also show that these control attempts are very consequential; indeed, individuals being controlled widely by others have a significantly higher likelihood of leaving the organization entirely. This finding is especially relevant for organizational researchers because these self-managing systems are often used in organizational contexts where extremely valuable knowledge work is being conducted and where the loss of individual members can be acutely detrimental and expensive from the organization's perspective (Van der Vegt, Bunderson, & Kuipers, 2010).

THEORY AND HYPOTHESES

Defining Informal Peer Control Attempts

Control is the capacity of any social group to regulate the attitudes and behaviors of particular individuals within the group or of the whole group itself (Heckathorn, 1990; Janowitz, 1975). Organizational control refers specifically to any arrangement that regulates and manages members' attitudes and behaviors so that they are functional – or at least not detrimental – to the organization's goals (Ouchi, 1979; Tannenbaum, 1968). These formal arrangements can include direct supervision, standardization of skills and work processes, output monitoring, and the organization's punitive systems and reward structures (Millham, Bullock, & Cherrett, 1972; Mintzberg, 1979; Thompson, 1967). All of these formal arrangements are imposed, generally non-negotiable, and mostly impersonal.

Our focus, however, is on informal direct peer-to-peer control attempts aimed at regulating each other's behavior (Gibbs, 1981; Loughry, 2010; Kirsch, Ko & Haney, 2010)¹.

These attempts are aimed at stopping or changing unwanted or norm-deviating behavior that threatens either the group's technical or social functioning (De Dreu, Kluwer, & Nauta, 2008; Papa, Auwal, & Singhal, 1997; Yukl & Falbe, 1990). Barker (1993) described vividly an informal control attempt within the small electronics manufacturing company he studied (p. 426): "I saw Ryan confront a newer team member who was working on four [circuit] boards at a time instead of one, which the team had discovered increased the chance for error. Ryan stood above the offender and pointed at him, 'Hey quit doing that. You're not allowed to do that. It's against the rules.'" While this quote illustrates the norm-aligning aspects of informal peer control attempts, it also begs the question of why some individuals, such as Ryan, emerge in prominent informal positions and take on the "aura of a supervisor" in their attempt to control others' behavior (Barker, 1993; p. 426). Much of this research has shown that those attempting to control hold status based either on formal roles or through their tenure with the organization. We argue, instead, that informal sociometric status grants individuals more motivation and a sense of responsibility to attempt behavioral control over other group members (cf. Blader & Chen, 2012; Ridgeway & Berger, 1986).

Defining Sociometric Status Within Informal Hierarchies

Wherever a group of people interacts, inequality develops in individuals' status or prestige which creates an informal hierarchical ranking (Bales, 1958; Ravlin & Thomas, 2005; Tiedens, Unzueta, & Young, 2007). Our conception of status is based in the notion of sociometric status (Gould, 2002), which involves status being conferred on, or degraded from, individuals based on a number of components (Anderson, Brion, Moore, & Kennedy, 2012; Lim & Rubineau, 2013). The first is individuals' perceived instrumental social value – the personal characteristics that will facilitate goal accomplishment.² In organizational settings, the main instrumental focus is on *competence-based status conferrals*, which is an individual's relative ranking in a group based on subjective positive evaluation by others of

his or her objective work accomplishments (Anderson & Shirako, 2008; Magee & Galinsky, 2008), which can help the group to achieve their collective goals (hereafter, “competence-based status”). The second component involves respect and admiration, with the individual being held in high regard and esteem by others within the social network of personal relationships within the group (Brass, 1984, 1985; Friedkin & Cook, 1990; Henrich & Gil-White, 2001; Ibarra, 1993; Krackhardt, 1990; Lincoln & Miller, 1979). This *affect-based status* is often defined as someone’s popularity and social approval by a group (Blau, 1962; Homans, 1950; Thibaut & Kelley, 1952). From the earliest sociometric research, affect-based status has been conceptualized as involving status conferrals through positive nominations for liking by a broad set of group members while also avoiding status degradations that come through negative nominations of disliking by group members (Dunnington, 1957; Lemann & Solomon, 1952; Peery, 1979). Thus, *positive affective status conferrals* (i.e., being nominated by others for positive ties such as friendships) from others indicates someone’s acceptance/social respect within a group (hereafter, “positive affect status”) (Chung, Singh, & Lee, 2000; Coie, Coppotelli, & Dodge, 1982; Ibarra & Andrews, 1993; Podolny, Stuart, & Hannan, 1996). Receiving negative ties (e.g., being disliked by other group members and thus being subjected to status degradations), which are *negative affective status degradations* (hereafter, “negative status degradations”), is a powerful indicator of sociometric status because it is often a stronger determinant of interpersonal attitudes and behaviors than positive status (Bonacich & Lloyd, 2004; Labianca & Brass, 2006; Newcomb, Bukowski, & Pattee, 1993; Taylor, 1991).³

These competence- and affect-based status differentiations reflect the two universal dimensions of interpersonal cognition of competence and warmth (Fiske, et al., 2007). Researchers recognize that these competence- and affect-based status rankings do not always co-vary, and that there is not necessarily a single rank ordering of individuals in a group

(Carboni & Casciaro, 2016; Casciaro & Lobo, 2008; Magee & Galinsky, 2008). That is, a person's position in the group's rank order of peer-perceived competence does not always correspond to that same person's position in the rank order of either positive or negative affective status. This can create a multiplicity of sociometric status rankings within the same group or organization, and we will investigate all of these various status rankings, both in our theoretical discussion and in our subsequent empirical analyses.⁴

Relating Informal Peer Control and Sociometric Status Within Informal Hierarchies

How these informal status hierarchies are related to peer-to-peer control attempts is relatively underexplored (Lazega, 2000; Lazega & Krackhardt, 2000; Wittek, van Duijn, & Snijders, 2003). While voluntary deference to another's wishes is often viewed as a main component of sociometric status (Anderson, et al., 2012), it's rare to study the attempts to control behavior that precede and often necessitate this deference. This is true even as the use of informal hierarchy and peer control continues to grow in knowledge-intensive organizations (e.g., Kirsch, et al., 2010). Instead, much of the literature on informal peer control focuses on the process through which collectively negotiated behavioral norms develop that create order in how work should be done (e.g., by establishing criteria for such things as acceptable task performance levels, task priorities, time allocations, and roles and responsibilities) (De Jong, et al., 2014).

While the peer control literature has not focused on informal status, the group development and socialization literature, by contrast, does provide some clues as to how informal status and peer control are related. Many stage models incorporate the establishing of an informal hierarchy as a critical stage in group development (Whittaker, 1970) because the informal hierarchy creates a psychological order that is needed to effectively coordinate individual behavior (Janowitz, 1975; Magee & Galinsky, 2008). This literature recognizes that a person's status position within the informal competence-based and affect-based

hierarchies in a group can influence even purely instrumental considerations such as role assignments in the group (Levine & Moreland, 1990; Wanous, Reichers, & Hudy, 1997). Thus, individuals might be chosen for certain task-based roles in groups, not because of their relative competence, but due to their relative social acceptance (Hackman, 1987; Papa et al., 1997). Similarly, we assert that status motivates individuals to attempt informal peer control.

Informal Status and Attempting to Control Others

We argue that *individuals with high competence-based and positive affect-based status and lacking in negative status degradations are the predominant controllers in a group* and that they therefore will attempt to control the most other individuals. Those that are high in competence status might have a number of different motivations for attempting to control their peers. One is simply a desire to correct task-related behavior to ensure that best practices are being followed, allowing the organization to better achieve its goals. Competence-based status is socially constructed through peer perceptions – it is the peers themselves that nominate individuals for high competence status positions in a peer control system – which also suggests that the best practices themselves might also be socially constructed. Competent people are most likely to recognize these best practices, might have had a stronger hand in developing these practices, and will feel empowered to ensure that these practices are followed. This is one of the more desirable aspects of peer control, particularly in a professional setting. If there are a large number of knowledgeable group members, they can quickly teach and monitor each other, ensuring higher group performance, all without relying on formal arrangements, as illustrated in Barker's example on the factory floor mentioned earlier (Barker, 1993; Hackman, 1987; Papa et al., 1997).

Hypothesis 1: The higher an individual's competence-based status, the greater the number of other organization members that person attempts to control.

