



Creating the thin blue line: Social network evolution within a police academy[☆]



Patrick Doreian^{a,*}, Norman Conti^b

^a Faculty of Social Sciences, University of Ljubljana, Slovenia and Department of Sociology, University of Pittsburgh, United States

^b Department of Sociology, Duquesne University, United States

ARTICLE INFO

Article history:

Available online 25 April 2017

ABSTRACT

Whenever major schisms between police and communities come to public attention, there are always passionate calls for an increased emphasis on – and improvement of – police training. This rhetoric is so common that police leaders joke that there is no societal problem so big that it can't be fixed by better police training. Still, professional socialization in law enforcement remains an important topic with a great deal of resources being devoted to developing initiatives and augmenting existing curricula. This training comes in many forms including learning the nuts and bolts of many legal processes and acquiring the practical skills for law enforcement. However, beyond this, there is a socialization process with multiple facets including the development of solidarity and trust among a cohort of recruits. We attempt to understand the basic mechanisms of network creation in police academies as the foundation of the socialization processes within them. By focusing on these network mechanisms underlying the establishment of the 'Thin Blue Line', we offer an understanding of the underlying social processes foundational for the transmission of police culture. In short, we think the recruit network structure functions as a vehicle for cultural transmission within police academies.

© 2017 Elsevier B.V. All rights reserved.

Introduction

Within police culture, officers are expected to display common sense, exercise good judgment, take charge in crises, possess courage, as well as being formally competent in, and adherent to, the controlled use of violence and group loyalty (Lundman, 1980; Paes-Machado and Albuquerque, 2002; White, 2006). While police academies are primarily designed to teach recruits the basic mechanics of policing (i.e., knowledge of the law, departmental policy and practical skills), changes in perspective, personality, and identity over the course of police socialization have been well documented (Van Maanen, 1975; Fielding, 1984; Christie et al., 1996; Shernock, 1998; Haarr, 2005). Other, more profound, changes occur also within police academies and, subsequently, while on the job. However, the training environment has been recognized as dehumanizing and paranoia inducing (Harris, 1973; Albuquerque and Paes-Machado, 2004; Conti, 2009).

High-stress paramilitary training is the most common academy structure in the US, one revolving around a series of degradations and obedience tests (Chappell, 2008; Fielding, 1984; Little, 1990; McCreedy, 1980; McNamara, 1999; Paes-Machado and Albuquerque, 2002). This model has been described as a punitive initiation into the occupational subculture (Harris, 1973; Van Maanen, 1972) during which instructors enthusiastically embrace sacrifice, humiliation, and pain as pedagogical tools for building character (Berg, 1990; Conti and Nolan, 2005). The interaction order within police academy training requires periodic degradation ceremonies that are juxtaposed with the potential for elevation to police status.

During their training, recruits become increasingly authoritarian, conventional, moralistic, domineering, rigid and hostile towards the public (Stradling et al., 1993; Catlin and Maupin, 2004). Furthermore, progressive goals, such as eliminating racial divisions between officers have been less than successful within the training process (Conti and Doreian, 2014). Most of academy training is focused on formal policies and procedures to protect the civic bureaucracy from liability when officers fail to live up to these standards (Chappell and Lanza-Kaduce, 2009). This raises the obvious question: How is the cultural transformation of recruits possible when so much training is spent on a mind-numbing curriculum?

[☆] We appreciate greatly the comments of Neil Smelser and Esther Sales on an earlier version of this paper.

* Corresponding author.

E-mail addresses: pitpat@pitt.edu (P. Doreian), contin@duq.edu (N. Conti).

The transformation of a recruit identity into a police identity is evident in the operation of a police academy. “The police socialization process is structured so as to dismantle the personality and self-concept of a recruit and rebuild it along lines that are occupationally acceptable (Yarmey, 1990: 42).” This process entails an excision of the civilian identity in conjunction with the transmission of a demeanor, bearing, and competence befitting an idealized police officer (Fielding, 1984; Shernock, 1998). The socialization also generates an intense sense of loyalty to the occupational group along with an animosity toward civilians and administrators (Kappeler et al., 1998; Sherman, 1980). Further, training officers weave in a hidden curriculum by defining what constitutes ‘common sense’ within policing, highlighting its value, and explaining how to apply it (McNulty, 1994). An idealized sense of police character is transmitted through emphasizing obedience to authority in paramilitary dress, demeanor, and deportment, bolstered by war stories or parables told by instructors, veteran officers, and peers (Chappell and Lanza-Kaduce, 2010; Ford, 2003; Langworthy and Travis, 1999). While being socialized, recruits experience shifts in self-concept, attitude, and moral relativism paralleling the perspectives of active officers (Catlin and Maupin, 2004; Christie et al., 1996; Stradling et al., 1993). Further, this hidden curriculum promotes values contrary to the formal training and the recruits’ initial idealism, motivation, and commitment (Chappell et al., 2005; Fielding, 1984; White, 2006). The disjuncture between recruit idealism and actual training experience is significant for academy resignations (Haarr, 2005).

This element of the training closely parallels the structure of medical training where faculty and staff dramatically affect the development of student perspectives through the institution’s authoritarian structure. Every incoming recruit class enters the sort of heavily constrained social environment documented in *Boys in White* (Becker et al., 1963). Consider the following:

The environment of the first year is so structured that freshmen [medical students] are virtually isolated from everyone but their own classmates and faculty. All freshmen follow a uniform schedule and curriculum. Each student does the same thing at the same time and in the same place, except when lab sections are in different rooms. The class is together in the medical school building, except during lunch hour, from eight in the morning until five in the afternoon. Students attend few university functions; they have virtually no student government or other extracurricular activities. Since lectures are of indefinite length (there is no system of bells to keep faculty in line) and labs begin immediately afterward, students have little chance to see anyone but classmates during the day. They seldom see medical students from other classes. . . . Evenings and many hours of the weekend are filled with preparation for daily work. With the exception of brief vacations, the schedule continues without pause (Becker et al., 1963: 88–89).

This ‘forcing house’ model seems very similar to the operation of police academies. In both examples, power is used to “control the student’s activities very tightly and cause the students to act in whatever fashion they [the faculty] want” (Becker et al., 1963: 48). This deters the students from constructing independent perspectives and compels them to adopt the ideas imposed on them by the faculty. As with medical students, police recruits are largely isolated from their families during the day and those in the higher levels of their occupation.

We focus here on how a recruit class is structured and restructured because these shifts are essential for creating a group conforming to the image and identity of police officers. Given that there is a high degree of socialization taking place during the course of academy training, we ask: “How is this change

achieved?” Answering this question entails looking at the *system of social relations established in the course of the academy*. Our focus here is on the *process* of transformation, rather than the product of trained police officers. In turn, this implies using substantive knowledge regarding the formation of social relations. Since prior research demonstrates the effectiveness of police training in shaping identities, our goal is to explore the mechanisms by which this socialization is accomplished.

Substantive foundations and empirical characteristics

Environments and elements of behavior

We employ Feld’s (1981) focus theory approach to help explain the interrelationship between the recruit networks and the other aspects of the academy social structure. Feld argues “in order to explain patterns in social networks, we need not look at causes of friendship but should concentrate our attention on those aspects of the extra network social structure that systematically produce patterns in a network” (Feld, 1981: 1016).¹ This is an important foundation for our investigation and since Feld’s theory is rooted in the work of Homans, we recognize the recruit group survives within this environment through a set of adaptations that constitute its external system—formed through the interrelations between sentiment, activity, and interaction (Homans, 1950: 91). Sentiment is the group’s collective motivation (the desire to become police officers) while activity is the steps taken towards this collective goal (i.e., training). Interaction refers to the formally established work groups and channels of communication that exist within the academy (especially the chain of command and the role of the recruit while training). The paired relationships between sentiment, activity and interaction constitute an external system for a cohort of recruits as it constrains their behavior.

Recruits willingly submitted themselves to a regimented existence within a police academy to become police officers and the external system is a part of their adaptation to that environment. At the start of training, admitted recruits came together in a milieu which, in Feld’s terms, constitutes a set of foci. Having competed fiercely to enter the training, they then share a common goal of graduating. A critical design feature of police academies is that activities once purely individualistic and competitive are redefined for—and by—the recruits as cooperative. While individuals may either succeed or fail within this environment based upon individual performance, an ethos of teamwork is instilled in the recruits by the training staff.

A recruit cohort is placed in a difficult position where they are compelled to unite against a common enemy (i.e. the training staff). There are two reasons for this structure. First, recruits must be conditioned to maintain their composure under stressful circumstances with the public perceived as hostile. Second, it lays the groundwork for creating loyalty among officers. Through constant surveillance within the academy and the assaults by the training staff, a recruit cohort evolves into a highly cohesive group (Van Maanen, 1975; Conti and Doreian, 2010). In addition to establishing a united front against the staff, tightly knit peer groups can play a utilitarian role in assessing the value of the official curriculum (McCreedy, 1980; Crank, 1998; Ford, 2003). Faced by an extensive curriculum, recruits require similar guidance in prioritizing instructional materials as was observed among medical students (Becker et al., 1963: 112).

¹ Feld’s sharp distinction between ignoring causes and focusing on aspects of extra network social structure seems too extreme. The latter can form part of the reasons for the formation of social ties, as Feld later suggests.

Given the importance of peer socialization, it is necessary to have some recruits who are *more* equipped than others for these circumstances. For all large urban academies, there is an application procedure whereby a small number of recruits are selected. Three years before this class started, about 4000 people took the civil service test for the position of police officer. This was a seventy-point test where bonuses of five and ten points, respectively, were awarded to individuals who have served in the military and live in the city. This gave the urban veteran a twenty-one percent advantage on the evaluation.

We argue that this feature is critical for the basic socialization process during the academy as well as the subsequent network dynamics in the recruit class. Within the cohort we observed, there were ex-military recruits who had actually been through the training academy in question in preparation for their prior careers with the city's transit authority police.² These recruits held a three-fold advantage (i.e., military, academy, and police experience) over fully civilian recruits. Since the academy employs a paramilitary social structure, *these more experienced individuals are seeds* within the cadet cohort. During their free moments, recruits often look to these colleagues for help in determining the importance of materials covered during the academy.

