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**Measuring Procedural Justice:
A Case Study in Criminometrics**

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by

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ABSTRACT

Currently, police are facing a turning point in which they have been asked to not only to control crime but also to do so in an equitable manner that works to improve police-community relations. One increasingly popular method for reaching this goal is the use of procedural justice in encounters between police and community members. In general, this approach refers to police treating community members with (1) neutrality, and (2) dignity and respect, as well as officers being perceived as (3) trustworthy, and (4) giving community members the opportunity to express their views. However, researchers attempting to understand the collective body of literature about the impact of procedural justice in policing have stressed an underlying problem—highly heterogeneous measurement of procedural justice and its related constructs. As a result, it is unknown if procedural justice indeed produces outcomes, such as cooperation and compliance with the police, or if findings are merely an artifact of the items and measures used to build the construct of procedural justice.

To address this limitation in the literature, this dissertation sought to develop a measure of procedural justice using psychometric principles and analyses. First, a systematic search and review of the previous items adopted by scholars to measure procedural justice was completed. This search produced a list of 176 manuscripts in which 1,095 items were extracted to develop a pool of potential items. Second, these items were pared down to 124 items based on the removal of duplicate items and face validity. Third, this set of items was piloted in an Amazon Mturk survey ($n = 493$) alongside related and unrelated constructs. Classic test theory (CTT) and item response theory (IRT) analyses of this pilot survey led to the removal of 83 items. Fourth, this narrowed list of items was tested in a second Amazon Mturk survey ($n = 504$) alongside related and unrelated constructs. Analyses using CTT and IRT from items in the second survey led to

the removal of 12 items. Finally, a third Amazon Mturk survey ($n = 496$) was completed using this shortened list of items. Analyses using CTT and IRT led to the removal of 4 items from the pool of potential items to measure procedural justice. Based on these analyses, three scales of differing lengths were produced and tested to examine their ability to measure procedural justice reliably. All three scales performed satisfactorily.

The production of these scales has serious implications for the measurement of procedural justice in policing and for criminology more generally. First, the next step is to confirm the scales' merits with a large, national-level sample. They might then serve as a means for the systematic accumulation of knowledge on procedural justice. Second, this dissertation furnishes a roadmap for developing diverse criminological measures using rigorous psychometric processes—an area in desperate need of attention in the field. Indeed, the current dearth of robust measures in criminology, an ongoing scholarly tragedy, provides an opportunity for researchers to embrace a new avenue of research—criminometrics.

Keywords: procedural justice, police, item response theory, criminometrics

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Pass on what you have learned. Strength. Mastery. But weakness, folly, failure also. Yes, failure most of all. The greatest teacher, failure is. Luke, we are what they grow beyond. That is the true burden of all masters.

- Yoda to Luke, Star Wars Episode 8: The Last Jedi

Much like Luke Skywalker, the strength, mastery, weakness, folly, and failure of several people have helped guide me on this journey. To start, I need to thank two people who, early on, saw more in me than I did in myself. Drs. Loraine Hughes and Jukka Savolainen each suggested to me during my undergraduate studies and Master's studies, respectively, that I might want to consider a doctoral degree. Admittedly, I was initially resistant to this suggestion. However, they each planted the seed that I was capable of taking this next huge step. Without their suggestions, I may have never considered a doctoral degree as a path for me.

I would be remiss if I did not acknowledge the faculty and staff at the University of Cincinnati who took a chance on me and who helped to grow me as a person and scholar. Dr. Chris Sullivan took the first chance on me by inviting me to be a part of the doctoral program. Dr. Robin Engel took the second chance by providing me with the hands-on experience of working in police-researcher partnerships as part of her IACP/UC Center for Police Research and Policy. The formal and informal lessons learned from these experiences with her are immeasurable. Additionally, although his mentorship was short in tenure, the academic life advice of Dr. John Wooldredge has proven to be invaluable, much like his lessons in statistics.

Beyond the faculty, I must thank Erin Cochran, Jean Gary, and Janice Miller for their boundless desire to help me with even the littlest of things. Through many laughs, they have

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I also want to specifically thank the members of my committee Drs. John P. Wright, J.C. Barnes, Bruce Link, and Francis T. Cullen for their guidance. Although none of them are policing scholars by trade, they have each guided and inspired me to think outside of the traditional policing mindset. Each member of this committee has provided insight that has improved this dissertation well beyond my expectations, which has set my career trajectory off in pleasantly unexpected path.

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TABLE OF CONTENTS

ABSTRACT	i
ACKNOWLEDGMENTS	iv
LIST OF TABLES.....	xi
LIST OF FIGURES.....	xiv
CHAPTER 1: PROCEDURAL JUSTICE AND POLICING: THE ORIGINS OF A CRIMINOLOGICAL CONCEPT.....	1
The Origins of the Concept of Procedural Justice	4
Thibaut and Walker.....	5
Leventhal	17
Comparing and Contrasting Origins	25
Procedural Justice and Tyler.....	29
Tyler’s First Work in Procedural Justice and Policing	29
Tyler’s Classic Work: Why People Obey the Law	35
Tyler’s Methods	36
Testing the Link between Legitimacy and Compliance	37
Predictors of Legitimacy	42
A Model of Procedural Justice, Legitimacy, and Compliance	46
Determinants of Procedural Justice	48
Understanding the Construct of Procedural Justice	54
Summary and Implications	56
Tyler’s Evolving Perspective	61
The Self-Interest and Group-Value Models.....	61
Relational Model of Authority	72
The Two-Component Model	73
The Four-Component Model	80

The Group Engagement Model	87
The Self-Based Model of Cooperation	93
Conclusion	96
CHAPTER 2: PROCEDURAL JUSTICE AND THE POLICE: APPLYING A CRIMINOLOGICAL CONCEPT.....	99
Policing Prior to Procedural Justice	99
The Reform Era.....	100
The Community Policing Era	102
Policing in the Post 9-11 Era	108
Policing Today	110
The Cure: Procedural Justice as Policing Reform	113
Importing Procedural Justice into Policing	115
The Challenge of Measurement	122
Conclusion: Research Strategy.....	126
CHAPTER 3: METHODS: DEVELOPING A CRIMINOMETRIC MEASURE OF PROCEDURAL JUSTICE.....	129
Measurement in Psychology	129
Psychology's Construct Development Process.....	131
Phase I: Systematic Review of Empirical Articles Using Procedural Justice In Policing 	135
Criteria for Inclusion and Exclusion	136
Search Strategy for the Identification of Relevant Studies	136
Description of Methods used in the Component Studies	138
Details of Study Coding Categories.....	39
Data Analysis	141
Phase II: Development of a Procedural Justice Measure	141
Pilot Survey.....	141
Third Survey.....	146
Conclusion	148

CHAPTER 4: RESULTS: SYSTEMATIC REVIEW OF EMPIRICAL ARTICLES USING PROCEDURAL JUSTICE IN POLICING	151
The Search	151
The Process of Narrowing Articles.....	152
The Final Articles.....	169
The Items.....	179
Conclusion	180
CHAPTER 5: RESULTS: THREE MTURK SURVEYS.....	184
Development of the First MTurk Survey.....	185
Results of the First MTurk Survey.....	189
Development of the Second MTurk Survey.....	225
Results of the Second MTurk Survey.....	228
Development of the Third MTurk Survey.....	245
Results of the Third MTurk Survey.....	248
Finalizing the Measurement of Procedural Justice	266
The 25-Item Scale	266
The 16-Item Scale	273
The 10-Item Scale	279
Conclusion	282
CHAPTER 6: THE FUTURE OF CRIMINOMETRICS.....	283
Implications of this Measure for Procedural Justice.....	284
Future Research with These Scales	285
Future Research with the Process-Based Model.....	290
Implications of this Measure for Criminology	291
Conclusion	293
REFERENCES.....	294

LIST OF TABLES

Table 1.1: The Nature of Disputes (modified from Thibaut & Walker, 1978).....	12
Table 1.2: Process and Decision Control in Dispute Resolution Processes	13
Table 1.3: Tyler’s Elements of Procedural Justice.....	50
Table 1.4: Tyler’s 1990 Elements of Procedural Justice and the Group-Value Model ..	68
Table 1.5: Items used to Measure Quality of Decision Making and Quality of Treatment	76
Table 1.6: Items used to Measure Procedural Justice, Distributive Justice, and Outcome Favorability	78
Table 3.1: Main Differences Between Classical and Item Response Theories and Models	145
Table 4.1: List of 176 Coded Manuscripts	155
Table 4.2: Journal/Source Appearing 3 or More Times	167
Table 4.3: Frequency of Authorship of Coded Manuscripts (4+ Manuscripts)	170
Table 4.4: Frequency of Location of Study	171
Table 4.5: Frequency of Sample Sizes for 176 Studies	172
Table 4.6: Frequency of Types of Participants from 176 Studies	174
Table 4.7: Frequency of Study Methodology from 176 Studies	175
Table 4.8: Frequency of Analyses from 176 Studies	176
Table 4.9: Frequency of Scale Construction	177
Table 4.10: Frequency of Cronbach Alpha’s from 176 Studies	178
Table 4.11: Final Procedural Justice Survey Items	181
Table 5.1: Additional Constructs and Items Included in the Survey Instrument	185
Table 5.2: MTurk Survey 1 Sample Descriptive Statistics	190
Table 5.3: Procedural Justice Item Descriptive Statistics	193
Table 5.4: Explained Variance from Exploratory Factor Analysis	201
Table 5.5: Pattern Matrix of Procedural Justice Items	202
Table 5.6: Model Fits for Various Tested Models	209
Table 5.7: Procedural Justice Item Discrimination for Various Models	211

Table 5.8: Items Dropped Due to Poor Discrimination	218
Table 5.9: Differential Item Functioning Models	220
Table 5.10: Retained Items Based on MTurk Survey 1	226
Table 5.11: MTurk Survey 1 & 2 Sample Descriptive Statistics.....	229
Table 5.12: Procedural Justice Item Descriptive Statistics	232
Table 5.13: Explained Variance from Exploratory Factor Analysis.....	235
Table 5.14: Pattern Matrix of Procedural Justice Items	236
Table 5.15: Model Fit for Tested Models	238
Table 5.16: Procedural Justice Item Discrimination for Various Models.....	240
Table 5.17: Procedural Justice Item Differential Item Functioning Models.....	243
Table 5.18: Retained Items Based on MTurk Survey 2.....	246
Table 5.19: MTurk Survey 1, 2, & 3 Sample Descriptive Statistics.....	249
Table 5.20: Procedural Justice Item Descriptive Statistics	252
Table 5.21: Explained Variance from Exploratory Factor Analysis.....	255
Table 5.22: Pattern Matrix of Procedural Justice Items – Two Factor	256
Table 5.23: Pattern Matrix of Procedural Justice Items – One-Factor.....	258
Table 5.24: Model Fit for Tested Models	260
Table 5.25: Discrimination Parameters of Procedural Justice Items.....	262
Table 5.26: Procedural Justice Item Differential Item Functioning Models.....	266
Table 5.27: Scale Reliabilities by Scale Length and Survey Round	268
Table 5.28: Scale Factor Loadings by Round - 25-item Scale	269
Table 5.29: One-Dimensional Graded Response Model Discrimination by Round - 25-item Scale.....	271
Table 5.30: Item Threshold Difficulty Ranges By Round	274
Table 5.31: Scale Test Information Curves by Round	275
Table 5.32: Scale Factor Loadings by Round - 16-item Scale	277
Table 5.33: One-Dimensional Graded Response Model Discrimination by Round - 16-item Scale.....	278
Table 5.34: Scale Factor Loadings by Round - 10-item Scale	280

Table 5.35: One-Dimensional Graded Response Model Discrimination by Round - 10-item Scale.....	281
Table 6.1: The 25-Item Scale.....	286
Table 6.2: The 16-Item Scale.....	287
Table 6.3: The 10-Item Scale.....	288

LIST OF FIGURES

Figure 1.1: Means of Dispute Resolution and Influential Factors in Selection	7
Figure 1.2: Leventhal’s (1980) Justice Judgement Model	21
Figure 1.3: Tyler and Folger: The Influence of Procedural Justice on Specific Satisfaction and General Perceptions of Police	33
Figure 1.4: Origins of Scholarship Dedicated to Compliance with the Law	38
Figure 1.5: Path Model of Chicago Panel Data: Predictors of Wave Two Legitimacy..	45
Figure 1.6: Path Model of Chicago Data: Procedural Justice to Legitimacy to Compliance	47
Figure 1.7: Theoretical Model of Criteria used to Judge Fairness of a Procedure	49
Figure 1.8: Theoretic Model of Tyler’s Overall Findings.....	57
Figure 1.9: Google Ngram of “Procedural Justice” (1950-2008)	60
Figure 1.10: Tyler’s Relational Model of Authority.....	74
Figure 1.11: The Group Engagement Model in 2000	88
Figure 1.12: The Group Engagement Model in 2003	89
Figure 1.13: The Self-Based Model of Cooperation.....	95
Figure 2.1: PEW Research Center Analysis of #BlackLivesMatter.....	112
Figure 4.1: Process of Narrowing Manuscripts.....	153
Figure 4.2: Frequency of Sources (1980-2018).....	168

Chapter 1

PROCEDURAL JUSTICE AND POLICING: THE ORIGINS OF A CRIMINOLOGICAL CONCEPT

The quality and effectiveness of policing has emerged as a major policy issue in the United States, a debate that extended to the most recent presidential election. Unlike policing in previous times, the era of policing extending from the 1990s to the present has been open to experimenting with a remarkable range of innovative policing strategies (Weisburd & Braga, 2006). These include techniques such as broken windows policing, community-oriented policing, COMPSTAT, focused deterrence, hot spots policing, problem-oriented policing, stop and frisk and zero tolerance. Although not without some dispute, these proactive enforcement approaches have been linked to reductions in crime, especially in large cities, such as New York (National Research Council, 2004; Zimring, 2012).

Many of these innovative tactics direct the police to target enforcement efforts on specific people, places, or crimes. This focused approach to policing intends to maximize the utility of limited police resources in reducing crime (National Research Council, 2004). Furthermore, many of these tactics specifically focus on the worst offenders, offenses, and places (National Research Council, 2004). And in fact, violent crimes, as measured by Part I of the FBI's Uniform Crime Reports, have generally declined since the 1990s, which is around the same time many innovative police tactics took hold.

However, in the quest to enhance police effectiveness in reducing crime, a substantial cost has been incurred, especially in regards to police relations with minority citizens. Critics of these innovative tactics suggest that they may increase officer misconduct (Harcourt, 1998) and may lead citizens, especially in minorities communities plagued by drugs and violence, being

targeted disproportionately by the police (Butler, 2017; Hayes, 2017; Sampson, 2004). Even more troubling are the claims of discrimination stemming from police-citizen contacts, particularly those alleging excessive use of force by police.

Largely stemming from nationally publicized incidents of police aggression, use of force, and killings involving unarmed minorities within inner-city communities, the Black Lives Matter movement emerged on the national stage to protest the treatment of minorities by police (Garza, 2014). Movement members have acknowledged the universally inherent nature of racial biases in American society, but they attend particularly to police because they are the most visible portion of a system that has historically and systematically discriminated against minorities, specifically Black Americans (Garza, 2014). The rise of the Black Lives Matter movement and others like it have pleaded for the re-evaluation of police practices (Engel & Eck, 2015; National Academies of Sciences, 2018). In this context, it is evident that it is not only important that the police today maintain the ability to effectively reduce crime, but also that they attend to issues of fairness or equity in enforcing the law, particularly in minority communities.

One proposed solution to achieving both fair and effective policing is the use of procedural justice by police. Rooted in legal conflict resolution and resource allocation, the use of procedural justice by police entails the police treating citizens with dignity and respect, being perceived as neutral in their decision making, allowing citizens a voice or participation during interactions, and being perceived as trustworthy by citizens (Tyler, 2000). In using procedural justice, it is believed that police will gain legitimacy in the eyes of citizens as enforcers of the law and furthermore, citizens will not only comply but also cooperate and be satisfied with law enforcement (Sunshine & Tyler, 2003a).

Research surrounding the use of procedural justice in policing and other criminal justice domains has recently begun to flourish. Findings include the positive impact of police using procedural justice on satisfaction (Mazerolle, Antrobus, Bennett, & Tyler, 2013a; Mazerolle, Bennett, Antrobus, & Egghins, 2012; Tyler, 1990), police legitimacy (Mazerolle et al., 2013a; Sunshine & Tyler, 2003a; Tyler, 2004; Tyler & Fagan, 2008), and cooperation (Mazerolle et al., 2013a).

Given these and other investigations, it seems that this line of inquiry promises to continue in the foreseeable future. However, a key problem with this line of research inquiry is that the concept of procedural justice has often been both poorly defined and furthermore poorly operationalized through inconsistent or partial measures. Mazerolle and colleagues (2013b) attested to this issue when they attempted to perform a meta-analysis of studies assessing the effects of police-led legitimacy interventions on procedural justice and its related constructs, such as trust in police, cooperation, and satisfaction with police. They noted encountering, “substantial heterogeneity among conceptual and operational definitions of key outcomes,” such as procedural justice (p. 257). Furthermore, they acknowledged they were forced to accept author definitions of outcomes, such as procedural justice, in studies used in the meta-analysis. While the analysis found a large, significant effect for police-led legitimacy interventions on perceptions of procedural justice, the substantial heterogeneity in definitions may have impacted these results.

In this context, this dissertation attempts to develop a more adequate measure of procedural justice that moves towards addressing both conceptual and operational issues that have plagued past research. This will be accomplished through two means. First, Chapter 4 will systematically review, code key elements off, and analyze the existing empirical literature related

to procedural justice and policing. This review and examination will cover more than 300 studies surrounding the use of procedural justice and police. Second, based on findings in Chapter 4, an effort will be made to construct a measure of procedural justice that attempts to overcome the major problems of existing measures of this construct. Accordingly, Chapter 5 will present three empirical analyses. Following procedures outlined in the field of psychology, this will include an iterative series of studies to develop a measure of procedural justice.

As a prelude to this investigation, Chapter 1 will review the origins and evolution of the construct of procedural justice in policing. Specifically, three topics will be explored. First, the theoretical and conceptual origins of procedural justice will be discussed. Second, the addition of Tom R. Tyler's initial and classic work with police and procedural justice will be reviewed. Third, the evolving perspective of Tyler about the measurement, implications, and theory of procedural justice will be examined.

Starting in Chapter 2, the path that led to the importation of procedural justice into policing will be reviewed. Next, an overview of the impetus for procedural justice and the current research surrounding it will be provided. Finally, given the findings in the current literature, a discussion surrounding the challenges in measuring procedural justice will be considered.

THE ORIGINS OF THE CONCEPT OF PROCEDURAL JUSTICE

The conceptual origins of procedural justice lay in the legal field and social psychology. As these ideas shifted towards the inclusion of policing, most scholars predominantly cite one of two works as the origins of procedural justice: Thibaut and Walker (1975) and Leventhal (1980). In reviewing each, a background of the work will be given along with their theory of procedural justice, a definition of procedural justice will be provided, and the operationalization of

procedural justice will be displayed when given. Finally, these two origin pieces will be compared and contrasted.

Thibaut and Walker

Although the work of John Thibaut and Laurens Walker started well before the 1975 publication of their book *Procedural Justice: A Psychological Analysis*, this volume is viewed by many scholars as the origin of procedural justice. Prior to their work, the predominant line of inquiry related to justice concerned only distributive justice-- the notion that an allocation is deemed fair when distributed according to certain criteria (Thibaut & Walker, 1975). This is not to say that the concept of procedural justice did not exist before Thibaut and Walker. It did, but they took up the challenge of carving out what they thought produced a theory of just procedures.

To do so, they performed several laboratory studies, predominantly using college students, to examine what exactly makes a procedure just and what impact do just procedures have on those who are subjected to them. In this way, they later describe their process of defining a theory of procedural justice as similar to one in which “legal practitioners and scholars use appellate opinions to develop arguments” (Thibaut & Walker, 1978, p. 542). They called this unique and original method the “case method” (Thibaut & Walker, 1978, p. 543). Their book, *Procedural Justice: A Psychological Analysis*, is a composite of this scholarly work expressed in common language so as to make their ideas more accessible to a more general audience (Thibaut & Walker, 1975).

Over a series of 12 chapters, Thibaut and Walker (1975) walk readers through the process of dispute resolution (civil, criminal, and informal) using laboratory studies and findings to articulate the components, importance, and implications of fair procedures at various stages. To

begin, they note an especially large qualifier for the concept of procedural justice. Although fair procedures may, and often do, lead to distributive justice, the fair distribution of resources does not necessarily require any specific procedures for this allocation to be fair. Thus, an allocation can occur when all parties involved in a dispute agree on the distribution of a resource. However, “it is only when allocation is in dispute that procedures are necessary and only, therefore, does the question of procedural justice arise” (Thibaut & Walker, 1975, p. 3). More simply stated, when there is a dispute about the allocation of resources, only then does procedural justice matter. In asserting this qualification, the remainder of the book focuses on disputes that require procedures, that are preferably just, to determine the allocation of resources.

Their first stage of understanding fair procedures in dispute resolution asks how disputes may be resolved and what is preferred. Additionally, they ask what factors influence this preference for a means of dispute resolution. As laid out in Figure 1.1, they begin by developing a spectrum of increasing third-party control in resolving disputes starting with “bargaining,” which includes no third-party control, and at the other end “autocratic,” which includes only third-party control.

