Measuring procedural justice and legitimacy at the local level: the police–community interaction survey

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Abstract

Objectives To introduce and evaluate the Police–Citizen Interaction (PCI) Survey, the electronic survey component of the National Police Research Platform, designed to measure the quality of police–citizen encounters at the local level.

Methods Three studies tested the feasibility, validity, and sample representativeness of the PCI Survey. A randomized control trial (RCT) compared the PCI Survey results with the most widely used survey method, the telephone survey. The primary measures were the community member's satisfaction with the contact, judgments of procedural justice during the interaction, police effectiveness, and police legitimacy.

Results The RCT revealed no significant differences between the PCI Survey and the standard telephone survey, thus increasing confidence in the validity of the PCI methodology. The PCI Survey was able to replicate "known group" findings from prior research; capture agency-level differences in public satisfaction; uncover complex interactions of race, type of incident and procedural justice; and show the relative importance of both process and outcome during police-initiated contacts.

Conclusions The PCI Survey approach, utilizing web and voice interactive methods, shows considerable promise as a tool for measuring organizational performance in new ways, focusing on procedural fairness and the quality of police services rather than the reliance on crime statistics. The survey appears to have utility for local jurisdictions, while at the same time providing standard metrics for cross-jurisdictional theory testing

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and benchmarking. The survey was tested initially with three agencies of different sizes. It will be refined for implementation on a larger scale.

Introduction

Police executives have long recognized that for the police to be effective in performing their duties, they need the trust and confidence of the communities they serve. History reminds us that this has been a rocky road, littered with community complaints about police misbehavior and repeated attempts by reformers to professionalize the police and hold them accountable (Stone and Travis 2011; Walker 2005). The landscape is changing, but arguably an endemic and chronic challenge for the police is stabilizing what is often precarious organizational legitimacy and public trust. Complaints of police corruption, excessive force, unwarranted intrusions, abusive encounters, and biased enforcement have persisted for decades and are often linked to issues of racial and social inequality. Researchers have documented these problems (Alpert and Fridell 1992; Rocque 2011; Skogan 2006; Skolnick and Fyfe 1993; Terrill and Mastrofski 2002; Weitzer and Tuch 2004), but have rarely studied how organizations contribute to these problems or what can be done to facilitate constructive change. Today, police researchers are increasingly focused on the task of evaluating the effectiveness of crime control strategies (see Weisburd and Braga 2006), but less attention has been given to factors related to the creation of a professional, democratic, fair police force or the non-crime functions that consume the vast majority of police time (e.g., patrolling, public contact, peace keeping, traffic enforcement). Ironically, police organizations rarely experience a public crisis because of crime rates, but most often because of interactions with the public that contribute to a loss of public trust.

Thus, the public's evaluation of law enforcement is critically important to agency performance. In recent years, researchers have underscored the importance of institutional legitimacy as a fundamental method of maintaining order and building stronger police–community relations (see Mazerolle et al. 2012a for a review). Tyler (2006a, p. 375) defines legitimacy as "a psychological property of an authority, institution, or social arrangement that leads those connected to it to believe that it is appropriate, proper, and just." In essence, when members of the community view the police as legitimate, they trust the police to do what is right for the community and they consent to this exercise of power (Beetham 1991). However, when police actions are in conflict with society's larger set of values regarding what constitutes appropriate and fair behavior, then organizational legitimacy is threatened and citizens feel less moral obligation to obey the law or assist authorities in carrying out their mandate (Jackson et al. 2012a; Tyler 1990).

Given the importance of legitimacy to public safety, local government officials and researchers have pursued many approaches to the problem, including community-oriented models of policing (Greene and Mastrofski 1988; Rosenbaum 1994; Skogan 2004), training in procedural justice (Mazerolle et al. 2012b), leadership styles (Schafer

2013), and external oversight (Walker 2005), among others. Through the National Police Research Platform, a program designed to advance knowledge and practice in American policing, we are recommending another model that has the potential to facilitate and evaluate reform while providing diagnostic tools to police executives. Specifically, we are proposing that law enforcement agencies work with the research community to implement a new system of measurement that will empower local jurisdictions to routinely assess local public perceptions of police performance and develop responses that are tailored to the concerns identified. We call this the Police–Community Interaction (PCI) Survey.

At the core of this evidence-based approach is the assumption that the mere act of measuring behavior will eventually lead to behavioral change. The "reactivity" caused by the measurement process itself has been recognized by researchers for decades and they have sought to minimize the effects of observing or recording behavior by using unobtrusive measures (e.g., Webb et al. 1966). In the world of policing, for example, few would debate the fact that the Compstat program—holding commanders accountable for crime statistics—has altered the style and substance of American policing (Bratton and Knobler 1998; Weisburd et al. 2003). Soon, we will learn how body cameras alter police–community contacts. In essence, measurement is a powerful tool for drawing attention to particular behavior patterns and potentially modifying behavior in ways that are consistent with the expectations of those in charge of the measurement system.

While local survey data are critical, a standardized system for measuring public perceptions, such as the PCI Survey, is also needed that will allow for cross-jurisdictional comparisons. Such data will give police administrators new performance benchmarks, while at the same time allowing researchers to identify organizational, community and contextual factors that can explain between-agency differences in police legitimacy and public satisfaction. In this article, we report the results of a randomized control trial that was conducted to evaluate the first phase of a new survey methodology designed to measure the quality of police contacts with the public. We examine whether the survey methodology can be feasibly implemented, is cost effective, and can produce valid results comparable to the most widely accepted survey methodology.

Background literature

Reform models and change agents

Police executives who manage agencies with strong public support understand the importance of being responsive to public expectations. In the 21st century, community stakeholders expect the police to reduce crime, solve local problems, and be fair and sensitive to the needs of persons they encounter (Skogan and Frydl 2004; Tyler 2005; Weitzer and Tuch 2004). Community policing models were introduced largely to address these concerns and strengthen police legitimacy (Rosenbaum 1994; Skogan 2004).

These reforms sought to reduce the degree of estrangement between police and the community and build problem-solving partnerships, but they have been criticized for their ambiguity and mixed success (see Mastrofski 2006; Rosenbaum 2007). One

of the key shortcomings has been the failure to establish a system of measurement that captures the quality of police–community interactions and holds the police accountable for their performance, a la Compstat. Today, the public and policy makers expect better systems of accountability for police behavior (Chan 2001; Walker 2005). With regard to accountability, a key question is "Accountable to whom and for what?" For Compstat, accountability is toward central management for reported crime rates. In contrast, the system proposed here would hold the police accountable to the public (as well as management) for the quality of their interactions with the community and the agency's ability to deliver services that are judged to be fair and satisfactory by the community.

Call for new measures of police performance

Policing scholars have argued that police executives need to be responsive to a new "information imperative" (Dunworth 2000; Rosenbaum 2004). Frustrated with conventional measures of police performance (e.g., crime rates, arrests, clearances), many writers have called upon the research community to "measure what matters" to agency constituents (see Langworthy 1999; Masterson and Stevens 2002; Mastrofski 1999; Mirzer 1996; Rosenbaum et al. 2007; Skogan and Frydl 2004), including quality-of-life measures and fairness and equity in police performance. As a result, both researchers and practitioners have encouraged greater attention to the processes of policing that reflect shared democratic values rather than simply counting activities or outcomes (Mastrofski 1999; Moore et al. 2002; Tyler 2001) and for new measures of the quality of police service (Alpert and Moore 1993; Langworthy 1999; Mastrofski 1999; Rosenbaum 2004).

In this regard, the impetus for, and content of, the proposed Police–Community Interaction (PCI) Survey has been influenced by work in several areas. First, there is considerable work in the private sector derived from the "customer service" model, (see Moore and Poethig 1999). For example, the American Customer Satisfaction Index at the University of Michigan (www.theacsi.org) provides standardized benchmarks of satisfaction across 43 industries and 10 economic sectors, and is widely used by government and the private sector to judge current and future organizational performance (e.g., Fornell et al. 2010; Lervik-Olson and Johnson 2003). Similarly, J.D. Power has been tracking customer satisfaction in more than a dozen economic sectors worldwide since 1968 to "help them measure, understand, and improve brand performance to exceed customer expectations" (jdpower.com). No such system exists to evaluate public sector policing in the United States. However, the Metropolitan Police Service's Public Attitude Survey in the UK is a good example of what local surveys can achieve when seeking to measure police performance on multiple dimensions over an extended period of time (Stanko and Bradford 2009; Stanko et al. 2012).