We would further expect that high positive affect status (i.e., popular) individuals will

be predominant controllers. High positive affect status often reflects an individual's identification with and commitment to the group (Barker, 1993; Deaux & Martin, 2003; McFarland & Pals, 2005; Morrison, 2002). A person's identification with the group is strongly related to the person's involvement in and responsibility for norm formation processes, and how likely they will be to exert social control attempts over others to manage this process (cf., Chekroun & Brauer, 2002; Willer, Kuwabara, & Macy, 2009), particularly in peer control systems (Papa et al., 1997). These individuals, in addition to being motivated to maintain and enforce group norms, might also use social control as an impression management technique to reinforce their position within the group's status hierarchy through "face work" (Bolino, Kacmar, Tumley, & Gilstrap, 2008; Branaman, 2001).⁵

Hypothesis 2a: The higher an individual's positive affect-based status, the greater the number of other organization members that person attempts to control.

Theory on interpersonal sociometric status has also long acknowledged that being disliked or rejected by members of a social group is important to understanding one's relative standing in a group (Newcomb, et al., 1993; Peery, 1979). Certain individuals might have some degree of social acceptance in a group, and yet be viewed by other group members as sources of negative affect that undermines their social acceptance (e.g., Huitsing, van Duijn, Snijders, Wang, Sainio, Salmivalli, & Veenstra, 2012; Carboni & Casciaro, 2016). These negative nominations for disliking by group members serve to degrade status from certain individuals (Dixon, Smith, & Jenks, 2004; Dunnington, 1957; Lemann & Solomon, 1952) without necessarily providing the other person status gains through these negative nominations (Morgan & Lee, 2016). This understanding of sociometric status as having both a positive and negative entry in the social ledger is illustrated in how politicians decide whether to run for office – politicians examine not only how many probable votes would be cast in their favor, but how their candidacy might mobilize people to vote *against* them (e.g.,

Stonecash, 2008). This then also relates to their ability to guide change successfully.

Similarly, we argue that those high in negative affect status degradations due to having numerous negative interpersonal relationships are *less* likely to take on the controller role.

These individuals might feel less motivated to attempt to control others, and indeed, that their control attempts might be resisted by certain group members, making it less likely that they will attempt to control others over time (Moore & Krupat, 1971).⁶

Hypothesis 2b: The greater an individual's negative status degradations, the fewer the number of other organization members that person attempts to control.

Sociometric Status and Being Targeted for Control by Others

It is also critical to understand which individuals are being controlled, or targeted, in a group. Being the target for control might be a critical signal to others about one's lack of status, whether in terms of competence or affect; having their behavior corrected by numerous other organizational members might also have consequences for the person's long-term ability or desire to remain within the organization.

Individuals high in competence status in a peer control system are those who perform well in their peers' eyes (Berger, Rosenholtz, & Zelditch, 1980; Ridgeway & Walker, 1995). These individuals are viewed as not only having more knowledge, but also as conforming more closely to the performance expectations in the organization than low competence individuals (Hogg, 2001; Hollander, 1958a,b; Morrill, Snyderman, & Dawson, 1997; Riley & Cohn, 1958). This gives other organizational members fewer opportunities or need to correct their behavior by means of informal control. Thus, we would expect that high competence status individuals would be unlikely to be targeted for informal peer control. By contrast, those lower in competence are likely to make many "errors" in their peers' eyes by deviating from the group's negotiated norms and best practices, and thus present more opportunities for being targeted by a greater number of others for informal peer control.

Hypothesis 3: The higher the individual's competence-based status, the fewer the number of other organization members who will attempt to control the individual.

We also expect a relationship between the affect-based status rankings and being targeted for control. It is difficult for organizational members to control individuals high in positive affect status because they will feel inhibited in their ability to control these individuals due to their high level of social acceptance (Chaurand & Brauer, 2008; Lazega, 2000). Because many individuals in a group are dependent on popular individuals for approval or positive association (Cialdini, Borden, Thorne, Walker, Freeman, & Sloan, 1976; Kilduff & Krackhardt, 1994; Podolny & Baron, 1997), there is a risk of becoming the target for social sanctioning from their allies when attempting to control them. Other organizational members might view the control attempt itself as being uncalled for if it is targeted toward a high positive affect status member. The social costs to the person considering attempting to control the high status member potentially outweigh the benefits that sanctioning would create for the group as a whole (Black, 1984; Lazega & Krackhardt, 2000). Because lower positive affect status individuals can't impose those same types of costs on the potential controller, we expect that the barrier to informal control will be reduced, and those individuals will be targeted for control by a greater number of the group members.

Hypothesis 4a: The higher the individual's positive affect-based status, the fewer the number of other organization members who will attempt to control the individual.

People with high negative status degradations – those that are socially rejected – will be especially prone to being targets of control (e.g., Faris & Felmlee, 2011). One aspect of control is that it can be rooted in dominance or aggression, and those high in negative status degradations, through being disliked, disrespected or disapproved of socially by numerous other group members, are particularly vulnerable to being singled out for control (Moors & De Houwer, 2005). We see this same phenomenon at play in other aspects of group life, such

as with bullying behavior. For example, children with numerous negative ties tend to be victimized in the classroom (Salmivalli, Lagerspetz, Bjorkqvist, Osterman, & Kaukiainen, 1996; Huitsing, et al., 2012), and this might be, in part, a means to assert dominance over socially rejected others (Yap & Harrigan, 2015). Thus, we expect that individuals high in negative affect status degradations will be more likely to be controlled by numerous peers.

Hypothesis 4b: The greater the individual's negative status degradations, the greater the number of other organization members who will attempt to control the individual.

Being a Control Target and Turnover.

Taking the perspective of the individual targeted for control, we expect that having more people attempting to control one's behavior is an uncomfortable position in which to find oneself. Control attempts can be interpreted as attempts to disrupt one's autonomy of action, potentially creating frustration. These attempts can also suggest a lack of competence or social acceptance by the group (cf., Ridgeway, 1978). The other group members could also be using informal control targeted at a particular individual or a small set of individuals as a mobbing tactic (e.g., Zapf, 1999), in order to strengthen cohesiveness in the rest of the group (cf., Ellwardt, Labianca, & Wittek, 2012). These targeted individuals might begin to view themselves as being mobbed, bullied, or outright socially rejected (Aquino & Thau, 2009; Burke, 1969; Salmivalli et al., 1996; Faris & Felmlee, 2011), engendering negative feelings and organizational withdrawal. Ultimately, this can lead the target to decide to leave the group entirely, leading to turnover from the group (O'Reilly, Caldwell, & Barnett, 1989). This turnover can represent a devastatingly costly loss for the group, particularly in a knowledge-intensive organization where replacing an individual's knowledge, skills and abilities can be extremely expensive, difficult, and time-consuming.

Hypothesis 5: The greater the number of other group members that are targeting an individual for control, the higher the likelihood of the target individual leaving the

group at a later time point.

METHODS

Research Setting and Data Collection

We conducted our research on the population of first year midshipmen in the prestigious Royal Netherlands Naval College. Only one in twenty applicants is selected; entrance is determined on the basis of physical fitness, scholastic grades, medical and psychological tests, and three rounds of one-on-one and group interviews. The 94 midshipmen selected are then paid a salary and engage in intensive training emphasizing physical, academic, and psychological preparation for leadership in a military environment, including the ability to control others' behaviors. This, coupled with the lack of any pre-existing personal relationships amongst them and the minimal amount of imposed formal structural hierarchy, creates an ideal setting for a study on the emergence of informal status hierarchies and peer control.

The midshipmen are trained to become highly-ranked naval officers (i.e. senior/flag officers) within this knowledge-intensive organization. In the first year, midshipmen's military and personal competencies are developed through their professional training. The program begins with a four month period of military training or "basic officer training," emphasizing mainly physical and tactical development. The next six months shifts to providing academic education on military science, strategic studies, and in their chosen military specialty. Midshipmen participate in extensive personal socializing throughout the entire first year, which is facilitated by numerous social activities (e.g., sport events, hazing, and galas). To ensure rapid socialization, the midshipmen are subjected to a tight and intensive schedule, and are limited in leisure time, space, and privacy (Moelker & Richardson, 2002). This also makes the interpersonal monitoring underlying peer control especially pervasive in this setting.

Laymen often assume that tasks, roles, norms and rules are strictly enforced in a top-down manner from the higher organizational ranks in military settings, which might seem at odds with the emergent character of a peer control system. However, while much of the learning in a military academy involves formal training, great emphasis is placed on learning informally through everyday peer interaction (Moelker & Richardson, 2002). It is the midshipmen themselves that must translate abstract military values such as “discipline” and “perseverance” into daily norms and behaviors. Indeed, the informal norms and rules within a military academy can be so strong that they may even supersede formal regulations, which can sometimes be dysfunctional for the academy (Dornbusch, 1955).