In deciding among these means of dispute resolution, Thibaut and Walker (1975) suggest three factors, which are detailed in Figure 1.1, may influence a preference of dispute resolution: (1) temporal urgency, (2) absence or presence of pre-existing standards, and (3) outcome correspondence. First, high temporal urgency may lead a disputant to give over control of dispute resolution to a third party to minimize external costs of not participating in the dispute resolution as well as decision costs of participating in the dispute resolution. Second, the presence of a pre-existing standard that can reduce the need for disputant participation because the standard will be

Figure 1.1. Means of Dispute Resolution and Influential Factors in Selection

used to aid in resolving the dispute. A lack of a pre-existing standard requires the disputants to develop a consensus, which may require more disputant participation, as opposed to only third-party participation. Finally, outcome correspondence can influence the desire for a third-party in that disputants who both gain and lose equally in an outcome may prefer a third-party.

Alternatively, disputants experiencing non-correspondent outcomes may prefer more participation in the dispute resolution process because the interest in these types of disputes is winning, not necessarily the truth.

Through surveying law students who participated in their laboratory experiment, Thibaut and Walker (1975) find that all participants preferred arbitration as a means of dispute resolution, followed in descending order by, the options of, moot, mediation, autocratic, and bargaining. However, under experimental controls, preference for third-party intervention increased when outcomes were non-correspondent, pre-existing standards were present, temporal urgency was present, when temporal urgency and standards were present, and when temporal urgency occurred with standards present and in a correspondent relationship. This last condition produced the maximal desire for third-party control.

This consensus for preference of arbitration is important because it closely aligns with the adversarial system found in American courts (Thibaut & Walker, 1975). Legal theorists have argued about the effectiveness of the adversarial system, as opposed to the inquisitorial system, in terms of which provides justice (Thibaut & Walker, 1975). In a series of experiments, Thibaut and Walker (1975) test the adversarial model against the purely inquisitorial model along with two variations of the inquisitorial model. They find the adversarial model best protects against resolutions built on, “chance distributions of immediately discovered facts,” best moderates pre-existing bias in third-party decision makers, best corrects for recency effects of presented

evidence, and produces advocates (attorneys) who search more diligently for facts when faced with unfavorable facts towards their position (p. 118). Additionally, this preference for the adversarial system persisted with students in England, France, and Germany, which points to a more general preference instead of a cultural familiarity or preference.

In terms of the influence of the adversarial system on appraisals of justice, the adversarial system again reigns superior. In laboratory conditions, the adversarial system was judged fairest and most trustworthy by participants who took part in the adversarial system and those who observed it (Thibaut & Walker, 1975). Furthermore, it led to greater satisfaction, regardless of the outcome and of the individual's belief of their innocence or guilt. Of note, the procedures of the adversarial system (separation of presentation of evidence into prosecution and defense, alignment of attorneys with clients they represent, and the free choice of attorneys by their clients) all independently and significantly contributed to the perceived fairness of the procedure and satisfaction with the procedure.

The buildup of this evidence by Thibaut and Walker (1975) surrounding procedural justice led to the testing of philosopher John Rawls's (1971) *Theory of Justice*. Rawls (1971) argued that "principles of justice are agreed to in an initial situation that is fair" (p. 12). This initial situation ideally removes the effects of specific incidents, which would otherwise lead disputants to exploit a circumstance within a dispute to their own advantage. Rawls (1971) therefore introduces the notion of the "veil of ignorance," in which participants are placed in what is known as the "original position." Here, they do not know their physical, cultural, or psychological characteristics that place them in conflict with other individuals. However, participants do understand societal facts, such as the nature of politics, laws of psychology, and economic theory.

Given these conditions, Rawls (1971) argues that any rational participant, behind the veil of ignorance and taking part in an ideal initial situation, would select two principles of justice:

1. “Each person is to have an equal right to the most extensive basic liberty compatible with a similar liberty for others” (p. 60) and
2. “Social and economical inequalities are to be arranged so that they are both (a) to the greatest benefit of the least advantaged and (b) attached to offices and positions open to all under conditions of fair equality of opportunity” (p. 83).

Thibaut and Walker (1975) suggest that these propositions suppose a normative perspective for judging the degree of justice in a procedure and therefore test these propositions in their final laboratory test. To create the experimental condition of the “veil of ignorance,” half of the participants are told they are assigned the role of the factually disadvantaged disputant or the advantaged disputant, while the other half is not told which role they will be assigned to at a later point in the study. Both groups are then asked to rate five dispute resolution procedures in terms of preference, the fairness of the procedure to each side, the opportunity for each side to present evidence, and how much control the decision-maker would have in each procedure. Thibaut and Walker (1975) find that those behind the “veil of ignorance” and those in front of the veil preferred adversarial procedures. However, in descending order of preference, those in front of the veil preferred procedures that would prove advantageous for their positions (factually advantaged or disadvantaged). Meanwhile, those behind the veil, after the adversarial procedure, preferred procedures that advantage those who are disadvantaged, while promoting equal opportunity to present and obtain evidence as well as equal access to mechanisms of control for both sides of the dispute.

Although Thibaut and Walker (1975) conclude that the adversarial procedures are preferred, they break this set of procedures down further in suggesting that the crux of the preference for the adversarial procedure lies the location of control. They believe that the most just procedures for conflicts are those that, “entrust much control over the process to the disputants themselves and relatively little control to the decision maker” (pp. 1-2).

In a more concise articulation of their theory, Thibaut and Walker (1978) describe the nature of disputes of being high or low in cognitive conflict and high or low in conflict of interest. They argue disputes low in cognitive conflict are those in which a resolution produces a mutually preferred solution, similar to their original idea of outcome correspondence. Conversely, those high in cognitive conflict correlate to the ideas of outcome non-correspondence. Disputes high in conflict of interest are exemplified in disputes in which any solution will be recognized as “incorrect” by all parties. As seen in Table 1.1 and according to Thibaut and Walker (1978), the combinations of these factors produce different outcomes of a dispute.

Thibaut and Walker (1978) suggest that disputes low in cognitive conflict and high in conflict of interest seek an outcome of justice, whereas those high in cognitive conflict and low in conflict of interest seek truth. Those low in both dimensions are not conflicts, and those high in both require two stages to resolve the dispute, one to find truth and the second to find justice.

In order to find the objective truth or justice in a dispute, Thibaut and Walker (1978) believe that procedural rules should be used to define and maintain the roles of individuals involved in the dispute. These roles are most significantly defined by their level of control throughout the procedure. They break this control into two dimensions, process control and

Table 1.1. The Nature of Disputes (modified from Thibaut and Walker, 1978)

		Conflict of interest	
		Low	High
Cognitive Conflict	Low	X	Justice (best resolved via arbitration/ adversarial model procedures)
	High	Truth (best resolved via autocratic procedures)	Mixed (requires a two-tier system of dispute resolution procedures)

decision control, which, in their view, “determine the essential character of the procedures” (p. 546).

Therefore, as seen in Table 1.2, Thibaut and Walker (1978) describe a spectrum, which corresponds to various dispute resolution procedures and their level of process and decision control, in which control shifts entirely from the disputants to entirely to the decision-maker. Ultimately, they conclude that those seeking truth should use autocratic procedures, while those seeking justice should use arbitration, which parallels the American court system.

Stated more explicitly, their definition of procedural justice involves, “a procedure that entrusts much control over the process to the disputants themselves and relatively little control to the decision maker” (Thibaut & Walker, 1975, p. 1-2). While this definition is clear about who should have control in a just procedure, its operationalization is a bit less clear. In Chapter 8, Thibaut and Walker (1975) use factor analysis to operationalize “satisfaction with trial procedure” for those participating in the procedure based on 36 items using a nine-point, bipolar scale. No a priori distinctions were made in regards to which items were used to assess the influence of the procedure, beliefs regarding guilt/innocence, and the verdict. This factor analysis results in the following items being deemed “satisfaction with trial procedure”:

- Satisfaction that all evidence presented
- Opportunity to present evidence
- Fairness of procedure to self
- Fairness of procedure to opponent
- Treatment of self
- Treatment of opponent
- Trust in lawyer

Table 1.2. Process and Decision Control in Dispute Resolution Processes

Disputants					
	Bargaining	Mediation	Moot	Arbitration/Adversarial	Autocratic
Process Control	All	Most	Some	Some	--
Decision Control	All	Most	Some	--	--
Decision-maker/Third-party					
	Bargaining	Mediation	Moot	Arbitration/Adversarial	Autocratic
Process Control	--	--	Some	Some	All
Decision Control	--	Little	Some	All	All

- Quality of lawyer's presentation
- Is there a better procedure?
- Trust in procedure
- Satisfaction with trial procedure

However, in Chapter 9, when examining influences of satisfaction, Thibaut and Walker (1975) again use factor analysis to operationalize procedural justice for those participating in the procedure with no a priori identification of the items used for procedural justice. This factor analysis results in the following items being identified as the "procedural component":

- Satisfaction that all evidence presented
- Opportunity to present evidence
- Fairness of procedure
- Satisfaction with procedure
- Procedure favors self
- Procedure favors opponent

What complicates this operationalization further is that observers of the procedure report slightly different operationalizations of procedural justice. In Chapter 8, the factor analysis of the observers' surveys result in "trust in trial procedure" using the following items:

- Satisfaction that all evidence presented
- Amount of opportunity to present evidence
- Fairness of procedure to defendant
- Fairness of procedure to plaintiff
- Fairness of verdict
- Satisfaction with verdict

- Satisfaction with trial procedure
- Trust in trial procedure

However, in Chapter 9, the factor analysis of observers' surveys result in "fairness of and satisfaction with procedure and verdict" using the following items:

- Satisfaction that all evidence presented
- Amount of opportunity to present evidence
- Fairness of procedure
- Satisfaction with procedure
- Trust in judge
- Fairness of verdict
- Acceptance of verdict
- Satisfaction with verdict

At the conclusion of this study, Thibaut and Walker (1975), do not make any clear mention about how they believe procedural justice should be operationalized, or even about the composition of the core constructs of procedural justice. However, when comparing these four lists of items, it becomes clear that a handful of items may form the basis of procedural justice. For example, satisfaction that all evidence is presented, the amount of opportunity to present evidence, fairness of procedure (to self/opponent/defendant/plaintiff), and satisfaction with (trial) procedure are all present in each of the four item lists.

When examining these four items more closely, the first two items (satisfaction with all evidence presented and the amount of/opportunity to present evidence) speak to specific procedures--the presentation of evidence. However, the last two items (fairness of the procedure and satisfaction with the procedure), speak to a more general feeling about the procedures as a

whole. These last two items, in their generic and attitudinal nature, lay the groundwork for studies to come. Most, if not all, studies of procedural justice in policing focus on the attitudes of participants or citizens who experience the procedures of policing, with a generic focus on the citizen's perception of the experienced procedures.

Although these four items occur across all four lists, other items in these lists would come to hold significance for the eventual operationalization of procedural justice. For example, items in these lists reflecting trust (in the institution and its actors) and treatment of those in participating in the dispute resolution procedures would come to reflect the concepts of trustworthiness and dignity/respect--two key components of procedural justice in the work of Tom Tyler (2000).

Although Thibaut and Walker (1975, 1978) did not necessarily provide a singularly clear operationalization for the concept of procedural justice, they did provide a starting point for future research about potential items needed to operationalize procedural justice. Additionally, they furnished a clear and testable theory about dispute resolution that went beyond distributive justice. Finally, they supply the basis for understanding that fair procedures could leave those receiving an unfavorable outcome still satisfied with the outcome. They emphasize the importance of this because continued satisfaction, support, and allegiance to a system, even in the face of an unfavorable outcome, is important for continual productive social exchange. This becomes important for policing, in part, because the police need citizen support and coproduction in order to combat crime and other social ailments in a community.

Leventhal

The second frequently labeled origin of procedural justice comes from Gerald S. Leventhal's chapter in the book *Social Exchange: Advances in Theory and Research* (Gergen,

Greenberg, & Willis, 1980) entitled “What Should be Done with Equity Theory? New Approaches to the Study of Fairness in Social Relationships.” In this essay, Leventhal presents his perceived inadequacies of equity theory and discusses how his justice judgement model more readily captures human judgements of justice. Before detailing Leventhal’s (1980) proposed improvements to equity theory, it is worth outlining its basic premise and why it needed to be reworked.

Simply stated, equity theory proposes that an individual’s contributions or inputs should guide resource (including rewards or punishments) allocation (Adams, 1963). This simple theory grew into several lines of inquiry. However, Leventhal (1980) clearly states his displeasure with equity theory. On definitional grounds alone, he takes issue with the term “equity” as it is used by equity scholars. He believes their definition of equity, as “justice based on merit or contributions,” is far too narrow. Instead, he prefers the *Webster’s Third New International Dictionary* definition of equity as, “a free and reasonable conformity to accepted standards of natural right, law, and justice without prejudice, favoritism, or fraud and without rigor entailing undue hardship” (p. 29). This definition of equity, he believes, “encompasses a whole panoply of justice standards” (p. 29). To avoid conflation of his view of “equity” with previous scholars’, he instead uses the terms “fairness” and “justice” in place of his “equity” definition.

This nuance in using the terms “fairness” and “justice” in place of “equity” is important because his version of “equity” is the underlying construct in his justice judgment model—not fairness or justice. When it comes to the future conceptualization and operationalization of “procedural justice” based on Leventhal’s (1980) work, it is critical to recall this difference. Although these three terms are very similar conceptually, it is possible that they are distinct once operationalized.

On top of his dissatisfaction with the equity-scholar definition of equity, he takes issue with equity theory for three reasons. First, he challenges the unidimensionality of the conception of fairness, which in accordance with equity theory is purely based on merit or contribution. Second, equity theory only considers the final allocation of resources, not necessarily the procedures that produce the allocation. Third, Leventhal (1980) argues that equity theory exaggerates the importance of fairness as a motivational factor in human behavior.

Due to his dissatisfaction, he provides his own model, which accounts for these grievances; he calls this “the justice judgement model” (Leventhal, 1980). This model assumes that individuals make judgements about the fairness of something based on several justice rules. Leventhal (1980) defines a “justice rule” as, “an individual’s belief that a distribution of outcomes, or procedure for distributing outcomes, is fair and appropriate when it satisfies certain criteria” (p 30). Within this definition, he notes two subcomponents—distribution rules and procedural rules. He proposes that distributional rules guide an individual’s perceptions of fairness in regards to the allocation of resources based on certain criteria. Likewise, procedural rules guide an individual’s perceptions of fairness about the allocative procedures based on certain criteria.

Starting with distributional rules, Leventhal (1980) describes eight distributional rules that may play a role in an individual’s perception of fairness. The following provides a brief summary of each distributional rule.

1. “The contributions rule” (pp. 28-29): Fairness can be described by the pairing of an individual's input in relation to the rewards or resources they receive in exchange
2. “The needs rule” (p. 29): The distribution of resources is based on an individual’s need

3. “The equality rule” (p. 29): The allocation of resources is based on equal distribution to all individuals
4. “The rule of justified self-interest” (pp. 32-33): For some instances in which it is fair for an individual to take as many resources as possible
5. “The rule of adhering to commitments” (p. 33): An individual perceives the violation of fairness when a previously promised resource no longer given to them
6. “The legality rule” (p. 33): Perceptions of fairness are violated when an allocation is made against the rule of the law
7. “The ownership rule” (p. 33): Fairness is violated when an allocation, which is possessed by an individual, is taken away
8. “The status rule” (p. 33): It is perceived fair that an individual of high social rank receives more resources than those of low social rank

A key tenet of the justice judgement model is that in varying circumstances, a variety of different rules may apply in forming an opinion about justice and furthermore each rule can vary in importance (Leventhal, 1980).

To use these particular distributive rules, Leventhal (1980) proposes a four-stage “justice judgement sequence” by which judgements are made. As seen in Figure 1.2, in the first stage, weighting, an individual decides which rules apply and the relative influence of each rule. The second stage, preliminary estimation, involves the individual estimating, “the amount and type of outcomes that receivers deserve based on each applicable rule” (p 31). In the third stage, rule combination, the preliminary estimates made in the second stage are essentially summated. Finally, in stage four, termed outcome evaluation, the outcome is assessed in terms of its

Figure 1.2. Leventhal's (1980) Justice Judgement Model

fairness. In a mathematical sense, Leventhal (1980, p. 31) provides the following formula for describing the calculation of distributive justice using the justice judgement sequence:

$$\text{“Deserved outcomes} = w_c D_{\text{by contributions}} + w_n D_{\text{by needs}} + w_e D_{\text{by equality}} + w_o D_{\text{by other rules}} \text{”}$$

Where:

w = weight; D = deservingness

In parallel to the distributive rules, Leventhal (1980) proposes six procedural rules which guide the perceptions of fairness in regards to the procedures used to distribute resources, rewards, or punishments. The following provides a brief description of his six procedural rules.

1. “The consistency rule” (p. 40): The allocation of resources should be consistent across people and time
2. “The bias-suppression rule” (p. 41): In the process of allocating resources, “personal self-interest and blind allegiance to narrow preconceptions should be prevented” (p. 41)
3. “The accuracy rule” (p. 41): The allocation of resources should be made based on accurate information and informed opinions with minimal error
4. “The correctability rule” (pp. 42-43): There should be opportunities to modify and reverse decisions throughout the stages of the allocative process
5. “The representativeness rule” (pp. 43-44): Each stage of the allocative process should “reflect the basic concerns, values, and outlook of important subgroups in the population of individuals affected by the allocative process” (pp. 43-44)
6. “The ethicality rule” (p. 45): The procedures used to allocate resources should be compatible with, “the fundamental moral and ethical values accepted by that individual” (p. 45).

Although these rules seem relatively straight forward for judging the fairness of a procedure, Leventhal (1980) adds another component to the judgment of procedures. He suggests individuals hold a “cognitive map” of their interactional surroundings, which provide information about structural features of the allocative process. Leventhal (1980) then proposes seven categories of procedural components by which individuals may judge procedures. These seven categories of procedural components are summarized below.

1. “Selection of agents” (p. 37): the process of choosing “the persons or agents who serve as decision makers or information collectors in the allocative process” (p. 38)
2. “Setting ground rules” (p. 38): the process of informing individuals about the opportunity for rewards or resources and the steps they must take to obtain those rewards or resources
3. “Gathering information” (p. 38): the process of gaining reliable information about potential recipients of rewards or resources; evaluating the recipients
4. “Decision structure” (p. 38): the “structure of the final decision process” for allocating rewards or resources (p. 38)
5. “Appeals” (p. 38): the process for filing a grievance or appealing an allocation decision
6. “Safeguards” (p. 38): procedures to protect the integrity of those who allocate the resources, as well as procedures to deter and sanction individuals who obtain allocations via illicit means
7. “Change Mechanisms” (p. 38): the processes used to change procedures that regulate the allocation of rewards or resources

According to Leventhal (1980), each of these procedural categories can be judged independently by his procedural rules to describe their procedural fairness. In doing this, he suggests that there are 42 combinations of justice rules and components of a procedure that can influence the judgement of procedural fairness. However, much like the distributive rules, some circumstances may lead to the invocation of various rules at varying levels of importance.

Unlike the distributive rules, the procedural rules and the cognitive map produce justice judgements in a two-stage process. In the first stage, individuals determine which procedural components of their cognitive map are applicable in a given circumstance. Then, in the second stage, this individual selects and weights the justice rules which apply to the selected procedural components from the cognitive map in accordance with the “justice judgement sequence” steps.

Leventhal (1980) includes a major caveat about the invocation of these distributional and procedural rules and the use of the justice judgement sequence. He notes that for any judgements about either distributional or procedural fairness to occur, an individual must be activated to have a concern about fairness. This concern about fairness can be produced by the role an individual occupies in society. For example, the role of judge, juror, sports referee, mediator, and more are specifically designed to be concerned with, and evaluate, fairness. Additionally, the importance of other goals may influence an individual’s concern about fairness. For example, when concerned with the goal of controlling other individuals’ behaviors, the concern about fairness in procedures may be suppressed. Another factor that may influence an individual’s concern about fairness is the probability of violation. In this sense, individuals are concerned with fairness because they believe or suspect that a violation of the justice rules has occurred. Finally, Leventhal (1980) suggests that individuals’ concern about fairness may be related to their presence in a monolithic or pluralistic social system. He proposes that those involved in a

pluralistic system may invoke the justice judgement system more frequently than those in a monolithic system because the pluralistic system leaders do not require conformity to a consistent set of rules.

Once activated to being concerned about judging fairness, Leventhal (1980) believes that varying levels of potency regarding concern may influence behavior. However, a weak concern for fairness may not lead to behavioral changes. In addition, Leventhal (1980) notes that it is extremely difficult to determine the motive of fair behaviors by an allocator. This allocator's behavior may be the result of a moral obligation to fairness, or to the allocator's desire to control the behavior of other individuals, or a combination of the two. For policing and the criminal justice system, the parallels are striking because their role calls for them to be fair, but their behavior in allocating resources may be driven by different motivations aside from the moral obligation to behave fairly.

Overall, Leventhal's (1980) views concerning procedural justice are clear and concise. He defines procedural fairness as follows: "an individual's perception of the fairness of procedural components of the social system that regulate the allocative process" which furthermore "focuses on the individual's cognitive map of events that precede the distribution of reward, and the evaluation of those events" (p. 35). He provides seven components of an individual's cognitive map that may be judged by six procedural rules. However, Leventhal (1980) acknowledges that the six procedural rules presented are "speculative statements" as limited research surrounding procedural justice had been completed at the time. This speculation surrounding his six procedural rules speaks to a potentially underdeveloped conceptualization of procedural justice in his theory, which is important for future researchers who test his justice judgement model.