Second, research in support of procedural justice theory (Lind and Tyler 1988; Tyler 1990) indicates that people's judgments about the police are based heavily on their sense of whether the processes employed by the police are fair, so dimensions of procedural justice are included in the PCI. Finally, research on victims of crime underscores how negative, unsupportive reactions from law enforcement professionals can inhibit crime victims' psychological recovery and reduce the likelihood of future disclosure or reporting to authorities (Ahrens 2006; Starzynski et al. 2005; Ullman

1999). Each of these domains influenced our thinking about the PCI Survey. Satisfaction, fairness, respect, and support are among the key dimensions of police–community encounters worthy of measurement.

Thus, a new data system that routinely captures the quality of policing on the streets should go a long way toward achieving the goal of creating a respectful, constitutional, and compassionate police force. Such a measurement system would not only contribute to accountability for a new set of behaviors, a la Compstat, but should encourage a problem-oriented approach to community service delivery. Specifically, agencies must first understand the nature and extent of any local service delivery problems involving legitimacy and service quality. Standard metrics would allow for baseline measures of various police–community interaction issues, the development and implementation of corrective interventions, and the evaluation of behavior change relative to the baseline.

The current research represents a first step toward addressing this measurement gap by developing and field-testing the PCI Survey. The survey provides a key set of external indicators of organizational performance vis-à-vis the community. Other than crime statistics and unrepresentative citizen complaints, police organizations have very little data at their disposal to judge the quality of their performance in the external environment. A central question, however, is what dimensions of police–community interactions are worthy of continued measurement?

Public sentiment toward the police

Dating back to the 1960s, national opinion polls such as Gallup, Harris, and Roper have routinely measured public sentiment toward the police in the United States, revealing that most adults hold a positive image of the police, although lower evaluations are received from residents who are younger, urban, non-white, and of lower economic status (see Gallagher et al. 2001 for a review). Most Americans who are surveyed, however, do not have any contact with the police during a given year (Langton and Durose 2013), so they rely on the media and informal sources to form their impressions, which can be unreliable or misleading. Furthermore, national studies do not generate useful information for local communities, and unfortunately, most of the community-specific surveys have been done in large cities. Thus, our knowledge of the public's view of the police in the vast majority of American communities is extremely limited.

As surveys become more sophisticated and focused, our understanding of public sentiment toward the police has become more complex. As it turns out, direct contact with the police is an important source of information on which to evaluate police behavior. By surveying individuals who have personally interacted with the police, we have learned a great deal about the complexity of public confidence in the police and public responses to the police. Police scholars have studied police–citizen interactions for decades (Bayley and Mendelsohn 1968; Decker 1981). From research in Britain and the United States we have learned that citizens are less satisfied with involuntary police-initiated contacts than with voluntary citizen-initiated contacts (Decker 1981; Hough et al. 2002; Southgate and Ekblom 1984; Wells 2007). Even within voluntary citizen-initiated contacts, there is considerable variation in satisfaction depending on the type of service being requested and the perceived quality of service rendered. In general, crime victims tend to be less satisfied than other callers (Mayhew et al. 1989;

Skogan 1989). Satisfaction with the encounter depends on whether the victims' informational and emotional needs are being met by the police (Ekblom and Heal 1982; Mayhew et al. 1989), and whether the police are seen as fair, helpful and respectful during the encounter (Quinton et al. 2000; Skogan 2005). Although citizens' pre-contact attitudes and personal characteristics can influence satisfaction in ways consistent with the results of community-wide surveys (Rosenbaum et al. 2005; Skogan 2005), in general, this body of work suggests that what the officer does during the encounters has a substantial impact on overall citizen satisfaction. Additionally, negative encounters with the police are frequently communicated to family and friends and become a basis for their negative attitudes toward police.

The police contact literature is a helpful first step in understanding the complexity of these interactions and identifying important constructs worthy of continued measurement. In particular, this work has served as a springboard for a deeper examination of police–citizen exchanges and a growing body of work on procedural justice as the explanatory mechanism for satisfaction and legitimacy perceptions.

Legitimacy and procedural justice

From a police officer's perspective, "police legitimacy" may seem like an academic concept that has little relevance to the day-to-day work of the police. However, research has shown that when the police lack legitimacy, citizens are unwilling to comply with their requests, more likely to file complaints, less willing to cooperate in preventing, reporting or investigating crime, less satisfied with their police encounters, and less willing to obey the law (Hawdon 2008; Kane 2005; Mastrofski et al. 1996; Tyler 1990; Tyler and Fagan 2008; Tyler and Huo 2002). Moreover, these linkages between procedural justice and public cooperation with legal authorities have been documented in multiple countries outside the United States (see Jackson et al. 2012b; Mazerolle et al. 2012a; Murphy and Cherney 2012; Myhill and Quinton 2011). Because weak legitimacy encourages defiance and resistance, this state of affairs also runs the risk of increased violence between citizens and the police in both directions (Reiss 1971).

Hence, if the public's perception of police legitimacy is critically important for maintaining public order, achieving workable police–community relations, and influencing police effectiveness, what are the important determinants of legitimacy and what can be done to improve it? Many researchers have found that police–citizen interactions represent a key mechanism for building or undermining police legitimacy (Gau and Brunson 2010; Jackson et al. 2012b; Mastrofski et al. 2002; Myhill and Quinton 2011; Skogan 2005; Tyler 2006b). Challenging the popular "instrumental perspective" that police gain legitimacy by their effectiveness in fighting crime and generating other favorable outcomes for the public, a substantial body of research supports the "procedural justice perspective" that police achieve legitimacy with the public by engaging in fair procedures and processes (Sunshine and Tyler 2003; Tyler 1990, 2003, 2004, 2011; Tyler and Huo 2002; see also Hinds and Murphy 2007). The procedural justice model specifies two types of evaluations that people make when judging the behaviors of police officers: (1) the *quality of decision making*, i.e., "the degree to which the police make their decisions in neutral, objective, and consistent ways" (Tyler 2003, p. c341); and (2) the *quality of treatment*, i.e., "being treated with dignity and respect, having one's rights acknowledged, and having one's needs

acknowledged and considered" (Tyler 2003, p. 329). When officers behave in these ways, citizens feel a sense of procedural justice, have greater trust of the officers' motives, are more inclined to accept the officers' decisions, and express greater satisfaction with the experience (e.g., Tyler and Huo 2002).

In contrast, research shows that when officers are disrespectful toward citizens, in turn, citizens are more disrespectful of the police (Dai et al. 2011) and less willing to comply with officers' directives (Mastrofski et al. 1996; McCluskey et al. 1999; Terrill and Reisig 2003). Thus, while the police have the authority to force compliance, they would be better served by behaviors perceived as fair and respectful—actions that will encourage cooperation and voluntary consent. Indeed, experimental work in Australia has demonstrated that a single contact with a police officer who is trained to act in a procedurally just way can significantly improve the citizens' views of the encounter and increase their trust in the police overall (Mazerolle et al. 2012b; Murphy et al. 2014).

Another body of research on victims of violent crime also provides guidance regarding ways to improve police–victim interactions. For example, research on sexual assault underscores how negative, unsupportive reactions from law enforcement professionals can inhibit crime victims' psychological recovery and reduce the likelihood of future disclosure or reporting to authorities (Ahrens 2006; Starzynski et al. 2005; Ullman 1999). Negative social reactions to victims can include taking control of the victim's decisions, blaming victims for their victimization, distracting them from what happened, and egocentric behavior (Ullman 2000). Positive social reactions can include instrumental, emotional, and informational support. Consistent with this research, a randomized trial in the UK found that victims of crime were more satisfied with their police interaction (i.e., felt the officer was more interested in what they said and provided more reassurance) when the officer was trained in procedural justice than when the officer was not (Wheller et al. 2013).

Along these lines, some researchers have proposed a third dimension of procedural justice—whether the citizen can trust the officer's motives, i.e., that the officer is honest and has a sincere desire to be fair (Tyler and Wakslak 2004). Arguably, trust is the result of efforts by authority figures to explain their actions, show empathy, and give attention to the views and concerns of those involved. Thus, from our perspective, trust is an outcome, like legitimacy, that stems from these processes. In any event, whether the police exhibit a caring, empathic, and helpful response to victims and other citizens they encounter is critically important to the success of the interaction (cf. Dai et al. 2011; Posick and Policastro 2013; Wells 2007).