Longitudinal data were collected at three points in time by means of a web survey. The survey invitation was directed to all 94 first year midshipmen and included the study’s purpose, a guarantee of confidentiality, and an electronic questionnaire. The same questionnaire items were administered across all three data collections. The initial wave was collected during the first period of their training in October 2006, immediately after the midshipmen had been at sea for a three week military exercise (response rate, 100%). The second wave was collected in February 2007, during the second week of the second part of their training (response rate 82%). The third wave was collected in June 2007, at the end of the first academic year (response rate 72%). By the time the second wave was completed, four midshipmen had left the academy; nine more midshipmen left by the time the third wave data collection was completed. Thus, the total turnover rate for this first year cohort was 14% (response rates above based on those remaining). Because of the number of midshipmen who left and the dropping response rate, we restrict much of our hypothesis testing to the first two time periods. The sample consists mainly of males (86%) averaging 21.5 years of age; 65% of the midshipmen specialized in fleet operations and 35% as marines.

Variables

Informal peer control. We defined *informal peer control* as an attempt on one person's part (the controller or sender) to change another person's behavior (the target or receiver) through a direct dyadic request (Black, 1984; Wittek et al., 2003). To capture this, each respondent was presented a complete roster of all midshipmen in the cohort under investigation and asked to answer the following item based on Wittek's (1999) concept of direct control: "There can be situations wherein you direct or correct a fellow midshipman calling them into account. Please check off the midshipmen whom you at least once have asked to change his behavior/attitude the last three months" (translated from Dutch). The use of single-items to capture a network relation is common practice in network research and formulating single-items in a specific and concrete manner is both reliable and valid (Freeman, Romney, & Freeman, 1987; Wanous et al., 1997).

The peer control data are represented in a square 94x94 person-by-person matrix in which cells are coded '1' if a person informally attempts to control another person and '0' if a person does not attempt to control another person. The matrix rows represent the focal person's number of individuals they are attempting to control (sender) and the columns represent the number of individuals attempting to control the targeted person (receiver). These dyadic data were aggregated to individual (node) level data to test some of the hypotheses. We calculated Freeman's outdegree and indegree centrality (Freeman, 1979): Control outdegree is the sum of an individual sender's *control attempts*, which is the extent to which an individual attempts to control other members of the organization; control indegree is the sum of incoming peer control attempts, which is the extent to which a receiving individual is *targeted for control* by other organization members.⁷

Competence-based status. Competence status was collected as sociometric ratings data. Each respondent was presented with the following roster item: "Please grade the following midshipmen on their level of competence as future officers." They were primed

with a list of 20 core competencies previously identified as essential for midshipmen (e.g., analytical potential, resilience, discipline). Respondents rated their peers on a 10-point scale ranging from 1 = highly incompetent to 10 = highly competent.⁸ The midshipman's average peer ratings (excluding self-ratings) represent each individual's *competence status* at each of the three data collection time points. These average ratings were multiplied by 10 in order to eliminate non-integers in the longitudinal SIENA model and the ERGMs (see below).

Affect-based status. Affect status is someone's degree of acceptance and social respect within a group and is often operationalized as having many positive expressive ties or friendship nominations within the group, which signals status conferrals (e.g., Bingham, Oldroyd, Thompson, Bednar & Bunderson, 2013; De Jong, et al., 2014). However, having few friends does not necessarily reflect a person's social rejection (Peery, 1979), which we captured more directly by collecting negative affect tie nominations (Bonacich & Lloyd, 2004; Coie et al., 1982; Huitsing & Veenstra, 2012; Labianca & Brass, 2006; Carboni & Casciaro, 2016). These positive and negative sociometric status operationalizations were treated separately in our empirical analyses. They were constructed from the following single roster item (Van de Bunt, van Duijn, & Snijders, 1999): "Please indicate which of the following definitions characterizes your relationship with the midshipmen mentioned below." The response consisted of four mutually-exclusive categories: friction, neutral, friendly and friendship. An interpersonal affect matrix was assembled for each of the three time periods.

Positive affect-based status. We extracted the category 'friendship' from the interpersonal affect matrix described above and formed a dichotomous, asymmetric friendship tie matrix in which a cell has value '1' if a person considers another person to be a friend, and value '0' if not. We then created a nodal level measure of Freeman's indegree centrality (Freeman, 1979) by summing the number of incoming positive peer nominations, which represents a person's *positive affect status*.

Negative affect-based status degradations. Using the same interpersonal affect matrix described above, we then extracted the category ‘friction’ and formed a dichotomous negative tie matrix in which a cell has value ‘1’ if a person considers their relationship with the other person to involve friction and value ‘0’ if not. We again summed the incoming negative peer nominations to create a nodal level measure of Freeman’s (1979) indegree centrality. Higher *negative status degradations* is calculated as having more incoming relationships characterized by friction. Note that having more status degradations in this network should be detrimental to the subject.

Turnover. We created a dichotomous variable representing whether a person left the program during the study period (after *t1* and prior to *t3*). All of the individuals who quit the program did so voluntarily and none was formally discharged on the basis of incompetence. In addition, it might have been possible that some turnover was based on non-social reasons, such as physical injuries. However, we followed up the following year and none of the midshipmen that left returned to the academy, suggesting that they had left the program permanently and not simply for a year of physical rehabilitation.

Control variables. We controlled for three variables that could affect sociometric status or informal peer control: *sex* (female = 0, male = 1), *age* (in years), and *military specialization* (fleet = 0, marines = 1). We also controlled for dyadic and network structural effects such as reciprocity and transitivity (see below).

Analyses

Three types of analyses were used to test the hypotheses. First, we applied a cross-sectional analysis within the initial time period (*t1*) to assess how an individual’s sociometric status was related to either attempting to control others or being the target of others’ control (Hypotheses 1 to 4). Our aim is to model the presence or absence of a control attempt tie based on individual characteristics of the controller and the control target. We could not rely

on a standard logistic regression approach to explain the presence or absence of control attempts between two actors because network data inherently violate the assumptions of observational independence. Instead, we used Exponential Random Graph Models (ERGMs) with status, sex, age and military specialization as covariates (Lusher, Koskinen & Robins, 2013). The parameters in the ERG model can be interpreted in a similar manner to a logistic regression model, but where the interdependence of the network relations between the midshipmen (i.e. dyads) within this organizational network is accounted for by including effects such as reciprocity, transitivity and isolate effects. We included parameters to test whether individual attributes like members' sociometric status affected whether they were likely to become controllers ("senders" in ERGM terminology) or control targets ("receivers"). We computed ERG models using the MPNet statistical package (Wang, Robins, & Pattison, 2009).

We next conducted longitudinal analyses employing stochastic actor-based models (RSIENA version 1.1-289) as proposed by Snijders (1995, 1996, 2001, 2005) to assess how informal control attempts influence individual status positions over time (Ripley, Snijders, Boda, Voros, & Preciado, 2016). This method is used to capture and make inferences on state changes (based on Markov chain models) within networks and individual variables. The changes in the network of control attempts and in personal characteristics (sociometric status) between consecutive observed time-points are considered the result of a series of consecutive, but unobserved mini-steps. Each step considers a possible change in a network tie for a selected actor or a change in an individual characteristic. The parameters for the SIENA model represent the forces in these mini-steps that would make it most likely to move between consecutive observed time-points. In our case, we are trying to predict whether one organizational member controls another, whether a positive or negative tie develops between the individuals, or whether there is a state change in their competence evaluations of each

other over the study period. The method's major strength is in separating the potential dual influence between networks and individual variables across time. Thus, we can test whether sociometric status leads to control attempts over group members (Hypotheses 1 to 4) while controlling for the alternative causal explanation that control attempts early in the group's life lead to later sociometric status change. We refer the reader to Snijders, Steglich, and Schweinberger (2007) and Steglich, Snijders, and Pearson (2010) for an in-depth mathematical model discussion. Finally, Hypothesis 5 was tested through logistic regression using the member's sociometric status at time 1 to predict their subsequent turnover from the program. Table I provides an overview of the variables and analyses testing each hypothesis.

Insert Table I about here

RESULTS

Descriptive Statistics and Cross-Sectional Results for Hypotheses 1 to 4

Table II shows the means, standard deviations and correlations of all variables at the individual level of analysis within and across time points 1 and 2. Controlling behavior declines over the year from a mean number of 7.59 other people controlling a person (SD = 6.72) at $t1$, to 4.20 (SD = 4.73) at $t2$, to 3.85 (SD = 4.49) at $t3$, as expected given that controlling will be most critical in the early norm-forming stages of the group's life. This is also due in part to the network becoming smaller because of attrition and turnover. Average competence ratings increase over the year (from 62.6 to 65.4 to 65.2) and their standard deviations drop (7.0 to 7.1 to 5.8), both of which we would expect if the group's peer control regime is oriented toward increasing the lowest performers' competence and driving out the lowest performers from the organization.