Leventhal's (1980) framework for understanding justice, procedural and distributional, will be important for future research because it provides tenants or rules or defining procedural justice that can be easily tested in laboratory settings. Additionally, his "cognitive map" will be an important tool for thinking about the processes that should be examined when measuring procedural justice in policing. However, his use of the terms "justice" and "fairness" in place of "equity" may be the origin of much confusion about the conceptualization and operationalization of procedural justice.

Comparing and Contrasting Views: Thibaut and Walker Versus and Leventhal

The works of Thibaut and Walker (1975) and Leventhal (1980) each serve as important origins for the development of procedural justice. However, they provide a slightly different account for the understanding, operationalization, and conceptualization of procedural justice. In comparing and contrasting these two views, the discussion will focus their theories, their definitions of procedural justice, their measurement of procedural justice, and their influence on future research surrounding procedural justice.

Starting with the roots of their theories, the work of Thibaut and Walker (1975) stems from an interdisciplinary effort between social psychology and law. These roots are evident in the series of studies recounted in their work because they each test a facet of social psychology in a courtroom-like setting. Also derived from social psychology, Leventhal (1980) mentions additional roots in sociology and more specifically scholarship surrounding equity theory. This perspective is evident in Leventhal's (1980) more general statements about resource allocation, as opposed to Thibaut and Walker's (1975) courtroom setting and dispute resolution. Both Thibaut and Walker (1975) and Leventhal (1980) share social psychology as one of their

foundational areas from which they draw upon. However, the use of the field of law by Thibaut and Walker (1975) and the field of sociology by Leventhal (1980) mark a clear distinction in the basis of their thought processes.

These differences in the roots of their respective theories become evident when comparing their theories. For Thibaut and Walker (1975), their theory is predominantly concerned with the location of control between parties. However, for Leventhal (1980), his theory is focused on seven procedural components, which each may be judged by six procedural rules. Although these two theories appear different, they share the belief that fairness is judged not only by an outcome, but also by the procedures used to produce that outcome.

In defining procedural justice, Thibaut and Walker (1975) and Leventhal (1980) produce very different descriptions. Recall, Thibaut and Walker (1975) define procedural justice as a process in which the majority of control over a process remains with disputants as opposed to a third party. This definition is concrete in the sense that the amount of control a party has in a dispute can be identified and measured objectively. This definition reflects the perspective of objective procedural justice which would define one line of inquiry in future research. However, Leventhal (1980) provides a more subjective definition in which procedural justice, procedural fairness, or procedural equity is the “perception of fairness of the procedural components of the social system that regulate the allocative process” (p. 35). These perceptions of fairness would come to reflect a line of inquiry known as the normative and subjective perspective of procedural justice. Although viewing procedural justice somewhat different, in both definitions, Thibaut and Walker (1975) and Leventhal (1980) recognize the distinction between process and outcome in decision making.

When Thibaut and Walker (1975) and Leventhal (1980) measure procedural justice, there are clear differences. Thibaut and Walker (1975) do not specifically articulate a measurement of procedural justice. Instead, they rely upon factor analysis to produce intercorrelated items which represent procedural justice. As noted above, four items appear to coalesce to form procedural justice—satisfaction that all evidence is presented, the amount of opportunity to present evidence, fairness of procedure, and satisfaction with procedure. This set of items reflect the objective definition and legal roots of procedural justice of Thibaut and Walker (1975),

In contrast, Leventhal (1980) clearly states his six procedural rules—consistency, bias-suppression, accuracy, correctability, representativeness, and ethicality—which govern perceptions of fairness. Although Leventhal (1980) did not actually attempt to measure perceptions of procedural justice using these rules, his proposed measurement of procedural justice reflects his subjective definition and sociological background.

Even though these methods of measuring procedural justice are different, they share one common component. Leventhal's (1980) representativeness, as it relates to allocation decisions, closely relates to Thibaut and Walker's (1975) opportunity to present evidence for both prosecution and defense. Both presume perceptions of fairness are based on individuals' opportunity to have voices or roles in the process of reaching an outcome. This idea of "voice" would come to play a large role in the measurement and understanding of procedural justice because it would become one of four major components of procedural justice in future research (Tyler, 2000).

Finally, in examining the research that has followed from these two classic works that form the origin of the study of procedural justice, it is clear that they have had different levels of influence. One method of measuring influence in academia is derived from citation counts

(Cohn, 2011; Cohn & Farrington, 1994). In a brief search of citation counts of these two works, using Google scholar (on June 21, 2018), Thibaut and Walker (1975) had 6,454 citations. Leventhal (1980) had 4,508. These counts include citations from across all fields of study, so a more narrowed search was completed. In searching for the keywords “criminal justice” and “criminology” within their respective citation counts, it becomes clear which origin of procedural justice criminology and criminal justice favors. Of the 6,454 citations from Thibaut and Walker (1975), 1,290 were related to “criminal justice” and 614 were related to “criminology,” which leads to a total of 1,904 citations. Of the 4,508 citations for Leventhal (1980), 615 were related to “criminal justice” and 282 were related to “criminology,” which leads to a total of 897 citations.

Leventhal (1980) produced a clearly testable set of rules and components which have influenced criminology and criminal justice. However, Thibaut and Walker (1975) set forth a method of testing and developing the principles of a theory of procedural justice, which has been proven to be more influential in criminology and criminal justice. In fact, Thibaut and Walker’s (1975) influence would guide the work of one of the greatest known justice scholars of the last 30 years—Tom R. Tyler.

PROCEDURAL JUSTICE AND TYLER

The procedural justice work of Tom R. Tyler would eventually set in motion a major movement for police reform. However, before detailing his eventual influence on policing, it is necessary to review Tyler’s seminal work and the development of procedural justice with police more generally. Specifically, this discussion will focus on his first work involving procedural justice and the police with Folger (1980), followed by what is considered by most policing

scholars to be his classic work. A brief note on his more recent developments surrounding procedural justice will then be presented.

Tyler's First Work in Procedural Justice and Policing

Extending the work of Thibaut and Walker (1975), Tyler and Folger (1980) carried out their own study of procedural justice using as their subject the less formal interaction between the police and citizens. They investigate two questions. First, they propose that these less formal settings of police-citizen encounters, which still include an outcome of conflict resolution, may have a procedural justice component. Second, they test if this procedural justice component may mitigate the impact of a negative outcome on the level of citizen satisfaction in the encounter.

This idea was a logical, yet innovative, extension of Thibaut and Walker's (1975) work with courts. In addition, Tyler and Folger (1980) considered the many ways police might have contact with citizens by examining citizen-initiated contacts and police-initiated contacts separately. In citizen-initiated contacts, citizens are requesting police service or action to solve a problem. However, in police-initiated contacts, the police impose their presence upon citizens. Each of these conditions could lead to varying levels of citizen satisfaction with police.

Furthermore, it was unknown if each condition may necessitate the use of procedural justice to produce citizen satisfaction with an outcome. Up to this point, as viewed by those studying distributive justice, citizen satisfaction with police relied upon the citizen receiving a positive outcome. However, Tyler and Folger (1980) proposed that procedural justice may play a role in citizen satisfaction in both citizen-initiated and police-initiated contacts. They note that some procedures used by police are rights that citizens are legally entitled to based on the U.S. Constitution and Supreme Court decisions. Because the law guarantees these rights, Tyler and Folger (1980) argue that citizens may feel that the adherence to these procedures or rights may

rival the importance of the outcome of a police-citizen contact in citizens' evaluation of such an encounter. Overall, they suggest that the use of just procedures by police may alleviate the citizen dissatisfaction with police when citizens receive a negative outcome, such as a citation in a police-initiated contact or a problem not being solved by police in a citizen-initiated contact.

Based on a sample from Evanston, Illinois, they test this hypothesis that the procedures used in a police-citizen encounter influence citizen satisfaction independent of the outcome received. Through the use of telephone landline interviews, 184 citizens were asked about their police-initiated and citizen-initiated contacts with police over the previous five years. When discussing citizen-initiated contacts, the participants were asked if the police had addressed the problem that led the citizen to call the police and if the police had treated him or her fairly. In asking about fair treatment, Tyler and Folger (1980) employ this as a measure of procedural fairness or procedural justice. Similarly, for the police-initiated contacts, participants were asked if they received a citation and if they felt they were treated fairly during this contact. Again, the use of fair treatment served as their measure of procedural fairness or procedural justice. For these contacts (police-initiated and citizen-initiated), the participants were asked about their satisfaction with the interactions and their overall evaluation of the police and police services.

Additionally, for citizens who did not call the police, they were asked if they thought the police would address the problem if the citizen called the police and if they would be treated fairly if the citizen called the police. Likewise, for citizens who did not report a police-initiated contact, they were asked if they believed they would receive a citation if they were stopped and if the police would treat them fairly in that stop.

Using multiple regression and controlling for political-social attitudes as well as demographics, Tyler and Folger (1980) conclude that in both citizen-initiated and police-initiated

contacts, citizen satisfaction was driven by both the outcome of the contact as well as by the perceived fairness of the police. However, in the citizen-initiated contact, the outcome of the contact (addressing the problem) was more influential than the perceived fairness of the police. This finding suggested that in citizen-initiated contacts, the outcome of the contact was more important than the perceived fairness of the police. Conversely, in the police-initiated contact, the outcome of the contact (receiving a citation) was related—inversely as would be expected—to citizen satisfaction with police. However, the perceived fairness of the police was more important than the outcome of receiving a citation when determining citizen satisfaction with the police. In short, the use of just procedures by the police alleviated the reduction in citizen satisfaction when receiving a citation. This finding indicated that in police-initiated contacts, police fairness was more important than the outcome of the contact.

Tyler and Folger (1980) also examine overall general evaluations of the Evanston police by asking about police performance, fairness, and an index of evaluation of the police more generally. The index of evaluation of the police combined two items that asked how good a job the police were doing and how satisfied they were with police services. As seen in Figure 1.3, for those who called the police, fair treatment in a specific encounter positively and statistically significantly influenced general police performance perceptions, fairness perceptions, and evaluations of the police. However, the outcome of calls was more important and statistically significant in general police performance and evaluations of the Evanston police. For those who were stopped by the police, fairness in a specific encounter positively and significantly influenced general police performance perceptions. Fairness in a specific encounter did not significantly influence police fairness perceptions nor evaluations of the Evanston police. Unlike citizens who called the police, general evaluations of the police by those who were stopped were

Figure 1.3. Tyler and Folger: The Influence of Procedural Justice on Specific Satisfaction and General Perceptions of Police

not significantly influenced by the outcome of the encounter.

Essentially, Tyler and Folger (1980) conclude that the use of fairness by the police within their role as a public servant is important. There is both a procedural component and an outcome component of citizen satisfaction with police as a result of police-citizen contacts. The perceptions of the police as being fair mitigated the impact of a poor outcome on citizen satisfaction in citizen-initiated and police-initiated contacts. More broadly, Tyler and Folger (1980) go on to suggest that it is also important for police to recognize the citizen's role as the client who has rights (when a suspect) and rights to certain services (when being a complainant). The recognition of these rights or just procedures, Tyler and Folger (1980) believe, play an important role in the perception of fairness which then influences the public support of the police.

As one of the first studies to examine procedural justice and policing, it is important to examine how procedural justice was defined and measured because future research would build upon this initial work. Tyler and Folger (1980) define procedural justice as “the nature of the processes governing dispute resolutions in general and courtroom deliberations in particular” (p. 281). This definition and its allusion to the courtroom aligns closely with the work of Thibaut and Walker (1975). However, Tyler and Folger (1980) diverge from the Thibaut and Walker (1975) definition by adopting a normative-based role of procedural justice. This normative-based role proposes that citizens care about their treatment by police because they feel entitled to a certain police-citizen relationship within their encounters, in part due to legal rights granted to citizens (Tyler & Folger, 1980). On the contrary, Thibaut and Walker's (1975) conception of the role of procedural justice is instrumental, which focuses on the efficiency of just procedures to indirectly or directly producing fair outcomes. From Thibaut and Walker's (1975) perspective,

more efficient procedures, such as the adversarial process, produce more evidence and, in turn, produce fairer outcomes.

The measurement of procedural justice by Tyler and Folger (1980) comes from one item in which respondents were asked if they felt they were treated fairly in their contact or potential contact with police. Unlike Thibaut and Walker's (1975) operationalization, this item does not ask about specific procedures in the process. Tyler and Folger (1980) also recognize the limits of this operationalization of procedural justice. By not asking about what specifically made perceptions of treatment fair, it is not known which components of police behavior produced these citizen perceptions of fairness (Tyler & Folger, 1980).

Ultimately, Tyler and Folger (1980) were still able to demonstrate that both the outcome and the just procedures (fair treatment) influenced citizen satisfaction, specifically with police-citizen encounters as well as with more general perceptions of police. Additionally, just procedures (fair treatment) mitigated the effects of a negative outcome on citizen satisfaction. Both conclusions would lay the groundwork for future research with police and procedural justice.

Tyler's Classic Work: Why People Obey the Law

Although Tyler and Folger's (1980) work was one of the first studies from Tyler and his colleagues on the idea of procedural justice and the police, his *Why People Obey the Law* (1990) is generally viewed as his pioneering work. This book explores the legitimacy of police and the courts, the meaning of procedural justice, and the competing instrumental and normative perspectives of compliance with the law. Although procedural justice is not the central focus of this book, Tyler (1990) manages to situate procedural justice within the context of police legitimacy and citizen compliance with the law while answering his overarching question—why

do people obey the law? As investigated in this volume, the following discussion will first start by detailing the methods of Tyler's (1990) study. Next, the link between the perceived legitimacy of authority and compliance with the law will be established. Then, possible predictors of perceived legitimacy of authorities will be examined. Tyler's (1990) model linking procedural justice to compliance will then be presented. In addition, attention will be given to Tyler's (1990) reflection on what attributes of a procedure lead it to be deemed "fair" in the eyes of citizens. This will be followed by a discussion of the dimensionality and importance of elements of procedural justice as well as an analysis of the situational and personal characteristics which may influence procedural justice. Finally, a detailed discussion will examine the implications of the definition and measurement of procedural justice in this volume. Note that all references to Tyler in this discussion are to his 1990 work unless otherwise specified.

Tyler's Methods. First, to unravel the connections between procedural justice, legitimacy, and compliance, Tyler (1990) surveyed a random sample of citizens from Chicago in the spring of 1984 using telephone interviews. This sampling procedure produced 1,575 respondents who were then randomly selected to participate in a follow-up survey one year later. The 804 respondents who responded to both surveys were considered for panel analyses, while the initial 1,575 respondents were considered for cross-sectional analyses. Tyler used the random sampling of Chicagoans so as to produce a sample with a broad range of demographic characteristics as well as experiences with law enforcement and courts. Additionally, his use of the panel survey design allowed him to assess the ordering of causal effects and to control for prior expectations or evaluations in analyses.

Tyler's survey asked the respondents about various experiences with the police and courts of Chicago. Specifically, this survey started by asking the respondents about their feelings about the police and courts in Chicago in general. The survey also asked the respondents about their own views about obeying the law and their own illegal behavior. Next, this survey asked if the respondents had experience with the police or courts, had called the police, had been stopped by the police, or had been in court as defendant or plaintiff. For each of these types of contacts with authorities, the respondents were asked a series of questions about their experience and perceptions of the respective authority in the situation. Finally, this survey closed by asking a variety of demographic questions about the respondents.

Testing the Link between Legitimacy and Compliance. Second, Tyler's analysis starts by examining the relatively untested and unconfirmed connection between legitimacy and compliance with the law. He denoted two previous lines of scholarship related to compliance with the law: one developed by sociologists and the second by political psychologists. As seen in Figure 1.4, Tyler noted that sociologists had focused their efforts on the influence of the opinions of one's peers, the threat of sanctions, and personal morality as predictors for obedience to the law. By contrast, political psychologists had focused on the performance of legal authorities and the legitimacy of those legal authorities or the law. Tyler indicated that legitimacy, according to political psychologists, had been predominantly examined as (1) the perceived obligation to obey the law or legal authorities and (2) support or allegiance to political and legal authorities. This distinction between these two different measures of legitimacy used by political psychologists will be important when examining future research that uses closely related constructs, such as citizen satisfaction with police and procedural justice.

Additionally, Tyler provided three broad theoretical perspectives about why people obey

Figure 1.4. Origins of Scholarship Dedicated to Compliance with the Law

the law. First, based in social theory, he discussed an instrumental perspective, also called the study of social control, in which the motivation to obey the law stems from the rewards and punishments associated with doing so. Second, the public choice perspective, stemming from policy studies and economics, proposed that the motivation to obey the law is derived from the desire to maximize personal gain. However, unlike the instrumental perspective, Tyler noted that the public choice perspective is more refined in that it has produced more complex models to judge gains and losses based on modeling using economics.

Third, Tyler identified the normative perspective, which argues that the motivation to obey the law is based on the personal and social norms in a society. This normative perspective focuses on voluntary compliance with the law based on internalized norms and personal obligations to those norms. As mentioned, these norms can come from within an individual as well as from the society or group which surrounds them. Although Tyler admitted that judgments from a group regarding an individual's behavior can be instrumental, by rewarding or punishing behavior, it can also be normative, by providing information about suitable behavior. His focus is on the normative values groups may provide or place on a member regarding behavioral and societal expectations. Tyler then asserted that personal norms or internal sources of obligation to obey can be broken down into two components—the perceived legitimacy of authorities to govern behavior and personal morality. Both components provide internalized obligations to obey. However, personal morality is tied to an internal sense of right and wrong. Conversely, the perceived legitimacy of authorities is tied to the belief that the authority should be obeyed because the authority holds the right to govern behavior.

Tyler argued that the instrumental perspective and the public choice perspectives provide a simple message for law enforcement to provide to societal members. However, both are costly

when authorities must reward or punish behavior and furthermore are far from explaining compliance. These two models struggle to explain the nearly universal compliance for some law for which punishments for non-compliance and the risk of apprehension are low, but the rewards of violating the law may be high. Tyler argued that the normative perspective provides an understanding of compliance and non-compliance in these low-risk but high-reward situations. Furthermore, he asserted that the use of norms provides compliance without the inefficient rewards or punishments associated with compliance or non-compliance. He stressed the importance of legitimacy as part of the normative perspective because it provides more flexibility and discretion for authorities to perform their duties as well as continued voluntary compliance with the law by citizens. His emphasis on legitimacy is significant for the police because, according to the normative perspective, lost legitimacy leads to less compliance.

To formally test the link between all five potential antecedents of compliance with the law, Tyler started by taking a sociological approach and integrating into it the political psychologist perspective. Focusing on the dependent variable—compliance—he used six self-reported law violations to measure compliance with the law. His measure included littering, driving while intoxicated, speeding, shoplifting, disturbing the peace, and parking violations.

Tyler then measured factors that may influence compliance with these laws in accordance with the theory and previous literature he described. To examine the deterrence or threat of sanctions, he asked the respondents about the likelihood of being caught, the likelihood of being punished, and the expected severity of the punishment for each of the law violations used to measure compliance. To measure peer opinion, he asked each respondent, if they were arrested for one of the six law violations, to what degree would the five closest adults in their lives disapprove of their actions. Personal morality was measured by asking respondents how morally

wrong breaking each of the six laws was. Performance by the police and courts was measured by asking the respondents how good a job the institution was doing, how well the institution solved problems and helped those who dealt with them, and the satisfaction with the fairness of the outcome. The quality of the police and courts work was measured by asking the respondents how frequently each provided satisfactory service, how often each handled problems satisfactorily, and whether each treated citizens fairly and provided fair outcomes. The legitimacy of the police and courts was measured through 6 items asking the respondents the degree they felt they should comply with police or the court regardless of their personal feelings and eight items asking about the general strength of support for the respective institution. These two components capture the perceived obligation to obey the law or legal authorities and the support or allegiance to authorities respectively.

Tyler empirically tested the link between legitimacy and compliance in two manners. First, in his cross-sectional analyses, he used multivariate regression to control for social and demographic related variables that may influence the link between legitimacy and compliance. His analysis supported the idea that legitimacy significantly influences compliance with the law. However, other factors were also significantly and independently related to compliance, including peer disapproval, personal morality, sex, and age.

In a more rigorous test of this link between legitimacy and compliance, Tyler employed his panel data to provide temporal ordering between legitimacy and compliance. He used multivariate regression to predict time two compliance levels with time one legitimacy levels while controlling for other social and demographic related variables at wave one and two. Again, he found a statistically significant effect between legitimacy and compliance. However, he also

found statistically significant effects for age, sex, and personal morality as predictors of compliance with the law.

When disaggregating the components of legitimacy, Tyler found a statistically significant effect for the influence of obligation to obey on compliance with the law, but not for support for authorities. He unpacked this lack of effect for support by disaggregating the support of authorities into support for the police and support for the courts. He found that support for the police at waves one and two statistically significantly influence compliance, but support for the courts is only influential at wave one.

Tyler's overriding message from the findings of his cross-sectional and panel analyses was that the legitimacy of an authority does influence compliance with the law. Because this link had not been previously established using rigorous empirical testing, this finding is essential for the normative model of compliance. However, he also found that other factors influence compliance with the law. For instance, in both analyses, sex, age, and personal morality remained statistically significant predictors of compliance, which suggests that perceived legitimacy of an authority alone is not responsible for compliance with the law.

Predictors of Legitimacy. Given the link between the perceived legitimacy of authorities and self-reported compliance with the law, Tyler proceeded to the next logical question—what produces legitimacy for authorities in the eyes of citizens? He rehashed the instrumental perspective and public choice perspective in which citizens want the police to produce positive outcomes and solve the problems at hand. However, he noted that the police cannot necessarily produce positive outcomes in every situation, they remain positively viewed by citizens.