In sum, extant research and practice suggest that there is more to police–civilian encounters than official statistics on crime incidents, arrests, and traffic citations. Factors such as the officer's demeanor, fairness and impartiality, emotional and informational support, and professional competence all play a role in determining whether community members are satisfied with their encounter; whether they will trust and work with the police in the future; and whether they will be inclined to obey the law themselves. Each deserves to be measured and monitored in a systematic way. The PCI Survey is a first step in this direction in the United States.

The National Police Research Platform seeks to advance knowledge of policing by looking both inside and outside of police agencies. The key external question addressed by the Platform is, "How well are departments performing during their encounters with

the public?" Hence, we have field tested a new community survey methodology as a tool to evaluate the quality of policing on the streets and better understand the individual, organizational, and community factors that contribute to local police legitimacy.

Public satisfaction surveys have been developed by the Platform team to achieve several goals. First, as noted above, there is a need for validated measures of police–citizen interactions and public trust that can be used as standardized benchmarks or indicators of organizational excellence at the local, regional, and national levels. Second, these methods can be used to generate timely feedback regarding police performance to assist local agencies in building smarter, evidence-based learning organizations, including self-corrective measurement systems. Third, these methods can address the growing public demand to have a voice in government services. Creating a visible mechanism for community input will go a long way toward building public trust, administrative transparency, and organizational legitimacy.

Questions remain about the appropriate methodology to employ to query the public and achieve these goals. The telephone survey has been the most popular survey methodology over the past 30 years because of its reach, efficiency, and control over data collection (Dillman et al. 2009; Lavrakas 2007). However, telephone surveys can be costly and response rates have declined precipitously with the growth of telemarketing and the widespread use of cell phones, caller ID, and other changes in technology (Tourangeau and Plewes 2013). Consequently, alternative survey methods have emerged that are more efficient and affordable for routine data collection (Dillman et al. 2009). The question remains whether these approaches can be adapted to evaluate police–citizen contacts extracted from police records. Hence the first of three studies reported here involves a randomized control trial that compares the responses obtained from electronic methods (web and interactive voice survey) with those obtained from the conventional telephone survey approach. Other studies here evaluate the adequacy of these electronic surveys for replicating patterns of community perceptions of the police observed in prior research using other, more costly survey methods.

Limitations of prior surveys

The need for "customer satisfaction" surveys is readily apparent from the fact that many local police departments have conducted their own community surveys to gauge public satisfaction with their services and assess their public image (Fridell and Wycoff 2004). Often, these local surveys are conducted in-house by sworn personnel, and therefore, their validity is questionable. Specifically, when police officers ask community members for feedback about their own performance, such information is suspect because of potential pressure to give "the right answer" and because the identity of the survey respondent is not protected. For this reason, researchers and police executives have called for data collection by independent agencies (Mastrofski 1999; Reiss 1971). The Platform model being tested in this study relies on a university to serve as the independent, credible partner institution that collects and analyses the survey data and provides standardized reporting to all participating agencies.

Many jurisdictions hire survey firms or local academics to conduct community surveys that meet the independence criteria, but often these are one-time snapshots of public sentiment and are focused largely on community members who do not have any

direct experience with the police. When these surveys do ask about contact with the police, the incidents are often months or years in the past. A substantial body of research on people's ability to accurately report victimization (Skogan 1986) or serve as an eyewitness to crime (Zaragoza et al. 2007) consistently identifies memory-related problems of forgetting, inaccurate recall and incomplete recall when respondents are asked about incidents further in the past. Hence, surveying persons with recent police contact is essential. Furthermore, the study of specific interactional processes requires subjects who can accurately recall the nature and details of the interpersonal encounter and the procedural justice elements that were present or absent. Such detail is seriously hampered by distant events and the retroactive interference of more recent events (called the "misinformation effect"). Finally, local surveys are inherently local and the content typically changes from one community to the next, thus limiting any meaningful cross-jurisdictional comparisons.

A national survey has been created and implemented by the Bureau of Justice Statistics to better understand the frequency and nature of police–citizen contacts. The BJS Police-Public Contact Survey (Durose et al. 2007) is scientifically rigorous and provides sound national estimates, but the sampling frame does not allow for local evaluations of the police given the some 17,000 different agencies and jurisdictions. Consequently, it is considered less useful to local agencies for decision making and problem solving. Local community surveys conducted by researchers seek to correct this problem, but the limitations noted above suggest that these surveys are of limited value for identifying trends or understanding interagency differences. Furthermore, the costs of conventional surveys, including the personnel costs associated with telephone and face-to-face interviews, often prohibit replication. Hence, the Platform sought to use efficient, electronic methods that could be sustained over time in hundreds of jurisdictions. While internet surveys are efficient, their lower response rates, which may affect sample representativeness, are well documented (Cook et al. 2000). To compensate for the existing "digital divide" in internet access and usage (United States Census Bureau 2014), we added a voice interactive mode that allows persons who do not use the internet to complete the PCI Survey by telephone.

Research questions

In essence, what is still missing is a survey that (a) is local, and therefore generates useful feedback to local agencies; (b) is standardized and multi-jurisdictional, and therefore generates useful information for cross-jurisdictional theory testing as well as benchmarks for agency performance; (c) focuses on community members who have direct, recent experience with the police that can be reliably reported; (d) covers theory-based dimensions of police–citizen interactions, such as procedural justice and victim supportiveness, that have been shown in prior research to be important for citizen cooperation, compliance, satisfaction, and assessment of police legitimacy; and (e) yields results from a fairly representative sample of community members with recent police contact experience.

The basic research question then is whether we could build a survey research tool and methodology that could address these needs. The PCI Survey was a test of the feasibility of web-based and interactive voice survey methodologies. To have any hope of developing an affordable and efficient national system of measurement, electronic

methods of data collection would be needed. The question is whether these survey methods could be implemented at the local level to adequately measure the quality of police–civilian contacts and perform as well as the current predominate telephone survey methodology. This required a randomized control trial, with cases assigned to either the electronic methods or to the telephone survey. In addition to feasibility and methodological tests, the validity of the PCI Survey was tested using theory-based hypotheses that should be supported if the constructs are valid. Separate studies were conducted to address these questions.

Study 1: randomized control trial of different survey methods

Study purpose

A randomized control trial (RCT) was conducted in three cities of different size and diversity to address questions about the validity and representativeness of the PCI Survey with respect to measuring public satisfaction and procedural justice during police–citizen encounters as well as police effectiveness and legitimacy. Population size varied from less than 20,000 to more than 500,000, with the percent minority ranging from less than 20 % to more than 50 %. Responses obtained from the PCI Survey electronic methods (i.e., web and interactive voice surveys) were compared to responses generated by the telephone survey.

RCT methods

Each week, staff from each police department scanned departmental records and extracted the names and addresses of persons 18 or older who have had a recent contact (in the past 1 to 3 weeks) with a police officer because of a reported crime incident or reported traffic accident.[i] The sampling list was designed so that cases were effectively matched by type of incident (traffic accident or type of crime) and by date of occurrence. Cases were then randomly assigned to one of two groups, which would receive different letters: (1) *Telephone Survey Group*: This group received a contact letter from the chief of police encouraging them to participate in the survey via an upcoming telephone interview; *(2) Electronic Survey Group:* This group received a contact letter from the chief of police encouraging them to participate in the PCI Survey via electronic mode—they could choose either to complete the survey on the Web or call a toll-free number and complete an interactive voice survey. Data collection occurred over a 6-month period.

Analyzing the differences in the mailing demographics between these two groups confirmed the effectiveness of random assignment. Chi-square tests showed the sample frames were virtually identical on gender, age, and type of incident. Small, but significant differences were observed in racial composition. African Americans were 6.3 percentage points under-represented in the Electronic Survey Group, χ^2 (3, randomized control trial=1289)=8.33, $p<.05$.

For the Telephone Survey Group, the Northern Illinois University Public Opinion Laboratory (POL) gathered data through a computer-assisted telephone interviewing

(CATI) system. CATI was used to manage the sample, establish project protocol, supervise interviewers, track productivity, and dispose of cases. An average of 3.1 calls was made to each household. The Electronic Survey Group sample was managed at the University of Illinois at Chicago using software developed by Voxco. Potential respondents assigned to this group were sent a single contact letter from the chief requesting their participation and no follow-up contact attempts were made. Responsibility to complete the survey for this group fell solely on potential respondents.