Insert Table II about here

There are significant correlations between the different status measures at time points 1 and 2: *competence status* and *positive affect status* are positively correlated (ranging between 0.44, $p < 0.01$ and 0.48, $p < 0.01$), *competence status* and *negative status degradations* are negatively correlated (ranging between -0.17, $p > 0.05$ and -0.31, $p < 0.01$), as are *positive affect status* and *negative status degradations* (ranging between -0.31, $p < 0.01$ and -0.36, $p < 0.01$). As expected, the correlations among the three status measures are low enough to suggest that they represent three distinct status dimensions.

Finally there are some significant correlations with the control variables (*sex*, *age* and *military specialization*). Males are targeted for control by more group members than women at *t1* (0.26, $p < 0.05$). Older individuals attempt to control others more at *t1* (0.29, $p < 0.01$), are viewed as more competent at *t1* (0.32, $p < 0.01$) and *t2* (0.32, $p < 0.01$). Marines attempt to control greater numbers of targets at *t1* (0.39, $p < 0.01$), have more negative ties at *t1* (0.20, $p < 0.05$), and are viewed as more competent at all time points (ranging between 0.36 and 0.43, $p < 0.01$). Figures 1 and 2 depict the organization's peer control network at time 1.

 Insert Table III, and Figures 1 and 2 about here

Hypothesis testing. Table III shows the results of the cross-sectional ERGM analyses testing Hypotheses 1-4 during the time 1 and 2 periods. Goodness of fit (gof) statistics were satisfactory (i.e. below 2). Hypotheses 1 through 4 consider how dyadic control attempts are related to the sender's and receiver's (nodal) level status. The table is formatted as follows: Model 1a presents the competence status measures for the person attempting to control (sender) and the control target (receiver) as well as individual control variables (*sex*, *age*, *military specialization*) and structural control variables (*density*, *reciprocity*, *transitivity*, *indegree distribution*, *outdegree distribution*, and *cyclical*ity). Model 1b adds the positive affect status and negative status degradations effects to create a full model. Model 2 is the

same full model at time 2.

Recall that Hypothesis 1 argued that the higher the individual's competence-based status, the greater the number of other organization members that person attempts to control. Contrary to Hypothesis 1, Table III's Model 1a shows that competence status was not significantly related to sending control ties at time 1 (0.004). However, Model 1a does not account for positive status and negative status degradation effects, which are then added in Model 1b. Once these were added, a sender's competence status was negatively and significantly related to the number of individuals they were attempting to control at time 1 (-0.01), which was opposite to what was predicted in Hypothesis 1.

Hypotheses 2a and 2b argued that the higher the individual's positive affect-based status and the lower that individual's negative status degradations, the greater the number of other organization members that person attempts to control. Positive affect status was not significantly related to attempting to control others at time 1 (0.012). Model 1b reveals, however, a significant sender effect for negative status degradations (-0.017). This corroborates Hypothesis 2b, indicating that the more incoming negative ties a person has at time 1 (and hence the more negative status degradations to which they are subject), the fewer the number of other organizational members s/he is attempting to control at time 1.

Hypothesis 3 argued that the higher an individual's competence-based status the fewer the number of other organization members will target that individual for control, and the results in Models 1a (-0.028) and Models 1b (-0.019) corroborate this, without regard to whether we control for positive affect status or negative status degradations.

Finally, Hypotheses 4a and 4b argued that the higher an individual's positive affect status and the lower the negative status degradations, the fewer the number of other organization members will target that individual for control. Table III's Model 1b reveals that individuals with more negative ties (status degradations) are targeted for control by a

significantly greater number of others (0.050). Having more friends (positive affect status) was not significantly related to the number of others targeting that person for control (-0.007).

Besides the standard structural and individual attributes based control variables, we also included dyadic effects for the three network relations on which status is based in order to ensure that the status effect found in the results is not due to a simple dyadic relational process, but truly the result of the overall/general status in the group. Model 1b shows that individuals are less likely to control specific other members if they rate the other high on competence (-0.15). However, we also find that individuals are more likely to control those other members who they consider a friend (0.31), as well as those other members with whom they claim to have a negative, frictional relationship (1.14).

Results After Time 1

Given the results that we found at time 1, we explored whether sociometric status continued to lead to peer control attempts at a later stage. Table III's Model 2 provides the same full model for time 2. As in the initial period, those high in negative status degradations are targeted more for control by others (.085), while those low in negative status degradations target greater numbers of others (-.043). Positive affect status remains irrelevant, both for sending (0.023) and receiving (0.011). Again contrary to our hypothesis, lower competence individuals continue to attempt to control greater numbers of others (-0.024). By this second time period, as the overall mean for competence is increasing in the group, we now find that competent people are being targeted at the same rate as less competent colleagues (0.001).

Similar to time 1, at a dyadic level individuals are less likely to control specific other members if they rate the other high on competence (-0.11) and more likely to control other members who they claim to have a negative, frictional relationship with (1.44). We then conducted a supplementary longitudinal analysis employing SIENA to understand changes from time 1 to time 2. This allowed us to investigate how status changes could influence

future control behavior while simultaneously accounting for the possibility that there is mutual causation or “dual influence” – that the controlling behavior itself might lead to sociometric status changes (Steglich et al., 2010). Table IV presents the results.^{9, 10}

 Insert Table IV about here

We tested for the possible reverse causal mechanism that control attempts might be used as status signals or dominance displays in an attempt to gain subsequent sociometric status over time. We might expect that the greater the number of other organization members an individual attempts to control, the higher his or her sociometric status would become at a later time point in the group’s lifespan. Results show that no significant effects were found for any of the status dimensions (competence, positive or negative status) either for the number of individuals one is attempting to control (-0.03, 0.01, 0.01) or for the number of individuals that are targeting the individual (0.00, -0.05, 0.00). This suggests that interpersonal peer control is not a useful status signal, as might be expected from qualitative descriptions in control theory (e.g., Barker, 1993) or from descriptions of status games at the interorganizational level of network analysis (e.g., Podolny, 2008).

As with the cross-sectional ERGM analyses at time 1 and time 2, we do find that control attempts are following status. Competence status is negatively related to control attempts toward more people (-0.04, contrary to H1) and that those higher in negative status degradations are less likely to develop new control attempt ties to others (-0.08, consistent with H2b). The positive and significant sender effect for positive affect status in Table IV (0.06) suggests that higher positive status individuals are more likely to develop control attempts towards others over time. This suggests support for Hypothesis 2a in the longitudinal analysis, although we did not find this effect in the cross-sectional ERGMs. There were no significant receiver effects in the SIENA model, suggesting that none of these

three types of status affected whether someone emerged as a greater target for control by others over time. These results partially contradict the ERGM results, but this is likely due to the fact that the SIENA model is examining changes over time while the ERGM model is focused on the significance of a state or level at a particular time point. In addition, similar to the ERGM results, the SIENA model shows that individuals are more likely to initiate control ties to members who they have a friendship relation with (0.29), as well as those who they have a negative, frictional relationship with (0.57). However, the dyadic evaluation of competence did not impact their tendency to build control relations within that dyad.

Finally, Hypothesis 5 argued that the more organizational members that were targeting an individual for control, the greater the likelihood that the targeted individual would eventually leave the organization. Table V's logistic regression results in Model 2 confirm H5 (0.09; $p < 0.05$). Recall as well that we followed up with the organization a year later, and none of these individuals returned to attempt the program again. Despite being elite recruits, they were lost to the organization for good. We conducted post hoc analyses to understand under what circumstances individuals being controlled chose to leave the program. If the individual was involved in more asymmetric control relationships during the first time point (that is, they were being controlled, but they weren't controlling those individuals in return), they were more likely to leave (Table V, Model 3; 0.09, $p < 0.10$). We further examined whether being controlled by someone who also viewed you as a negative, frictional tie increased the likelihood of the target individual leaving significantly, and it did (Model 4; 0.25, $p < 0.05$). This was particularly so if those negative ties were associated with asymmetric control relationships – being targeted for control by people who felt you were a negative tie, and not reciprocating those control attempts, was significantly more likely to lead to turnover from the organization (Model 5; 0.37, $p < 0.05$). This suggests that the target might have felt powerless to retaliate and perhaps felt more like a victim.