A second set of models that Tyler proposed, known as theories of adaptation, argues that citizens are concerned with the violation of their expectations when resources are allocated or by

the process used to allocate resources (Helson, 1964). When expectations are not met, regardless of the fairness of the process or outcome, citizens are hypothesized to be unhappy.

Alternatively, Tyler considered the psychological normative model, which focus on citizens' concerns with fairness when coming into contact with authorities. Specifically, he discussed distributive fairness and procedural fairness as means of citizens evaluating the legitimacy of authorities. Tyler (1990) described distributive fairness as the judgment of "public policies by examining the extent to which they distribute government benefits and burdens fairly" (p. 73). Furthermore, he described procedural fairness as the concern citizens have about the way authorities distribute outcomes. Prior research suggested that both procedural and distributive fairness are key to citizens' evaluation of authorities. Tyler noted, however, that the effects of procedural justice appear to be stronger.

To examine all five possible influences on legitimacy, Tyler analyzed his panel data. He used two endogenous variables from wave two—evaluation of authorities and perceived legitimacy of authorities—and a series of predictors from wave one to evaluate the independent effects of possible influences of legitimacy. These main exogenous variables include distributive justice, procedural justice, outcome favorability, outcome expectations, and procedural expectations. Additionally, he controlled for the effects of prior (wave one) evaluations and perceptions of authorities.

To measure the first endogenous variable, evaluation of authorities, the respondents were given a score, based on three items, for the respective authority, police or courts, with whom they had been in contact (Tyler, 1990). These items were the respondent's "satisfaction with the outcome, satisfaction with the treatment, [and] affect toward the authorities dealt with" (Tyler,

1990, p. 94). The second endogenous variable, legitimacy, was measured in the same manner as the previous analyses.

The respondent's perception of the unfavorability of the outcome was measured in two manners, relatively and absolutely (Tyler, 1990). The relative measure asked the respondents about the quality of their outcome which was then weighted by their perceived seriousness of the problem (Tyler, 1990). The absolute measure asked about the respondents' respective outcome of their contact with the police or courts. Relatedly, outcome expectations were measured by asking the respondents about their own prior experiences, prior experiences of their friends, family, and neighbors, their experience in relation to similar cases, and their expectations prior to being contacted by the police or courts (Tyler, 1990).

Procedural expectations were measured in a similar manner to outcome expectations. The respondents were asked about their treatment in relation to their own prior experiences, prior experiences of their friends, family, and neighbors, their experience in relation to similar cases, and their expectations prior to being contacted by the police or courts (Tyler, 1990).

Citizen perceptions of distributive justice were assessed through two items: "a judgment of the fairness of the outcome the respondent received ... [and] whether the authorities gave the case or problem the attention it deserved" (Tyler, 1990, p. 91). Similarly, citizen perceptions of procedural justice were measured with two items that asked "how fair the procedures used by the police or courts were and how fairly the respondents were treated" (Tyler, 1990, pp. 91-92).

Figure 1.5 shows the significant paths from Tyler's panel analysis. The result of this panel analysis demonstrated that the only statistically significant predictor of interest of wave two legitimacy was procedural justice from wave one. However, the control variable of legitimacy at wave one also statistically significantly predicted legitimacy at wave two. In

Figure 1.5. Path Model of Chicago Panel Data: Predictors of Wave Two Legitimacy*

*Modified from Tyler (1990, p. 98)

addition, procedural justice at wave one significantly influenced citizens' evaluations of authorities at wave two. Furthermore, citizens' evaluations at wave one significantly predicted evaluations at wave two. Of note, perceptions of legitimacy at wave one predicted wave one distributive justice, procedural justice, and procedural expectations.

According to Tyler, the implications of the panel analysis are clear. First, temporal ordering of variables demonstrated that citizen perceptions of procedural justice influence citizen perceptions of the legitimacy of authorities. This finding was still present when accounting for previously held perceptions of legitimacy. However, when examining the other theoretically potential predictors of legitimacy, none were statistically significant. Ultimately, Tyler concluded that procedural justice is the main predictor of citizen perceptions of legitimacy.

A Model of Procedural Justice, Legitimacy, and Compliance. The next logical question that Tyler tackles was: Does procedural justice influence legitimacy, which then influences compliance with the law? Again, Tyler used his panel data to provide temporal ordering to evaluate this question. Like his previous analysis, wave two evaluation and legitimacy were treated as dependent variables. However, only compliance was a truly endogenous variable. Predictors in this model were wave-one evaluation, legitimacy, outcome favorability, outcome expectations, procedural expectations, and compliance.

Figure 1.6 displays the significant paths for Tyler's analysis. All paths were positive unless noted otherwise. When predictors of legitimacy, legitimacy, and compliance are included in the same analysis, wave-one procedural justice and perceptions of legitimacy remain the only significant predictors of wave-two citizen perceptions of legitimacy. Additionally, citizen perceptions of legitimacy predict wave-two compliance. However, wave two compliance is also predicted by wave one compliance and wave one distributive justice. Significant predictors of

Figure 1.6. Path Model of Chicago Data: Procedural Justice to Legitimacy to Compliance*

*Modified from Tyler (1990, p. 103)

procedural justice in this analysis include outcome expectations, procedural expectations, and compliance, with compliance inversely influencing citizen perceptions of procedural justice. Conversely, significant predictors of distributive justice include wave-one evaluation, legitimacy, outcome favorability, outcome expectations, and compliance, with compliance being inversely related to perceptions of distributive justice.

Essentially, this panel analysis between predictors of perceptions of legitimacy, legitimacy, and compliance provides a path for which authorities may gain compliance. Although wave-one compliance predicts both legitimacy and wave-two compliance, the direct path suggested that compliance begets future compliance. The indirect path suggested that those who are not compliant, but receive procedurally or distributively just treatment, may also be compliant in the future. For those who received procedural just treatment, their perceptions of the legitimacy of the authority improved, and therefore, they are more compliant, whereas the path between distributive justice and compliance is direct. These findings align most closely with the normative model.

Determinants of Procedural Justice. Finally, and key to the current inquiry about the measurement of procedural justice, Tyler sought to determine what characteristics of a procedure produces “fairness” in the eyes of citizens. Drawing from the work of Thibaut and Walker (1975) and Leventhal (1980), Tyler combined the process and decision control of Thibaut and Walker (1975) with the six criteria of Leventhal (1980) to answer this question. As seen in Figure 1.7, he developed six elements, which he felt may best represent the criteria of a fair procedure.

First, he argued that process and decision control of Thibaut and Walker (1975) combine to form one of the six Leventhal (1980) criteria—representation. Representation, as seen in Table 1.3, was measured by asking the respondents “how much opportunity they had before decisions

Figure 1.7. Theoretical Model of Criteria used to Judge Fairness of a Procedure

Table 1.3. Tyler's Elements of Procedural Justice*

Representation		
Process Control	"How much of a chance or opportunity did the police (judge) give you to (describe your problem to them/tell your side of the story/what you said) before making any decisions about how to handle (it/your case/your call)? Did you have..."	"A great deal of opportunity, some opportunity, a little opportunity, or not much opportunity at all?, Don't know"
Decision Control	"How much influence did you have over the decisions made by the police (judge)? Did you have..."	"A great deal of influence, some influence, a little influence, or not much influence at all?, Don't know"
Consistency		
Toward People	<p>"When you compare the way you were treated (to the treatment of people generally receive when they are stopped by the police for similar reasons/in court to the treatment of people who generally go to court for similar reasons/to the way the police generally treat people who call them with similar problems), did you receive about the same treatment that others receive, or were you treated better or worse than others?"</p> <p>"Do you think that (you received worse treatment/the judge treated you worse/the police treated you worse) than others because of your race, sex, age, nationality or some other characteristic of you as a person?"</p>	<p>"The same as others, Better than others, Worse than others, Don't know"</p> <p>"Yes, No, Don't know"</p>
Temporal	<p>"When you compare you treatment (by the Chicago police/in court) to the treatment that you have received when you have (had contact with the police in the past year/been in court in the past/had contact with the police in the past), would you say that you received about the same treatment as in the past or that you were treated better or worse in the past?"</p> <p>"Did the police (judge) treat you and handle (their contact/your case/your call) in the manner that you expected they (he) would (if you were stopped by the police/before you went to court/when you called) or did you receive better or worse treatment than you expected?"</p>	<p>"About the same, Better, Worse, No past experience, Don't know"</p> <p>"Expected, Better than expected, Worse than expected, Don't know"</p>

Impartiality		
	“Do you think that you received a worse outcome than others because of your race, sex, age, nationality or some other characteristic of you as a person?”	“Yes, No, Don’t know”
	“How hard did the police try to be fair to you? Did they try...”	“Very hard, Quite hard, Somewhat hard, or Not hard at all?”
	“Were (the police/they) honest in what they said to you and in their reporting of (their contact with you/their previous contact with you/your call?”	“Yes, No, Refused, Don’t know, N/A”
	“Did the (police/judge) do anything that you thought was improper or dishonest?”	“Yes, No, Refused, Don’t know, N/A”
(for those in a dispute)	“Did the methods used by (the police)...”	“Favor one person over the other, or were they equally fair to everyone involved in the dispute?, Don’t know”
Accuracy or Quality of Decision Making		
	“Did (they/the judge) get the information he needed to make good decisions about how to handle (the situation/your case/the situation)?”	“Yes, No, Refused, Don’t know, N/A”
	“Did (they/the judge) try to bring the problem into the open so that it could be solved?”	“Yes, No, Refused, Don’t know, N/A”
Correctability		
	“Do you know of any agency or organization that you could have complained to if you felt that the (police were/judge was) unfair?”	“Yes, No, Don’t know”
Ethicality		
	“(Were the police/Was the judge) polite to you?”	“Yes, No, Refused, Don’t know, N/A”
	“Did (they/the judge) show concern for your rights?”	“Yes, No, Refused, Don’t know, N/A”

*All from Appendix A (pp. 179-219)

were made to present their problem or state their case,” for process control, and “how much influence they had over the decisions made by the third party,” for decision control (Tyler, 1990, p. 125).

Second, Tyler analyzed four items to capture Leventhal’s (1980) criteria of consistency. As seen in Table 1.3, two measures of consistency focused on the consistency of authorities actions towards different people. Tyler captured this type of consistency by asking about their experience in comparison to other members of the general public and also asking about their experience compared to their friends, family, or neighbor’s experiences. The other two measures focused on the temporal consistency of authorities actions. Tyler captured this type of consistency by asking about their experience compared to their expectations and also about their experience compared to experiences in the past.

Third, impartiality of the authorities, as seen in Table 1.3, was measured by asking whether their age, sex, race, nationality, or another characteristic influenced their treatment or the outcome of their experience with the police or courts, respectively. In addition, the respondents were asked how fair authorities attempted to be in their experience as well as if the authorities “did anything” dishonest or improper or had lied to them (Tyler, 1990, p. 136). Finally, those who were involved in a dispute were asked if the authorities favored one party over the other.

Fourth, two measures constructed the accuracy or quality of decision making criteria, as seen in Table 1.3. In the first measure, the respondents were asked if the authorities had “gotten the information they needed to make good decisions about how to handle” the situation (Tyler, 1990, p. 136). In the second measure, the respondents were asked whether the problem had been brought “into the open so that it could be solved” by authorities (Tyler, 1990, p. 136).

Fifth, as seen in Table 1.3, correctability as a criterion was measured through asking the respondents if they know of an “agency or organization” where they could complain about their treatment if it were unfair (Tyler, 1990, p. 136). And sixth, ethicality was measured by asking the respondents if the authorities in their experience had been polite and if they had “shown concern for their rights” (Tyler, 1990, p. 136).

The dependent variable in this analysis, perceptions of procedural justice, was measured by asking respondents, “How fair the procedures used by the police or courts were and how fairly the respondents were treated” in their experience (Tyler, 1990, p. 92). Additionally, respondents who had contact with the police or the courts were respectively asked about the fairness in “the way the Chicago police (courts) treat people and handle problems,” “how often the police (courts) treat citizens fairly and handle their problems in a fair way,” and “how fairly” the police or courts would treat them in future encounters (Tyler, 1990, p. 136).

Looking to evaluate the six criteria that may influence procedural justice, Tyler developed two models. In the first, he examined the six predictor’s independent impacts on the perception of fair procedures. Next, he introduced outcome favorability into his model in order to control for the effects of a respondent receiving a positive outcome, such as no citation or winning in court, or a negative outcome, such as receiving a citation or losing in court. If the normative model were to persist, the introduction of outcome favorability would not influence the significance of the six elements of procedural justice in predicting the fairness of a procedure. Tyler completed this analysis for the fairness of procedures and the fairness authorities of which the respondents encountered.

Using multiple regression to control for each potential criterion’s independent influence on citizen perceptions of procedural fairness, Tyler found that with the exception of consistency,

all criteria statistically significantly predict citizen perceptions of procedural fairness in an encounter. When introduced into the regression in a second model, the favorability of the outcome statistically significantly influences perceptions of procedural fairness. Additionally, in this second model, consistency and bias are not statistically significant in predicting citizen perceptions of procedural fairness. In both models, the strongest predictors were perceptions that authorities tried to be fair, whether authorities were dishonest with the citizen, ethicality, representation, and quality of decisions (Tyler, 1990).

To examine the robustness of these findings, Tyler used the same methods to examine the perceptions that the authorities were fair. He found that only representation, whether authorities were dishonest, whether authorities made an effort to be fair, and ethicality were statistically significant. When outcome favorability was introduced into this model, it too became statistically significant, as did consistency. However, whether the authorities were dishonest became nonsignificant. In these models of citizen's perceptions of fairness of authorities, the strongest predictor was whether the respondents perceived the authorities made an effort to be fair, followed closely by the favorability of the outcome. For police, this finding is critical. It demonstrates that authorities are likely to be perceived as fair if they make an effort to appear fair, even if the outcome of a contact is unfavorable to the citizen. Additionally, Tyler made note of the similarities between criteria used by citizens to judge the fairness of procedures and authorities. These similarities suggest the elements of an effort to be fair and ethicality are key to the judgments of procedural justice more generally.

Understanding the Construct of Procedural Justice. After examining the elements that produce fair procedures, Tyler turned his attention toward understanding the construct of procedural justice. To explore this construct, he undertook two phases of analysis. In the first, he

completed a factor analysis to understand the dimensionality, if any, of the construct of procedural justice. In the second, he sought to understand the impact of situational and respondent characteristics on the importance of elements used to determine if a procedure is fair in the eyes of citizens.

First, to explore the dimensionality and importance of the potential characteristics of a procedure that is deemed fair, Tyler used factor analysis. This analysis produced two factors. In the first factor, termed “judgments based on experience,” were the following elements: process control, decision control, bias, whether authorities were dishonest, whether authorities made an effort to be fair, quality of decisions, and whether authorities made an effort to solve the problem (Tyler, 1990, p. 140). Three elements—process control, whether authorities made an effort to be fair, and whether authorities made an effort to solve the problem—had factor loadings above .7, which suggests that they were more influential in measuring the underlying trait of “judgments based on experience” (Tyler, 1990, p. 140).

The second factor, termed consistency or ethicality, was composed of the following elements: consistency in outcomes, consistency in procedure, politeness of authorities, and whether authorities were concerned for the rights of the respondent. Three elements—consistency in procedure, politeness, and concern for rights—had factor loadings above .7, which suggests that they were more influential in measuring the underlying trait of consistency or ethicality (Tyler, 1990). The factor loading for the criterion “correctability” did not reach a threshold of .4 or higher on either factor and therefore was not represented in either factor. Ultimately, Tyler’s factor analysis suggested that procedural justice may be a multidimensional construct. However, he left this question unexplored.

Second, Tyler examined the influence of different situational and personal characteristics on citizen's perceptions of fairness of a procedure. Of the situational characteristics, he explored the following conditions: which authority was involved (police or courts), whether the encounter with authorities was a dispute, the importance of the outcome to the respondent, the importance of the procedure to the respondent, whether choice was involved in the encounter, and whether the encounter resolved with a positive outcome. Of the personal characteristics, he investigated the following: an index of prior views regarding fairness of authorities, race, sex, age, liberal or conservatism, and income.

Using multivariate regression, Tyler inspected the interaction of each of the situational and personal criteria in relation to the criteria used to predict perceptions of a fair procedure. He found that 16 of the 48 interaction terms for the situational characteristics were statistically significant, whereas only 5 of the 64 interaction terms for the personal characteristics were statistically significant. For example, when evaluating the fairness of procedure, respondents who interacted with the courts were "significantly more concerned with quality of decision, bias, and correctability than are citizens who deal with the police" (Tyler, 1990, p.142).

Given the number of significant interaction terms for the situational characteristics, Tyler suggested that characteristics used to judge a procedure as fair may vary across situations. However, given that few of the personal characteristic interaction terms were significant, Tyler concluded that the majority of people consider the same criteria when assessing the fairness of a procedure. These two findings combine to produce one of Tyler's major conclusions and implications regarding procedural justice. He asserted that "Apparently, individuals do not have a single schema of a fair procedure that they apply on all occasions, but instead are concerned with different issues in different circumstances. As a result, it is likely that there are no

universally fair procedures for allocation and the resolution of disputes” (Tyler, 1990, p. 143). Therefore, Tyler suggested that supplying citizens with an opportunity for process control may be the key to short-term support for authorities.

Summary and Implications. By combining the findings from Tyler’s previous analyses into one diagram, Figure 1.8 provides a summary of the links between procedural justice, legitimacy, and compliance as well as the elements of procedural justice. Moving from right to left in the figure, Tyler started by empirically establishing the link between compliance and legitimacy. Next, he explored the components of citizen perceptions of the legitimacy authorities. Third, he empirically tested the link between procedural justice, perceived legitimacy of authorities, and compliance. Finally, at the top of the diagram, he explored the elements of a procedure deemed to be fair by citizens.

Although the findings of empirical linkages between procedural justice, perceived legitimacy, and compliance with the law are critical for the normative model, the definition and measurement of procedural justice are of utmost importance here. Unfortunately, Tyler did not spend much time discussing his definition of procedural justice. Briefly, he stated that procedural justice, according to the normative perspective, holds “that people care about the justice of ... the procedures by which [outcomes] are arrived at” (Tyler, 1990, p. 5). Like Thibaut and Walker (1975) and Leventhal (1980), this definition reflects the nature of reaching an outcome through a process and the importance of processes to those who are subject to them.

Tyler discussed his operationalization of procedural justice in more detail. However, in different analyses, he uses different measures to gauge citizen perceptions of procedural justice. In most of his analyses, he measures procedural justice by asking the respondents two questions: (1) “how fair the procedures used by the police or courts were” and (2) “how fairly the

Figure 1.8. Summary of Tyler's Findings

*Dashed paths represent a separate model testing the underlying elements of procedural justice

respondents were treated” (Tyler, 1990, pp. 91-92).

In his analysis of the elements of procedural justice, Tyler used six elements to further refine the measurement of procedural justice. As seen in Table 1.3, the items used to measure these six elements reflect the origins based in Thibaut and Walker (1975) and Leventhal’s (1980) work. In total, a maximum of 16 items were used to measure procedural justice. If the encounter did not involve a dispute, 15 items were used to measure procedural justice. Although only five of the six elements examined by Tyler are statistically significant elements of procedural justice, these items and elements would play a critical role in the development of the elements of procedural justice.

When presenting his conclusions about the elements of procedural justice, Tyler cautioned that different criteria or elements of procedural justice may be relevant in different situations. Because of this dependence on the situation to define the meaning of procedural justice, Tyler proposed the development of a typology to determine which elements define procedural justice in a variety of situations. To date, it does not appear that a formalized typology has ever been formulated or tested. Rather, the elements of procedural justice have been specifically honed based on the areas of interest, such as the workplace, politics, or policing.

Ultimately, Tyler’s book established the critical empirical links between procedural justice, perceived legitimacy of authorities, and compliance with the law. He also empirically tested Thibaut and Walker’s (1975) process and decision control and Leventhal’s (1980) criteria of procedural justice. By completing this work, he cemented the importance of processes in decision making as well as the normative model. The influence of this book can be easily seen in the 7,974 citations accrued in Google Scholar (on July 6, 2018) since 1990. In a narrowed search

using the keywords “criminology” and “criminal justice,” *Why People Obey the Law* had 3,480 and 5,220 citations respectively.

More broadly, Tyler’s work contributed to the growing line of inquiry surrounding procedural justice. Figure 1.9 uses a Google Ngram (on July 6, 2018) to track the prevalence of use the phrase “procedural justice” (case-insensitive) in books in the English language and published in the United States between 1950 and 2008. The phrase “procedural justice” saw major growth not only during the time following Thibaut and Walker (1975) and Leventhal’s (1980) work, but also following Tyler’s classic work.

TYLER’S EVOLVING PERSPECTIVE

Tyler’s (1990) *Why People Obey the Law* played a critical role in understanding the link between procedural justice, perceptions of legitimacy, and compliance with the law. Notably, his work did not stop there, continuing for roughly two decades since the appearance of his classic book. Much of Tyler’s scholarship has involved the use of experimental studies to assess the relationships between constructs, such as procedural justice, perceptions of legitimacy, and compliance. Simultaneously, he has endeavored to develop his theoretical models. Supporting and extending the claims of previous scholars, these theoretical models argue that the actions and treatment of citizens by authorities, such as the police, matter to citizens as much, if not more, than the outcomes citizens receive in an encounter. The sections that follow track his evolving thinking, reviewing his self-interest and group-value models, the relational model of authority, the two-component model, the four-component model, the group engagement model, and the self-based model of cooperation. Additionally, the progression in the measurement of procedural justice and the terminology used to describe its elements will be examined.