A total of 1,959 contact letters were mailed without being returned to the sender because of an incorrect or invalid address. The Electronic Survey Group was oversampled because of an anticipated lower response rate. Indeed, the Telephone Survey Group methodology resulted in a higher response rate than did the Electronic Survey methodology. A total of 680 contact letters were mailed (without return) to the Telephone Survey Group and follow-up calls by POL interviewers resulted in 235 completions, leading to a response rate of 34.41 %. A total of 1,279 contact letters were mailed (without return) to the Electronic Survey Group and 142 responded with completed electronic surveys, yielding an 11.10 % response rate. The overall response rate for 377 completions was 19.2 %.

RCT demographics

Slightly more than half of the survey respondents (53.8 %) were female and the average age was 48.7 years (SD=15.84). The majority of the sample self-identified as White (61.7 %), while one fourth self-identified as African American (27.8 %) and the rest were categorized as Non-African American Minorities (10.5 %). Seven out of ten respondents (70.9 %) were residents of the community where the interaction occurred and the majority were homeowners (64.1 %). Across the entire sample, 62.3 % of the respondents were from the Telephone Survey Group and 37.7 % were from the Electronic Survey Group. Within the Electronic Survey Group, 38.7 % elected to use the telephone voice interactive mode and 61.3 % elected to use the web mode.

Chi-square tests were performed to determine whether the two experimental groups had similar demographic characteristics. No significant differences were found on gender or incident type. The Electronic Survey Group, however, included a higher proportion of younger and white respondents than the Telephone Survey Group, χ^2 (355)=31.01, $p<.001$; χ^2 (363)=15.63, $p<.001$, respectively. As a result, the following analyses control for several demographic factors when determining differences across modes.

Measures

The PCI Survey was designed to measure the quality of police–citizen encounters in a manner consistent with the vast literature on factors associated with police legitimacy (see Bennett et al. 2009; Mazerolle et al. 2012a). In order to determine whether substantive differences exist across different survey modes, seven indexes were analyzed as dependent variables. These included overall satisfaction with the encounter, police effectiveness, police legitimacy, fear of crime, and three indexes of procedural justice—quality of treatment, quality of decision making, and informational support.

Each scale and variable in our analyses was checked for normality; no outliers were identified, missing data were limited, and none of the items were heavily skewed. Multicollinearity was checked and none of the items produced variance inflation factor (VIF) scores greater than 1.17 across the models (Kutner et al. 2004), well below problematic thresholds (Allison 1999).

Satisfaction with encounter Respondents were asked to provide a summative judgment regarding their overall satisfaction with the encounter: "Taking the whole experience into account, how satisfied are you with the way you were treated by the officer in this case?" The response options fell across a five-point scale 1 = Very Dissatisfied, 2 = Somewhat Dissatisfied, 3 = Neutral, 4 = Somewhat Satisfied, and 5 = Very Satisfied (M=4.60, SD=0.92, Range = 1 to 5).

Procedural justice Nine items were used to create three indexes on the key dimensions found in the Procedural Justice literature: the quality of the interaction (e.g., "Was the officer polite?"), the quality of the officer's decision making (e.g., "Do you feel the officer treated you objectively without considering your race, gender, age, religion or sexual orientation?"). It also captured the officer's responsiveness to the informational needs of the service recipient (e.g., "Did the officer answer your questions well?"). Response options were dichotomous (No=0; Yes=1). Results of Principal Components Factor Analyses are detailed in Table 1 and revealed that these items were unidimensional and internally consistent within each index. Descriptive statistics of the indexes are also detailed in Table 1. Cronbach's Alpha coefficients were strong for the quality of treatment and quality of decision making indexes (α=.76 and α=.66, respectively). The alpha for the informational support was lower, at .45, but the items are conceptually consistent, measuring whether the officer has met the informational needs of the community member.

Police effectiveness The PCI Survey goes beyond evaluations of specific encounters to capture the public's overall assessment of police performance on key instrumental outcomes. Drawing on prior research (Schuck and Rosenbaum 2005; Skogan and Hartnett 1997; Stanko et al. 2012), the Police Effectiveness Index was created by summing the responses (0=No;1=Yes) to three items asking respondents whether the police officers in their neighborhood are doing a good job working with residents to solve local problems, are effective at fighting crime, and can be relied on to be there when you need them (scale mean = 2.43, SD = 0.95, range = 0 to 3, explained variance = 86.68 %, α=.89).

Police legitimacy and trust Building on the work of Tyler and his colleagues (Lind and Tyler 1988; Sunshine and Tyler 2003; Tyler and Fagan 2008), the Police Legitimacy Index was designed to capture public confidence in the police department as a whole, with particular attention to whether community members can trust the local police department to act in their best interest. The two items were used to measure this construct: "Do you feel the police department listens to local residents and understands the issues that affect your neighborhood?" and "Do you trust your police department to make decisions that are good for everyone in your city?" These two survey questions were significantly correlated,

Table 1 Properties of procedural justice measures

PJ - Treatment		PJ - Decision-Making		PJ - Information	
Item	Loading	Item	Loading	Item	Loading
Was the officer polite?	.59	Did the officer listen to what you had to say?	.63	Did the officer answer your questions well?	.48
Did the officer seem concerned about your feelings?	.74	Do you feel the officer treated you objectively without considering your race, gender, age, religion or sexual orientation?	.59	Did the officer explain what would happen next in the process?	.50
Did the officer take the matter seriously?	.76	Did the officer appear to know what he or she was doing?	.60	Did the officer provide you with useful tips to avoid this situation in the future?	.38
Alpha	.76		.66		.45
Mean	2.78		2.86		2.34
SD	.64		.49		.75
Range	0–3		0–3		0–3

albeit weakly (r=.19, p<.001). The two items were summed together to create the Legitimacy scale (scale mean = 1.73, SD = 0.49, range = 0 to 2).

Fear of crime Because fear of crime is an important indicator of quality of life in the community and has been shown to be associated with evaluations of the police (Skogan and Hartnett 1997), we included it for validation purposes and as an outcome measure. A standard item was used to measure respondent's fear of crime—"How safe do you feel, or would you feel, being alone outside in your neighborhood at night?" Responses ranged from 1= Very Safe to 4 = Very Unsafe. Higher scores on this item indicate a greater fear of crime (M=1.85, SD=.76).

Independent variables The respondents' age, gender, race/ethnicity, residency, and home ownership were included as controls. Age was kept as a continuous variable. Gender (1 = Female) and race/ethnicity (Whites, African Americans, Non-African American Minorities) were dummy coded. White was used as the reference category for the analysis. Residency (1 = Yes) referred to whether the respondent was a resident of the community where the police interaction occurred. Home ownership (1 = Yes) simply asked if the respondent owned their home. The main independent variable to which cases were randomly assigned was the survey mode (0 = Electronic Survey mode; 1 = Telephone Survey mode).

RCT results

Ordinary least squares regression analysis was run for each of the seven dependent variables. Table 2 shows the results with both standardized and unstandardized beta coefficients for the dependent variables satisfaction, police legitimacy, police effectiveness, and fear of crime. Table 3 shows the same but for the three procedural justice dependent variables—quality of treatment, quality of decision making, and informational support. The randomized experimental variable—the mode used to take the survey—was not significantly different from zero across each model. In other words, there were no real differences between the telephone survey and the electronic modes with regard to citizens' responses on all seven indictors of police performance.[ii]

There was a possibility that responses from the two electronic modes (web survey and interactive voice survey) would differ. Analyses similar to those described above were performed on the sub-sample of electronic modes. Although respondents self-selected into these electronic options, no significant differences were found on the seven police performance indicators when comparing the web survey and interactive voice survey respondents (results not shown).