 Insert Table V about here

DISCUSSION AND CONCLUSION

Our study's main contribution is to elaborate organizational control theory (Sitkin, et al., 2010) by showing how direct informal peer control attempts are related to the informal hierarchical structure in an organization, specifically the sociometric status ordering of individuals across a number of different status dimensions. Our results suggest that peer control is not an egalitarian process where every organizational member has equal motivation to attempt to control every other member's behavior, even in an organization with minimal amounts of formal structural hierarchy. Rather, some group members have greater or lesser motivation to attempt to control others owing to their position in the informal status hierarchy, which is intersubjectively formed through peer perceptions. We specifically find that affect-based status issues are critical in determining the motivation to engage in peer control, as well as who is targeted for control. Being targeted for control by many others also has significant implications in an organizational setting as it leads individuals to exit the organization, particularly when these control attempts are occurring within the context of negative ties, suggesting that there is a dark side to these peer control regimes.

Drilling deeper into the relationship between sociometric status and control, we found evidence that being a control target (receiving effects) is significantly predicted by being high in negative status degradations (i.e., being disliked by many others) and being low in competence-based status (i.e., being widely viewed as incompetent). We failed to find a significant effect for positive affect status (i.e., being a friend of many others) on being a control target while controlling for the other types of status. Comparing this with the significant effect from negative status degradations seems to suggest that avoiding being disliked is a better strategy to escape control attempts by others than is becoming popular

among friends. These results mirror recent work that finds that avoiding being disliked is also more likely to help one escape being negatively gossiped about, which is a form of indirect peer control (Ellwardt et al., 2012). This further corroborates a negative asymmetry in relationships that has been theorized to occur in other types of social networks in organizations (Labianca & Brass, 2006).

The results for attempting to control others (sending effects) were less clearly following the status hierarchy as we had predicted. The clearest finding was that being subject to greater negative status degradations from others (i.e., being disliked by greater numbers of others) made it likely the individual would attempt to control fewer others, as we expected (H2b). That competence-sender parameters were only significant when controlling for affect-based status concerns (Table III, Model 1b) suggests that affect-based relational concerns might be the predominant concerns in determining control attempts. Further, similar to the results on control targets, it is again avoiding the negative status degradations that is related to control attempts, while accumulating greater positive affect status is unrelated to these behaviors.

We also came across results that were contrary to our H1 expectations in that it was those *higher* in competence-based status that were attempting to control *fewer* others. Not only were the lower competence individuals engaging in control attempts on a greater number of others early in the life of the group, but this effect persisted and, according to our longitudinal results, it grew stronger from time 1 to time 2. Coupled with the findings that those higher in competence-based status were less likely to be targeted for control, this suggests that there might be an attempt on the part of lower-competence individuals to monitor each other's behavior and negotiate a set of behavioral norms. This can be contrasted to an alternative peer control regime where the more-competent are monitoring and enforcing a set of behavioral norms on the less-competent. In combination with the results that friends

were more likely to control each other, it suggests that there is also a bright side to these peer control regimes which is supportive and can help lower-competence organizational members work together to accomplish their goals.

Overall, this study's results point to the possibility that there is not one informal status hierarchy in a group, but rather multiple, simultaneous hierarchies based around competence and around affect (cf., Fiske, et al., 2007; Magee & Galinsky, 2008), including around negative affect. Indeed, the fact that we found separate effects and low intercorrelations for these different types of sociometric status suggests that they are distinct and not derived from a common underlying status construct. They also suggest strongly that interpersonal status studies moving forward should include both positive and negative status concerns, rather than focus solely on competence or "quality" concerns, particularly when studying peer control.

Our study is important for organizational researchers and managers because these self-managing systems are often used in organizational settings where extremely valuable knowledge work is being conducted. Our results suggest that while some control attempts are being directed at individuals who might not be following "best practices," other control attempts are being directed at individuals that are unpopular, without regard to their competence. These latter type of control attempts might actually harm the group's task functioning. It is important for managers to have an understanding of where the friction is occurring in a group if they wish to attempt to intervene to stop the type of mobbing behavior that can lead to turnover. This is especially important in knowledge-based organizations, where the loss of individual members is acutely detrimental and expensive from the organization's perspective.

Limitations and Future Research

Our setting was exceptional because this group lacked much by way of formal structure among the midshipmen, particularly in the early stages of the organization's

existence when sociometric status was first emerging, and because there was no informal social hierarchy prior to commencing the program. While this was useful to study the emergence of a peer control system, in most organizational settings individuals derive status from prior jobs or have a current function in which status is manifested. Thus, the relationship between informal peer control and status hierarchy in many organizations may be more complex than what we found here because it is embedded in broader, more intrusive formal control systems operated by the organization (Loughry, 2010). Future research should therefore take into account prior or existing status hierarchies and explore how informal peer control affects the development of norms and new status orderings when a peer control system is being implemented.

We also asked only about individuals' attempts to control other individuals without collecting more fine-grained data on those control attempts. We did not know the quantity, quality or content of the attempts. This was a tradeoff necessitated by the difficulty of attempting to collect network data over three time points without a severe drop-off in response rate, which meant needing to use a few, short questions, versus having more and longer questions. It would be interesting to know, for example, whether being controlled by one individual intensively as compared to being controlled a little by a wider variety of colleagues affects future status in terms of either competence or affect. The quality and content of control might also matter. Research has shown that differences exist in the way individuals control others. For example, high-status individuals use less aggressive control strategies than low-status people (Stahelski & Paynton, 1995) and friends control each other in a more direct and assertive manner (Wittek, 1999). Thus, future research can attempt to distinguish how control tactics affect the controller's or the target's future status. We might expect that controlling in a demeaning or aggressive manner might negatively affect the controller's future affect-based status, particularly if it results in generating negative ties. On

the other hand, controlling in a more constructive manner might increase both the target's and the controller's future status. These tactics might also affect the target's reaction to control attempts, including whether the tactics are viewed as reasonable, and whether they actually accomplish their intended purpose of changing behavior.

It might also be useful for future researchers to consider what type of behavior is being controlled. For example, were individuals attempting to control others either because they were viewed as not acting in a pro-social manner (e.g., because they weren't socializing informally enough with other members of the group) or because they were not viewed as putting enough effort in their tasks? Perhaps different types of norms are enforced within different status hierarchies (Berger, Ridgeway, Fisek, & Norman, 1998), i.e. sanctioning the lack of pro-social behavior may have detrimental consequences for the target's positioning in the affect-based social hierarchy, whereas sanctioning a lack of effort may affect the target's position in the competence-based social hierarchy. This might help to better explain why lower-competence individuals were more active controllers in our study. Future research should, therefore, explore informal peer control within different norm "realms" and how this affects multiple status hierarchies.

Furthermore, our paper is limited to direct, dyadic peer control. There has also been interest in triadic informal peer control, including third-party intervention or bystander effects (Chekroun & Brauer, 2002, 2004; Ridgeway, 1987). Being a bystander to control attempts provides the third party valuable information about the proper behavior from the group's perspective without being directly involved in the control exchange (Bandura, 1977). In addition, indirect control may also occur by asking a third person to speak about the deviant behavior or by gossiping about the deviant person in their absence (Burt, 2005; Ellwardt, et al., 2012; Grosser, Lopez-Kidwell, & Labianca, 2010; Krackhardt, 1999; Wittek, 1999). Thus, we encourage future research examining both dyadic and triadic informal control.

Finally, our study adopted the perspective that an organization only has a single hierarchy for each status dimension, disregarding the possibility that the group as a whole may consist of subgroups and potential sub-hierarchies. Acknowledging that status hierarchies might emerge within subgroups and that there might be a status hierarchy *between* groups suggests that extending our study of informal control to multilevel research involving individuals and dyads embedded in inter-group relations might allow us to better understand status processes in organizations (Bettencourt, Dorr, Charlton, & Hume, 2001; Kalkhoff & Barnum, 2000; Oldmeadow & Fiske, 2010; Pearce, 2011).

Conclusion

The organizational sciences literature has generally viewed peer control as a Janus-faced concept holding conflicting positive and negative consequences. The bright side recognizes that regulating and managing the attitudes and behaviors of members can help an organization achieve its goals, and peer control avoids some of the negative consequences associated with other forms of organizational control, such as employee dissatisfaction and alienation. It democratizes the process of control away from top management and rule-based hierarchical bureaucratic structures and empowers organizational members to negotiate among themselves the norms and values they will enforce (Ouchi, 1979; Tannenbaum, 1968). However, the dark side often highlighted by critical researchers recognizes that peer control can be, in some ways, more stifling and pervasive than other forms of control because the group has a more Panopticon-like gaze than any single manager and there isn't necessarily a formal system of rules and bureaucracy to protect individuals from group decisions (e.g., Barker, 1993; Sewell, 1998).