Figure 1.9. Google Ngram of “Procedural Justice”(1950-2008)

The Self-Interest and Group Value Models

Tyler's evolving perspective begins slightly before his classic volume *Why People Obey the Law* (1990). In another publication, *The Social Psychology of Procedural Justice*, E. Allen Lind and Tyler (1988) synthesize the knowledge base of procedural justice and conclude with two models of procedural justice: (1) the self-interest model, and (2) the group value model.

First, according to Lind and Tyler (1988), the self-interest model asserts that people are solely focused on personal gains and losses when interacting with other people. In its purest sense, the self-interest model suggests that people seek to maximize their gains and minimize their losses. A modified self-interest model, termed "the informed self-interest model," helps to introduce the concept of fairness into the self-interest model. It proposes that people understand the need to cooperate at times for them, as an individual, to achieve greater gains in the long run, even beyond what they could gain on their own. While cooperating, the individual may experience a loss in the short term, which is acceptable under the condition that processes used to reach an outcome are fair. In balancing short-term losses and long-term gains, the individual is faced with a dilemma of conflicting objectives. To resolve this dilemma of conflicting objectives, fair procedures may be used, in part, to induce long-term commitment to the group. This model predicts that favorability of the procedure in the eyes of the individual, the amount of outcome control given to the individual, the fairness of the outcome based on the procedure, and the consistency of the procedure across individuals will most potently influence the perceptions of procedural justice. Furthermore, this model predicts that as the importance of an outcome increases, so does the importance of procedural justice. Finally, this model predicts that general attitudes of a group or institution will be more strongly influenced by procedural justice, as opposed to specific attitudes from a single encounter.

Lind and Tyler (1988) point out that this “informed self-interest model” is valued for its “intuitive appeal” and its place as a point of origin for many studies in behavioral and social sciences (p. 222). Furthermore, this model perpetuates the overarching hypothesis that the treatment of citizens by authorities in an interaction is important just as much as, if not more than, the outcome citizens receive. However, they also argue that this model has some weaknesses. It fails to account for the importance of voice or representation in an encounter. It also fails to account for allegiance to a group and cooperation after repeated negative outcomes, even when a positive outcome was impossible.

As an alternative, Lind and Tyler (1988) propose the group value model which they argue addresses these limitations of the informed self-interest model. This group value model is based on a group of models known by social psychologists as group identification models. This group of models argues that processes occurring at the group level inform individual behavior. For example, in a social dilemma of cooperation, individuals may ignore their own self-interests and behave in a manner which benefits the group. According to group identification models, this cooperation comes from an affective identification with a group, rather than from perceived long-term and expected gains as proposed in the self-interest models.

Specifically, Lind and Tyler (1988) argue that the group value model assumes the powerful role that group membership plays in social life. As a result of this importance of group membership, “affective relations within and between groups and cognitive constructions with respect to those relations are potent determinants of attitudes and behaviors” (p. 231). In particular, they argue that two elements guide such attitudes and behaviors—group identity and group procedure—where “group identity defines the external features of the group, [and group] procedures define the internal features of the group” (Lind & Tyler, 1988, p. 231). Furthermore,

these group procedures, according to this model, are viewed as “norms of treatment and decision making that regulate much of a group’s social structure and process” (Lind & Tyler, 1988, p. 231). When these group procedures are aligned with the fundamental values of both the group and the individual within the group, the result is a sense of procedural justice (Lind & Tyler, 1988).

Moreover, Lind and Tyler (1988) argue that these values, which can vary from group to group, are the result of a socialization process. They admit, however, that some values are core to all groups, which may affect procedural justice. For example, Lind and Tyler (1988) note that solidarity and maintaining authority relations may be universal. In addition, the group value model argues that individuals in a group value their status within the group and the security in their group membership. Still, less universal values are also believed to be acquired through socialization, especially during childhood, in which older group members transmit values to younger or newer members of the group. This socialization during childhood is important because individuals become attached, and therefore loyal, to the group before they have an opportunity to evaluate short-term and long-term gains associated with group membership. Furthermore, this attachment or loyalty felt by youths promotes value acceptance and “instills the value of following the rules for their own sake” (Lind & Tyler, 1988, p. 233).

These socialized values, universal or not, are also expected to have a substantial impact on attitudes related to the group. For example, a procedure that runs contrary to an individual’s or group’s values is viewed as unjust, which may result in a reduced evaluation of the group as well as reduced commitment and loyalty to the group. However, Lind and Tyler (1988) also recognize that this process could work in the opposite direction in which attitudes and

evaluations of a group may influence perceptions of values, simply as a result of favoring the processes used by a favored group.

Lind and Tyler (1988) also argue that part of this socialization includes the socialization of procedural content. This procedural content includes the value of certain goals as well as the possible procedures that are acceptable to meet these goals. In fact, the preferences for certain procedures, regardless of the factual evidence about the procedure, may be preferred due to such socialization processes. Because of the strength of the socialization process in guiding preferences of procedures, Lind and Tyler believe that the previously identified link between procedural justice and perceived control may be spurious. Arguably, procedures that provide participation or voice and affirm group membership may simply be a reflection of the congruent nature of the values espoused by both the procedure and those of the group or individual. In this chain of logic, the perception of control is not included and is rather a by-product of the aligning values of procedure and group or individual.

Following this logic, the influence of non-instrumental aspects of a procedure, such as politeness or treatment with dignity and respect by authorities, may hold more importance than the outcome of an interaction due to the message these aspects send to an individual of a group. As stated by Lind and Tyler (1988), “procedures and procedural behavior that violate basic norms of politeness will be seen as unfair both because of the basic normative rules that are violated and are valued in their own right and because impolite behavior denies the recipient’s dignity as a full-status member of the group” (p. 237). Again, the congruence between an individual and group values with that of the group’s procedure produce judgments about procedural justice.

Lind and Tyler (1988) make six predictions based on their group value model. First, they believe Leventhal's (1980) criteria of ethicality "will be a potent determinant of procedural justice judgments" (p. 237). Second, they believe that some universal factors will influence procedural justice judgments, irrespective of specific group or individual values. Third, as opposed to the self-interest model, they believe that procedural justice holds more importance in the group value model because it is an essential element of social life. Fourth, Lind and Tyler (1988) predict that procedural justice will "assume special importance for individuals who are uncertain about their status within the group" (p. 238). Fifth, they believe that procedural justice judgments will strongly influence attitudes about the group and group authorities. And sixth, they believe that procedural justice "will have the capacity to engender considerable affect on the part of the perceiver" (p. 239). Given this affect, "violations of procedural justice are viewed as violations of basic group or individual values," and as such one would "expect procedural injustice to be a potent source of anger and dislike with respect to whoever is seen as producing the injustice" (p. 239).

Like they did with the informed self-interest model, Lind and Tyler (1988) acknowledge the strengths and weakness of this model. The model does address the limits of the informed self-interest model by demonstrating a role for participation or voice as well as the importance of non-instrumental concerns, such as politeness. Still, the group value model lacks an explanation of lowered procedural justice perceptions due to a negative outcome. This omission is because it makes no reference to outcomes at all.

Ultimately, Lind and Tyler (1988) decide that evidence supports both the informed self-interest model and the group value model. Instead of discarding one of these models, they recognize both as potentially plausible models that are reasonably accurate, but incomplete. They

note, “our reading of the procedural justice literature has convinced us that people evidence both self-interest processes and group value process at the same time” (p. 240). They conclude that future research can either work to integrate these models or replace both models with a model that more accurately describes the observed phenomenon observed in the study of procedural justice.

Soon thereafter, Tyler (1989) attempted to empirically test the group value model to determine if three non-control elements—neutrality, trust, and communication of social standing—influence procedural preferences and judgments about procedural justice. Using a random sample of Chicagoans that responded to a 1984 telephone survey, Tyler (1989) considered the impact of these three non-control elements, outcome favorability and control on four dependent variables. If the group value model were valid, Tyler (1989) expected the three non-control elements to be significant predictors of (1) perceptions of the fairness of procedures used by the police and courts, (2) perceptions of how fairly the respondent had been treated, (3) perceptions of the fairness of the outcome the respondent received, and (4) perceptions of whether the respondent received the outcome they deserved.

Note that Tyler (1989) used the same data presented in his classic volume, *Why People Obey the Law* (1990). As such, his measures of outcome favorability and control, both process and outcome, are the same in both. As seen in Table 1.4, Tyler’s (1989) measure of neutrality combines his (1990) items from the elements of impartiality, accuracy or quality decision making, and consistency, with the exception of the item that asked how hard authorities tried to be fair. In addition, Tyler’s (1989) measure of standing mirrors the items used to measure ethicality in his (1990) work. Finally, Tyler’s (1989) measure of trust used the item of how hard authorities tried to be fair to the respondent.

Table 1.4. Tyler's 1990 Elements of Procedural Justice and the Group-Value Model*

Procedural Justice Elements and Items			Measures in the Group-value Model
Representation (1990)			Control
Process Control	"How much of a chance or opportunity did the police (judge) give you to (describe your problem to them/tell your side of the story/what you said) before making any decisions about how to handle (it/your case/your call)? Did you have..."	"A great deal of opportunity, some opportunity, a little opportunity, or not much opportunity at all?, Don't know"	(Control)
Decision Control	"How much influence did you have over the decisions made by the police (judge)? Did you have..."	"A great deal of influence, some influence, a little influence, or not much influence at all?, Don't know"	(Control)
Consistency (1990)			Neutrality
Toward People	"When you compare the way you were treated (to the treatment of people generally receive when they are stopped by the police for similar reasons/in court to the treatment of people who generally go to court for similar reasons/to the way the police generally treat people who call them with similar problems), did you receive about the same treatment that others receive, or were you treated better or worse than others?"	"The same as others, Better than others, Worse than others, Don't know"	(Neutrality)
	"Do you think that (you received worse treatment/the judge treated you worse/the police treated you worse) than others because of	"Yes, No, Don't know"	(Neutrality)

your race, sex, age, nationality or some other characteristic of you as a person?”

Temporal

“When you compare you treatment (by the Chicago police/in court) to the treatment that you have received when you have (had contact with the police in the past year/been in court in the past/had contact with the police in the past), would you say that you received about the same treatment as in the past or that you were treated better or worse in the past?”

“About the same, Better, Worse, No past experience, Don’t know”

(Neutrality)

“Did the police (judge) treat you and handle (their contact/your case/your call) in the manner that you expected they(he) would (if you were stopped by the police/before you went to court/when you called) or did you receive better or worse treatment than you expected?”

“Expected, Better than expected, Worse than expected, Don’t know”

(Neutrality)

Impartiality (1990)

--

“Do you think that you received a worse outcome than others because of your race, sex, age, nationality or some other characteristic of you as a person?”

“Yes, No, Don’t know”

(Neutrality)

“How hard did the police try to be fair to you? Did they try...”

“Very hard, Quite hard, Somewhat hard, or Not hard at all?”

Trust

“Were (the police/they) honest in what they said to you and in their reporting of (their contact with you/their previous contact with you/your call?”

“Yes, No, Refused, Don’t know, N/A”

(Neutrality)

“Did the (police/judge) do anything that you thought was improper or dishonest?”

“Yes, No, Refused, Don’t know, N/A”

(Neutrality)

(for those in a dispute)	“Did the methods used by (the police)...”	“Favor one person over the other, or were they equally fair to everyone involved in the dispute?, Don’t know”	(Neutrality)
Accuracy or Quality of Decision making (1990)			--
	“Did (they/the judge) get the information he needed to make good decisions about how to handle (the situation/your case/the situation)?”	“Yes, No, Refused, Don’t know, N/A”	(Neutrality)
	“Did (they/the judge) try to bring the problem into the open so that it could be solved?”	“Yes, No, Refused, Don’t know, N/A”	(Neutrality)
Correctability (1990)			
	“Do you know of any agency or organization that you could have complained to if you felt that the (police were/judge was) unfair?”	“Yes, No, Don’t know”	
Ethicality (1990)			Standing
	“(Were the police/Was the judge) polite to you?”	“Yes, No, Refused, Don’t know, N/A”	(Standing)
	“Did (they/the judge) show concern for your rights?”	“Yes, No, Refused, Don’t know, N/A”	(Standing)

*All from Tyler (1990) Appendix A (pp. 179-219)

Because Tyler (1989) uses similar items to create different constructs, it is worth defining each of the three non-control elements he presents. Neutrality, according to Tyler (1989), is the focus of an individual will have in a situation on “having an unbiased decision maker who is honest and who uses appropriate factual information to make decisions” (p. 831). Standing, as viewed by Tyler (1989), comes from the manner in which an individual is treated by authorities in an interaction. He provides two means for individuals to gain information about their standing: (1) how rude or polite/respectful the authority is to the individual, and (2) if the authority respects or disrespects the rights of the individual. Finally, trust, as viewed by Tyler (1989) “involves the belief that the intentions of third parties are benevolent, that they desire to treat people in a fair and reasonable way” (p. 831). As can be seen, the constructs used in the 1990 study are different from those in the 1989 study, even though many of the same items are used when building respective constructs.

Using factor analysis, Tyler (1989) concluded that the three non-control elements uniquely explained variance in each of the four dependent variables. Furthermore, using multivariate regression, Tyler (1989) controlled for the influence of outcome favorability as well as process and decision control to conclude that trust, neutrality, and standing hold independent significant effects in predicting all four outcomes. To test the rigor of this finding, Tyler (1989) introduced control variables into the model to account for potential confounding variables. These control variables included: (1) demographic variables (six items: education, income, political leaning, age, sex, and race), (2) Characteristics related to the encounter (five items: the authority encountered, if the encounter was a dispute, if the encounter was voluntary, importance of the outcome, and quality of treatment by the authority), (3) Generalized beliefs about authorities equal treatment of citizens (two items: unlisted), (4) The respondent's social group commitment

(support for legal authorities (one item), affective attachment to authorities (eight items including the respondent's pride in authorities and respect for authorities), obligation to obey authorities—six item including the appropriateness of following the law, even if the respondent felt the law was wrong). After introducing these control variables into his model, Tyler (1989) concluded that the potential confounding variables had a small but limited effect. All three non-control variables remained statistically significant predictors of all four dependent variables.

To further test the robustness of the group value model, Tyler (1989) examined the influence of outcome favorability, control, neutrality, trust, and standing in predicting high and low levels of support for authorities and high and low levels of obligation to obey authorities. The group value model suggests that those who are more highly committed (to support authorities and have an obligation to obey) will care more about group-values (neutrality, trust, standing). Using multivariate regression, Tyler (1989) found this hypothesis to hold true. The influence of the group-value elements were more influential in predicting high levels of support and an obligation to obey. However, he only found statistically significant differences between high and low levels of support for the value of neutrality and between high and low levels of obligation to obey for the value of trust.

As a result of these analyses, Tyler (1989) proposed that the elements of neutrality, trust, and standing as part of the group-value model hold importance in understanding procedural justice, beyond measures of control and outcome favorability. In assessing his findings in relation to previous work, Tyler reflected and inquired as to why Thibaut and Walker's (1975) elements of neutrality, trust, and standing were not more important than control in their models. He suggested it may be a result of examining disputes and not other contexts in which citizens

may encounter authorities. Ultimately, Tyler (1989) concluded that the group value model is supported and is worthy of continued investigation.

Relational Model of Authority

A few years later, Tyler and Lind (1992) refined their group value model with particular attention to authorities. Lind and Tyler's (1988) model explored the importance of group and individual values and their congruence with procedures used by a group. However, Tyler and Lind (1992) now added the insight that individuals are particularly concerned with procedures used by group authorities due to the messages that these procedures send about an individual's status and relationship within the group. As Tyler and Lind (1992) note, "the reason that people are so interested in trust, standing, and neutrality, we would argue, is that they believed that these factors tell them something about whether they will be treated fairly and whether they are valued by the group using the procedure" (p. 143). In integrating this nuance into the larger model, Tyler and Lind (1992) state the following:

We have argued here that a good relationship with authorities promotes feelings of procedural fairness and that this in turn leads one to feel valued by the group. This group-value belief is, in turn, a potent determinant of various attitudes and behaviors, including judgments of legitimacy and obedience to authority. (p. 158)

Figure 1.10 presents Tyler and Lind's (1992) visual depiction of this model. Again, this model is very similar to the original group value model but speaks specifically to the relations individuals have with authorities and how that relationship shapes the individual's views of their value in the group and eventually compliance.

The Two-Component Model

Several years later, Tyler and Blader (2000) proposed two new models to describe how individuals define procedural justice—the two-component model (discussed here) and the four-

Figure 1.10. Tyler's Relational Model of Authority

component model (discussed in the next section). First, as the name suggests, the two-component model, focuses on two types of concerns individuals have in regards to procedural justice: (1) “the manner in which decisions are made and [2] the interpersonal experience that people have as a consequence of being involved in their groups” (p.103). Specifically, Tyler and Blader (2000) refer to these two concerns as “the quality of decision making processes” and “the quality of treatment” (pp. 103-104).

In focusing on these two components, Tyler and Blader take a broader approach to understanding procedural justice. Instead of focusing on which specific elements produce procedural justice perceptions in individuals, they hoped to use these two broad constructs (quality of decision making and quality of interpersonal treatment) to further understand the key predictors and outcomes of procedural justice. As acknowledged by Tyler and Blader, this broader focus provides parsimony in order to “consolidate constructs and ideas that may have the same theoretical underpinnings” (p. 106).

To test this model, Tyler and Blader focus on a sample of 404 employees in Chicago who were surveyed about their current job. However, it must be noted that over a quarter ($n = 123$) of these respondents were undergraduate students, which provides some limitation to the generalizability of any findings. Based on survey responses to several items, as seen in Table 1.5, Tyler and Blader develop a scale of quality of decision making and a scale of quality of treatment. As can be seen, many of these items reflect ideas about elements of procedural justice that have been expressed in earlier work, but now in relation to employees.

Additionally, Tyler and Blader (2000) ask the respondents about their perceptions of procedural justice and distributive justice as well as about outcome favorability. As seen in Table 1.6, these items also reflect many items used to measure these constructs previously.

Table 1.5. Items used to Measure Quality of Decision Making and Quality of Treatment*

Construct and Related Items	Available Responses
Quality of Decision Making	
Decisions are made based upon facts, not personal biases and opinions	6=strongly agree, 1=strongly disagree
The rules and procedures are equally fair to everyone	6=strongly agree, 1=strongly disagree
How often are the rules and procedures applied consistently across people and situations?	6=always, 1=rarely
My supervisor's decisions are made based upon facts, not their personal biases and opinions	6=strongly agree, 1=strongly disagree
My supervisor's decisions are equally fair to everyone	6=strongly agree, 1=strongly disagree
Are your supervisors' decisions are consistent across people and situations?	6=always, 1=rarely
How fair are the rules and procedures for decision making used in your organization?	6=very, 1=not at all
Quality of Treatment	
My rights are respected when decisions are made	6=strongly agree, 1=strongly disagree
I am treated with dignity by my work organization	6=strongly agree, 1=strongly disagree
Does the organization follow through on the decisions and promises it makes?	6=always, 1=rarely
I am usually given an honest explanation for decisions made	6=strongly agree, 1=strongly disagree
My needs are taken into account when decisions are being made	6=strongly agree, 1=strongly disagree
My views are considered when decisions are made	6=strongly agree, 1=strongly disagree

My supervisor respects my rights	6=strongly agree, 1=strongly disagree
My supervisor treats men with dignity	6=strongly agree, 1=strongly disagree
Does your supervisor follow through on decisions and promises he/she makes?	6=always, 1=rarely
My supervisor usually gives me an honest explanation for the decision he/she makes	6=strongly agree, 1=strongly disagree
My supervisor takes account of my needs when making decisions	6=strongly agree, 1=strongly disagree
My supervisor considers my views when decisions are being made	6=strongly agree, 1=strongly disagree
How fairly does your supervisor treat you when he/she is making decisions?	6=very, 1=not at all

*All items and responses directly from Tyler and Blader (2000, p. 118)

Table 1.6. Items used to Measure Procedural Justice, Distributive Justice, and Outcome Favorability*

Construct and Related Items	Available Responses
Procedural Justice	
Overall, how often do you feel your organization makes decisions in fair ways?	6=always, 1=rarely
How fairly does your work supervisor make decisions?	6=very, 1=not at all
Overall, how often do you feel your supervisor makes decisions in fair ways?	6=always, 1=rarely
Organizational authorities where I work try very hard to be fair to their employees	6=strongly agree, 1=strongly disagree
Distributive Justice	
In general, how fair are the outcomes that you receive from your work organization?	6=very, 1=not at all
In general, how fair are the outcomes that you receive from your work supervisor?	6=very, 1=not at all
Do you think that the pay and benefits you receive are more than you deserve, less than you deserve, or are about fair?	7=much more, 4=fair, 1=much less
Do you think that the outcomes you receive from your supervisor are more than you deserve, less than you deserve, or are about fair?	7=much more, 4=fair, 1=much less
Outcome Favorability	
How often do the rules and procedures lead to decisions and outcomes favorable to you?	6=always, 1=rarely
How much do the decisions your organization makes benefit you?	6=a lot, 1=not at all

How often does your supervisor make decisions that are favorable to you?

6=always, 1=rarely

How much do the decisions your supervisor makes benefit you?