Finally, there is the question of cost and efficiency. The cost of the Telephone Survey was approximately $82 per completed survey. In contrast, the cost of the Electronic PCI Survey was approximately $5 per completed survey illustrating a substantial cost savings using the electronic version. The

Table 2 Regression of citizen perceptions on survey mode

	Model 1 Citizen Satisfaction		Model 2 Police Legitimacy		Model 3 Police Effectiveness		Model 4 Fear of Crime	
	Coef (SE)	Beta	Coef (SE)	Beta	Coef (SE)	Beta	Coef (SE)	Beta
Age	.005 (.002)*	.136	.002 (.002)	.058	.000 (.003)	.001	-.001 (.003)	-.030
Gender (1 = Female)	-.161 (.068)*	-.128	-.133 (.068)	-.106	-.142 (.093)	-.084	.360 (.080)***	.240
African American (vs. White)	-.107 (.078)	-.077	-.320 (.079)***	-.233	-.458 (.108)***	-.248	.180 (.093)	.109
Non-African American Minority (vs. White)	-.178 (.116)	-.086	-.136 (.113)	-.068	-.165 (.161)	-.059	.192 (.136)	.078
Resident	-.001 (.075)	-.001	.439 (.076)***	.312	.571 (.106)***	.300	.067 (.089)	.040
Homeowner	-.003 (.076)	-.002	-.138 (.078)	-.105	-.176 (.105)	-.101	-.064 (.089)	-.041
Mode (1 = Telephone)	.028 (.052)	.031	-.047 (.052)	-.052	-.122 (.071)	-.099	-.090 (.061)	-.085
Intercept	2.501 (.219)***	-	1.686 (.218)***	-	2.903 (.297)***	-	1.855 (.257)***	-
F	2.38*		9.93***		9.62***		4.34***	
Adjusted R^2	.027		.175		.176		.063	

*$p<.05$; **$p<.01$;***$p<.001$; SE = Standard Error; PJ = Procedural Justice

Table 3 Regression of procedural justice variables on survey mode

	Model 1 PJ Treatment		Model 2 PJ Information		Model 3 PJ Decision-making	
	Coef (SE)	Beta	Coef (SE)	Beta	Coef (SE)	Beta
Age	−.001 (.003)	−.030	.006 (.003)	.111	.003 (.002)	.119
Gender (1 = Female)	.360 (.080)	.240	−.077 (.085)	−.051	−.106 (.050)	−.116
African American (vs. White)	.180 (.093)	.109	−.154 (.010)	−.095	−.098 (.058)	−.098
Non-African American Minority (vs. White)	.192 (.136)	.078	−.080 (.142)	−.033	−.088 (.085)	−.059
Resident	.067 (.089)	.040	.168 (.094)	.103	.007 (.055)	.007
Homeowner	−.064 (.089)	−.041	−.205 (.095)*	−.133	−.021 (.056)	−.022
Mode (1 = Telephone)	−.090 (.061)	−.085	−.031 (.064)	−.029	.010 (.038)	.016
Intercept	1.855 (.257)	-	2.285 (.270)	-	2.779 (.160)	-
F	4.34***		2.10*		1.98	
Adjusted R^2	.063		.024		.020	

$*p<.05; **p<.01; ***p<.001$; SE = Standard Error; PJ = Procedural Justice

PCI Survey results were also timelier, as they could be updated and reported immediately if needed.

Study 2: theory testing and further validation of the PCI survey

Study purpose

A second study was conducted using only the electronic PCI Survey methodology to assess the construct validity of the instrument by making predictions from prior research and theory. Prior research suggests that racial/ethnic minorities and younger community members are less satisfied with their police contact (Bayley and Mendelsohn 1968; Brown and Benedict 2002; Decker 1981; Engel 2005; Gallagher et al. 2001; Gau and Brunson 2010; Reisig and Parks 2000; Tuch and Weitzer 1997; Weitzer 2000) and that procedural justice is also a good predictor of public satisfaction with the contact experience (Sunshine and Tyler 2003; Tyler 1990, 2001). The validity of the PCI Survey is strengthened if it can replicate these known group effects and these theory-based construct relationships.

Methods

The PCI Survey was introduced in three cities as indicated above. Similar to Study 1, agency employees scanned departmental records and extracted the names and addresses of persons with a recent police contact because of a reported crime incident, a reported traffic accident or a traffic stop.[iii] Otherwise, the PCI methodology was the same as Study 1, minus any comparison to the telephone survey approach.

The agencies mailed 14,571 contact letters, 608 of which were returned to the sender. Of the remaining amount (13,963), a total of 1,055 individuals responded, leading to an overall response rate of 7.56 %.

Demographics

Slightly more than half of the survey respondents (50.9 %) were female and the average age was 47.6 (SD=15.63). The majority of the sample identified as White (67.2 %), while almost one fifth of the sample identified as African American (18.1 %) and the rest were categorized as Non-African American Minorities (14.7 %). A total of 60.1 % of the respondents took the survey by going online and 39.9 % called into the interactive voice survey.

To examine whether the survey respondents were representative of the larger population that defined the police mailing database, a unique ID number was linked to each incident and respondents were asked to report this number when completing the survey. Consistent with prior research, the final sample under-represented males (by 6.7 percentage points), persons 18 to 29 years of age (by 17.6 percentage points), and African Americans (by 16.9 percentage points). The use of the voice interactive survey mode by the majority of African Americans (56.4 % vs. 30.4 % of whites) prevented additional losses that might have occurred if only the web survey option was available.

The accuracy of reporting did not appear to be a problem for the electronic modes. When self-reports and police reports of respondents' demographics were compared, 93 % of the cases matched on gender and the correlation between the two age reports was .92. Only the race/ethnicity variable showed some discrepancy (86 % match), which is not surprising given that officers are guessing the individual's race/ethnicity based on appearances and in the PCI survey the respondents are self-reporting their race.

Measures

The PCI Survey measures were the same as those employed in Study 1 (above). The analysis focused on predicting satisfaction with police encounters by drawing on procedural justice and victimology theories. The satisfaction variable was normally distributed (M=4.33, SD = 1.20, 1 = Very Dissatisfied, 5 = Very Satisfied). In line with past literature (Tyler 2003), aspects of procedural justice were separated into two core dimensions: Quality of treatment and Quality of decision making. Informational support was added as an index of responsiveness to the informational needs of the public.

Quality of treatment The PCI Survey sought to capture respectful and empathic responses on the part of the officer that might contribute to trustworthiness (cf. Tyler and Wakslak 2004). Three items were summed to create the Quality of Treatment index – Did the officer seem concerned about your feelings? Was the officer polite? Did the officer take the matter seriously? (M = 2.48, SD = 0.88, Range = 0 to 3, Explained Variance = 67.84 %, α=.75).

Quality of decision making Quality of decision making was defined in terms of the officer's ability to gather and process information in a factual, neutral matter. Three

items were summed to create the Quality of Decision Making index – Did the officer listen to what you had to say? Do you feel the officer treated you objectively without considering your race, gender, age, religion or sexual orientation? Did the officer appear to know what he or she was doing? (scale mean = 2.67, SD = 0.74, range = 0 to 3, explained variance = 67.33 %, α=.75).

Informational support As noted earlier, all persons who have contact with the police have informational needs that, if met, should improve satisfaction with the police. Officers in this study varied in how knowledgeable, informative and helpful they were to citizens. An Information index was created by summating the scores from three items – Did the officer answer your questions well? Did the officer provide you with useful tips to avoid this situation in the future? Did the officer explain what would happen next in the process? (scale mean = 2.20, SD = 0.92, range = 0 to 3, explained variance = 59.31 %, alpha = .64).

Results

Ordinary least squares (OLS) regression analysis was performed to determine whether specific dimensions of procedural justice would affect the respondent's overall satisfaction with the encounter. Table 4 shows the coefficients from a two-step model. Variables entered in the first step of the model included the demographic factors (defined in Study 1), dummy variables to identify the separate agencies, fear of crime, police legitimacy, and police effectiveness.

As hypothesized, younger citizens were less satisfied with their police contact than older citizens (β=0.18, t (823)=4.46, p<.001). The PCI Survey also captured agency-level differences in public satisfaction. Respondents from jurisdictions served by police department B showed significantly lower satisfaction than those served by department C (β=−0.12, t (823)=−2.98, p<.01). Demographic variables alone produced a significant model in predicting satisfaction (F (11, 823)=18.70, p<.001), but the fit was not strong (R^2=.26).

The second model examined the contribution of the procedural justice indexes to overall satisfaction. Adding these composite variables created a good fit to the model for predicting satisfaction with the encounter (R^2=.67, F (14, 820)=70.78, p<.001). The strongest procedural justice predictor was the officer's quality of treatment toward the community member (β=0.55, t (820)=11.25, p<.001). However, informational support provided by the officer and the quality of their decision making also contributed significantly to satisfaction (β=0.15, t (820)=3.84, p<.001; β=0.14, t (820)=3.07, p<.01, respectively). With procedural justice accounted for, older community members continued to express significantly higher satisfaction scores than younger individuals (β=0.08, t (820)=2.82, p<.01). Other demographic variables, however, were no longer significant when controlling for procedural justice factors, suggesting that perceptions of an officer's behavior might explain differences in satisfaction linked to individual characteristics.