Our study's results suggest that these contrasting aspects of peer control operate simultaneously within an organization as the control regime emerges and evolves. While this organization had little formal hierarchical bureaucratic structure among the midshipmen to

enforce control, an informal hierarchical structure emerged early in the life of the group and proved remarkably stable throughout the life of the group. The informal status hierarchy determined how actively individuals attempted to assert interpersonal control over other organization members. There was some evidence for the bright side of control – the control attempts were directed toward less competent members and were often initiated by less competent members; in addition, the average competence within the organization increased over time. This suggests a constructive attempt to negotiate norms and standards through controlling that assisted the entire group to reach its goals of developing each other into elite military officers. However, there was also evidence for the dark side of control – the control attempts were significantly more likely to be targeted at individuals who were broadly disliked, often without regard to their competence level. These individuals appeared to have been mobbed or turned into the group's black sheep (e.g., Marques & Paez, 1994; Shallcross, Sheehan, & Ramsay, 2008). As a consequence, many of those targeted individuals were driven out of the organization, thus depriving the organization as a whole of some of their finest potential contributors. Understanding how status and control evolve in organizations, and how to maximize the positive aspects of control while minimizing the negative aspects is, thus, an important continuing goal for organizational researchers.

Notes

¹ Informal peer-to-peer behavioral control can either be applied directly, with one organizational member disciplining another (e.g., Wittek, 1999), or indirectly through, for example, spreading negative gossip to third parties about the offending individual (e.g., Ellwardt et al., 2012; Grosser et al., 2010; Lazega, 2000). We focus here on direct informal peer control (Loughry, 2010).

² Note that status is different from the two related concepts of power and status characteristics (cf., Magee & Galinsky, 2008). Power is defined as asymmetric control over valued resources in social relations. In other words, person A has power over person B if person A has resources B needs or wants (Emerson, 1962). For a clear comparison with status, we refer to Magee and Galinsky (p. 363-264): "...power is based in resources, which belong to an actor, whereas status exists entirely in the eyes of others. [...] Power, more than status,

therefore is a property of the actor. Status, more than power, is a property of co-actors and observers.”

Furthermore, as noted by Bunderson (2003), status is sometimes confused with status characteristics, which are attributes of individuals that are *potential indicators* of status. For instance, expertise is often seen as status, but expertise is not status unless it is translated into positive evaluations by others. Expertise is a basis for status, but not status itself.

³ While the vast majority of network-based research has focused on one’s affect-based status purely on the basis of the number of positive nominations or friendships a person receives from others (e.g., Faris & Felmlee, 2011), theoretical arguments around negative asymmetry have been made suggesting that minimizing negative nominations from others might be more consequential for a person’s popularity and status within a group (Labianca & Brass, 2006). Indeed, the fact that politicians deciding whether to run for office consult both their positive and negative reputations via polling, and that the negative reputation often plays more of a role in determining whether a campaign is launched, suggests that these negative asymmetries exist in the social world (Fowler & McClure, 1989).

⁴ The final component of status is voluntary deference (Anderson, et al., 2012; Chung et al., 2000; Podolny et al., 1996); this is often described as people affording higher status to another individual by voluntarily complying with that individual’s wishes, desires, and suggestions. The control attempts in our study setting reflect the pre-deference stage as the control attempts help to define what the other member wants to see done.

⁵ Note that this hypothesis is not uncontroversial; after all, direct peer control is an attempt from one member to alter another member’s behavior. These attempts can be viewed as frustrating one’s autonomy and could invoke a resentful backlash (cf., Lazega & Krackhardt, 2000). Thus, some group members might attempt to maintain high positive affective status by simply avoiding control attempts altogether, in which case we should find the opposite relationship (i.e., the higher an individual’s positive affect-based status, the *fewer* the number of other organization members that person attempts to control).

⁶ Although we do not hypothesize this formally, there is a plausible competing hypothesis that individuals with negative status degradations experience social rejection and might then lash out in retaliation by attempting to control others. One possible reason to do this is to use these control attempts as a means of reasserting one’s superior status in the face of potential status degradation through rejection (Leary, Twenge, Quinlivan, 2006).

⁷ Initially, we also used eigenvector centrality to operationalize status (Bonacich, 1987). This measure, however, correlated 0.9 with indegree centrality. We, thus, chose indegree centrality to present here because of its theoretical and expositional simplicity, though the pattern of results remains essentially the same with

eigenvector centrality.

⁸ Previous research has shown that peer evaluations are reliable indicators of performance because peers are able to observe each other's task behaviors and interpersonal behaviors, making them the single best informed sources for performance evaluations (Cleveland, Murphy, & Williams, 1989; Denisi & Stevens, 1981).

⁹ The SIENA model was fitted without an isolates parameter, which was suggested by a reviewer. The model would not converge with this parameter included and therefore the results shown exclude this parameter. However, we were able to improve the goodness of fit by including the "indegree 2 and more" effect. The isolates parameter would be unlikely to affect the casual inferences we made regarding the influence or selection parameters in our model and are largely consistent with the results from the ERGMs.

¹⁰ Between $t1$ and $t2$ only 13% of the control attempts being observed at either $t1$ or $t2$ changed – either from being present to being absent, or from being absent to being present. This is referred to as the Jaccard coefficient. A Jaccard coefficient of 0 means there is maximum change between time periods while 1 means maximum stability. Hence, we observed a low amount of change between $t1$ and $t2$. The t-ratio's for all statistics for both SIENA models were below 0.01, indicating that the models converged.

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TABLE I
Summary of Variables and Analyses

Hypothesis number	Dependent variable	Independent variable	Type of analysis
1	Control attempts (outdegree)	Sender's competence status	Cross-sectional ERGM/ Longitudinal SIENA
2a	Control attempts (outdegree)	Sender's positive affect status	Cross-sectional ERGM/ Longitudinal SIENA
2b	Control attempts (outdegree)	Sender's negative status degradations	Cross-sectional ERGM/ Longitudinal SIENA
3	Target for control (indegree)	Receiver's competence status	Cross-sectional ERGM/ Longitudinal SIENA
4a	Target for control (indegree)	Receiver's positive affect status	Cross-sectional ERGM/ Longitudinal SIENA
4b	Target for control (indegree)	Receiver's negative status degradations	Cross-sectional ERGM/ Longitudinal SIENA
5	Future turnover	Target for control (indegree)	Logistic regression

TABLE II
Means, Standard Deviations and Pearson's Correlations^a

		Mean	s.d	N	1	2	3	4
1	Control attempts (outdegree) t1	7.59	7.94	94				
2	Control attempts (outdegree) t2	5.11	5.46	74	.18			
3	Target for control (indegree) t1	7.59	6.72	94	.15	.11		
4	Target for control (indegree) t2	4.20	4.73	90	.16	.16	.69**	
5	Competence-based status t1	62.63	6.98	94	.20†	.07	-.39**	-.18†
6	Competence-based status t2	65.36	7.10	90	.09	.03	-.46**	-.42**
7	Positive affect status t1	9.86	4.46	94	.00	.23*	-.36**	-.17
8	Positive affect status t2	9.67	3.80	90	-.03	.14	-.35**	-.30**
9	Negative status degradations t1	3.69	3.97	94	.24*	.02	.60**	.39**
10	Negative status degradations t2	2.98	3.64	90	.23*	.02	.43**	.56**
11	Sex (<i>male=1</i>)	.86		94	.12	.11	.26*	.16
12	Age	21.47	3.36	94	.29**	.08	-.05	-.10
13	Military specialization (<i>marines=1</i>)	.35		94	.39**	.00	.12	.04
14	Turnover by time 2 (<i>left = 1</i>)	.04		94	-.10	/	.12	/
15	Turnover by time 2 or 3 (<i>left = 1</i>)	.14		94	-.11	-.02	.21*	.19†

TABLE II (cont.)^a

	5	6	7	8	9	10	11	12	13	14
1 Control attempts (outdegree) t1										
2 Control attempts (outdegree) t2										
3 Target for control (indegree) t1										
4 Target for control (indegree) t2										
5 Competence-based status t1										
6 Competence-based status t2	.84**									
7 Positive affect status t1	.48**	.47**								
8 Positive affect status t2	.29**	.44**	.64**							
9 Negative status degradations t1	-.17	-.12	-.31**	-.15						
10 Negative status degradations t2	-.02	-.31**	-.25*	-.36**	.60**					
11 Sex (<i>male=1</i>)	.14	.17	-.07	.05	.17†	.02				
12 Age	.32**	.32**	.01	-.03	.03	.08	.17			
13 Military specialization (<i>marines=1</i>)	.43**	.36**	-.17†	-.09	.20*	.13	.29**	.22*		
14 Turnover by time 2 (<i>left = 1</i>)	-.16	/	-.23*	/	.27**	/	.08	-.09	-.04	
15 Turnover by time 2 or 3 (<i>left = 1</i>)	-.16	-.21†	-.15	-.07	.23*	.32**	.16	-.07	.09	.53**

† $p < .10$,* $p < .05$,** $p < .01$.