6=a lot, 1=not at all

*All items and responses from Tyler and Blader (2000, p. 81)

Using multivariate regression, Tyler and Blader (2000) examined the effects of using these two scales (quality of decision making and quality of treatment) on predicting perceptions of procedural justice in a series of two multivariate regressions. In the first multivariate regression, they used quality of decision making and quality of treatment to predict perceptions of procedural justice. Here, they found both predictors to be statistically significant predictors of perceptions of procedural justice. In the second multivariate regression, Tyler and Blader introduce the variables of outcome favorability and distributive justice to examine if their predictors of interest will remain significant after controlling for outcome related judgments. Even with these variables introduced into the analysis, quality of decision making and quality of treatment remain statistically significant predictors of perceptions of procedural justice. In addition, distributive justice is also statistically significant. Although Tyler and Blader complete additional analyses testing additional outcomes, such as attitudes, values, and cooperative behaviors, their findings suggest that the two-component model may be a viable framework to build around to further the understanding of procedural justice.

The Four-Component Model

As an addition to the two-component model, Tyler and Blader (2000) propose a four-component model that considers the source of the procedural justice judgment as well as the content (quality of decision making and quality of treatment). As they describe it, the concept of source, “reflects the origin of the judgment or experience that shapes peoples’ procedural justice evaluations” (p. 125). They break source into two categories: (1) formal bases, which are “the formal rules and procedures of the group” (p. 125), and (2) informal bases, which are unstructured, “more idiosyncratic in nature” and, “are the experiences people have with the specific group authorities who manage their lives” (p. 126). Notably, Tyler and Blader

specifically asserted that the police, who write citations, are part of the informal base of procedural justice.

They further asserted that “everyone lives with the same group rules,” but by their nature, informal sources of procedural justice “are likely to be a function of personal relationships existing between the group member and the specific group authority whom they are dealing with” (Tyler & Blader, 2000, p. 126). Therefore, as a result of discretion, different authorities (part of the informal base) may enforce different rules (part of the formal base) depending on the characteristics of the person or the relationship between the person and authority figure (Tyler & Blader, 2000).

Although this discretion may lead to biased or unfair decisions, observe Tyler and Blader (2000), it is recognized as necessary and may also represent a component of procedural justice. It is necessary in the sense that every situation an authority figure encounters cannot possibly be explained with specific rules. Therefore, authorities must make adjustments to their procedures to address the problem or person at hand. Additionally, discretion may be a component of procedural justice because authorities must be trusted to use this discretion within reasonable limits. This trust in making unbiased decisions is linked to neutrality as an element of procedural justice (Tyler & Blader, 2000).

When combining these formal and informal bases of procedural justice with the content of procedural justice (quality of decision making and quality of treatment), Tyler and Blader (2000) arrive at a typology which “identify four separate bases on which people make their overall procedural fairness evaluations”—as seen in Table 1.7 (p. 129). Two of these four bases—formal decision making and informal quality of treatment—describe constructs that have been previously identified, but the other two are described by Tyler and Blader as new. First, formal

Table 1.7. The Four Components of Procedural Justice*

		Source	
Procedural Element		Formal	Informal
	Quality of decision making processes	Formal quality of decision making	Informal quality of decision making
	Quality of treatment	Formal quality of treatment	Informal quality of treatment

*From Tyler and Blader (2000, p. 12)

quality of decision making refers to “the fairness of the formal procedures prescribed by the rules of the group for making decisions about allocations, for resolving conflicts, and so forth” (Tyler & Bladder, 2000, p. 129). Second, informal quality of treatment refers to “people’s treatment during their personal experiences with their supervisors” (p. 129). Both of these bases are easily represented in previous work on procedural justice. Third, formal quality of treatment represents “the role that the rules of the group have in determining how fairly individual group members feel they are treated” (p. 129). An example of such a formal rule would be the entitlement of dignity and respect granted by the Bill of Rights (Tyler & Blader, 2000). Fourth, informal quality of decision making represents “the way in which formal rules are implemented or through decisions that are made by group authorities when there are no formal rules to guide them” (p. 130).

To formally test this model, Tyler and Blader (2000) again turn to their sample of 404 employees. Drawing on the same items as their two-component model, they separate their items based on their source, formal or informal—as seen in Table 1.8. If this four-component model were to remain valid, all four bases of procedural justice judgments would significantly predict perceptions of procedural justice, even after the introduction of variables associated with outcome favorability and distributive justice.

As with the two-component model, this thesis is demonstrated empirically in a series of two multivariate regressions. In the first multivariate regression, Tyler and Blader (2000) examine the influence of all four bases on predicting perceptions of procedural justice while including variables related to outcome favorability and distributive justice. In this model, all four bases statistically significantly and independently predict perceptions of procedural justice. Informal quality of decision making was the most important predictor, followed closely by

Table 1.8. Items used to Measure the Four Bases of Procedural Justice*

Construct and Related Items	Available Responses
Quality of Decision Making	
Formal	
Decisions are made based upon facts, not personal biases and opinions	6=strongly agree, 1=strongly disagree
The rules and procedures are equally fair to everyone	6=strongly agree, 1=strongly disagree
How often are the rules and procedures applied consistently across people and situations?	6=always, 1=rarely
How fair are the rules and procedures for decision making used in your organization?	6=very, 1=not at all
Informal	
My supervisor's decisions are made based upon facts, not their personal biases and opinions	6=strongly agree, 1=strongly disagree
My supervisor's decisions are equally fair to everyone	6=strongly agree, 1=strongly disagree
Are your supervisors' decisions are consistent across people and situations?	6=always, 1=rarely
Quality of Treatment	
Formal	
My rights are respected when decisions are made	6=strongly agree, 1=strongly disagree

I am treated with dignity by my work organization	6=strongly agree, 1=strongly disagree
Does the organization follow through on the decisions and promises it makes?	6=always, 1=rarely
I am usually given an honest explanation for decisions made	6=strongly agree, 1=strongly disagree
My needs are taken into account when decisions are being made	6=strongly agree, 1=strongly disagree
My views are considered when decisions are made	6=strongly agree, 1=strongly disagree

Informal

My supervisor respects my rights	6=strongly agree, 1=strongly disagree
My supervisor treats men with dignity	6=strongly agree, 1=strongly disagree
How fairly does your supervisor treat you when he/she is making decisions?	6=very, 1=not at all
Does your supervisor follow through on decisions and promises he/she makes?	6=always, 1=rarely
My supervisor usually gives me an honest explanation for the decision he/she makes	6=strongly agree, 1=strongly disagree
My supervisor takes account of my needs when making decisions	6=strongly agree, 1=strongly disagree
My supervisor considers my views when decisions are being made	6=strongly agree, 1=strongly disagree

Distributive Justice

Formal

In general, how fair are the outcomes that you receive from your work organization?	6=very, 1=not at all
Do you think that the pay and benefits you receive are more than you deserve, less than you deserve, or are about fair?	7=much more, 4=fair, 1=much less

Informal

In general, how fair are the outcomes that you receive from your work supervisor? 6=very, 1=not at all

Do you think that the outcomes you receive from your supervisor are more than you deserve, less than you deserve, or are about fair? 7=much more, 4=fair, 1=much less

Outcome Favorability

Formal

How often do the rules and procedures lead to decisions and outcomes favorable to you? 6=always, 1=rarely

How much do the decisions your organization makes benefit you? 6=a lot, 1=not at all

Informal

How often does your supervisor make decisions that are favorable to you? 6=always, 1=rarely

How much do the decisions your supervisor makes benefit you? 6=a lot, 1=not at all

*All items and responses from Tyler and Blader (2000, pp. 133-134)

formal quality of decision making, formal quality of treatment, and informal quality of treatment. In addition, formal distributive justice is also statistically significant.

In the second multivariate regression, Tyler and Blader (2000) remove the influence of outcome favorability and distributive justice to examine the influence of the four bases in predicting procedural justice. Again, all four bases are statistically significant, with informal quality of decision making being most important, followed closely by formal quality of decision making, informal quality of treatment, and formal quality of treatment.

In sum, these two empirical analyses reveal that all four bases are “significant influences on judgments about procedural justice” (p. 132). As with the two-component model, Tyler and Blader (2000) complete additional analyses testing additional outcomes, such as attitudes, values, and cooperative behaviors. Overall, their findings suggest that the four-component model may be another viable framework to build around to further the understanding of procedural justice and other related outcomes, such as legitimacy, compliance, satisfaction, and loyalty.

The Group Engagement Model

Tyler and Blader (2000) described their group engagement model, in part, throughout their work in 2000, but delivered a more concise and comprehensive understanding of the model in 2003. In comparing Figure 1.11, the group engagement model conceived in their 2000 work, to Figure 1.12, the group engagement model in their 2003 work, there are clear similarities. However, the 2003 model provides a clearer visual for this model. As such, the following discussion will focus on the group engagement model as presented in Tyler and Blader (2003).

Drawing on the ever-growing body of evidence about justice and cooperation, Tyler and Blader (2003) proposed the group engagement model as a means of placing all of this evidence into a cohesive framework. As seen in Figure 1.12, they retained the four-component model of

Figure 1.11. The Group Engagement Model in 2000

*From Tyler and Blader (2000, p. 16)

Figure 1.12. The Group Engagement Model in 2003

*From Tyler and Blader (2003, p. 354)

procedural justice as a framework for understanding procedural justice. Furthermore, the concepts of distributive justice and outcome favorability reemerge. The reemergence of these outcome related constructs was important for this model because it suggested, as with previous research, that the procedures used in an encounter remain important for compliant behavior, regardless of the outcome. The remainder of the concepts in this model were relatively new and build upon new research to explain the path from procedural justice to compliant behavior.

Working backward (right to left) in the model, the group engagement model suggested that there are two kinds of cooperation individuals may use within a group (Tyler & Blader, 2003). Individuals may cooperate in a mandatory fashion in which their behavior is dictated by the group. Alternatively, individuals may cooperate in a discretionary fashion in which behaviors of the individual emanate from within the individual. Tyler and Blader (2003) then argued that different motivations underlie both kinds of cooperation. For example, they proposed that incentives and sanctions more strongly influence mandatory behaviors because the group demands this behavior and therefore incentivizes or sanctions behaviors accordingly to promote the desired behavior. Conversely, they proposed that internal attitudes and values drive discretionary behaviors. Tyler and Blader noted that these internal attitudes and values are especially important to understand because they drive discretionary behaviors, which are very valuable to groups. As such, cooperative discretionary behavior, unlike mandatory behavior, does not require incentives or sanctions, which can be demanding to the resources of the group (Tyler & Blader, 2003).

Next, the preceding step in the group engagement model addresses how to encourage this internal motivation to participate in discretionary behavior. Based on previous social psychological-motivational models known as identity models, Tyler and Blader (2003) argued

that the “central reason that people engage themselves in groups is because they use the feedback they receive from those groups to create and maintain their identities” (p. 353). They argued that groups play an important role by providing individuals with the means of constructing their social identity. The construction of this social identity occurs in two phases. First, individuals building their self-image around the social categories of the group. Second, individuals tie their “views about self-worth and self-esteem to the group memberships” (Tyler & Blader, 2003, p. 354). The degree that an individual ties their self-worth and self-esteem to the group represents their identification.

As seen in Figure 1.12, pride and respect influence this identification with a group. Pride, as viewed by Tyler and Blader (2003), “reflects the person’s evaluation of the status of their groups” (p. 354). Alternatively, respect “reflects their evaluation of their status within the group” (p. 354). From this pride of a group and respect from a group, an individual’s identity is acknowledged and recognized, which therefore shapes motivation for cooperation (Tyler & Blader, 2003). In particular, Tyler and Blader (2003) argued that pride would be strongly related to mandatory behavior and respect will be strongly related to discretionary behavior.

In their model, judgments about justice precede these identity judgments. Therefore, observe Tyler and Blader (2003), “identity evaluations and concerns mediate the relationship between justice judgments and group engagement” (p. 353). They termed this “the social identity mediation hypothesis” (p. 353).

Like justice judgments, resource judgments also precede judgments about an individual’s identity within a group. A set of competing models, known as the resource-based perspective, suggest that people are motivated to cooperate based on the resources they receive and the risk of sanctions from the group. Tyler and Blader (2003) did not completely agree with this

perspective, but they did not completely dismiss the importance of resources in the willingness to cooperate. Instead, they suggested that in the group engagement model, as seen in Figure 1.12, cooperation arises indirectly, as opposed to directly, from concerns about resources. As they noted, “resource judgments indirectly influence most forms of engagement by shaping identity” (p. 355). More simply stated, people use the number of resources allocated to them to appraise their identity and status within the group. Those who receive more resources will more readily engage in the group because “they feel better about their identity with the group” (Tyler & Blader, 2003, p. 355).

Finally, on the left-hand side of Figure 1.12, Tyler and Blader (2003) retained their four-component model to define procedural justice. Furthermore, they argued that the perceptions of procedural justice that arise from these four components influence an individual’s group-based identity. These perceptions of justice, specifically procedural justice, are influential in providing information about an individual’s identity because the procedures used by the group tell the individual about their identity within the group and the identity of the group (Tyler & Blader, 2003). Based on this identity information or judgment, an individual may be motivated to engage or cooperate with a group (Tyler & Blader, 2003).

Distributive justice and outcome favorability, on the other hand, work indirectly to inform identity judgments by way of resource allocation judgments (Tyler & Blader, 2003). The perceptions surrounding an outcome’s fairness and favorability influence perceptions about resource allocation, which, in turn, provide information about an individual’s identity in a group, which then provides the motivation to engage or cooperate with that group (Tyler & Blader, 2003).

Tyler and Blader (2003) discussed the validity of this model, as described in Figure 1.12. Based on their work in 2000, they argued that several key hypotheses proposed in the group engagement model were supported. For example, they argued their 2000 work establishes the link between identity judgments, attitudes and values, and cooperation. Additionally, that work (2000) empirically established the link between resource judgments and “attitudes, values, and discretionary cooperative behaviors indirectly, through identity judgments, but not directly” (Tyler & Blader, 2003, p. 357). And it revealed a link between procedural justice and identity judgments. However, given all of these empirically tested links, Tyler and Blader (2003) acknowledged that the relationship between pride, respect, and identification is admittedly untested. It should also be acknowledged that these links from Tyler and Blader (2000) were established in relation to a business or employee context and heavily used undergraduate students in the sample of respondents. It is unknown how these relationships hold in a policing context.

Ultimately, Tyler and Blader (2003) concluded that understanding identity motivations are essential to understanding cooperation. Therefore, they emphasized the need to uncover what shapes the identity of an individual. Furthermore, they argued that procedural justice largely influences this identity and is therefore important for the model. Additionally, as with previous scholars, Tyler and Balder emphasized the importance of not only the outcome, but also the procedures and behavior of authorities in shaping citizen compliance. Taken as a whole, Tyler and Blader (2003) proposed that the group engagement model incorporates the vast amount of research and evidence in the field of social justice that had occurred since Thibaut and Walker’s (1975) original discussion about procedural justice.

The Self-Based Model of Cooperation

Tyler's latest contribution to his evolving theory of procedural justice comes from the integration of the group value model, the relational model, and the group engagement model into what has been termed the self-based model of cooperation (De Cremer & Tyler, 2005). To do so, this self-based model is framed around human motivation, which is believed to be implicit in the prior models. De Cremer and Tyler (2005) began by defining motivation as "a process that arouses, directs, and maintains human behavior" (p. 152).

Procedural justice is then tied to motivation by asserting that "procedures motivate people by communicating information relevant to their needs and drives," which are "expected to influence people's social self" (De Cremer & Tyler, 2005, p.153). Of these needs and desires, as seen in Figure 1.13, De Cremer and Tyler (2005) identify four main needs and desires that are influenced by individual perceptions of group procedures. Based on an extensive line of self-evaluation research, it is believed that individuals derive their social self-worth from their evaluations of (1) social reputation, (2) degree of belongingness, (3) level of identity, and (4) the degree of self-uncertainty within a group (De Cremer & Tyler, 2005). Therefore, procedures that promote these four needs or desires improve an individual's social self, which has implications for cooperation.

The social self regulates two outputs in regards to cooperation—sustainment and direction. As seen in Figure 1.13, first, an individual's trust between themselves and other group members is promoted from improved social self. From this improved trust, De Cremer and Tyler (2005) believed that an individual would cooperate "over time and across situations" (p. 153). Second, from an improved social self, it is held that an individual transforms their motives and interests to more closely align with the group and other group members. From the alignment of

Figure 1.13. The Self-Based Model of Cooperation*

*From De Cremer & Tyler (2005, p. 196)

individual and group motives or interests, De Cremer and Tyler (2005) theorized that an individual's actions would be directed in the interests of the group and other group members (aka cooperation).

Although this self-based model has not been tested in full, empirically, it is largely bolstered by research in social psychology and social justice research (De Cremer & Tyler, 2005). Also, much like the models before it, the self-based model is proposed as a broad model that has not been applied specifically to policing. However, based on the assumptions of the self-based model, it can be presumed that the use of procedural fairness by an officer with an individual promotes an individual's perceptions of their reputation, belongingness, self-construal, and reduces self-uncertainty. Improvements in these four areas contribute to an improved social self, which improves the individual's trust of officers and leads the individual to transform their motives or goals to align with officers. In both of these ways, an individual will be inclined to cooperate with officers (the direction of behavior based on goal-transformation) in the future and with other officers (based on trust).

CONCLUSION

Taken together, the models discussed in sequence provide insight into the evolving mindset of Tyler and his colleagues over the last several decades. Of note, each model highlights the importance of procedural justice in improving the eventual goal of cooperation. Additionally, Tyler continues to reinforce the impact of procedures and treatment used by authorities on citizens, above and beyond the influence of a positive or negative outcome as a result of the interaction. However, although the construct of procedural justice remained essential in all of the above models, the elements of this construct have shifted dramatically from its original conception by Thibaut and Walker (1975)—or even by Tyler (1990). Once based on Thibaut and

Walker's (1975) process and decision control and Leventhal's (1980) six criteria, procedural justice in Tyler's (1989) group-value model included elements of neutrality, standing, and trust. These three elements were refined in Tyler (1990) to include elements of representation, consistency, impartiality, accuracy or quality of decision making, correctability, and ethicality. By 1992, Tyler and Lind, in their relational model, articulate procedural justice as a combination of these two measures.

By 2000, however, a major shift in the measurement of procedural justice occurs. Tyler and Blader (2000) propose the two-component model, which measures procedural justice by the quality of decision making and the quality of treatment, followed by the four-component model, which adds a formal and informal component to quality of decision making and quality of treatment. They propose this scheme of measurement in order to provide a framework to further understand procedural justice without having to articulate specific elements of procedural justice (Tyler & Blader, 2000). This framework for measurement explicitly persists through the group engagement model (Tyler & Blader, 2000, 2003), but only implicitly in the self-based model (De Cremer & Tyler, 2005).

In the midst of proposing and testing these various models and measures about how procedural justice influences cooperation, Tyler (2000) synthesizes the social justice literature to produce four main elements that he argues contribute to the assessment of procedural justice. First, he finds that participation of an individual in reaching a resolution is important. This element is also commonly referred to as voice or process control. Second, he finds importance in the perceived neutrality of authorities (Tyler, 2000). This includes freedom from personal biases and values, as well as the use of impartial rules and making decisions on objective facts (Tyler, 2000). Third, Tyler (2000) argues that the perceived trustworthiness of authorities is essential to

the perceptions of procedural justice. This element includes unbiased motives, benevolence of the authority, consideration of both sides of an argument, perceptions of attempting to be fair, concern and caring for the individual, and attempts to do what is right (Tyler, 2000). And fourth, the treatment of individuals with dignity and respect by authorities is important, according to Tyler. In this element, individuals desire authorities to show concern for their rights and their status within society. Tyler (2000) admits there are potentially several more elements that influence perceptions of procedural justice, but these four are fundamental.

It is from these four elements that many policing scholars and studies draw conclusions about the use and importance of procedural justice in policing. As will be demonstrated in Chapter 2, the adoption of these four elements as the core elements of procedural justice in policing is not happenstance. Instead, the timing of the adoption of these four elements aligns with a tipping point in policing in which police are called to reform their tactics. Chapter 2 will detail the history of policing and police reform that has led to the integration of procedural justice in policing. Additionally, it will examine the arguments for the use of procedural justice as the cure for decades of declining police-community relations. Finally, Chapter 2 will return to the concerns of measuring procedural justice, but in a policing setting.

Chapter 2

PROCEDURAL JUSTICE IN POLICING: APPLYING A CRIMINOLOGICAL CONCEPT

Although interest in the relationship of procedural justice to policing arose well before the 2000s, the demand for police reform using procedural justice has surfaced more recently. In part, this reform effort stems from the consequences of policing styles and tactics used in the previous century of policing and their impact on police-community relations. In detailing the use of procedural justice in policing, Chapter 2 focuses on four topics that led procedural justice to be transformed from a theory of human behavior and compliance to a tactic used by police to encourage trust, enhance legitimacy, and engender obedience with the law. Thus, the first section outlines the historical backdrop leading to the alleged need for procedural justice in policing. Given the problems that arose between the police and the community, the second section explores the emergence of procedural justice as a possible cure to the problems ailing police-community relations. The third section reviews the importation of procedural justice into policing and the evidence of its effectiveness. Finally, the fourth section returns to the concerns of procedural justice and its related constructs, particularly their measurement.

POLICING PRIOR TO PROCEDURAL JUSTICE: A RECENT HISTORY

Calls for procedural justice to be used in policing did not spring up overnight. As will be discussed, a long and storied history of police-community relations and policing tactics have led to the actions of police and community members respectively. Starting in the “reform era”, moving through the “community policing era”, and ending with policing post 9-11 and today, this section will provide the backdrop of political and historical moments that led to the militarization of police, the use of particular policing tactics, the persistence of poor police-

community relations, and the growth in research that has pushed for police to repair police-community relations while also combating crime.