As noted above, there is an informal consensus building process regarding course materials, one most often led by recruits having law enforcement or military backgrounds. This is part of a role modeling process where neophytes use paramilitary recruits as behavioral templates. The effectiveness of this is a mechanism for spreading conformity within the group is evident in a convergence of values (Maghan, 1988; Ford, 2003), judgment (McCreedy, 1980; Langworthy and Travis, 2003), and ideology (Hopper, 1977; Chappell et al., 2005). Additionally, recent scholarship has documented the effectiveness of peer evaluation during training in predicting attrition during the probationary period of the police career (Meier et al., 2016). This implies that during their training, recruits develop a sense of an occupational culture allowing them to determine which colleagues possess the interpersonal skills and motivation required to succeed in a police career.

Once the recruits have established an external system enabling them to survive their environment, the system develops beyond its utilitarian origin with an elaboration of group behavior into the internal system (Homans, 1950: 109) which also changes through time. When working together to endure their environment, the recruits develop a set of inner dynamics paralleling those of the external system. While they interact within the external system they develop sentiments towards one another. The internal system develops as these practical interactions lead to personal sentiments. According to Homans (1950), frequent interaction within the external system leads to sentiments of liking or approval within the group.

Feelings of friendship are expressed in a limited number of spontaneously evolving activities. Within the police academy, this includes spending 'free moments' with each other during their breaks and at lunch (Harris, 1978). These activities constitute new foci (Feld, 1981: 1019). The *choice* to eat lunch with specific others constitutes an explicit expression of sentiment. This affinity finds greater expression when the recruits can leave the training locale (see below). Additionally, recruits with the highest levels of friendship are prone to take part in supplemental training together. Since it was a nonresidential academy, recruits still had access to all of their civilian friends and family. However, they still spent

considerable time engaged in group oriented recreational activities implicitly reinforcing a collective loyalty.

Here, we utilize focus theory on a longitudinal basis by using a conception of the academy as a primary focus and then move on to some of the new foci (i.e. subgroups, lunch groups, and commuting partners) that exist and evolve.

The context for this empirical study

This recruit class in a major American city had seventy-two recruits starting a twenty-one-week training regime. After completing this training, and passing a state examination, successful recruits were certified as police officers and sworn into the department. These rookie officers then began a six-month period of probationary service. During this time, the rookies undergo field training in which they are assigned to veteran officers who teach them the practical aspects of police work. At any time in their probationary period, they can be dismissed from service, without explanation. After successful completion of their probationary period, they become fully-fledged officers. Once they achieve this standing, they are entitled to civil service and union protections so it becomes much harder to remove them from duty. This means *the academy training must 'take'* otherwise all the resources poured into their training will have been wasted. Our analysis focuses on the academy period of this overall process given the imperative for producing fully trained police officers.

Data collection methods

Questionnaires were distributed to the recruits at seven-week intervals over their training. The social network data were collected by using these questionnaires at three time points labeled Time 1 (or t_1), Time 2 (or t_2), and Time 3 (or t_3). The first instrument included information on pre-academy ties (at t_0). The final administration of a questionnaire was on the last training day.

Given the goal of obtaining social network data, no questionnaire could be completed anonymously. This has several implications. Mindful of this constraint, we eliminated network questions to which the recruits might react negatively. Initially, network questions asked about 'knowing' other recruits rather than asking about friendship or negative ties. This social knowledge includes being able to recognize other recruits, learning their abilities, the ways they respond to situations in the academy, and how they relate to other recruits and the training staff. While some recruits did know each other prior to the academy, gaining social knowledge of others takes time over a cumulative process. In the final (t_3) administration of the questionnaire, we switched from asking about social knowledge to asking about friendship. While we wanted to collect data on negative ties, we thought asking about negative ties would be too sensitive.³

Measurement error for network data is a serious problem for subsequent analyses. One acute form is the omission of ties in the responses of those providing data. Historically, much of the social network data was collected using 'fixed choice' designs where respondents are limited to listing a fixed number (often three to five) of others with whom they maintain relational ties. Holland and Leinhardt (1974) describe the seriousness of the measurement

² A larger group had been through a reduced variant of the academy, with the same staff, as training for Institutional Guard (i.e., jailor) positions within the police department.

³ In retrospect, this may have been a mistake because the presence of negative ties would have provided interesting and useful information if they were reported. Indeed, in a subsequent study of a different academy, we did gather negative tie data. There were not many such ties consistent with the goal forming a solidary group. In that study, we also asked about trusting other recruits. Most recruits trusted others consistent with the goals of the academy. However, recruits receiving more negative ties were also the ones who were not trusted.

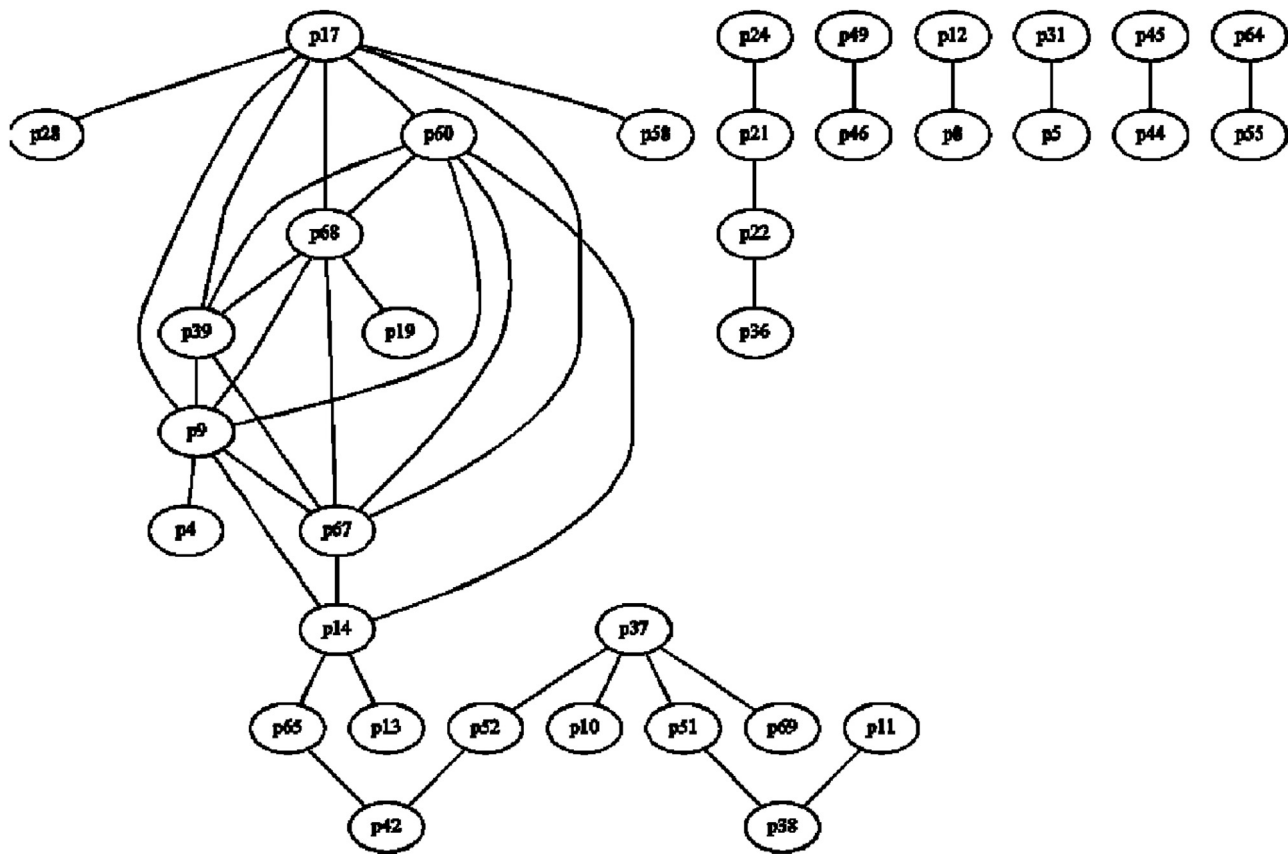


Fig. 1. Presence of Social Knowledge for Pairs of Recruits at Beginning of the Academy.

error introduced by using fixed choice designs, something confirmed in other studies as summarized by Wasserman and Faust (1994). As our intent was to avoid this form of measurement error, recruits were provided with a list of all recruits in the class and invited to respond about all of them: Recruits were given a free number of choices in answering all relational questions. Given the nature of the police academy environment, the amount of this type of error would have been huge were a fixed choice instrument used.⁴ This is more than a methodological issue. If some environments are likely to generate many social ties, this must be recognized in research designs, especially for police academies. Also, rather than ask only about the existence of ties, we attempted to gauge their strengths: Our network data are valued rather than binary.

In the cover letter accompanying the questionnaire, recruits were informed of the necessity of giving their name along with other information. When these questionnaires were administered, all academy staff members were sent out of the main room and the door was shut. The recruits were informed that participation was strictly voluntary and they could feel free to abstain. They were told that none of the data would be shared with the department. Though optional, as optional as anything is for police recruits, all questionnaires were returned with names – often badge numbers were included.

Networks in police academies

Given the harsh nature of academy training, informal relationships between the recruits take on great significance as isolation and danger are very effective for building camaraderie (Encandela, 1991). The recruits' situation is designed to be very isolating, one where a strong "us versus them" ethos is desirable. Add to this the ingrained belief that police work is inherently dangerous, a police academy is a prime setting for the creation of a very dynamic social network. Indeed, the academy is *designed* as an environment for forging network ties where members of a class learn that they can count only on each other to create an intense sense of solidarity. Academies are 'hot houses' designed for growing many social ties among recruits.

Knowing paramilitary recruits were included in the cohort of recruits, we assumed they were more likely to adopt key positions. Further, as time progressed, and the academy social networks evolved, these recruits became key role models in the socialization process *when many social ties were created for socialization effects to proceed over them*.⁵ Stokman and Doreian (1997) recognized that for network evolution, both network structures and actor attributes drive network change. It is necessary to couple structural processes, processes driven by actor attributes and processes changing those attributes when accounting for network evolution. We lay out hypotheses about the mechanisms generating social network ties within police academies.

⁴ At the end of the academy session, the 68 recruits who finished training reported 1828 friendship ties (leaving 2728 null ties). The average number of ties reported per recruit is almost 27 with a median of 25. We were surprised by this magnitude and had we chosen a fixed choice instrument we would not have selected a number remotely approaching these numbers. The amount of measurement error would have been massive.

⁵ Conti (2009) offers a detailed ethnographic account of how police training is structured in order to highlight paramilitary recruits as role models for their colleagues coming from strictly civilian backgrounds.