The PCI Survey allowed for a closer look at the intersection of procedural justice, race, and type of encounter as these factors shape citizen satisfaction. The results in Table 5 allow a comparison of standardized regression coefficients within and across

Table 4 Regression of satisfaction on justice related variables and covariates

	Model 1 Baseline		Model 2 Procedural Justice	
	Coef (SE)	Beta	Coef (SE)	Beta
Age	.008 (.002)***	.178	.004 (.001)**	.082
Gender (1=Female)	−.015 (.054)	−.011	.024 (.038)	.017
African American (vs. White)	−.004 (.073)	−.002	.063 (.054)	.033
Non-African American Minority (vs. White)	.066 (.077)	.033	.076 (.055)	.038
Resident	.038 (.056)	.026	.029 (.040)	.021
Homeowner	−.003 (.061)	−.002	−.059 (.044)	−.039
Department A (vs. Dept. C)	−.089 (.067)	−.054	−.054 (.050)	−.033
Department B (vs. Dept. C)	−.195 (.065)**	−.123	−.063 (.047)	−.040
Fear of Crime	−.025 (.039)	−.026	−.033 (.028)	−.036
Police Legitimacy	.460 (.079)***	.381	.014 (.059)	.011
Police Effectiveness	.041 (.057)	.046	.024 (.040)	.028
PJ-Treatment	-	-	.488 (.043)***	.546
PJ-Information	-	-	.123 (.032)***	.149
PJ-Decision-Making	-	-	.160 (.052)**	.141
Intercept	1.405 (.170)***	-	.409 (.135)**	-
F	18.70***		70.78***	
Adjusted R^2	.257		.670	

*$p<.05$; **$p<.01$;***$p<.001$; SE = Standard Error; PJ = Procedural Justice

different types of encounters to determine whether different predictors of satisfaction are evident. The findings indicate that the quality of treatment provided by the officer is the only enduring factor related to each type of encounter. Respectful treatment is associated with greater satisfaction regardless of whether the contact involves a traffic stop, traffic accident or crime incident. Police effectiveness is predictive of satisfaction only for crime incidents, where victims have a vested interest in the future crime fighting efficacy of the police. Interestingly, demographics and other background variables are unrelated to each type of encounter. Again, the survey was able to detect some differences in satisfaction by jurisdiction but only in the instance of traffic crashes. When compared to Department C, Department A had significantly lower satisfaction when the respondent was involved with a traffic crash. High fear of crime reduced satisfaction but only in traffic accidents and overall satisfaction with police effectiveness was only related to satisfaction with the encounter when examining crime reports. The information provided by the officer was positively related to satisfaction with regard to traffic stops and crime reports but unrelated to satisfaction in traffic crashes, while the officer's quality of decision making only mattered for traffic stops.

We also explored whether these procedural justice effects are conditioned by the race/ethnicity of the citizen. As shown in Table 6, the findings support the hypothesis that components of procedural justice are differentially important to whites and minorities when measuring their overall satisfaction with police contacts. For white

Table 5 Regression of satisfaction on justice related variables by type of encounter

	Model 1 Traffic Stop		Model 2 Traffic Crash		Model 3 Crime Report	
	Coef (SE)	Beta	Coef (SE)	Beta	Coef (SE)	Beta
Age	.008 (.004)	.132	−.001 (.002)	−.031	.003 (.002)	.071
Gender (1=Female)	.147 (.084)	.086	.054 (.070)	.057	−.084 (.049)	−.068
African American (vs. White)	.122 (.108)	.060	−.003 (.098)	−.002	.048 (.077)	.024
Non-African American Minority (vs. White)	.225 (.117)	.101	−.075 (.076)	−.051	.008 (.076)	.004
Resident	.025 (.092)	.014	.044 (.067)	.047	.031 (.065)	.019
Homeowner	−.165 (.100)	−.089	−.038 (.077)	−.039	.027 (.061)	.019
Department A (vs. Dept. C)	-	-	−.255 (.081)**	−.241	.008 (.058)	.007
Department B (vs. Dept. C)	−.157 (.087)	−.092	−.003 (.080)	−.003	.054 (.077)	.028
Fear of Crime	−.086 (.068)	−.072	−.120 (.049)**	−.184	.054 (.034)	.068
Police Legitimacy	.166 (.119)	.131	.116 (.150)	.121	−.108 (.079)	−.091
Police Effectiveness	−.150 (.086)	−.153	.006 (.111)	.008	.150 (.046)**	.198
PJ-Treatment	.329 (.081)***	.368	.653 (.139)***	.617	.560 (.064)***	.663
PJ-Information	.174 (.075)*	.211	.085 (.060)	.111	.120 (.041)**	.153
PJ-Decision-Making	.253 (.096)*	.254	−.106 (.224)	−.060	.002 (.075)	.002
Intercept	.486 (.263)	-	1.145 (.446)	-	.413 (.211)	-
F	23.48***		11.31***		39.59***	
Adjusted R^2	.651		.603		.718	

*$p<.05$; **$p<.01$;***$p<.001$; SE = Standard Error; PJ = Procedural Justice; Department A did not have traffic stop data

respondents, the quality of treatment by the officer was a stronger predictor of satisfaction than the quality of the officer's decision making and informational support. This factor was more salient for whites than minorities as indicated by the Paternoster et al. (1998) coefficient comparison test. Among minority respondents, all three procedural justice predictors were almost equally important. Their quality of treatment contributed the most toward their satisfaction, but both the quality of the officer's decision making and informational support were important for determining satisfaction with the encounter. Importantly, the explained variance was about 10 % higher for the minority respondents—further illustrating the salience of procedural justice variables in the explanation of satisfaction among this group of citizens. Police effectiveness was not related to satisfaction among either whites or minorities.

Study 3: process and outcome effects during traffic stops

Purpose

Prior research suggests that both the process and outcome of police actions are important to the public's view of the police. Procedural justice theory suggests that

Table 6 Regression of satisfaction on justice related variables by race/ethnicity

	Model 1 Whites		Model 2 Minorities	
	Coef (SE)	Beta	Coef (SE)	Beta
Age	.003 (.002)*	.079	.005 (.003)	.087
Gender (1 = Female)	.017 (.046)	.013	.027 (.070)	.017
Resident	.015 (.048)	.011	.050 (.076)	.031
Homeowner	−.035 (.057)	−.023	−.062 (.069)	−.039
Department A (vs. Dept. C)	−.027 (.059)	−.018	−.066 (.093)	−.033
Department B (vs. Dept. C)	−.051 (.056)	−.035	−.053 (.083)	−.031
Fear of Crime	−.015 (.033)	−.017	−.075 (.053)	−.076
Police Legitimacy	.085 (.077)	.062	−.108 (.097)	−.098
Police Effectiveness	−.009 (.052)	−.010	.076 (.065)	.092
PJ-Treatment	.664 (.060)***	.694	.297 (.063)***	.355
PJ-Information	.057 (.038)	.068	.245 (.060)***	.307
PJ-Decision-Making	.003 (.081)	.062	.231 (.074)**	.247
Intercept	.481 (.185)*	-	.553 (.210)*	-
F	46.71***		39.59***	
Adjusted R^2	.619		.718	

$*p<.05; **p<.01; ***p<.001$; SE = Standard Error; PJ = Procedural Justice

"relational judgments" about how the public is treated often outweigh "instrumental judgments" about the whether the action led to a favorable or unfavorable outcome (Tyler 1997, 2001; Sunshine and Tyler 2003). Other research has challenged this conclusion, noting that for some populations, instrumental justice, such as police effectiveness in fighting crime and disorder, matters more than procedural justice for influencing trust in the police (Murphy and Cherney 2012; Sargeant et al. 2014; Tankebe 2009; Wells 2007). In any event, if the PCI Survey has good construct and measurement validity, it should uncover predictable relationships between justice variables and overall satisfaction. To explore the relative importance of these two forms of justice, we focused exclusively on traffic stops, where the encounter is largely about law violation and law enforcement. In a nutshell, procedural justice theory suggests that the process (e.g., whether the officer is respectful) will be more important than the outcome (e.g., whether the citizen receives a traffic Citation) for determining citizen satisfaction, while outcome favorability models would predict just the opposite.