The Reform Era

Current developments in police-community relations are best understood as a reaction to the approach to law enforcement that was dominant from the 1930s to the late 1970s. Termed the “reform era,” this period focused police efforts on a very narrow goal—crime control and criminal apprehension—with little to no discretion to be exercised by officers (Kelling & Moore, 1988). To accomplish this goal, police relied heavily on the perceived deterrent threat of randomized vehicle patrol and rapid response to calls for service. The goals of this era also redefined the police-community relationship. Instead of police being interwoven into the community and its politics, as had previously been the case, the police were to be “professionally neutral and distant” (Kelling & Moore, 1988, p. 6). Relatedly, citizens were to be “passive recipients of professional crime control services” who met their responsibilities when requesting police services and subsequently “deferring to police action, and being a good witness if called upon” (Kelling and Moore, 1988, p. 6).

This goal of crime control and its impact on the community is evidenced in the series of law enforcement based policies promoted by the White House and their eventual detrimental impact on communities. Sparked by a growing belief that the government should do something to prevent crime, political candidates espoused tough-on-crime platforms (Curley, 2015). President Johnson, in an attempt to combat crime and drugs, and therefore appear tough on crime, established the Commission on Law Enforcement and Administration of Justice in 1965, which essentially served as a starting point for the war on crime (Johnson, 1965a). This commission was tasked with understanding the current problems with the criminal justice

system, identifying the basic causes of crime, and recommending effective methods for preventing crime (Johnson, 1965a). Notably, in addition to favoring improvements in policing, President Johnson supported the rehabilitation of offenders (Johnson, 1965a).

Although this commission was a long-term plan to combat crime, President Johnson also sought a short-term plan in the form of the 1965 Law Enforcement Assistance Act (Johnson, 1965b). This act provided local law enforcement with aid to provide officers with modern training and equipment, such as “bulletproof vests, helicopters, tanks, rifles, gas masks and other military-grade hardware for police departments” (Hinton, 2015) so they could be “the frontline soldier in our war against crime” (Johnson, 1965b).

During the 1968 presidential election, Richard Nixon pledged to continue the war on crime. However, in contrast to President Johnson, Nixon believed that the criminal justice system had been too lenient on offenders and instead stressed incarceration as a means of crime control (Beckett & Sasson, 2003). Furthermore, as part of combating crime, Nixon tied drug use and abuse to crime, which could only be cured through the incarceration of drug users (John, 2014; Nixon, 1970). After winning the presidential election, President Nixon signed the Comprehensive Drug Abuse Prevention and Control Act of 1970, which sought to prevent drug use and abuse, rehabilitate users, and combat drug use through law enforcement (Comprehensive Drug Abuse Prevention and Control Act of 1970, 1970). Although this act offered an avenue for prevention and rehabilitation, its main focus was on developing and enforcing drug laws, which is reflected in Nixon’s remarks while signing this act (Nixon, 1970). The emphasis on enforcement of drug laws was reinforced by President Nixon’s establishment of the Drug Enforcement Agency (DEA) in 1973, whose mandate was to coordinate governmental efforts to

enforce drug laws and control drug activity (Drug Enforcement Agency Museum and Visitor Center, 2007).

Given all of these efforts to reform the police and combat crime, by the end of the reform era, it was evident that this approach to policing created many problems for the police and their communities. For example, the idea that officers could operate with little to no discretion with the sole purpose of enforcing laws “proved too far from reality to be sustained” (Kelling & Moore, 1988, p.9). Efforts of this era failed to substantially reduce crime by any measures of effectiveness (Kelling & Moore, 1988). Additionally, citizen fear of crime increased dramatically, which led to the abandonment of public areas, such as parks, shopping centers, and even entire neighborhoods (Kelling & Moore, 1988). Its favored tactics, such as randomized patrol, were also found to be ineffective in reducing crime, reducing fear of crime, and improving attitudes towards the police (Kelling, Pate, Dieckman, & Brown, 1974). Although police had been charged with repairing police-community relations by the U.S. Taskforce on the police (The President’s Commission on Law Enforcement and Administration of Justice, 1967) and the Kerner Report (National Advisory Commission on Civil Disorders, 1968), as with previous eras, minorities continued to be inequitably treated by police (both over and under-policed) (Kelling & Moore, 1988). Finally, the legitimacy of the police fell into question as the rise of the civil rights and antiwar movements surged in the forms of riots against the police, resisting the police, and public questioning of police tactics all viewed on television (Kelling & Moore, 1988).

The Community Policing Era

The “community policing era” began to take hold in the late 1970s largely as a reaction to evidence that suggested tactics used in the reform era were ineffective (Kelling & Moore, 1988).

Advocates of community policing promised a closer relationship between the police organization and citizens so as to alleviate the fear of crime and improve police-community relations (Kelling & Moore, 1988). Unlike the reform era's singular focus on controlling crime, police officers were now charged with maintaining order, resolving conflicts, solving problems, providing services, reducing fear, and combating crime (Kelling & Moore, 1988). As a means of achieving these goals, officers were encouraged to use of foot patrol, information gathering, community organizing and consulting, educational programs, knock-on-door programs, specialized patrol, and rapid response to emergency calls for service (Kelling & Moore, 1988). Additionally, as part of community policing, citizens were encouraged to bring problems directly to patrol officers in their community who would then analyze the problem and respond (Kelling & Moore, 1988).

The notion of community policing was inconsistent with the views expressed by political officials in the 1980s. The Reagan-Bush administration perpetuated the "tough-on-crime" and "law-and-order" rhetoric seen in the Nixon presidency, which argued that a punitive criminal justice system would keep communities safe (Platt, 1987). Specifically, Reagan's administration initially focused on using federal law enforcement to target drug traffickers and their distribution networks in larger cities (Parenti, 2000). However, drug users soon became targets of the federal, state, and local law enforcement (Parenti, 2000). The addition of forfeiture laws, brought on by the Comprehensive Crime Control Act, also allowed federal, state, and local law enforcement to profit from the production and distribution of drugs by confiscating the possessions of individuals involved in drugs (Parenti, 2000). Therefore, such forfeiture laws incentivized the crackdown on drugs for federal, state, and local law enforcement (Parenti, 2000). In turn, law enforcement began profiling drivers, based on race, as a means of locating drugs and thereby increasing forfeitures (Harris, 1999; Parenti, 2000).

Fueled by the crisis surrounding the marketing of crack cocaine, Reagan's "law-and-order" policing focused on mobilizing law enforcement to completely eliminate drug use and abuse (Parenti, 2000). Additionally, Congress played a role in combating drug use, abuse, distribution, and trafficking through the Anti-Drug Abuse Act of 1986, which predominantly created mandatory minimums in sentencing of cocaine and crack, and the Anti-Drug Abuse Act of 1988, which, among other things, created a drug-free America policy goal and the Office of National Drug Control Policy. As a result, possession and trafficking of crack received much harsher sentencing penalties than trafficking of powder cocaine, which disproportionately influenced the sentences of African Americans (United States Sentencing Commission, 2002).

The confluence of an incentivized drug war, with the intent of complete eradication of drug use and abuse, waged predominantly against minorities, and the "law-and-order" rhetoric of politicians led to the militarization of federal, state, and local law enforcement officers (Doherty, 2016). Under Reagan's 1981 Military Cooperation with Law Enforcement Act, law enforcement agencies were initially assisted by the military in counter-narcotics efforts (Balko, 2013; Doherty, 2016). By the end of the 1980s, however, Congress approved the facilitation for law enforcement agencies to acquire surplus military equipment thereby reducing reliance upon the military (Doherty, 2016). This equipment, such as Armored Personnel Carriers and flashbang grenades, were used to build up SWAT teams, who were initially designed for rare use, such as in riots and shootouts with barricaded suspects, within law enforcement agencies (Doherty, 2016). Quickly, these SWAT teams were repurposed for use in drug raids (Balko, 2013; Doherty, 2016). Given all of these efforts to reduce drug use, abuse, distribution, and trafficking as well as crime in general, there is little evidence that Reagan's "law-and-order" policies directly led to a

reduction in certain crimes, such as violent offenses, and victimization, especially for women (Platt, 1987).

Again in the 1990s, conflict persisted between the goals of community policing goals and the politics and the desire of politicians to shape enforcement policies and practices. However, the tide appeared to be turning towards the actual implementation of community policing goals. The federal government invested heavily (\$8.8 billion over six years) in community policing through the passing the Violent Crime Control and Law Enforcement Act of 1994. This initiative established the Community Oriented Policing Services (COPS) office, created an assault weapons ban, provided funding to prevent and understand violence against women, and more. Most notably, the COPS office was designed to help law enforcement agencies and their communities implement community policing principles through resource allocation, training, and technical assistance (Community Oriented Policing Services, n.d.).

In addition, criminal justice research began identifying possible effective solutions in reducing crime. For example, the implementation of problem-oriented policing became more popular, in part, due to its ties to community policing. Initially published in 1979, Herman Goldstein's *Problem-Oriented Policing* argued that the police had a means-over-ends problem in which they had focused too heavily on how to police instead of the goals of policing. Goldstein then prompted police to address problems in communities using alternatives to sanctions and systematic means in order to determine if their actions had indeed reduced crime.

However, many of the policing tactics from the 1970s and 1980s continued to be used by law enforcement, largely based on lingering "law-and-order" views. For example, President Clinton pledged as part of the Democratic Party platform to uphold "basic law and order for

crime-ravaged communities” by placing more police on the streets with the caveat however that the community should partner with police in this effort (Democratic Party Platform, 1992).

Inspired by Wilson and Kelling’s (1982) *Broken Windows* essay, other police leaders preferred to proactively address “signs of disorder,” which were thought to be precursors to increasingly violent crime. Based in deterrence theory, Wilson and Kelling argued that the police could restore informal social control to neighborhoods with deteriorating order by addressing minor infractions. By acting on the community’s behalf to reduce crime and disorder, Wilson and Kelling contended that the police could reduce fear of crime, which in turn would restore informal social control and lead to further reductions in crime. Although Wilson and Kelling conceded that crime is not inevitable given signs of disorder, they argued that citizens may perceive an increase in crime and modify their behavior in reaction to that perception. Citizens’ reactions to the perception of an increase in crime, Wilson and Kelling suggested, lead to the reduction of informal control, which may then bring about more disorder.

Led by New York Police Commissioner William Bratton, many police executives championed this theory as a new tactic to restore “law-and-order” in their communities. In some instances, however, broken windows policing was transformed into a different, but related tactic, known as zero-tolerance policing. Like broken windows policing, zero-tolerance policing focused on minor forms of disorder as a form of deterrence for more violent offenses (Marshall, 1999). However, disorder in zero-tolerance policing was defined as misdemeanor criminal offenses, which would be aggressively responded to by arrest (Taylor, 2018). In mandating arrest for misdemeanor offenses, officers were provided no discretion in addressing a problem (Marshall, 1999). In addition, unlike broken windows policing, police actions in zero-tolerance

policing were to be imposed on a community instead of on the behalf of a community (Taylor, 2018).

As part of broken windows policing and zero tolerance-policing, the 1990s also saw the adoption of a tactic known as stop, question, and frisk. Most notoriously found in New York City, this practice involved police stopping pedestrians who would then question and potentially searched (“frisked”) for the possession of illegal contraband, such as drugs and guns (Forman, 2017). Touted as a tactic to remove drugs and guns from the streets and therefore make communities safer, this policy was initially largely supported by police and citizens alike, including in the African American community (Forman, 2017).

Although these tactics arguably reduced crime in large cities, such as New York, stop, question, and frisk tactics, along with broken windows policing and zero-tolerance policing, received a severe pushback from community members after the enforcement realities of these practices became apparent (Braga, Weisburd, & Turchan, 2018; Zimring, 2012). For example, after several years of implementation, followed by accusations of harassment and racial profiling, NYPD’s stop, question, and frisk program was deemed unconstitutional as practiced because it disproportionately targeted minority males (*Floyd v. City of New York*, 2013). An analysis of the NYPD’s program revealed that, after accounting for estimates of criminal participation and the variability of policing styles at different boroughs, young African American men were disproportionately impacted by this practice (Gelman, Fagan, & Kiss, 2007). Furthermore, of the 650,000 people stopped by police since 2002, approximately 80% of these stops included innocent citizens (Smith, 2018).

As a result of changing police tactics, citizens and researchers of the 1990s also became more concerned about the use of force by police and the unequal treatment of minorities by the

police. For example, in reaction to the acquittal of officers involved in the videotaped beating of Rodney King, Skolnick and Fyfe's (1993) book *Above the Law: Police and Excessive Use of Force* explored the possible causes and remedies for the use of excessive force by officers. Additionally, the National Institute of Justice and Bureau of Justice Statistics (1999) jointly published findings of police use of force from across the country. Furthermore, Alpert and Dunham (1997) published findings from a study examining police use of force in relation to resistance used by suspects. As a final example, the Traffic Stops Statistic Act in 1997 helped to gather information about alleged racial profiling which was then hotly debated by researchers (Abramovsky & Edelstein, 1999; Harris, 1996; 1999; Gotanda, 1999; Taylor & Whitney, 1999). Insightfully, Tyler and Huo (2002) noted that the aggressive police tactics, such as broken windows policing and zero-tolerance policing, of the 1990s could damage police-community relations leading to undermined police efforts in the long run.

Policing in the Post 9-11 Era

Policing in the 2000s saw a dramatic shift in mission following the terrorist attacks of September 11, 2001. As David Couper (2014, p. 13), a police chief in Madison, WI, commented,

That day [9/11] changed just about everything in policing. It changed our nation's police for the worst as they lost their essential role to protect the citizens and their rights. Rather, they became caught up in 'homeland security,' outfitted themselves in robot-like body armor, and procured the latest chemical agents and military equipment.

Only three years following the attacks, the National Research Council (NRC) (2004) similarly speculated that "police structure, behavior, and policing style" may have been altered as a result of the attacks (p.209). Given this new directive of combating terrorism, police had now been given the task of preparing for, preventing, and responding to terrorism (NRC, 2004).

Post-September 11, 2001 police not only had to worry about international terrorism, but also about domestic terrorism and hate crimes. This challenge created conflicting goals for the

police who were expected both to create closer ties with Muslim Americans and to fight a war on terror. Thus, almost immediately following the September 11th attacks, hate crimes against Muslims in America grew sharply (Yang, 2017). Needing to maintain peace within their community and as a means of collecting intelligence, police built ties with local Muslim Americans using community policing strategies (Forst, 2014). In addition, the federal government spent over \$425 million on developing 72 fusion centers designed to share terrorism-related information and tips between federal, state, and local law enforcement (Forst, 2014). However, for many agencies, attempting to balance both domestic and international terror-related demands stretched their resources to their capacity (Forst, 2016).

The conflicting goals for police of anti-terrorism and community policing was ever present in the increasing militarization of the police. As a result of this new policing mission, the NRC (2004) speculated that policing would see a rise in the militarization of the police. Under the guise of anti-terrorism, state and local police used the Pentagon's transfer program to acquire millions of dollars of military equipment annually (Balko, 2011). This equipment included vehicles, aircrafts, boats, weapons, and more (Balko, 2011). In addition to equipment, the Department of Homeland Security also distributed funding through anti-terrorism grants to agencies to purchase military equipment (Balko, 2011). However, the acquired equipment was used not solely for anti-terrorism efforts but also "low-level drug raids, the execution of search warrants, or to repress civilian protests" (Doherty, 2016, p.440).

While police struggled with responding to the immediate threat of international and domestic terrorism as well as to the growing number of hate crimes, researchers continued to examine fair and effective policing practices. The NRC (2004) compiled the evidence and concluded that proactive police practices focused on specific problems or places and that

included law enforcement and non-law enforcement responses could be the most effective in reducing crime. Specifically, tactics promoted by the NRC (2004) included hot spots policing, community policing, and problem-oriented policing. The promotion of these policies by the NRC would re-energize the push for police to adopt any of these three tactics.

Policing Today

Although community policing and problem-oriented policing were given scientific backing to reduce crime in a fair and effective manner (NRC, 2004), police today have still struggled to implement these ideas with fidelity to reach the goals of these types of policing. Braga (2015, p. 17) notes,

Even though community problem-solving policing concepts are now ubiquitous in the policing profession, the experiences of the police executives...coupled with the available literature on implementation, suggest that many police departments are not embracing these approaches with fidelity to the original ideas... Too many police departments seem to rely on over-simplistic tactics, such as “putting cops on dots” or launching indiscriminate zero-tolerance initiatives rather than engaging a coherent crime prevention strategy.

The use of these simplistic tactics, which at times have been deemed discriminatory (e.g., *Floyd v City of New York*, 2013), have continued to strain police-community relations, especially when they lead to the death of unarmed citizens.

Starting in 2012 with the death of unarmed Trayvon Martin at the hands of an overzealous community watch member, George Zimmerman, community members took to social media platforms to express their outrage with the criminal justice system. Following the July 2013 acquittal of George Zimmerman, the hashtag #BlackLivesMatter was created by activists Alicia Garza, Opal Tometi, and Patrisse Cullors (Simon, 2017). However, this social media campaign would not become a national movement for police reform until late 2014. Starting with the chokehold death of Eric Garner in New York City in July, then the shooting death of Michael

Brown in Ferguson, Missouri in August, followed by the shooting of Tamir Rice in Cleveland, Ohio in November—all at the hands of police—the end of 2014 became the turning point for the Black Lives Matters movement (Simon, 2017). As seen in Figure 2.1, a PEW Research Center's (2016) analysis of the hashtag #BlackLivesMatter, the flashpoint for this movement began with the death of Tamir Rice followed in quick succession of the lack of indictments for the officer involved in Michael Brown's death. What started as a social media hashtag would grow to a national movement of Black and White citizens protesting police brutality and the systemic injustices felt by minorities across the country (Meyerson, 2017). More succinctly stated, "the chant of 'black lives matter' [was] not the lament of a disaffected minority but the mantra of a nation awakened to and tired of the injustice and brutality faced by their fellow Americans" (Capehart, 2015).

Amplifying the Black Lives Matter movement was the video evidence, produced by police and citizens, of several police-citizen encounters that left Black men dead as a result of questionable police practices. For example, the cell phone video of Walter Scott being shot in the back in North Charleston, South Carolina in 2015 provided evidence that contradicted the officer's narrative of events, which had argued that Scott had stolen the officer's Taser (Schmidt & Apuzzo, 2015). In a separate case, following the killing of her son by police during a traffic stop, Samuel DuBose's mother was relieved to hear of the presence of video evidence from the officer's body-worn camera of the incident stating "I thought it was going to be covered up" (Pérez-Peña, 2015).

These videos provided the physical evidence to accompany the decades of complaints of many Black community members about their mistreatment by police and the criminal justice system. As Butler (2017) viewed it "There has never, not for one minute in American history,

Figure 2.1. PEW Research Center Analysis of #BlackLivesMatter

From July 12, 2013, to March 31, 2016, #BlackLivesMatter was used eight times as often as #AllLivesMatter

Number of Twitter posts mentioning each hashtag: July 12, 2013, to March 31, 2016

1 7/13/13	Hashtag #BlackLivesMatter first appears on Twitter	6 12/20/14	Two police officers are killed in N.Y. while sitting in their patrol car
2 7/17/14	Eric Garner dies in N.Y. after being arrested	7 4/19/15	Freddie Gray dies in Baltimore while in police custody
3 8/9/14	Michael Brown is killed during an encounter with police officer in Ferguson, Mo.	8 6/17/15	Shooting at church in Charleston, S.C., kills 9 people
4 11/22/14	Tamir Rice is killed by police in Cleveland while playing with a toy gun	9 7/13/15	Sandra Bland is found hanged in Texas jail cell
5 11/24/14	Prosecutor announces there will be no indictment in Michael Brown case	10 10/13/15	Bernie Sanders defends #BlackLivesMatter in debate
		11 2/28/16	2016 Oscars

Source: Pew Research Center analysis using Crimson Hexagon.
"Social Media Conversations About Race"

PEW RESEARCH CENTER

been peace between black people and the police” (p. 2). Currently, police face the challenges of not only combating crime and fighting terrorism, but also repairing police-community relations that have floundered due to decades of “tough-on-crime” and “law-and-order” policing tactics that have disproportionately affected minority citizens. As suggested by the President’s Task Force on 21st Century Policing (2015), procedural justice was viewed as one mechanism to repair the strained relations between police and the community they were sworn to serve.

THE CURE: PROCEDURAL JUSTICE AS POLICING REFORM

Given this historical backdrop of persistent problems in police-community relations, the movement of procedural justice to the forefront of policing is not by chance. Rather, it reflects a continuation of many of the values of the community police reform of the 1980s (Tyler, 2017). Under the umbrella of community policing, police reformers have viewed the use of procedural justice in policing as a cure for poor police-community relations for three key reasons.

First, procedural justice, related but distinct from community policing, uses a widely established and supported theory to focus on the interactions between police and citizens as a means of improving the legitimacy of police and citizen cooperation (Sunshine & Tyler, 2003a; Tyler, 2017). Conversely, community policing sought to change the formal and informal police-citizen interactions, the means of police completing their duties, and the addition of citizen coproduction of police services, however, it largely lacked a theoretical basis (Tyler, 2017). Grounded in theory, the use of procedural justice provides a defined conceptual link between police behavior and improved police-community relations.