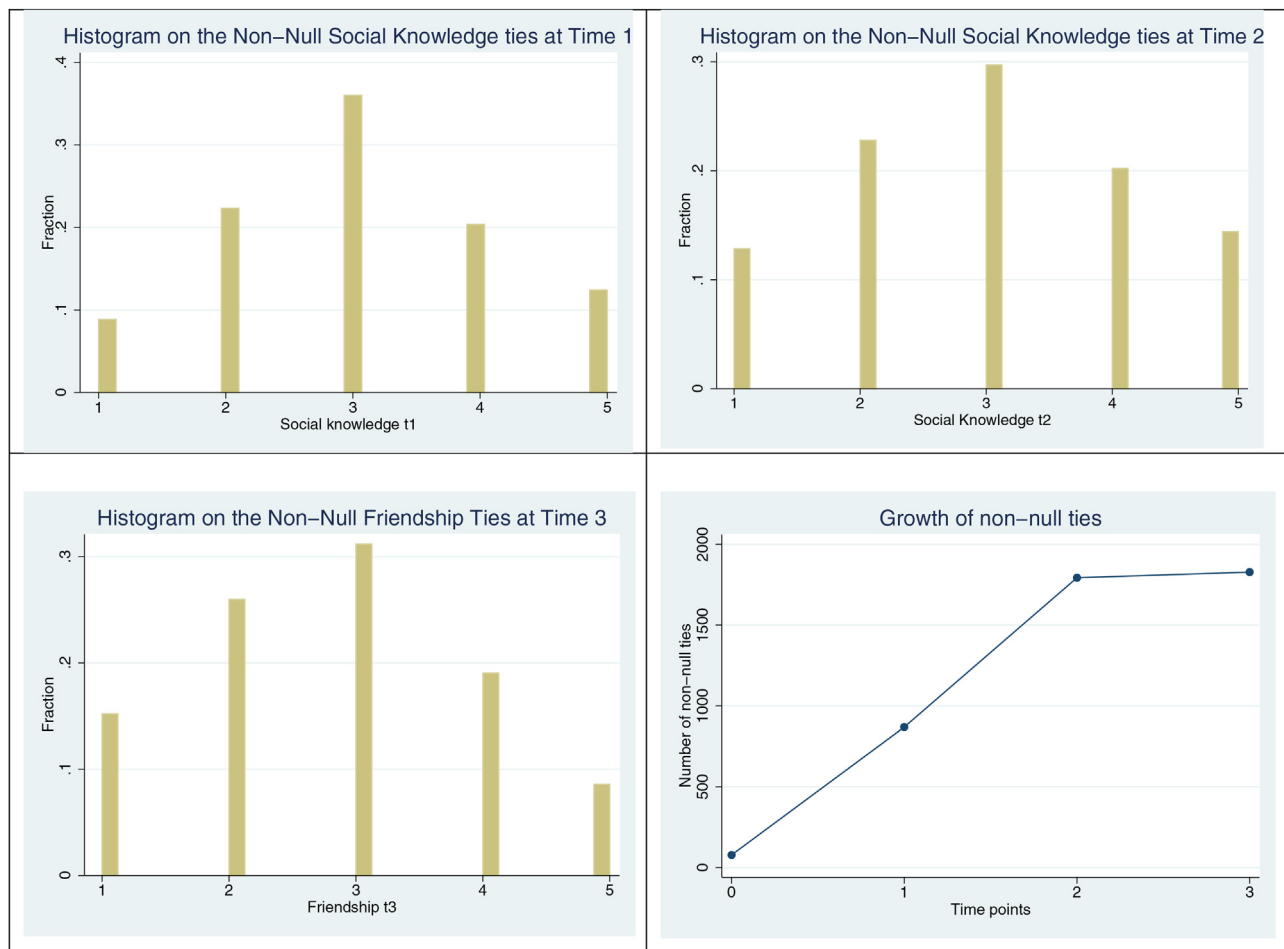


Fig. 2. The distribution of non-null social knowledge and friendship ties over time.

Variables and hypotheses

We propose and examine 32 hypotheses based on the foregoing substantive arguments. Admittedly, this is a large number both for us and our readers. Yet, there are multiple processes operating *simultaneously*. These hypotheses concern both mechanisms that may be in play and their timing during the academy. A potential objection to this large number of hypotheses is reminiscent of the reaction of the King of Austria to the music of Mozart as having ‘too many notes’ in the movie, *Amadeus*. Yet *multiple* potential mechanisms must be considered *in conjunction*. There is no way around this in the presence of potentially *rival* hypotheses.

The ‘variables’ used in the statistical analyses described below are social relational taking the form of *matrices of ties* rather than vectors. There were 68 recruits who made it through the academy – four did not.⁶ The analyses below involve (68×68) matrices of social relations. These relational arrays were measured at three points of time.

Social knowledge

The main predicted (matrix) variable is the extent of social knowledge that recruits had of each other. At face value, this has

two aspects. One is *possessing social knowledge* of others in the recruit environment and the other is being *known socially*. This difference was preserved throughout the analysis. The underlying conception of social knowledge was described earlier. While possessing social knowledge was the primary predicted matrix at each time point, matrices of social knowledge and being known socially for earlier points of time are used as predictors.

The entering cohort was not just a set of unconnected individuals. Relations existed among some recruits prior to their entry into the academy and take the form of ‘pre-academy’ social knowledge.⁷ The (rather sparse) distribution of these t_0 ties primarily involved individuals with prior law enforcement or fire department experience. As such, it provided a modest foundation of social knowledge present already at the academy’s outset. It is labeled ‘Pre-academy social knowledge’ and was generated by joint participation in pre-academy foci.

For the second and third administrations of the survey, recruits were asked the same question but with ‘prior to the start of your training’ removed: The past tense of the question was changed to

⁶ Two of the initial recruits left the academy after the first day. These two recruits were excluded from the recruit cohort. A third recruit, departed early in the training and a fourth resigned later during the academy session. See Haarr (2005) on recruits dropping out.

⁷ A 6-point scale with a zero point and 5 non-zero values was used to capture social knowledge where a list of all the recruits was provided for each respondent. The recruits responded to “Please indicate which of (these) individuals you knew prior to the start of your training. Use the 1–5 scale provided to indicate how well you know them.” The extremes of the response range were “acquainted with them, but did not know them well” and “knew them extremely well”. The zero is defined as having not knowing the other recruit(s) at all.

the present tense.⁸ These variables are labeled social knowledge. As the academy concluded, we asked about friendship rather than social knowledge with the values of a 6-point scale.⁹ The creation of social knowledge is a generative process, one cumulating over time through the joint participation in the academy's social foci. These matrix arrays were used also for predicting social knowledge and friendship at subsequent time points. While there will be some reciprocity in relations accumulating over time (Doreian et al., 1996) along with social knowledge, we did not use reciprocity as a predictor. The transposed matrix of social knowledge for a previous time point is viewed as being 'socially known'. Reciprocity was redundant given the inclusion of social knowledge and being socially known as predictors. As transitivity also grows over time (Doreian et al., 1996) it was included with the lagged matrices used as predictors. Pre-academy social knowledge is important as a part of the initial conditions for the generation of social knowledge and network ties. However, to the extent that social knowledge is generated through time as an integral part of the academy experience, the impact of the pre-academy social knowledge was expected to diminish through time.

Fig. 1 shows the presence of social relations brought to the academy by a subset of recruits. While relatively small in number, these ties form part of the foundations for subsequent socialization. Of particular salience is the connected component having 21 actors, most of whom had prior police and/or military experience as described above.

Several hypotheses are embedded in the above narrative. Explicitly:

Hypothesis 1. Social knowledge at earlier time points is positively associated with social knowledge at subsequent time points.

Hypothesis 2. Being socially known at earlier time points is positively associated with social knowledge at subsequent time points.

Hypothesis 3. As social knowledge is generated in part through transitivity, social knowledge at subsequent time points is positively associated with the presence of two-step paths between actors at an earlier time point.

Hypothesis 4. The effect of pre-academy social knowledge on subsequent social knowledge wanes through time.

We emphasize that these hypotheses are based on the conceptual foundations provided by Homans (1950) regarding the formation of social ties in well-defined contexts. Relations are formed in the operation of the internal system and generate social knowledge. Knowledge, once gained, is hard to erase yet it can be modified or expanded over time, consistent with the arguments of Homans and Feld as outlined above. Some recruits were more outgoing than others and revealed more of themselves and became better known. The mechanism of transitivity (if the ties $i \rightarrow j$ and $j \rightarrow k$ both exist, there is a greater chance of $i \rightarrow k$ forming later) is so well known, it had to be included.

Fig. 2 shows the distributions of the social knowledge and friendship ties at the three time points the measurements were made during the academy. Only the non-null ties are shown. The top left panel shows the distribution of the 869 (out of a possible 4556) ties at t_1 . It shows an essentially symmetric distribution for the presence of social knowledge. The top right panel shows the dis-

tribution of social knowledge for t_2 . The number of non-null dyadic social knowledge ties had increased to 1793. Again, the distribution is very close to being symmetric. However, the tails have thickened. By t_3 , the number of claimed friendship ties was 1828. This distribution of non-null ties is shown in the lower left panel of Fig. 2. The distribution changed slightly with a further thickening of the left tail. This reflects the transition from asking about social knowledge to one enquiring about friendship. This relation is labeled as 'Friendship' and was measured only at t_3 . The lower right panel shows the growth in the number of social knowledge ties over time. It was explosive from the pre-academy number of ties through Time 2 before leveling off at Time 3. This reflects both some saturation and the change from social knowledge ties to friendship ties.

While social knowledge is part of the foundation for the formation of friendship ties, it does not necessarily translate into strong friendship ties. Even so, we suggest:

Hypothesis 5. Social knowledge at earlier time points is positively associated with friendship ties at subsequent time points.

Given the emphasis placed on generating solidarity within the entire cohort, it is reasonable to anticipate that knowledge gained of others, especially if it helpful in negotiating the trials of the academy, will lead to the formation of friendship ties.

Ride partners

In this academy, any recruit not ready for inspection by 0800 h was officially marked as tardy. Even if they arrived on time, "Not ready for inspection" included sweating, breathing hard, or having a uniform that was out of its proper alignment. The academy was on the eighth floor with recruits banned from using the elevator. Recruits playing it too close to the wire and running up the eight flights of stairs to avoid being tardy, were still likely to be cited as unprepared for roll call and, therefore, late. Any recruit being late at one percent of the academy's total required time was at great risk of being expelled from the academy.