Methods

PCI Survey data involving traffic stops in two of the three test sites were used (N=358). The same coding of the satisfaction outcome was used as both studies above (M=4.02, SD=1.46, Range = 1 to 5). The same procedural justice indexes were used for this subsample: Quality of Treatment (M=2.23, SD=

0.97, Range = 0 to 3, Explained Variance = 64.34 %, α=.71), Quality of Decision-Making (M=2.48, SD=0.88, Range=0 to 3, Explained Variance = 65.50 %, α=.73), and Information Needs (M=2.22, SD=1.03, Range=0 to 3, Explained Variance = 70.41 %, α=.79). Covariates matched those included in the studies above: race/ethnicity (whites as reference = 58.7 %; Black = 23.8 %; Non-Black Minority = 17.5 %), gender (female = 1, 45.8 %), age (M=44.9, SD=14.6), residency (Yes=1, 27.6 %), homeownership (Yes = 1, 68.9 %), agency, fear of crime, police legitimacy, police effectiveness and traffic ticket outcome (Yes = 1, 39.0 %).

Results

Ordinary least squares regression analysis was performed. The first step of the model included all the covariates. As shown in Table 7, the citizen's age predicted satisfaction with traffic stops, as younger citizens were less satisfied (β=0.23, t(175)=3.21, p<.01). Views of police legitimacy also affected satisfaction during traffic stops, as higher views of legitimacy resulted in greater satisfaction (β=0.39, t (175)=3.29, p<.01). Consistent with "instrumental" or outcome theories, the model shows that the decision

Table 7 Regression of Satisfaction on Procedural Justice and Ticket Status

	Model 1 Baseline		Model 2 Procedural Justice	
	Coef (SE)	Beta	Coef (SE)	Beta
Age	.014 (.004)**	.233	.009 (.004)*	.140
Gender (1 = Female)	−.007 (.109)	−.004	.116 (.082)	.067
African American (vs. Whites)	−.115 (.137)	−.055	.111 (.106)	.053
Non-African American Minority (vs. White)	.073 (.156)	.032	.224 (.116)	.099
Resident	−.096 (.118)	−.054	−.003 (.091)	−.002
Homeowner	−.184 (.131)	−.098	−.206 (.099)	−.110
Department A (vs. Dept. C)	−.491 (.736)	−.043	−.492 (.521)	−.046
Department B (vs. Dept. C)	−.184 (.115)	−.107	−.096 (.086)	−.055
Fear of Crime	.089 (.087)	.077	−.070 (.068)	−.060
Police Legitimacy	.490 (.149)**	.390	.116 (.115)	.093
Police Effectiveness	−.132 (.113)	−.135	−.118 (.083)	−.121
Ticket	−.717 (.117)***	−.407	−.388 (.094)***	−.216
PJ-Treatment	-	-	.314 (.081)***	.350
PJ-Information	-	-	.077 (.082)	.092
PJ-Decision-Making	-	-	.305 (.097)**	.305
Intercept	1.687 (.339)***	-	.736 (.261)**	-
F	8.88***		23.38***	
Adjusted R^2	.351		.484	

*p<.05; **p<.01;***p<.001; SE = Standard Error; PJ = Procedural Justice

to write a traffic ticket (as opposed to a decision to issue a written or verbal warning) has a sizeable negative effect on citizens' satisfaction with the encounter ($\beta = -0.41$, $t(175) = -6.14$, $p < .001$). The second step demonstrates that particular procedural justice factors are the strongest predictors of citizen satisfaction, even though the decision to ticket and the drivers' age remain significant. The officer's quality of treatment and decision-making indexes have independent effects when controlling for ticketing outcome and demographic factors ($\beta = 0.35$, $t(175) = 3.87$, $p < .001$; $\beta = 0.31$, $t(175) = 3.16$, $p < .01$, respectively). The effect of getting a ticket is attenuated by 45.9 % when including these variables, yet this outcome favorability indicator remains a salient predictor of satisfaction. Informational support did not significantly affect the respondent's satisfaction when receiving a traffic ticket.

To illustrate the effects of process variables, Figure 1 shows what happens when an officer gives a traffic ticket and does so by engaging or not engaging in procedural justice behaviors as judged by the driver of the car (only ticketed cases are shown, so outcome favorability is held constant). As displayed, the average level of driver satisfaction ("very satisfied" or "somewhat satisfied") among all respondents who received a traffic ticket was 42.0 %. The three procedural justice indexes were split across the median of the scales into high and low groups. If the officer was viewed as having a low quality of treatment score, then satisfaction with the experience was dramatically lower at 9.4 %. If, however, the officer was viewed as delivering a high quality of treatment, the satisfaction level reached 64.1 %. Similarly, satisfaction was much higher when the officer was judged to have a high quality of decision making and informational support, compared to stops where the officer was viewed as not engaging in these actions. After controlling for age, gender, and race/ethnicity in a regression analysis, the differences in satisfaction were significant for quality of

Fig. 1 Satisfaction with traffic ticket encounters as a function of officer's procedural justice behaviors

treatment (t (106)=2.32, $p<.05$), quality of decision-making (t (106)=2.37, $p<.05$), and quality of information support (t (106)=4.95, $p<.001$).

In a nutshell, both process and outcome are important during traffic stops, and some methods of delivering bad news are much more effective than others. When the officers used good "car-side manners" and displayed signs of procedural justice, they received much higher ratings than when they did not pay attention to these factors even when the outcome, receiving a citation, was the same for all respondents. So when officers are respectful, listen to what people say, take the time to answer questions, and seem concerned for their welfare, such behaviors are important not only for crime and accident victims, but for accused law violators, who may be upset initially by the traffic stop. Respondents were given a chance to offer open-ended comments at the conclusion of the survey and it was not uncommon to hear, "I received a ticket, but the officer was polite and very professional."

Conclusions and implications

Based on a field test in three cities, the Police–Community Interaction survey shows considerable promise as a tool for measuring organizational performance in new ways and possibly enhancing evidence-based decision-making in police organizations. The National Police Research Platform's PCI survey offers one approach to gathering this information systematically from a wide variety of police organizations. The PCI Survey captures key dimensions of procedural justice, while at the same time measuring police legitimacy, agency effectiveness (e.g., agency's ability to reduce crime, be responsive to community concerns, and solve problems), and other constructs. The participating agencies were able to work closely in partnership with the research team to implement a program of data collection that yielded information that all agencies reported was useful to them.

The methodological findings indicate that the electronic modes of data collection utilized in the PCI Survey, although yielding a lower response rate than conventional telephone surveys, produced highly similar substantive findings at dramatically lower cost. A randomized control trial revealed that public satisfaction with police encounters, as well as public ratings of procedural justice, police effectiveness, and police legitimacy, were virtually identical for these distinct methods. Consistent with procedural justice and victimization theories, data from the PCI Survey indicate that persons who had contact with a police officer wanted to be heard, treated with respect, treated fairly, and treated compassionately. These ideas are not new, but the PCI Survey offers a mechanism to begin measuring these factors locally, regionally, and nationally as standardized indicators of organizational performance.

In support of construct and measurement validity, the substantive findings and model testing indicate that the PCI Survey can uncover relationships that are consistent with prior research on satisfaction with the police and procedural justice theory. As expected, younger respondents and minorities expressed less satisfaction with the police than did their counterparts. Furthermore, the quality of treatment by the officer and quality of decision-making each contributed significantly to the individual's satisfaction with the encounter. Instrumental forms of justice—both police effectiveness

and outcome favorability—were also shown to be important predictors of satisfaction under specific conditions.

At the organizational level, the PCI Survey was sensitive to differences in citizen satisfaction between agencies of different size and region of the country. These between-agency differences were also found for procedural justice, police legitimacy, and fear of crime (findings not shown here), suggesting a robust set of measures with potential applicability on a national level. For the largest jurisdiction the PCI Survey allowed for with-in agency comparisons such as district to district.