TABLE III

**Results of ERGM (p*) Analysis Predicting a Sender Attempting to Control a Receiver
Based on Sociometric Status**

	Model 1a^a			Model 1b^a			Model 2^b		
Density	-3.55	0.71	*	-4.96	0.81	*	-5.15	1.18	*
Reciprocity	0.94	0.19	*	0.89	0.19	*	1.01	0.32	*
Alternating-in-star (2.00)	1.28	0.24	*	1.51	0.25	*	1.40	0.32	*
Two-out-star	0.04	0.00	*	0.04	0.00	*			
Alternating-out-star (2.00)	0.35	0.30		0.74	0.30	*	1.35	0.33	*
Sink	0.15	0.93		-0.55	0.93		-0.83	0.85	
Source	-3.06	0.94	*	-3.41	0.97	*	-2.09	0.78	*
Isolates	-1.75	1.45		-2.39	1.39		-2.70	1.14	*
Alternating transitive triad (2.00)	0.42	0.06	*	0.32	0.06	*	0.27	0.10	*
Alternating cycle (2.00)	-0.18	0.04	*	-0.15	0.04	*	-0.25	0.09	*
Gender (sender)	-1.63	0.29	*	-1.63	0.31	*	-1.05	0.42	*
Gender (receiver)	-0.96	0.26	*	-1.08	0.29	*	-0.84	0.44	
Gender (interaction)	1.90	0.33	*	1.93	0.37	*	1.52	0.52	*
Military specialization = marines (sender)	-0.46	0.09	*	-0.30	0.11	*	-0.40	0.16	*
Military specialization = marines (receiver)	-0.29	0.12	*	-0.54	0.13	*	-0.85	0.21	*
Military specialization marines (interaction)	1.24	0.17	*	1.34	0.17	*	1.87	0.32	*
Age (sender)	0.024	0.009	*	0.035	0.010	*	0.044	0.022	*
Age (receiver)	-0.004	0.011		-0.004	0.011		-0.062	0.024	*
Age (Absolute difference)	0.009	0.014		0.005	0.015		-0.033	0.029	
Competence peer-rating	-0.18	0.02	*	-0.15	0.03	*	-0.11	0.05	*
Friendship tie				0.31	0.13	*	0.14	0.19	
Negative tie				1.14	0.14	*	1.44	0.24	*
Competence-based status (sender) ^c	0.004	0.004		-0.010	0.005	*	-0.024	0.011	*
Competence-based status (receiver) ^c	-0.028	0.006	*	-0.019	0.008	*	0.001	0.013	
Positive affect status (sender)				0.012	0.008		0.023	0.014	
Positive affect status (receiver)				-0.007	0.011		0.011	0.017	
Negative status degradations (sender)				-0.017	0.007	*	-0.043	0.022	*
Negative status degradations (receiver)				0.050	0.009	*	0.085	0.021	*

^a N = 94^b N = 74^c The status measures ranged between 10-100 after multiplying the raw scores by a constant (10), which explains the small values for some of these effects.* $p < .05$

TABLE IV

Longitudinal Co-Evolution (SIENA) Analysis for Individual Sociometric Status and Control Attempts ^a

	Model 1		
	Coeff.	s.e.	
Rate of change t1-t2	30.13	4.13	*
Outdegree	-2.28	0.19	*
Reciprocity	0.55	0.22	*
Balance	-0.02	0.01	*
Geometrically weighted transitivity	0.46	0.19	*
Geometrically weighted cycle	-0.49	0.18	*
Indegree 2 and more	-2.52	1.48	
Indegree structural equivalence	-0.05	0.01	*
Friendship tie	0.29	0.12	*
Negative tie	0.57	0.18	*
Competence peer-rating	0.06	0.03	
Gender sender	-0.21	0.15	
Gender receiver	-0.24	0.14	
Same gender	0.33	0.16	*
Year sender	-0.03	0.02	*
Year receiver	0.01	0.01	
Year similarity	0.26	0.19	
Specialization sender	0.20	0.14	
Specialization receiver	0.03	0.11	
Same military specialization	0.42	0.09	*
Competence-based status (of sender)	-0.04	0.01	*
Competence-based status (of receiver)	0.01	0.01	
Positive affect status (of sender)	0.06	0.02	*
Positive affect status (of receiver)	-0.02	0.02	
Negative status degradations (of sender)	-0.08	0.03	*
Negative status degradations (of receiver)	0.00	0.01	

TABLE IV (cont.)

	Model 1		
	Coeff.	s.e.	
<i>Positive affect status as DV</i>			
Rate of change t1-t2	16.96	5.25	*
Linear shape	0.22	0.16	
Quadratic shape	-0.02	0.01	*
Sex (<i>male=1</i>)	0.28	0.17	
Age	0.01	0.02	
Military specialization (<i>marines=1</i>)	0.05	0.13	
Negative status degradations	0.04	0.03	
Competence-based status	-0.01	0.01	
Control attempts (outdegree)	0.01	0.01	
Target for control (indegree)	-0.05	0.03	
<i>Negative status degradations as DV</i>			
Rate of change t1-t2	25.36	7.57	*
Linear shape	-0.31	0.12	*
Quadratic shape	0.00	0.01	
Sex (<i>male=1</i>)	-0.13	0.13	
Age	0.00	0.02	
Military specialization (<i>marines=1</i>)	-0.17	0.13	
Positive affect status	-0.06	0.03	
Competence-based status	0.02	0.01	
Control attempts (outdegree)	0.01	0.01	
Target for control (indegree)	0.00	0.01	
<i>Competence-based status as DV</i>			
Rate of change t1-t2 ^b	24.93	6.96	*
Linear shape	0.33	0.13	*
Quadratic shape	-0.01	0.01	*
Sex (<i>male=1</i>)	0.14	0.11	
Age	-0.01	0.01	
Military specialization (<i>marines=1</i>)	0.07	0.10	
Positive affect status	0.02	0.02	
Negative status degradations	0.02	0.02	
Control attempts (outdegree)	-0.03	0.02	
Target for control (indegree)	0.00	0.01	

^a N=94^b The status measures ranged between 10-100 after multiplying the raw scores by a constant (10), which explains the high values of the rate-of-change parameters.* $p < .05$

TABLE V
Logistic Regression with Turnover as Dependent Variable ^a

	Model 1		Model 2		Model 3		Model 4		Model 5					
	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.				
Constant	-.47	2.14	-1.62	2.27	-1.58	2.26	-.77	2.22	-1.01	2.24				
Age	-0.06	0.11	-0.03	0.11	-0.04	0.11	-0.06	0.11	-0.05	0.11				
Military specialization (<i>marines=1</i>)	0.96	0.65	0.86	0.68	0.90	0.67	0.88	0.68	0.99	0.68				
Controlling others at <i>t1</i>	-0.07	0.06	-0.09	0.06	-0.07	0.06	-0.10	0.07	-0.09	0.07				
Number of people one is controlled by at <i>t1</i>			0.09	*	0.04									
Number of people one is asymmetrically controlled by					0.09	†	0.05							
Number of people one is controlled by with a negative tie							0.25	*	0.13					
Number of people one is asymmetrically controlled by with a negative tie									0.37	*	0.17			
Chi-square ^b	3.73	(3)	7.93	†	(4)	6.84	(4)	7.36	(4)	8.25	(4)			
Chi-square change ^c			4.20	*	(1)	3.11	†	(1)	3.64	†	(1)	4.53	*	(1)
-2 Log likelihood	71.82		67.62		68.71		68.19		67.30					
Cox & Snell R Square	0.039		0.081		0.070		0.075		0.084					
Nagelkerke R Square	0.070		0.146		0.127		0.136		0.152					