Since this was a nonresidential academy, recruits were understandably anxious about tardiness. We asked about ride partners for several reasons. Riding with another recruit solves a logistical problem and provides a context for generating social knowledge for ride-sharing partners. However, ride sharing can expose a recruit to punitive sanctions if the ride partner is unreliable—so, continued ride sharing involves some trust. We used another 6-point scale to capture the frequency of ride sharing with other recruits.¹⁰ This variable is labeled 'Rides', also constructed for all three time points. Sharing rides is a very restricted, geographically based, social focus but it is not irrelevant. In terms of a hypothesis, we claim, while recognizing it is 'weak' mechanism for the entire class:

Hypothesis 6. Ride-sharing ties at earlier time points are positively associated with social knowledge ties at subsequent time points.

This hypothesis is informed by Feld's foci theory. Even though sharing rides operates outside the academy, it has relevance for the formation of social ties among recruits in the academy.

Lunch partners

Some relief from the tedium of the recruit's day is available in the breaks they were granted during the day. Normally, at ten minutes before the hour, instruction would cease. The recruits were granted a few moments of relaxation. Most of the recruits rushed from their

⁸ The same 6-point Likert set of categories was used with the zero (null relation) defined through the instruction 'Just skip over the names of the people that you do not know at all.'

⁹ The responses were "a recruit is among your very best friends within the class" and "(a recruit) is a friend but you are not that close to them". The zero value (relation) for this item was "if you do not know a particular recruit very well or are not friends with him or her, please skip over his/her name."

¹⁰ The zero value is never riding with another recruit. The five 'magnitude' values went from riding "just about every day" to "only ride in with them once in a while."

assigned seats towards the back of the classroom where the exit was located and formed impromptu groups. One lingered within the classroom or stood in the hall. Another dashed to a coffee shop in the police headquarters. A third went to the roof to smoke freely.

Wherever the recruits ventured during this ten-minute break, it was very important and highly valued. It served as a much-needed respite from the monotony of the usual academy lecture and provided a chance to discuss the merits of what they were being taught. It was another shared focus in the academy *chosen* by the recruits despite being constrained by the physical and temporal organization of the academy. These were moments when recruits could be themselves even while confined within the bounds of the academy. Going to lunch provided an even more extended opportunity for escaping the constant scrutiny of the academy. We asked about eating with lunch partners, again using a 6-point scale.¹¹ This variable is labeled 'Lunch' again measured for all three time points. In terms of a hypothesis, these arguments suggest, again based on the arguments of Homans and Feld:

Hypothesis 7. Lunching together ties at earlier time points are positively associated with social knowledge ties at subsequent time points.

This academy was near restaurants, cafes and bars. Consequently, recruits could leave the building. Away from constant gaze of the academy, recruits were freer to express what they thought and share perceptions. Doing this helped build social knowledge.

Humor

We view humor as a relational response to the recruits' situation. In general, humor is a powerful reaction to troubles in everyday day life. Police behavior is no exception. See, for example, Pogreben and Poole (1988, 1991). This helps relieve some of the stress of near constant surveillance and the tedium of continuous instruction. Jokes at the expense of instructors, gym staff and incompetent recruits generate humorous comments providing more information about those making jokes. Outgoing and funny recruits tended to be socially known more and well liked. We asked all recruits to inform us about "which of the (recruits) makes you laugh?" with another six-point scale at the second-time point.¹² We argue that being known as a person making others laugh about being a recruit is a vehicle for being known.

Hypothesis 8. Humor ties (making others laugh) at earlier time points are positively associated with social knowledge ties at subsequent time points.

The expression of humor, belongs to the evolving internal system described by Homans.

Being a recruit known for being humorous and contributing to the responses to the training environment makes this person attractive as a potential friend, a further extension of the internal system.

Hypothesis 9. Humor ties are positively associated with friendship ties.

Infrastructure variables

The academy imposed two completely fixed and unchangeable features of the external system. They are infra-structural variables defined by this academy. Seats were assigned alphabetically for the formal training sessions. Proximity is well-known as a mechanism for generating social knowledge, a near exact parallel with the formal arrangement of the Bank Wiring Room as described by Homans (1950: 54–58). A variable, Acadseat (representing seat adjacency), was first constructed where each 1 in the matrix is for a pair of recruits seated next to each other and 0 is used for pairs of recruits not seated next to each other. This was expanded to include recruits seated immediately in front of or behind each other. Consistent with the arguments of Homans (1950) cited above, we argue that actors seated in such proximity are more likely to have social knowledge of each other than actors not seated together:

Hypothesis 10. Seat adjacency (in the classroom) is positively associated with social knowledge ties.

Recruits were assigned also to work groups (called squads) by the academy to have a composition reflecting, as best as possible, the overall race and gender composition of the cohort. Many aspects of the training (e.g. physical conditioning and weapons training) were provided in these work groups. Each work group had a leader selected by their recruits. Most often, these leadership recruits had former military or police experience. Their responsibility was to ensure the recruits in their group (and squads within the group) behaved appropriately.

All recruits were required to give a demonstration of their competence for the physical conditioning Student Performance Objective (SPO). In these exercises, recruits received enthusiastic encouragement from within their squad while attempting to do sit-ups and similar indicators of physical prowess. Whenever a recruit failed to reach his or her SPO requirement in these tests, the individual and the whole group were visibly upset and disappointed. Even though they had plenty of time to improve and they would be taking part in the academy's regular physical training session, they took their failures extremely hard.¹³

The predictor matrix, Academy group, was constructed so that for each pair of recruits, a 1 represented joint membership in a work group and 0 represents membership in different work group. The importance of this variable was not constant as the academy placed differential stress on them at different points in time. As described above, physical conditioning was one feature of training stressed for groups. *Greater stress was placed by the academy on the work groups in the period surrounding t_2 .* This must be considered in the changing temporal contexts of the academy. Group members were encouraged to identify strongly with their groups: individual accomplishments were group triumphs and poor performances by individual members were group failures. The academy reinforces this by imposing sanctions for infractions of academy rules by individual members on the entire group. Placing such stress on collective fates and outcomes creates a powerful focus mechanism for generating social knowledge. This suggests:

Hypothesis 11. Joint work group membership is positively associated with social knowledge.

In contrast to ride sharing, described as a weak mechanism, work group membership is a strong mechanism with these work groups being a major focus.

¹¹ The zero value was used when a recruit reported never having lunch with another recruit. The magnitude values ranged from "spending the lunch hour with them, pretty much, every day" to "spending lunch with them once in a while."

¹² The Likert scale items ranged from "making you laugh occasionally" to "constantly making you laugh" with the zero value corresponds to "people who are not very funny".

¹³ One instructor remarked that the recruits knew that they had to do better and were motivated to exceed their SPO on tests. The gym staff worked to further instill this ethos within the groups.

The amount of social knowledge was limited when the recruit class was formed. By design, the academy created foci for shared activities and helped create the foundations for the subsequent network dynamics, regarding the formation of network ties. To the extent that network dynamics operate as an endogenous generative social process, the impacts of infra-structural features will vary through time. A general argument is that these effects will wane through time. This applies unequivocally for the fixed seating arrangement. However, we argue it does not apply to work group membership in a uniform fashion given the differential emphases imposed by the academy's training schedule in this academy. At Time 2, the instructional format of the academy placed a far greater emphasis on work group. At the academy's end, Time 3, this was removed completely to accommodate a focus on preparing the recruits for the final testing required for successful graduation. In terms of hypotheses, we advance:

Hypothesis 12. The effect of seat arrangement on social knowledge ties wanes through time.

Hypothesis 13. The effect of work group membership on social knowledge will be highest when the academy stresses group work and lowest when it does not stress group work.

These social infrastructural variables are manipulable in the sense of the academy having the ability to control them.¹⁴

Actor attributes

Two actor attributes – gender¹⁵ and race – appear to have great salience in the academy. Indeed, work groups, especially squads, were designed to mirror attributes in the whole cohort. Arguing that there may be a selection mechanism at work where actors sharing salient attributes are more likely to interact (Leenders, 1997), members of the same racial group can be expected seek each other out despite the academy seeking to overcome racial disparities for this class. Even so, race became a focus in the academy in terms of generalized shared experiences prior to the academy by incorporating 'diversity' sessions into the training. Translated into terms of social knowledge, this suggests:

Hypothesis 14. Membership in common race categories is positively associated with social knowledge.

As stated, this variable is an attribute of actors one put into relational form. For race, the distribution was Caucasian (57%), African American (23%), Latino (9%), and there was one Asian recruit. This was converted to represent 'white' and 'non-white' where, for pairs of actors, the element 1 in the relational matrix represents membership in the same race category and the element 0 corresponds to membership in different race categories.¹⁶ To the extent that part of the design of the academy is to create a cohesive identified unit, the effect of race could be expected to drop over time, especially as there was a deliberate attempt by this academy to overcome race differences. It was put to us in the form "there is no black and white, we are all blue". More specifically:

Hypothesis 15. The positive association of race with social knowledge wanes through time.

These hypotheses are considered as a set and are viewed as potential *rival* hypotheses. This is important given the presence of multiple mechanisms that may or may not work together in a consistent fashion. While each hypothesis has appeal and may seem rather obvious, even trivial as a result, it is not clear that they are all necessarily operative at all time points during the police academy experience. While most of the hypotheses take the form of co-variation of predictor matrices with specified signs at each time point, other differ by claiming that while certain effects may be present, these effects need not be constant or even persistent.

Two mini-mechanisms

In the foregoing narrative, lunching together and ride sharing were conceptualized as two foci, one potentially potent with one far more restricted. Both were used as predictors of social knowledge at subsequent time points. However, it seems reasonable that there are social forces helping to generate the lunching and ride sharing ties. Foci do not just appear as they are created socially. Choosing lunch partners is unlikely to be random with lunch partner ties being likely to cumulate through time. Enjoying the company of lunch partners is likely to lead to for repeated lunching together. We argued above that the lunch breaks were particularly important as way of briefly escaping the constant surveillance of the academy. Yet the infrastructure of the academy may play another constraining role regarding the choice of lunch partners. Sitting next to other recruits at the end of a general training session creates opportunities for considering lunching together, even if by default.