The PCI Survey was also sensitive to differences in satisfaction among different types of incidents, as well as interactions between type of incident and race/ethnicity. While the quality of treatment (e.g., politeness) was the most important procedural justice variable in all types of encounters, individuals involved in police-initiated contacts (traffic stops) were the only ones concerned with the police officer's neutrality and fairness in making a decision. Procedural justice may be differentially important to crime victims and even to different types of victims (see Murphy and Barkworth 2014). In the present research, victims of crime comprised the only group for whom police effectiveness influenced their satisfaction with the encounter. This makes sense in that crime victims have a greater vested interest in the crime fighting efficacy of the police. Race/ethnicity differences were also observed, indicating that for minorities, both the fairness of decision-making (e.g., race-neutral decision) and the quality of treatment by the officer (e.g., respectful treatment) were important determinants of overall satisfaction, whereas white respondents were only concerned about the quality of treatment. These findings make sense in light of concerns about racial profiling among minorities and are consistent with prior research on procedural justice, where the fairness of decision-making has been shown to be less important to whites than to minorities (Sunshine and Tyler 2003).

On the issue of procedural justice versus instrumental/outcome models of justice, the PCI Survey confirms that both are important. On the instrumental side, perceived police effectiveness in fighting crime was not a good predictor of satisfaction for most groups, but outcome favorability was a very strong predictor. Often we are cautioned by police officials that enforcing the law (e.g., giving a ticket) will result in lower performance evaluations from the public. This statement is supported by the results here, but does not tell the whole story. Consistent with research on procedural justice (e.g., Hinds 2007; Sunshine and Tyler 2003), the findings here demonstrate that the process of policing can be as important as the outcome when enforcing the law. When giving a traffic ticket, officers who use good car-side manners and display signs of procedural justice will receive much higher ratings than officers who don't pay attention to these factors. These differences are easily detectable with the PCI Survey.

The present research has limitations and suggests areas for future research. First, we do not know whether the RCT results could be replicated with traffic stops or in communities with less diversity. This may be testable in states where identifiable traffic stop data can be released to outside researchers to make telephone surveys that could be compared to the PCI electronic methods. Second, for this pilot research many of the survey response options were dichotomous (yes-no), and therefore, may have limited the variability of responses. The PCI Survey responses will be expanded to 4-point scales in future work. Third, while the PCI Survey captures traditional measures of procedural justice, related constructs could use more attention. For example, we believe the PCI Survey does not give adequate attention to desirable police responses to victims of crime, such as

compassion and emotional support (see Dai et al. 2011; Posick and Policastro 2013; Wells 2007). We found, for example, that the officer's expression of concern for the citizen's feelings was the second best predictor of overall satisfaction with the encounter (also, see Wheller et al. 2013). Hence, revisions to the PCI Survey should expand the "quality of treatment" measures to give more attention to whether the police exhibit a caring, empathic, and helpful response to victims and other citizens they encounter. Also, we should consider expanding our measure of legitimacy beyond trust and confidence in the police to capture the full range of meaning associated with the construct, including obligation to obey the law (Tyler 1990) and "moral alignment" between the values of the police and the community (Bottoms and Tankebe 2012; Jackson et al. 2012a).

Fourth, the PCI Survey, like other electronic surveys, suffered from low response rates, especially among youth and minorities—two groups that have the most strained relationship with the police. Efforts to promote the survey in advance may help in this regard, as well as the use of email and phone (vs letter) recruitment. As police agencies begin to collect e-mail addresses of persons who come in contact with the police, this process could further reduce the costs and increase coverage of future PCI surveys. Also, the use of voice interactive methods can help to minimize the "digital divide" problem in minority communities, as shown here. In the final analysis, weights may be needed to produce more accurate estimates of local population parameters.

Fifth, the PCI Survey tells only one side of the story—that of the citizen—and does not capture the full sequence of interactions that occur or give voice to the officer's perspective. Also, it does not capture street-level pedestrian stops or other interactions that do not end up in police records systems. Systematic social observations have been used to capture such encounters and provide a picture of sequential interactions between officers and community members (e.g., Mastrofski et al. 2002). Unfortunately these observational methods are expensive and therefore, not feasible for routine and standardized data collection on a national scale with hundreds or possibly thousands of agencies. Finally, we caution that PCI scores may vary across communities for reasons unrelated to procedural justice actions by the police. The racial/ethnic composition of the community may influence scores, including both the perceived level and relative importance of procedural justice vs police effectiveness in fighting crime (see Murphy and Cherney 2012; Sargeant et al. 2014; Tankebe 2009). Consequently, in the interest of fairness, we recommend that local scores be corrected for community characteristics, or that between-agency comparisons involve only juris-dictions of similar size, crime rates, racial/ethnic composition, and concentrated disad-vantage. On a positive note, the PCI Survey also includes police effectiveness and legitimacy measures, so agencies are not judged on a single index.

Despite these limitations, we believe the PCI Survey holds considerable promise as a tool for law enforcement agencies and researchers. First, currently police organizations have very little data at their disposal (other than citizen complaints) to judge the quality of their performance on the streets. The PCI Survey is based on a broader sample of community contacts in a variety of settings. Importantly, the PCI Survey focuses on recent contacts with the police, which are much less vulnerable to the widely documented problems of inaccurate or incomplete recall associated with more distant events (Skogan 1986). Second, no officers or civilians should feel their privacy is threatened by these surveys because the PCI Survey uses only summary statistics, ensuring that individual identities are protected. Local agencies do not receive feedback about individual officers or the identity of

survey respondents. Third, the PCI Survey is managed independently, and therefore brings more credibility than police-generated surveys. Fourth, the survey items are based on prior research and therefore, encourage evidence-based practice. Fifth, the data collection can be continuous or periodic (vs. one-shot surveys), and therefore, agencies and stakeholders have the capacity to monitor changes over time and gain new insights about the effects of critical incidents or new policing programs. The results can be used locally to identify areas where performance might be improved, such as particular segments of the community; particular areas of the city; shifts, units, types of incidents; and specific officer responses during encounters. This type of data stream can easily be integrated into departmental accountability systems and arguably, could have a substantial impact on practice (similar to Compstat). In our test sites, the feedback of results has already stimulated internal dialogue about the quality of police–citizen interactions and has resulted in new training programs. As such, this methodology could help to encourage a potential shift in measurement priorities, away from an exclusive focus on crime fighting and "bean counting" of police activities to a higher priority on measuring the quality of police services.

The PCI Survey is currently being implemented with a national sample of law enforcement agencies, including both municipal police and sheriffs' offices. This is the beginning of an effort to develop local, regional and national indicators of the quality of police–citizen encounters. Our hope is that these data will help to establish evidence-based benchmarks and define appropriate levels of performance for professional policing in the United States. As noted earlier, if we begin to measure a particular behavior (call it X), then X will begin to matter and X will become a focal point of organizational and community attention over time. By systematically measuring the quality of police–citizen interactions at the local level, the table is set for improving agency performance.

Today, the public expects more from the police than effective crime fighting and traffic enforcement. In the 21st century, with complaints of mistreatment echoing from various communities (racial/ethnic minorities, youth, mentally ill, LGBT, sexual assault victims) and complaints of a "pattern or practice" of excessive force, law enforcement agencies need to be attentive to whether they are being fair to all members of the community. This renewed attention to fairness is not only constitutionally required ("equal protection"), but from the viewpoint of a police officer, it can make their job easier on the streets. There is a growing realization within the law enforcement community that core field objectives such as gathering evidence from victims and witnesses, receiving reports of suspicious activity, gaining citizens' compliance with police requests, and keeping officers safe can be linked to the public's trust in the police, which in turn, is driven by whether citizens feel they are being treated with dignity, respect and empathy during these encounters. In a democratic society, police leaders are continually striving to ensure that the values implicit in police actions are consistent with society's larger value system. The degree of correspondence between these two value systems is what defines organizational legitimacy (cf. Beetham 1991; Dowling and Pferrer 1975). The Police–Community Interaction Survey is a tool to help communities achieve these objectives.

Notes

i. Cases involving domestic violence, sexual assault, minors, or sensitive investigations were excluded. Traffic stops were excluded from the sample in study 1 because

state law did not allow the release of drivers' names or other identifying information to anyone outside the law enforcement agency involved. In the case of crime victims, they were given one week to decline participation prior to the release of their names to the survey laboratory.

ii.   A post-hoc multiple regression power analysis was run for each model (Cohen 1992). Our power is "small" by Cohen's definition given the low R2 of our models; however, our calculations produce confidence intervals which suggest that there is very little support for the argument that our finding of no difference between modes is due to chance.

iii.   Traffic stops were included in Study 2 because no names were released to the public. Cases involving domestic violence, sexual assault, minors, or sensitive investigations were excluded.

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