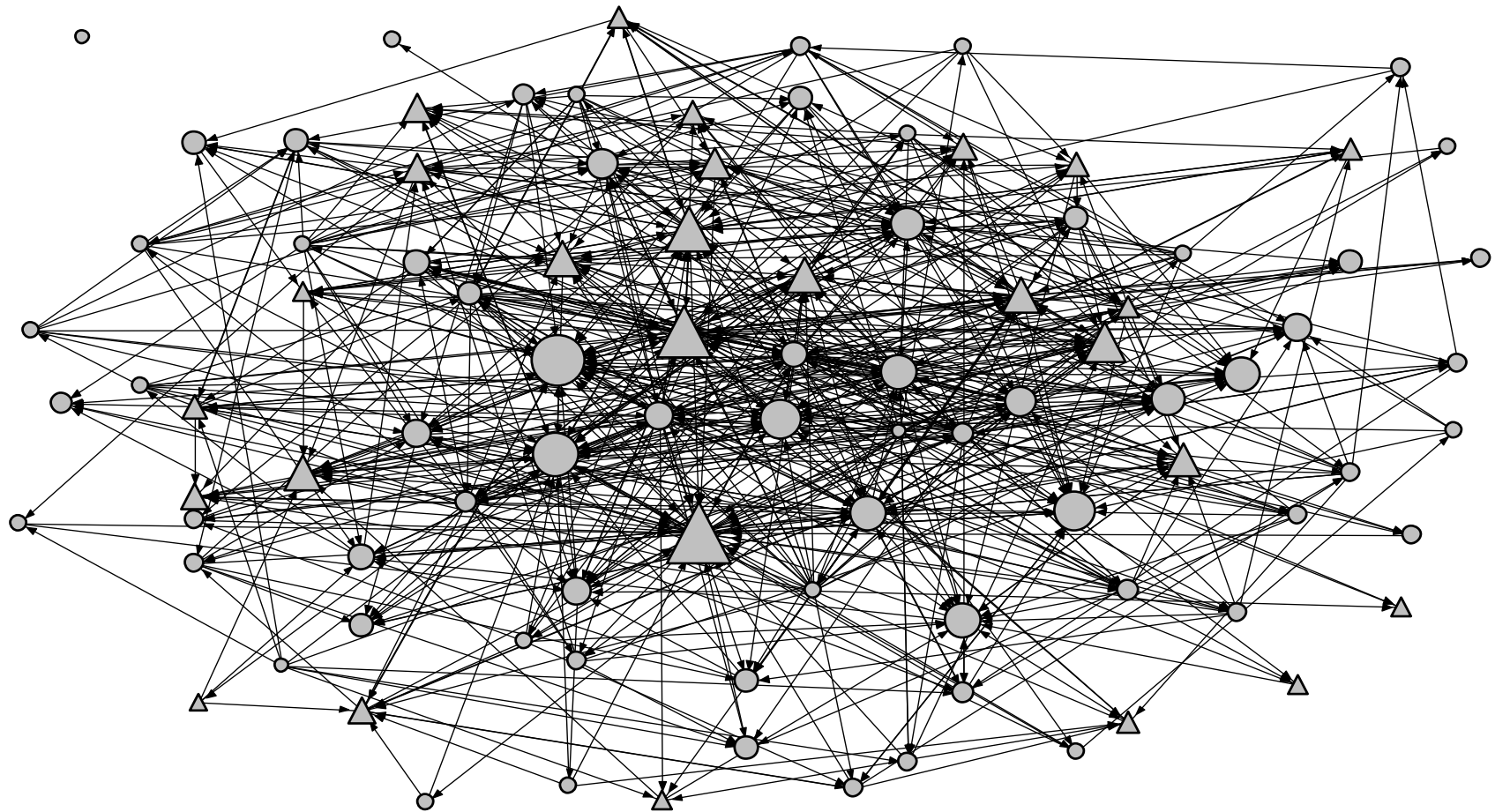
^a N=94, † $p < .10$, * $p < .05$

^b Degrees of freedom for the models can be found between brackets.

^c Significance refers to difference in chi-square of the model compared with the baseline model (Model 1). The differences in degrees of freedom compared to Model 1 are found within brackets.

FIGURE 1

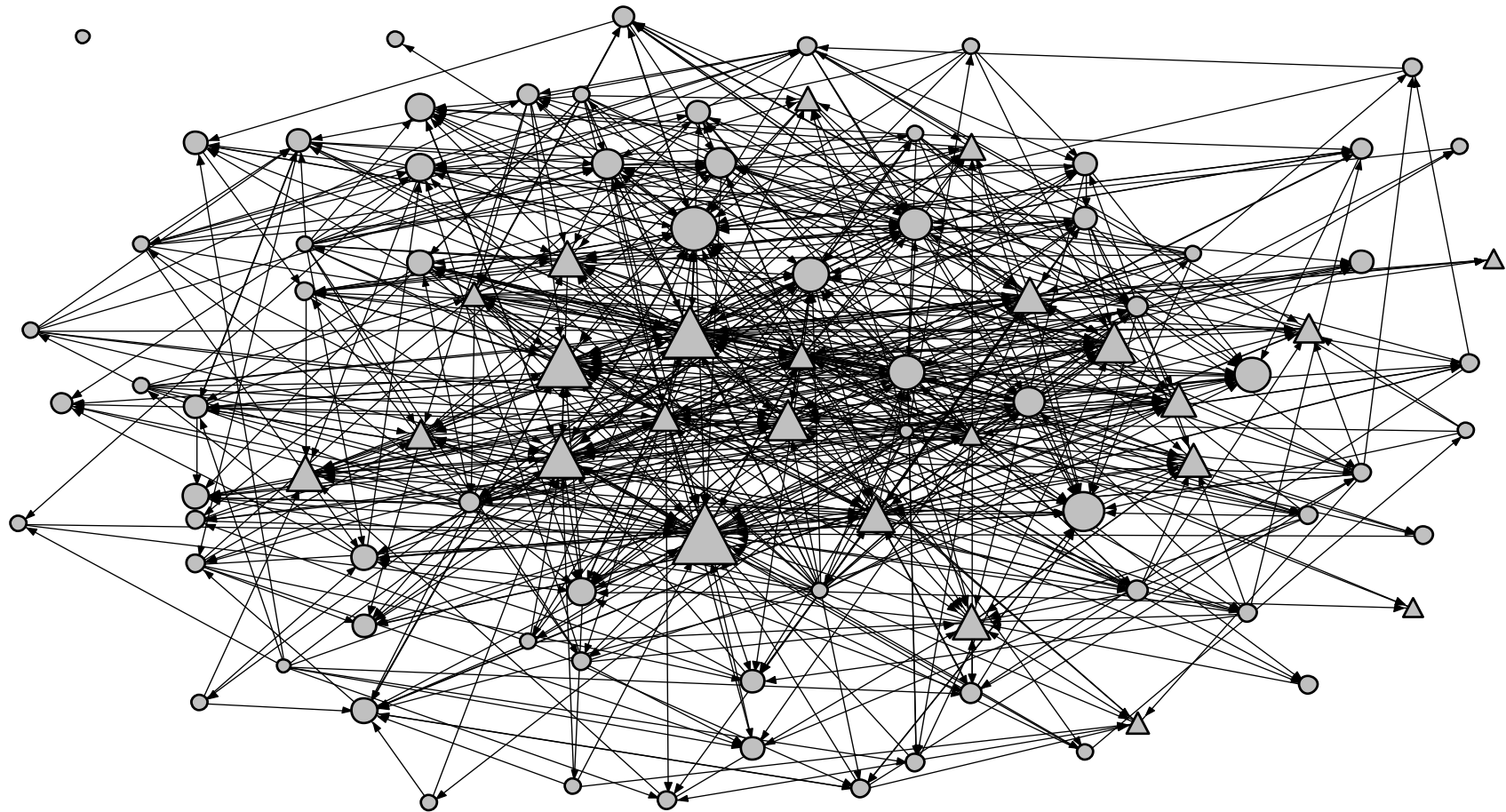
Peer Control Network and Competence-Based Status at Time 1^a



^a Nodes are individuals, ties are directed control attempts. **Node size** indicates the number of group members targeting the individual for control. **Triangular nodes** are midshipmen in the **lowest quartile with respect to competence-based status**.

FIGURE 2

Peer Control Network and Negative Status Degradations at Time 1^a



^a Nodes are individuals, ties are directed control attempts. **Node size** indicates the number of group members targeting the individual for control. **Triangular nodes** are midshipmen in the **highest quartile with respect to having incoming negative ties (relationships involving “friction”) from other members.**