Conti and Doreian (2010) detail three phases of a police academy in the sequential forms of non-civilian, paramilitary and anticipatory police stages. Work group membership is likely to be a more potent constraint (or opportunity) when group training sessions end, especially as they were used primarily in the paramilitary phase. Given the staff's emphasis on work groups at t_2 , we argue that work group membership effects will be more evident at t_2 than at either t_1 or t_3 . Social knowledge is relevant also in the choice of lunch partners and, to the extent that humor is useful, in releasing tensions generated during training or lectures, recruits are likely to prefer taking lunch breaks with other recruits that can make them laugh. Finally, if race plays a part in the social dynamics, then members of the same race will seek each other out during lunch breaks. From these arguments, grounded in substance, the following hypotheses follow:

Hypothesis 16. Lunch partner ties at earlier points in time are positively associated with lunching ties at subsequent times.

Hypothesis 17. Social knowledge at earlier time points is positively associated with lunching ties at subsequent time points.

Hypothesis 18. Seat adjacency is positively associated with lunching ties.

Hypothesis 19. Joint work group membership is positively associated with lunching ties.

Hypothesis 20. The effect of seat arrangement on lunching ties wanes through time.

Hypothesis 21. The effect of work group membership on lunching ties will be highest when the academy emphasizes the work groups.

Hypothesis 22. Membership in common race categories is positively associated with lunching ties.

Hypothesis 23. The positive association of race with lunching ties wanes through time.

¹⁴ In the subsequent study mentioned above, we dutifully recorded the seating arrangement on the first day. We noticed it was changed at the beginning of the next week. On asking about this, we were told that the seating arrangement was to be changed randomly every week 'to prevent cliques forming'.

¹⁵ There were too few female recruits for a meaningful statistical analysis. Initially, we had a hypothesis stating 'Membership in the same gender categories is positively associated with social knowledge.' However, there were only 8 female recruits and this predictor matrix was never significant. This cannot be viewed as a substantive result.

¹⁶ When the analyses involving race were done with the four groups distinguished and the results were essentially the same as the analyses reported here. While limited, this suffices to support the analyses considered here.

While similar hypotheses can be advanced for ride sharing, the choice of ride partners is constrained by the logistical problems of getting to the academy in time for roll call with the largest constraint being geographical: Only recruits in the same general area of the city (or where one recruit lives on the route to the academy for another recruit) are able to share rides. Clearly, ride sharing ties cumulate through time when successful solutions to the problems of getting to the academy tend to be repeated. It is possible that both social knowledge and the infra-structural features of the academy (seat adjacency and work group membership) have an impact on ride sharing ties through sharing general information. This seems most likely at the beginning of the academy when social knowledge is limited. Tentatively, we suggest:

Hypothesis 24. Social knowledge at earlier time points is positively associated with ride sharing at subsequent time points.

Hypothesis 25. Ride sharing ties at earlier time points are positively associated with ride sharing ties at subsequent times.

Hypothesis 26. Seat adjacency is positively associated with ride sharing ties.

Hypothesis 27. Joint work group membership is positively associated with ride sharing ties. The relation will be strongest in the academy emphasizes work groups.

Hypothesis 28. The effect of seat arrangement on ride sharing ties wanes through time.

Also, we think the mini-mechanisms are coupled or operate in an inter-twined fashion. Ride sharing generates social knowledge (Hypothesis 6) which can be part of creating preferences for lunch partners. (Unless, of course, attempts at ride sharing that recruits to be unprepared for roll call.) Lunch partnering also generates social knowledge with some of the generated knowledge being geographical. If so, it follows that new opportunities for ride sharing can be created. We posit, albeit as weak relations:

Hypothesis 29. Lunch partnering ties at earlier points in time are positively associated with ride sharing ties at subsequent time points.

Hypothesis 30. Ride sharing ties at earlier points in time are positively associated with lunch partner ties at subsequent time points.

Also, it seems reasonable that humor has a part in generating lunch partner ties. Just as humor generates social knowledge (Hypothesis 8) and helps generate friendship ties (Hypothesis 9), humor ties are likely to be positively associated with lunch partner ties. Lunching with recruits making others laugh is desirable during the 'time out' from continuous scrutiny afforded by lunch breaks. Yet, there seems little reason to expect humor ties as predictive of ride sharing, given how is constrained by geography. We have, as an additional hypothesis:

Hypothesis 31. Humor ties are positively associated with lunch partner ties.

Finally, it seems likely that race is predictive of ride sharing. To the extent that American cities are racially segregated, recruits within each of the race categories are more likely to share common geographical locations (see for example Massey, 2007) and, hence, similar logistic problems regarding being ready for roll call in the early morning. Given the logistical problems of getting to the academy each day remain the same throughout the academy training, there is no reason to expect that this relation will wane over time. Nor is there reason to think this is a strong relationship.

Hypothesis 32. Membership in the same race categories is positively associated with ride sharing ties.

Data analytic methods

Choices always must be made before analyzing data. Here we present the reasoning behind our estimation strategy. Our data analytic framework for testing these hypotheses regarding the social network mechanisms generating social relations in a police academy, is regression based on quadratic assignment procedures (QAP) labeled as QAP-Regression. This is a much better alternative to using ordinary least squares (OLS) regression, especially in the presence of network autocorrelation (when the data points are interdependent).

Unfortunately, network autocorrelation models (Doreian, 1981) are not applicable here due to the complex set of equations to be estimated. Also, OLS is no value. When data points are interdependent, the analytic expression for estimating standard errors is worthless. Simulation studies (e.g. Doreian et al., 1984) have shown inference can be very unreliable because estimates of standard errors are severely compromised.¹⁷ When the data are relational matrices, these problems become far more acute for assessing the significance (or not) of the correspondence of arrays of network ties in an inferential context. These interdependencies are far more complex than those usually considered in econometric analyses.

A non-parametric response was proposed by Mantel (1967) and developed at length by Hubert. (See Hubert and Schultz (1976), Hubert (1983, 1985) and Krackhardt (1988)). It takes the form of a permutation test based on many permutations as described above. Krackhardt (1988) using Monte Carlo simulation methods suggests that, even in the presence of serious interdependencies, the use of QAP is very robust. This permutation test, implemented in UCINET (Borgatti et al., 2002), extends naturally to using multiple arrays. See Dekker et al., 2007 for an expanded treatment of QAP-methods. The QAP regression analyses that follow use 2000 permutations for each estimated equation.

The 32 hypotheses lead to a set of 9 estimated equations. While we are aware of structural equation models (SEM) as an approach to handling multiple equations, we know of no developments incorporating network autocorrelation into the estimation of these models. Estimating a SEM in the usual fashion is subject to all of the autocorrelation and inferential problems faced by OLS. Currently, network and spatial autocorrelation ideas are not a part of the SEM approach. Further, the QAP-Regression approach does not permit a multiple equation estimation procedure because different matrices would have permuted differently over the multiple equations depending on their role as predictor or predicted variables. It seems far safer to use QAP-Regression on the separate equations. We pursued this strategy.

¹⁷ When the mechanical aspects of parameter estimation are considered with OLS but using all dyads as the units of analysis means the standard errors are reduced massively. This creates many 'significant' relations between variables which otherwise are not deemed significant. Although the inferences made for the individual coefficients are not independent tests, a rough counting of the difference between OLS and QAP results is shown in the following table. This demonstrates the extreme fragility of using OLS when the data points are not independent.

	Significant with OLS	Insignificant with OLS
Significant with QAP	56	0
Insignificant with QAP	18	19

Table 1
Estimated Unstandardized Coefficients for Predictors of Social Knowledge.

Predictor	Time 1 (t_1)	Time 2 (t_2)	Time 3 (t_3)
Intercept	0.0887 (1.000)	0.2452 (1.000)	0.1519 (1.000)
Pre-Academy Social Knowledge	0.4596 (0.000)	0.1743 (0.001)	0.1290 (0.012)
Pre-Academy Socially Known	0.1600 (0.000)	0.0534 (0.156)	−0.0176 (0.365)
Academy Work Groups	1.0174 (0.000)	1.2621 (0.000)	−0.0191 (0.457)
Academy Seating	0.6764 (0.000)	0.2519 (0.011)	0.1876 (0.025)
Race	2.358 (0.000)	0.1093 (0.138)	0.1252 (0.012)
Social knowledge ($t - 1$)		0.2313 (0.000)	0.2455 (0.000)
Socially known ($t - 1$)		0.1116 (0.000)	0.1392 (0.000)
Transitivity ($t - 1$)		0.0006 (0.016)	0.0025 (0.016)
Lunch ($t - 1$)		0.0761 (0.058)	0.2103 (0.000)
Rides ($t - 1$)		−0.0085 (0.463)	0.1294 (0.012)
Humor		0.2289 (0.000)	0.1034 (0.000)
R^2	0.250	0.473	0.411

Notes:
1. Time 1 is the non-civilian phase, Phase 2 is the paramilitary phase and Time 3 is the anticipatory police phase.
2. The figures in parentheses are the permutation based p -values which can be viewed in terms of significance levels. We use 0.000 to stand for less than 0.001.
3. Readers are free to interpret which coefficients are significant based on the reported p -values.

Empirical results

Predicting social knowledge and friendship

We report the unstandardized coefficient estimates and their p -values, as generated from the QAP regressions, in Table 1.¹⁸ These p -values show the proportion of times that an estimated coefficient (after 2000 permutations) was as small as the empirically estimated value. These repeated permutations generate an analogue of a sampling distribution, one that is far more reliable than the sampling distribution for OLS. See Krackhardt (1988). The interdependence structure is preserved and therefore controlled.

It is very difficult to make meaningful comparisons using standardized predictors due to variations in standard deviations of the variables in different equations. (See, for example, Schroeder et al., 1986). We compare magnitudes of the unstandardized coefficients across estimated equations (through time periods). While we compare the standardized coefficients (not reported numerically here) within estimated equations as rough indicators of the relative contribution of predictors in explaining variance they are of secondary importance here. We also made a Markov assumption that effects were lagged over one time point to make estimation consistent across time points.

Looking forward, for considering these empirical results and coupling hypothesis numbers to substantive concerns while track-

ing our results, Table 4 is useful. For Time 1, Hypotheses 1 (regarding prior social knowledge) and 2 (being known socially regarding predicting social knowledge) are supported. When pre-academy transitivity was included, it was not significant: Hypothesis 3 was not supported. Both Hypothesis 10 (for the predictive value of seat adjacency) and Hypothesis 11 (regarding work group membership) are supported. The variable for race is significant: Social knowledge is greater within subgroups identified in terms of race. Using the standardized coefficients as a rough guide to the relative impacts of different predictors, the strongest predictors (in order) are work group membership, pre-academy social knowledge and seating adjacency.

For Time 2 (t_2), pre-academy social knowledge remains significant, as do both academy infrastructure variables. All of the social knowledge variables are significant: Lagged social knowledge and being socially known predict social knowledge at the second time point. Hypotheses 1 through 3 are all supported. The unstandardized coefficient for pre-Academy social knowledge drops from about 0.46 to about 0.17 providing support for Hypothesis 4. Transitivity has not predictive value at any time point contradicting Hypothesis 3.

Neither lunching together nor riding together at the earlier time point are significant predictors of social knowledge at t_2 : Hypotheses 7 and 8 are not supported. Humor is a significant predictor of social knowledge: recruits who make other recruits laugh become socially known. Race is insignificant for the generation of new social knowledge, a clear departure from t_1 . As race became insignificant at t_2 , Hypothesis 15 is supported also. The strongest predictors of social knowledge at t_2 (in order) are work group membership, humor and social knowledge at the previous time point.

¹⁸ We have chosen to report our results in three tables rather than nine to save space. Thus, not all regressions are reported. For example, transitivity for pre-academy social knowledge could appear in only one of nine regressions. When it was not significant there, it was excluded from the reported regression.

Table 2
Estimated Unstandardized Coefficients for Predictors of Lunch Partnering.

Predictor	Time 1 (t ₁)	Time 2 (t ₂)	Time 3 (t ₃)
Intercept	−0.0114 (0.000)	−0.0759 (0.000)	−0.0933 (0.000)
Pre-Academy Social Knowledge	0.2076 (0.000)	−0.0122 (0.300)	−0.0029 (0.486)
Pre-Academy Socially known	0.1436 (0.000)	0.0467 (0.080)	0.0258 (0.225)
Academy work groups	0.3904 (0.000)	1.0150 (0.000)	0.0182 (0.404)
Academy seating	0.2971 (0.000)	0.0208 (0.384)	0.0840 (0.120)
Race	0.1654 (0.000)	0.0694 (0.114)	0.1738 (0.002)
Social knowledge (t−1)		0.0740 (0.000)	0.0809 (0.000)
Socially known (t−1)		0.0486 (0.003)	0.0568 (0.000)
Lunch (t−1)		0.2896 (0.000)	0.4021 (0.000)
Rides (t−1)		0.1633 (0.001)	0.2009 (0.000)
Humor		0.1438 (0.000)	0.0799 (0.000)
R ²	0.127	0.456	0.480

Notes:

1. Time 1 is the non-civilian phase, Phase 2 is the paramilitary phase and Time 3 is the anticipatory police phase.
2. The figures in parentheses are the permutation based *p*-values which can be viewed in terms of significance levels. We use 0.000 to stand for less than 0.001.
3. Readers are free to interpret which coefficients are significant based on the reported *p*-values.

For Time 3 (t₃), social knowledge at all of the previous time points is a significant predictor of friendship, providing additional strong support for Hypotheses 1 and 5. The estimated coefficients for pre-academy social knowledge at Time 3 drops to about 0.13, providing support for Hypothesis 4 (the waning effect of this array). Both coefficients for being socially known are significant providing support for Hypothesis 2 (about being socially known). The coefficients for both of the mini-mechanisms (lunching together and ride sharing) as generators of social knowledge are significant, as is the humor variable. Hypotheses 6–8 are supported also at t₃. The strongest predictors of social knowledge at t₃ are prior social knowledge and lunching together. Race is a significant predictor in the generation of social knowledge at t₃: Hypothesis 14 is supported. However, Hypothesis 15 is not supported as race became a significant predictor of social knowledge when it was not at t₂. This merits additional attention.

There was a conscious effort by this academy to do something about inclusivity to induce greater sensitivity in police officers regarding race and law enforcement. At the time the academy was concluding (and we were collecting our data), a second formal session on cultural inclusion was added to the training regime. Given how the recruits were already viewing themselves as cops, this backfired.¹⁹ This session was held at a different location from the academy and this did not sit well with the recruits. This problem was compounded by having two academics – complete civilian outsiders – to whom many of the recruits were openly hostile. This hostility expanded to include conflicts between some black and white recruits. A motivational game, one that must have sounded wonderful in an academic classroom, was designed to

award tokens for ‘appropriate behavior’. A considerable number of recruits awarded others for expressly inappropriate conduct. Race returned as a generator of social knowledge as a result this misguided session.

The coefficients for work group membership at the three time points are close to 1.02, 1.26 and 0 respectively. This provides qualified²⁰ support for Hypothesis 13 (regarding the timing of effects). This makes sense also in the context of the academy as group/squad based training had ended and instruction was focused on the final examination and held in the class room. In a similar fashion, the corresponding three coefficients for seat adjacency are 0.68, 0.25 and 0.19 providing modest support for Hypothesis 12 (on the waning impact of seat adjacency). The drop in the coefficient for humor seems due to it being measured only at t₂ along with the change in the dependent variable at t₃ to friendship. While making people laugh increases social knowledge, it does not follow that it helps generate friendship ties.

Predicting lunch partners and ride sharing

We turn now to consider the two mini-mechanisms and consider predicting lunch partners first as it is the more general mechanism of the two. Table 2 shows the estimated equations for the three time points. For Time 1 (t₁), the predictors are pre-academy social knowledge and the non-network variables used for predicting social knowledge. Pre-academy social knowledge is significant, supporting Hypothesis 17 (regarding the lagged effect of social knowledge). Both infrastructure variables are significant sup-

¹⁹ The session was introduced in response to demands from the Mayor’s office. The mayor was regarded as hostile to this police department.

²⁰ The need for using the qualification has two sources. One stems from the absence of a formal hypothesis test for the differences in size of the coefficients and the change in the dependent variable at t₃.

Table 3
Estimated Unstandardized Coefficients for Predictors of Ride Partnering.

Predictor	Time 1 (t_1)	Time 2 (t_2)	Time 3 (t_3)
Intercept	–0.0297 (0.000)	–0.0361 (0.000)	–0.0133 (0.000)
Pre-Academy Social Knowledge	0.0690 (0.000)	0.0179 (0.100)	0.0205 (0.084)
Pre-Academy Socially known	0.0966 (0.000)	0.0528 (0.002)	–0.0128 (0.183)
Academy work groups	0.1671 (0.000)	0.1207 (0.000)	–0.0379 (0.104)
Academy seating	0.0503 (0.077)	0.0150 (0.328)	0.0069 (0.390)
Race	0.0476 (0.009)	0.0180 (0.208)	0.0016 (0.465)
Social knowledge ($t-1$)		0.0122 (0.082)	0.0041 (0.252)
Socially known ($t-1$)		0.0073 (0.175)	0.0047 (0.208)
Lunch ($t-1$)		0.0749 (0.000)	0.0405 (0.000)
Rides ($t-1$)		0.7187 (0.000)	0.6167 (0.000)
Humor		0.0141 (0.033)	0.0137 (0.020)
R ²	0.072	0.541	0.510

Notes:.

1. Time 1 is the non-civilian phase, Phase 2 is the paramilitary phase and Time 3 is the anticipatory police phase.

2. The figures in parentheses are the permutation based p -values which can be viewed in terms of significance levels. We use 0.000 to stand for less than 0.001.

3. Readers are free to interpret which coefficients are significant based on the reported p -values.

porting Hypotheses 18 (seating) and 19 (work group). Race is also a significant predictor supporting Hypothesis 22. From examining the standardized coefficients for this equation, pre-academy social knowledge and seating adjacency are the dominant predictors of lunch partners at t_1 , with the latter imposed by the academy. It is a powerful reminder that the locations where social network data are collected are not just places whose features can be ignored. See also Doreian and Conti (2012).

For Time 2 (t_2), there is a sharp change in the pattern of results. Hypothesis 17 is supported for social knowledge at t_1 (but not for pre-academy social knowledge). It appears that the impact of pre-academy social knowledge on lunch partnering is mediated through social knowledge at t_1 . This aspect of the 'seed planting' had finished with lunch partnering being only a daily practical issue. Work group membership is predictive of lunch partnering at t_2 , supporting Hypothesis 19. However, seat adjacency does not predict lunch partnering at t_2 : Hypothesis 18 is not supported. This makes great sense in the context of the academy with its timing of how training was organized: During this period, most of the training was conducted within the work groups (squads). Hypothesis 16 is supported with lunch partnering at t_1 a significant predictor of lunch partnering at t_2 , there was a repetitive pattern for lunching together. The second mini-mechanism, ride sharing, also predicts lunch partners: Hypothesis 30 received some support. Race is not significant at t_2 : Hypothesis 22 is not supported. However, Hypothesis 23 is supported with race becoming insignificant at the second time point. The strongest predictors are work group membership and lunch partnering at t_1 . Neither is surprising. We have seen in the generation of social knowledge that group membership was stressed heavily by the academy at t_2 . Humor is the third strongest predictor of lunch partnering, consistent with the role that humor has in recruit adjustment to the training environment. This pro-

vides support for Hypothesis 31 (about humor being predictive of lunching together).

For Time 3 (t_3), there was another shift. While pre-academy social knowledge remained an insignificant predictor of lunch partnering, social knowledge from the prior time point is significant and provides support for Hypothesis 17 (regarding lagged social knowledge). Both academy infra-structural variables are insignificant which simultaneously provides support for Hypotheses 20 (waning effect of seat adjacency) and evidence against Hypotheses 18 (seating) and 19 (work groups) as the academy was ending. The values of this coefficient for predicting lunch partner ties for the three time points are close to 0.39, 1.01 and 0.02 providing support for Hypothesis 21 regarding the timing of these effects.

The estimated coefficient for the lagged lunch partner term is significant providing more strong support for Hypothesis 16. The impact of ride sharing ties on lunch partner ties remains significant, further supporting Hypothesis 30. Humor is again a significant predictor supporting Hypothesis 31 at t_3 . Race returns as a significant predictor of lunch ties at t_3 so Hypothesis 22 finds support at t_3 . However, given that race was insignificant at t_2 , Hypothesis 23 is contradicted for this time point. The standardized coefficients make it clear that the lagged lunch term as the most potent predictor of current lunch partnering. It is followed by lagged social knowledge and humor. This suggests lunch partnering is a self-generating process conditioned also by humor and social knowledge.

Ride sharing ties are geographically constrained and concern behavior outside the academy by only helping some recruits to arrive on time. The estimated equations for this relation are shown in Table 3. The most potent predictor for ride sharing at each time point is ride sharing at previous time points, supporting Hypothesis 26. Of course, this is an obvious result. Hypotheses 24 (about pre-academy social knowledge) and 27 (regarding work groups) are both supported. When obtaining knowledge about someone,

some of this knowledge concerns where they live in the city. If the shared knowledge about residency reveals geographic proximity, the opportunities for ride sharing are expanded. However, academy seating is not significant so Hypothesis 26 fails. It is not clear why group membership is predictive of ride sharing while seat adjacency is not for this early time point. Race is a significant predictor (supporting Hypothesis 32). Given that the city containing this police academy is segregated racially, it is not surprising that race is predictive of ride sharing.

The second column of Table 3 shows the corresponding estimated equations for t_2 . Again only one of the infra-structural variables (work group membership) is significant. As for the previous time point, there is support for Hypotheses 27 (about the impact of work groups) but not for Hypothesis 28 (concerning seating). Pre-academy social knowledge is no longer a significant predictor of ride sharing so Hypothesis 24 fails again. We surmise that being in work groups is more conducive for learning about ride sharing opportunities than the restricted ties implied by seating. When the unstandardized coefficients are considered, rides at t_1 is, by far, the most potent predictor of rides at t_2 . Hypothesis 25 receives strong support. This helps account for pre-academy social knowledge losing its predictive value. Successful ride sharing becomes the dominant determinant of ride sharing and replaces older social knowledge. This extends to current social knowledge not being predictive and contradicting Hypothesis 24. Hypothesis 29 is supported with lunch partner ties at t_1 is a significant predictor of rides at t_2 . It is the second strongest predictor of rides. Hypothesis 32 is not supported for race. Most likely, prior successful ride sharing is so dominant as a predictor of ride sharing that it drives out race as a predictor. Surprisingly, humor is a significant predictor of ride sharing, albeit a modest one suggesting ride sharing can be enjoyable and can be more than a solution to a logistical problem.

The third column shows the estimated equations for t_3 . There are only three significant predictors: prior ride sharing, prior lunch sharing and humor. So, Hypotheses 25 (rides), 29 (lunch) and 30 (humor) are supported. Hypotheses 24 (social knowledge), 26 (seat adjacency), 27 (work group membership) and 32 (race) all fail. The dominant predictor is prior ride sharing. This reflects the heavy constraint of geography making ride sharing a rather (external to the academy) self-contained process, but one having some impact for relation creation in the academy as shown in the results in Tables 1 and 2.

Table 4 displays a summary of the inferences made through the QAP regressions displayed in Tables 1 through 3. Each row corresponds to a single numbered hypothesis while the columns correspond to the three time points. 'Yes' indicates the confirmation of a hypothesis while 'No' indicates a hypothesis being contradicted. The use of the symbol, '-', denotes instances where the hypothesis is not relevant for an equation.

Our primary interest centered on the generation of social knowledge for which most of the hypotheses for predicting it are supported across the three time points. There are seven instances of hypotheses not being confirmed and 27 occasions of support. Despite the importance given to transitivity in the social network literature, it had no predictive value for generating social knowledge. This is instructive given that transitivity measures are computed so often. It seems reasonable to see transitivity as being a *product* of social processes rather than a *generator* of them suggesting the computation of this measure has limited utility. Race was predictive at the first and third time points but not for the second. We outlined contextual reasons for these shifts earlier. Both social infrastructure variables had predictive value for the first two time points. Seating was predictive at the third time point but not work groups. The latter was due to the abandonment of using them in the anticipatory police phase when instruction was geared to

Table 4

Summary of Hypothesis Testing across all three Phases of the Academy.

Hypothesis	Effect	Phase 1	Phase 2	Phase 3
Predicting Social Knowledge				
1	Lagged Social knowledge (SK)	Yes	Yes	Yes
2	Lagged Socially known	Yes	Yes	Yes
3	Lagged transitivity	No	No	No
4	Waning Pre-Academy SK	–	Yes	Yes
5	SK and Friendship	–	–	Yes
6	Lagged Rides Partner	–	No	Yes
7	Lagged Lunch Partner	–	No	Yes
8	Humor	–	Yes	Yes
9	Humor and Friendship	–	–	Yes
10	Academy Seating (Adjacency)	Yes	Yes	Yes
11	Academy Work Groups	Yes	Yes	No
12	Waning Seat Adjacency	–	Yes	Yes
13	Phase and Work Group	–	Yes	Yes
14	Race	Yes	No	Yes
15	Waning of Race Effect	–	Yes	No
Predicting Lunch Partners				
16	Lagged Lunch Partners	–	Yes	Yes
17	Lagged Social Knowledge	Yes	Yes	Yes
18	Academy Seating (Adjacency)	Yes	No	No
19	Academy Work Groups	Yes	Yes	No
20	Waning Seat Adjacency	–	Yes	Yes
21	Phase and Work Group	–	Yes	Yes
22	Race	Yes	No	Yes
23	Waning of Race Effect	–	Yes	No
30	Lagged Rides Partner	–	Yes	Yes
31	Humor	–	Yes	Yes
Predicting Rides Partners				
24	Lagged Social Knowledge	Yes	No	No
25	Lagged Rides Partner	–	Yes	Yes
26	Academy Seating (Adjacency)	No	No	No
27	Academy Work Groups	Yes	Yes	No
28	Phase and Work Group	–	Yes	Yes
29	Lagged Lunch Partner	–	Yes	Yes
32	Race	Yes	No	No

Notes:

1. Phase 1 is non-civilian, Phase 2 is paramilitary and Phase 3 is anticipatory police.
2. Yes means the hypothesis was supported, No means it was not supported and '-' means not applicable for the phase.

passing the final exams at the end of the academy. The hypotheses concerning the timing of effects were all confirmed except for race.

Most of the hypotheses for prediction lunch partners are supported with just five exceptions among the 24 inferences made. Three of contradictions of hypotheses concerned the impact of the social infrastructure. Seating was irrelevant at the last two time points with work groups becoming irrelevant in the final time point. The other two disconfirmations featured race but the can be attributed to the disruptive event concerned race at the end of the academy described above. Hypotheses for predicting ride sharing fare less well as there are eight disconfirmations among the 18 inferences made. Six of these failures feature seat adjacency and race. The former was completely irrelevant for all time periods. Race was considered in our discussion of the results shown in Table 3.

In general, many hypotheses are supported and provide a coherent image of the processes at work in the generation of social network ties within the academy. Individually, the bivariate hypotheses do not appear to be profound. It is the assessment of which mechanisms work, and at what times they operate, during the course of the academy in generating social ties that has greater interest. This detailed analysis regarding coupled processes and the timing of their effects is a contribution of this paper. Yet, there are at least two lingering problems. One is that our narrative regarding race seems incomplete. We had expected it to be a predictor of social knowledge, lunch partnering and ride sharing at all time points. Race is not significant for ride sharing after the first time point. Nor was it significant for both social knowledge and lunch

partnering at t_2 . Some more results regarding the effects of race can be found in [Conti and Doreian \(2014\)](#).

The second problem concerns the conjunction of general processes and the impact of specific events. When the academy decided to have a second sensitivity training session, it became a shock to the system and was totally counterproductive. It led also the disconfirmation of some hypotheses and the general network generation processes were affected. Combining the general processes with system shocks within one narrative remains an open and important problem.

Summary and discussion

Prior research has revealed that recruits are trained to be police in terms of formal practices and to adopt what has been described as the 'police identity' of 'real cops'. Yet, only the former is featured in the formal curriculum of the police academy and this raised the question of how the second socialization goal is accomplished. We have argued that the police academy is a 'hot house' designed to grow a dense social network of ties within which recruits socialize one another to the identity of police officers. This includes the generation of solidarity within the recruit class. The operation of the Academy as a network was no accident. At one point, the officer in charge of the training crafted the foundation for a mission statement, that the class was expected to develop. It claimed "We are a 'relationship' driven organization."

However, not all recruits are equal as far as this task is concerned. As a clever feature of social organizational design, the admission process for the academy favored some potential recruits over others. Those with paramilitary or prior police experience are given a boost in examination points in the formal examination helping determine admission to the academy. These recruits, who are far closer to the police ideal, become seeds in the academy who are more likely to become role models for the neophyte recruits.

For such a system to work, a lot of social network ties must form. So, to make this argument plausible, it was necessary to document the formation of a dense network in the academy. By the end of the academy training, 2728 of the potential 4556 friendship ties actually formed, albeit at various level of intensity. This extraordinary level of network density was a designed product of the academy training. We used a variety of theoretical approaches to help establish our argument and to identify the social mechanisms generating this high level of network ties. Feld's (1981) focus theory was particularly helpful because the academy itself is a focus and, within it, a variety of foci for shared activities are created. Within this context, the arguments of [Homans \(1950\)](#) concerning the external and internal environments and the dynamics of activities, sentiments and interaction have great value. Additionally, the discussion of [Becker et al. \(1963\)](#) concerning the professional training has many parallels to the professional training of police officers.

Based on these theoretical approaches we formulated 32 specific hypotheses regarding the generation of the social ties that are formed in the academy. These involved the use of matrix arrays characterizing social knowledge, being socially known, friendship, transitivity, academy infrastructure variables (fixed seat arrangements and work group membership), lunch partners, ride sharing, humor and race. Our primary concern was to understand the formation of social knowledge in the academy by establishing its predictors.

In the main, these hypotheses, as described in [Table 4](#), were supported – although some were not. Together, they present a complex and theoretically based understanding of the generation of a dense set of network ties. These networks are the vehicle over which the recruits of a cohort come to trust only each other and to develop a coherent police identity that includes solidarity and trust. The one

area in which the socialization objectives of this academy was not successful concerned the issue of race in law enforcement.

Several design issues are raised by this result. Clearly, the inclusion of recruits having prior military or law enforcement experience, is effective in creating a graduating class with a clear 'police identity' in the traditional sense. But if the goal includes being more sensitive to communities within which policing is practiced, is a part of an academy's objective, this must be done with greater care. This includes recognizing that recruits are individuals who may depart, in some ways, from the desired objectives for being police officers.

Detailing the ways on which social mechanisms were coupled in this academy along with discerning the timing of the operation of these processes seems an important contribution. As noted above, the problem of combining generic processes and singular events is important. We do not claim to have solved it. However, we do suggest that items introduced into the curriculum be sensitive to where the recruits are in the stages of their training.

Also, we left implicit the idea that values regarding policing are generated over a dense network. We began this work with the belief that the relations between recruits are conduits for informal police socialization. This article has been devoted to examining the evolution of that dense network over time. One weakness in this work is that we have no data regarding attitudinal changes among recruits that could be tracked over time and examined vis-à-vis the social network ties. We plan to address this work in forthcoming analyses of a data collected in another police academy that includes social relations as well as psychological attributes.

In terms of practical applications for this research, we return to the idea that remedies for the conflict between the police and communities can be accomplished through police training. While there is an obvious wisdom in that line of thinking, this analysis emphasizes the intensity of network ties within a recruit cohort. So, continued attempts to change to an occupational culture grounded in dense ties remains a fool's errand unless the training is expanded beyond the insulated world of policing. Currently, academy training and the recruits themselves are too isolated from the communities they serve. While law enforcement has been considering community policing for decades, it is surprising that discord continues because the training itself is very effective in generating connections between recruits, but offers very little in terms of quality community engagement.

References

- Albuquerque, C.L., Paes-Machado, E., 2004. The hazing machine: the shaping of Brazilian military police recruits. *Polic. Soc.* 14 (2), 175–192.
- Becker, H.S., Greer, B., Hughes, E.C., Strauss, A.L., 1963. *Boys in White: Student Culture in Medical School*. University of Chicago Press, Chicago.
- Berg, B., 1990. First day of the police academy: stress-reaction training as a screening out technique. *J. Contemp. Crim. Justice* 8 (2), 89–105.
- Borgatti, S.P., Everett, M.G., Freeman, L.C., 2002. *UCINET 6.0 for Windows Software for Social Network Analysis*. Harvard: Analytic Technologies.
- Catlin, D.W., Maupin, J.R., 2004. A two cohort study of the ethical orientations of state police officers. *Polic.: Int. J. Police Strateg. Manag.* 27 (3), 289–301.
- Chappell, A.T., Lanza-Kaduce, L., 2010. Police academy socialization: understanding the lessons learned in a paramilitary-bureaucratic organization. *J. Contemp. Ethnogr.* 29 (2), 187–214.
- Chappell, A.T., Lanza-Kaduce, L., Johnston, D.H., 2005. Police training: changes and challenges. In: Dunham, Roger G., Alpert, Geoffrey P. (Eds.), *Critical Issues in Policing*, 5th ed. Waveland Press, Prospect Heights, IL, pp. 71–88.
- Chappell, A.T., 2008. *Learning in Action: Training the Community Police Officer*. Doctoral Dissertation. University of Florida.
- Christie, G., Petrie, S., Timmins, P., 1996. The effect of police education training, and socialization on conservative attitudes. *Austr. N. Z. J. Criminol.* 29 (3), 299–314.
- Conti, N., Doreian, P., 2010. Social engineering and race in a police academy. *Soc. Netw.* 32, 30–43.
- Conti, N., Doreian, P., 2014. From here on out, we're all blue. *Interaction order, social infrastructure and race in police socialization*. *Police Q.* 17 (4), 414–447.
- Conti, N., Nolan, J.J., 2005. Policing the platonic cave: ethics and efficacy in police training. *Polic. Soc.* 16 (2), 166–186.

- Conti, N., 2009. A Visigoth system: shame honor and police socialization. *J. Contemp. Ethnogr.* 38 (3), 409–432.
- Crank, J., 1998. *Understanding Police Culture*. Anderson, Cincinnati, OH.
- Dekker, D., Krackhardt, D., Snijders, T.A.B., 2007. Sensitivity of MRQAP tests to collinearity and autocorrelation conditions. *Psychometrical* 72, 563–581.
- Doreian, P., Conti, N., 2012. Social context, spatial structure and social network structur. *Soc. Netw.* 34, 32–46.
- Doreian, P., Teuter, K., Wang, C., 1984. Network autocorrelation models: some Monte Carlo evidence. *Sociol. Methods Res.* 13 (2), 155–200.
- Doreian, P., Kapuscinski, R., Krackhardt, D., Szczypula, J., 1996. A brief history of balance through time. *J. Math. Sociol.* 21, 113–131.
- Doreian, P., 1981. Estimating linear models with spatially distributed data. In: Leinhardt, S. (Ed.), *Sociological Methodology 1981*. Jossey-Bass, San Francisco, pp. 359–388.
- Encandela, J.A., 1991. Danger at sea: social hierarchy and social solidarity. *J. Contemp. Ethnogr.* 20, 131–156.
- Feld, S.L., 1981. The focused organization of social ties. *Am. J. Sociol.* 81 (5), 1015–1035.
- Fielding, N.G., 1984. Police socialization and police competence. *Br. J. Sociol.* 35 (4), 568–590.
- Ford, R.E., 2003. Saying one thing meaning another: the role of parables in police training. *Police Q.* 6 (1), 84–110.
- Haarr, R.N., 2005. Factors affecting the decision of police recruits to ‘Dropout’ of police Work. *Police Q.* 8, 431–453.
- Harris, R., 1973. *The Police Academy: An Insider's View*. John Wiley & Sons, Inc, New York.
- Harris, R., 1978. The police academy and the professional self-image. In: Manning, P.K., Van Maanen, J. (Eds.), *Policing: A View from the Street*. Goodyear, Santa Monica, pp. 273–291.
- Holland, P., Leinhardt, S., 1974. The structural implications of measurement error in sociometry. *J. Math. Sociol.* 2, 85–111.
- Homans, G., 1950. *The Human Group*. Brace & World, Inc., New York: Harcourt.
- Hopper, M., 1977. Becoming a policeman: socialization of cadets in a police academy. *Urban Life* 6, 149–170.
- Hubert, L., 1983. Inference procedures for the evaluation of proximity matrices. In: Felsenstein, J. (Ed.), *Numerical Taxonomy*. Springer-Verlag, New York.
- Hubert, L., 1985. Combinatorial data analysis: association and partial association. *Psychometrika* 50 (4), 449–467.
- Kappeler, V.E., Sluder, R.D., Alpert, G.P., 1998. *Forces of Deviance: Understanding the Dark Side of Policing*. Waveland Press, Prospect Heights, IL.
- Krackhardt, D., 1988. Predicting with networks: nonparametric multiple regression analysis of dyadic data. *Soc. Netw.* 10 (4), 359–381.
- Langworthy, R.H., Travis, L.F., 2003. *Policing in America: Balance of Forces*, 3rd edition. Prentice Hall, Upper Saddle River, NJ.
- Leenders, R.T.H.A.J., 1997. Longitudinal behavior of network structure and actor attributes: modeling interdependence of contagion and selection. In: Doreian, P., Stokman, F.N. (Eds.), *Evolution of Social Networks*. Gordon and Breach, New York, pp. 165–184.
- Little, R.F., 1990. The police academy: toward a typology of anticipatory occupational socialization among a sample of police recruits. *Police J.* 63 (2), 159–167.
- Lundman, J.R., 1980. *Police and Policing: An Introduction*. Rinehart and Winston, New York: Holt.
- Maghan, J.L., 1988. *The 21st Century Cop: Police Recruit Perceptions as a Function of Occupational Socialization*, Doctoral Dissertation. City University of New York.
- Mantel, N., 1967. The detection of disease clustering and a general regression approach. *Cancer Res.* 27 (2), 209–220.
- Massey, D.R., 2007. *Categorically Unequal: The American Stratification System*. Russell Sage, New York.
- McCreedy, K.R., 1980. *The Impact of a Police Academy on the Socialization of New Officers*, Doctoral Dissertation. University of Southern California.
- McNamara, R.P., 1999. The socialization of the police. In: Kenney, D.J., Robert McManara, P. (Eds.), *Police and Policing: Contemporary Issues*. Praeger Publishers, New York.
- McNulty, E.W., 1994. Generating common sense knowledge among police officers. *Symb. Interact.* 17 (3), 281–294.
- Meier, A.M., Arentsen, T.J., Pannell, L., Putman, K.M., 2016. Attrition of police officers as predicted by peer evaluations during academy training. *Policing Soc.*, <http://dx.doi.org/10.1080/10439463.2015.1128904>.
- Paes-Machado, E., Albuquerque, C.L., 2002. Jungle I.D: educational reform inside the Brazilian paramilitary police. *Polic. Soc.* 13 (1), 59–87.
- Pogreben, M.R., Poole, E.D., 1988. Humor in the briefing room: a study of the strategic uses of humor among police. *J. Contemp. Ethnogr.* 17, 183–210.
- Pogreben, M.R., Poole, E.D., 1991. Police and tragic events: the management of emotions. *J. Crim. Justice* 19, 395–403.
- Schroeder, L.D., Sjoquist, D.L., Stephan, P.E., 1986. *Understanding Regression Analysis*. Beverly Hills Sage.
- Sherman, L.W., 1980. Causes of police behavior: the current state of quantitative research. *J. Res. Crime Delinq.* 17, 69–100.
- Sherlock, S., 1998. Police officer support for quasimilitary stress training and orientation toward outsiders and nonlaw enforcement functions. *J. Police Crim. Psychol.* 13 (2), 87–99.
- Stokman, F.N., Doreian, P., 1997. Evolution of social networks: processes and principles. In: Doreian, P., Stokman, F.N. (Eds.), *Evolution of Social Networks*. Gordon and Breach, New York, pp. 233–250.
- Stradling, S.G., Crowe, G., Tuohy, A.P., 1993. Changes in self-concern during occupational socialization. *J. Commun. Appl. Psychol.* 3 (2), 131–147.
- Van Maanen, J., 1972. *Pledging the Police: A Study of Selected Aspects of Recruit Socialization in a Large, Urban Police Department*. Doctoral Dissertation. University of California, Irvine.
- Van Maanen, J., 1975. Police socialization: a longitudinal examination of job attitudes in an urban police department. *Adm. Sci. Q.* 20, 207–228.
- Wasserman, S., Faust, K., 1994. *Social Network Analysis*. Cambridge University Press.
- White, D., 2006. A conceptual analysis of the hidden curriculum of police training in England and Wales. *Polic. Soc.* 16 (4), 386–404.
- Yarmey, A.D., 1990. *Understanding Police and Police Work*. New York University Press, New York.