Second, procedural justice was championed as a cure for poor police-community relations in part because of the specific promises provided within its theory. As suggested by Tyler’s work, the use of procedural justice by police was thought to bring about citizens’

voluntary cooperation with police, even in the face of a negative outcome. Critically, without such voluntary cooperation or compliance from citizens, the resources of police would be easily overwhelmed leading to ineffectual attempts by police at maintaining order (Tyler, 2004).

Additionally, procedural justice alleges to offer more than just voluntary citizen compliance with the law. Other researchers, which will be discussed in detail below, suggest that employing procedural justice may, directly or indirectly, offer increased citizen satisfaction with the police, greater citizen cooperation with the police and other community members, greater citizen support for the police, and greater trust and confidence in the police (see the meta-analysis conducted by Mazerolle, Bennett, Davis, Sargeant, & Manning, 2013). Therefore, the use of procedural justice by police moves beyond simply voluntary citizen compliance or cooperation with the officers and offers a reform with multiple positive outcomes for police and, arguably more important, for police-community relations.

Third, considering the greater demand for police to do more with smaller budgets and fewer resources, the use of procedural justice offers a relatively simple and inexpensive mechanism to meet the demands for improved police-community relations. For example, procedural justice, like many police reforms, may require an initial investment of a few hundred dollars per officer to train instructors to teach other police officers how to use it properly—known commonly as the train-the-trainer model (Ohio Attorney General, n.d.). However, it does not require high-tech equipment or an expansive long-term budget that other reforms, such as body-worn cameras, demand in order to implement and maintain the reform efforts (Miller, Toliver, Police Executive Research Forum, 2014).

With the continued push for the principles of community policing since the 1980s, the current turbulent police-community relations climate, and tighter police budgets, the use of

procedural justice by police seems to be a popular solution for police leaders, community members, and politicians. Even President Obama weighed in through the creation of his Task Force on 21st Century Policing (President's Task Force on 21st Century Policing, 2015). This Task Force was given 90 days and the directive "to identify best policing practices and offer recommendations on how those practices can promote effective crime reduction while building public trust" (President's Task Force on 21st Century Policing, 2015, p. iii). One of the first recommendations (recommendation 1.1) from this Task Force was the use of procedural justice to improve police legitimacy and thereby improve trust between police and the community (President's Task Force on 21st Century Policing, 2015). In light of its promising theory to produce multiple positive outcomes on a shoestring budget and its support from police, citizens, and politicians, the adoption of procedural justice by police appears inevitable. However, while procedural justice is supported based on its theoretical promises, the real test of its power as a cure for police-community relations comes from the actual implementation and evaluation of its use.

IMPORTING PROCEDURAL JUSTICE INTO POLICING

Beyond theory and political pressure, procedural justice needed to be imported into policing by researchers through testing and evaluation in a policing environment in order for procedural justice to gain its own legitimacy as a policing tactic to improve police-community relations. The following discussion outlines the increasing pace by which procedural justice was exported from the courtroom and imported into policing through the use of research. This transformation of procedural justice started first with Tyler and his colleagues, then surged in 2004 with the publication from the National Research Council, surged again following the first

randomized controlled trial of procedural justice in policing, and has finally seen a national political push to embrace procedural justice in policing.

First, recall that Tyler and his colleagues took the initial steps to bring procedural justice from the courtroom and into policing. In Thibaut and Walker's (1975, 1978) original work, their domain of focus was in the courtroom. However, Tyler and Folger (1980) expanded this focus when they sought to understand citizens' perceptions of fairness in the context of informal interactions between authorities (police) and citizens. In finding that procedures used by the police were key to citizen satisfaction, beyond the outcome of a contact, Tyler and Folger opened the door to a new context for which procedural justice needed to be explored. Furthermore, they identified differences in the relative importance of procedural justice based on the type of contact with police—citizen-initiated or police initiated contacts. However, police researchers, outside of Tyler and his colleagues, would not substantially build upon this work until the mid-2000s.

By the early 2000s, Tyler and his colleagues had established that, in the context of policing, procedural justice was key to citizen satisfaction (Tyler & Folger, 1980; Tyler & Huo, 2002), compliance with the law (Sunshine & Tyler, 2003a, 2003b; Tyler, 1990), cooperation with police (Sunshine & Tyler, 2003a, 2003b; Tyler, 1990, 2004; Tyler & Huo, 2002), and other outcomes. Furthermore, using research from several contexts, Tyler (2000) identified four overarching elements of procedural justice (1) neutrality, (2) respect and dignity, (3) trustworthiness of authorities, and (4) voice. Still, Tyler (2000) noted that several other factors could be relevant in certain contexts or situations.

The next push for importing procedural justice in policing occurred in 2004 when the National Research Council summarized the impact of procedural justice, noting its importance in producing citizen cooperation beyond that of deterrent mechanisms. The National Research

Council (2004) also acknowledged the sharp racial divide in citizen experiences with the police but stopped short of saying that procedural justice should be used to bridge this gap. Ultimately, the National Research Council (2004) called for more research in this area, specifically for a nation-wide survey to examine a wide range of police outcomes including the quality of police contacts, not just the quantity.

Following this call for research in 2004, scholarly work about procedural justice in policing grew substantially with many studies examining procedural justice from the perspective of citizens. For example, Engel (2005) used national survey data from the Police-Public Contact Survey to demonstrate that citizens were concerned with procedural justice during a contact as well as the outcome of a contact. Findings also revealed the influence of race in which African Americans reported feeling significantly more procedural and distributive injustice than White citizens. Additional research examined the influence on procedural justice of macro-level factors, such as concentrated disadvantage, providing evidence that these factors played no significant role in citizen perceptions of procedural justice (Gau, Corsaro, Stewart, & Brunson, 2012). Furthermore, Murphy (2009) examined the impact of affect in moderating the relationship between procedural justice and compliance. Findings report that procedural justice was influential in reducing non-compliance in lower-intensity affect (anger) individuals but not those with higher-intensity affect.

Although these studies and more provided information about procedural justice in a policing context, the world's first procedural justice field randomized controlled trial completed in Queensland, Australia between 2009 and 2010 took procedural justice in policing research to a new level (Mazerolle, Bennett, Antrobus, & Eggins, 2012). Using randomized random roadside breath test operations, officers either used a procedurally just script to interact with citizens or

perform their duty as usual (without the procedurally just script). The script used by officers in the treatment condition of this experiment was infused with the four elements of procedural justice as defined by Tyler (2000). Citizens performed the random breath test and were then provided instructions for completing a survey about their contact with police. Analysis of these surveys using structural equation modeling (SEM) found significant differences between the treatment and control conditions for cooperation and satisfaction with police for both the specific encounter and the police more generally. Additionally, this study produced evidence that these effects can be found in even short encounters of less than two minutes (Mazerolle, Bates, Bennett, White, Ferris, & Antrobus, 2015).

Following this groundbreaking study, several researchers in various locations around the world sought to replicate the findings using randomized controlled trials. For example, in Scotland, MacQueen and Bradford (2015) attempted to replicate the work in Queensland using routine roadside vehicle stops. However, unlike Queensland, they found no improvement in citizen perceptions of trust or legitimacy. Instead, their findings indicated reduced perceptions of trust and legitimacy in the experimental condition compared to the control. In Adana, Turkey, Sahin and colleagues (2017) also attempted to replicate the Queensland study but focused on randomizing treatment for speeding drivers. This study reported a positive influence of procedural justice on encounter-specific perceptions but report no effect on general perceptions of police.

After the publication of the Queensland study, several other randomized controlled trials also sought to test the effects of procedural justice training. In Chicago, Rosenbaum and Lawrence (2011) randomized Quality Interaction Program (QIP) training, which included procedural justice components, for new policing recruits. Scenarios in which officers interacted

were coded and revealed that those receiving the QIP training were more inclined to use respectful and reassuring behaviors as judged by an external third party in encounters with civilians. Although this change in behavior cannot necessarily be attributed to the procedural justice component of the training alone, this study provided further evidence that officer behavior could be altered in encounters to produce enhanced perceptions of procedural justice. In an additional training-based study, Wheller and colleagues (2013) trained officers in communication skills that were broadly linked to procedural justice in Manchester, England. They found this training to positively influence officer behavior in realistic role-play experiences as well as improve victims' perceptions of the quality of their interaction with officers. Thompson (2016) also examined the effects of procedural justice training in Queensland through randomized training of first-year constables. Findings suggested the training initially produced differences in constable perceptions that procedural justice was effective and differences in procedurally just behavior in interactions with citizens between those trained and those not trained. However, when measured in a follow-up survey eight weeks post-training, a decline in perceptions of the effectiveness of procedural justice was observed in the experimental group, so much so that there were no significant differences between the experimental and control group.

Other research since the randomized control trial in Queensland has focused on understanding procedural justice using other research methods, such as quasi-experimental designs. For example, Worden and McLean (2018) examined the impact of measuring and responding to procedural justice in a COMPSTAT framework using a quasi-experimental design in the United States. Although no differences were found between the experimental and control cities, modest improvements were found in a platoon whose supervisor frequently attended to the concepts of procedural justice and shared survey statistics in line-ups with officers. In contrast,

some supervisors intermittently focused on or were completely dismissive of procedural justice. Additionally, Bond and colleagues (2015) surveyed recruit officers' support for the use of procedural justice in Queensland. Findings suggest that officers' perceived support of procedural justice influences their intentions to use procedural justice with citizens and their prioritization of using procedural justice in typical police-citizen encounters, such as traffic stops. From the citizen perspective, Johnson and colleagues (2017) examined U.S. college students' perceptions of videos of simulated traffic stops under varying conditions of procedural justice used by officers. Survey findings demonstrate that the use of procedural justice enhanced encounter-specific judgments of police. However, in judging the specific encounter and global perceptions of police, African Americans had more negative perceptions of police than other individuals.

Although these studies are only a sampling of the studies performed around the world, much of the evidence pointed towards the benefits of police using procedural justice to improve several different outcomes. To take stock of the evidence of the effects of police interventions focused on improving citizen perceptions of police legitimacy or elements of procedural justice, Mazerolle and colleagues (2013) undertook a systematic review and meta-analysis. Reviewing 28 studies, Mazerolle and her colleagues (2013) conducted four separate meta-analyses due to the diversity of outcomes studied in this area. The outcomes examined were (1) perceived legitimacy, (2) perceptions of procedural justice, (3) compliance and cooperation with police, and (4) satisfaction with/confidence in the police. In general, findings supported the use of legitimacy-based policing interventions for all four outcomes.

Specifically, for perceptions of procedural justice, six studies provided 14 effect sizes that produced an overall weighted mean odds ratio of 1.47 in which the confidence interval did not include one. This odds ratio value translates into a large, significant increase in citizen

perceptions of procedural justice as a result of a legitimacy-based policing interventions. However, the types of policing interventions and the publication status of these studies considered in this analysis did provide significant differences in these findings. For example, unpublished reports or dissertations reported a higher odds ratio (1.56 with a confidence interval not including one), but peer-reviewed content reported a lower odds ratio (1.11 with a confidence interval including one). Overall, Mazerolle and her colleagues (2013, p. 246) conclude that the “police using dialogue that adopts at least one of the principles of procedural justice as a component part of any type of intervention” is beneficial for “improving the capacity of policing to prevent and control crime.”

Finally, much of this evidence comes on the heels of the President’s Task Force on 21st Century Policing report (2015) which promotes the adoption of procedurally just principles in all facets of policing and the police organization. As the first of six pillars that comprised this report, authors believe that “law enforcement agencies should adopt procedural justice as the guiding principle for internal and external policies and practices to guide their interactions with rank and file officers and with the citizens they serve” (p. 1). Furthermore, this report cites the mounting evidence that the use of procedural justice may be a solution to the police-community relations problems facing police currently. Specifically, the use of Tyler’s (2000) four elements of procedural justice is encouraged as means of building trust and legitimacy within communities.

With mounting evidence and political pressure to embrace procedural justice as a means of improving police-community relations, it seems that the importation of procedural justice from the courts to policing is nearly complete. Although the journey was initially quite slow, the explosion of research following the National Research Council’s (2004) call for research and another burst following the Queensland randomized control trial accelerated the transition of

procedural justice from the courts to policing. What is yet to be seen is the full adoption and use of procedural justice in all police jurisdictions across the United States.

THE CHALLENGE OF MEASUREMENT

Although procedural justice has been largely integrated into policing, many scholars continue to point out fatal flaws in the measurement of this construct (Gau, 2011, 2014; Harkin, 2015; Johnson, Maguire, & Kuhns, 2014; Maguire & Johnson, 2010; Mazerolle et al., 2013; Reisig, Bratton, & Gertz, 2007). The following discussion provides insight into issues surrounding this difficult measure starting with Tyler's challenges and attempted solutions. In turn, a review is presented of Reisig and colleagues' (2007) attempt to settle the measurement debate. Thereafter, evidence of measurement difficulties from current scholars will be provided. This discussion will conclude with a discussion of other measurement-based issues that need to be addressed to construct a more valid measure of procedural justice in policing.

Beginning with Tyler and his colleagues (Tyler, 1990; Tyler & Blader, 2000), a call for better measurement of procedural justice more broadly exists in the psychological literature. In 1990, Tyler makes mention of the situational dependencies of procedural justice and its elements. He suggested that the next phase in understanding procedural justice may lay in developing a taxonomy of situations in which certain elements of procedural justice are relevant or important. In 2000, it was evident that Tyler and Blader (and procedural justice researchers in general) were still struggling with measurement. As mentioned, to create a more cohesive understanding of the elements of procedural justice, Tyler and Blader (2000) developed the four-component model in order to capture all possible elements in four domains: (1) formal quality of decision making, (2) informal quality of decision making, (3) formal quality of treatment, and (4) informal quality of treatment. Although this four-component model from Tyler and Bladder

(2000) is used at times, Tyler's (2000) alternative measure appears frequently in the policing literature. In this measure, Tyler (2000) provides four elements of procedural justice that he suggests are key in judging the fairness of a procedure: (1) participation, (2) neutrality, (3) trustworthiness of authorities, and (4) treatment with dignity and respect. However, Tyler (2000) does not conclude that these are the only elements that contribute to perceptions of procedural justice. Rather, other elements may be relevant as well. Therefore, even in Tyler's work, the measurement of procedural justice has been in question.

Reisig and colleagues (2007) attempt to resolve this measurement debate by testing the construct validity of measures used in the process-based model, including procedural justice. This test of construct validity used 33 items to measure seven concepts. Although these items were selected from previous literature, this pool of items falls short of the psychometric methods that start with far more items (often between 200 and 300) for even one construct (Dawis, 1987). Specifically, for the measurement of procedural justice, Reisig and colleagues chose Tyler and Blader's (2000) two-component model to define procedural justice as the combination of the quality of treatment and the quality of decision making. They used 10 items (five items each) drawn from previous work of Tyler and his colleagues to attempt to tap these two underlying traits within procedural justice. Despite this claim, upon completing a factor analysis of these 10 items, two were discarded for improperly loading with distributive fairness instead of procedural justice. Likewise, two distributive fairness items loaded with items related to procedural justice and were thus discarded. This leaves eight items to be used to validate the construct of procedural justice but also signals that both of these measures are not necessarily distinct. Reisig and colleagues (2007) conclude that procedural justice is measured through 8 items that are "a core set of items that can be used in future assessments of the process-based model of policing."

(p. 1024). However, they acknowledge that “subsequent research that identifies additional items reflecting hypothesized latent constructs will assist in advancing our understanding of police-citizen relations” (p. 1025). Although Reisig and his colleagues (2007) attempted to settle the debate of the measurement of procedural justice, later research would provide evidence that the debate was still raging.

Subsequently, Mazerolle and colleagues (2013) provided evidence relevant to this measurement debate. They noted the high heterogeneity in conceptualization and operationalization of procedural justice and its related constructs during their attempt to perform meta-analyses on these topics. In fact, in one study used in their meta-analysis, they show that the authors interchangeably referred to procedural justice and legitimacy. Furthermore, none of the studies used in their sample explicitly included the elements of neutrality or dignity and respect as key elements in their interventions. Although arguing that the meta-analysis suggested that legitimacy-based police interventions improves citizen perceptions of procedural justice, Mazerolle and her colleagues (2013, p. 257) admitted that any conclusions drawn from note their analysis “is constrained by the quality of the body of primary research.”

In addition to the concerns provided by Mazerolle et al. (2013), Gibbs (2016) provides evidence that the measurement of procedural justice and legitimacy are not explicitly clear. Through asking 423 random Pennsylvania residents “what does ‘legitimacy’ mean to you?,” Gibbs (2016, p. 1) concludes that significant differences in the definition of legitimacy are held depending on race and age. Additionally, she suggests that “scholars studying police legitimacy may want to rethink some of the classic conceptualizations, like an obligation to obey the law, and incorporate new categories, like training and certification” (Gibbs, 2016, p. 5). Although this study was concerned with legitimacy, many concepts of procedural justice—such as “truthful,”

“fair,” “honest,” and “lawful”—appeared frequently when citizens were asked to define legitimacy, which suggests these two concepts are largely related and potentially not distinct.

In a more statistical approach, Gau (2011) examines the convergent and discriminant validity of procedural justice and legitimacy through confirmatory factor analysis (CFA). Using Tyler’s two-component model to define procedural justice, Gau (2011) finds that procedural justice may in fact contain the dimensions of quality of treatment, quality of decision making, and trust. As a result, Gau (2011, p. 489) urges researchers to “pursue the theoretical and empirical development of procedural justice and police legitimacy in order to further the study of the normative model of policing.”

Gau continues her examination of the measurement of procedural justice and police legitimacy in 2014. She explores the convergent and discriminant validity of global procedural justice, specific (encounter-based) procedural justice, and police legitimacy. Using confirmatory factor analysis and structural equation modeling, Gau (2014) finds that global perceptions of procedural justice have a stronger influence on police legitimacy as compared to specific procedural justice. However, specific procedural justice does predict citizen perceptions of legitimacy. Among these findings, Gau (2014, p. 204) continues to stress “that the time has come for the measurement of procedural justice and police legitimacy to receive direct, full attention by researchers in this field.”

Beyond the concerns raised by these two researchers, the measures of procedural justice suffer from another problem—directional bias. When examining the items used to measure procedural justice, it is clear that many items are asked in a positive direction (e.g., Did the police respect your rights?, Did the police treat you with dignity?, Did the police give you an opportunity to explain the situation?) instead of a negative direction (e.g., Did the police

disrespect or disregard your rights?, Did the police disrespect you?, Did the police refuse to let you speak or explain the situation?). One possible result of using these positively worded items is acquiescence bias, which may lead to higher scores on these items and thus a procedural justice scale as well as lower variation between respondents (Cronbach, 1946). In essence, although most procedural justice scales report that the majority of respondents report moderate to high procedural justice, it is not known if this is due to bias in the items (e.g., acquiescence bias), or if citizens indeed do find the police to carry out their duties in a procedurally just manner. It is possible that the inclusion of negatively worded items could reveal a full scale of perceptions of procedural justice including feelings of procedural injustice.

Finally, although many researchers have sought to measure procedural justice and its related constructs in the process-based model of policing, none have taken a rigorous and modern psychometric approach in measuring these concepts. Rather, most use classic test theory techniques, such as factor analysis or inter-item analyses (e.g., Cronbach's α), to statistically define procedural justice. Furthermore, none have specifically attempted to build a measure of procedural justice using psychometric methods and item response theory (IRT) to address the potential measurement issues expressed above. Due to these concerns and more, there is a need for theory and research to be used to overcome these measurement issues and develop a rigorous measure for procedural justice in the context of policing.

CONCLUSION: RESEARCH STRATEGY

Building upon the work of Thibaut, Walker, Leventhal, Tyler and more, scholars have transformed procedural justice into a major criminological concept, particularly in policing. The rise in calls to use procedural justice in policing has been inspired largely in response to growth in proactive policing in minority communities that included racial profiling, harassment of

innocent citizens, abuses in use of force by police, and in some instances, the deaths of unarmed Black men at the hands of the police. As a result, reformers have hailed procedural justice as a remedy to these troubled police-community relations. Furthermore, procedural justice promises to reduce crime through increased compliance with the law, improve citizen satisfaction with police, and more.

To effectively assess the impacts of procedural justice in policing, researchers need a clear definition of the construct as well as a cohesive and consistent measure used to evaluate procedural justice adequately. However, it is currently difficult to assess the effectiveness of procedural justice due to its muddled definition and measurement throughout the literature. As a result, the ability of researchers to build empirical knowledge and draw conclusions about procedural justice in policing is hampered.

In this context, this dissertation seeks to address these measurement issues in an attempt to make the first steps towards building a complete procedural justice scale using modern psychometric techniques to be applied specifically within policing. This approach will involve two phases.

First, Chapter 4 will present the review of previously constructed measures of procedural justice and the construction of a pilot measure. This process will include the systematic review, coding, and analysis of more than 300 existing empirical studies using measures of procedural justice in the context of policing. Based on this review of studies, a series of surveys will be developed to construct a measure of procedural justice that seeks to overcome the major issues of the current measures of this construct. Second, Chapter 5 will then present the analyses of two pilot studies, revisions to the constructed measure, and analyses of a nationally representative survey using the newly constructed measure of procedural justice. As a prelude, Chapter 3 will

provide the methodological details for building and analyzing this series of surveys that will be employed to develop a measure of procedural justice.

Ultimately, this dissertation seeks to produce a psychometrically sound measure of procedural justice that can be used in the context of policing across multiple studies. This newly formed measure will assist in forming a foundation for which future procedural justice studies may be compared and furthermore, aid in the accumulation of knowledge about procedural justice in policing. But, in a much broader sense, this study serves as a case study in criminometrics—the building of criminological constructs using modern psychometric techniques—in hopes that this practice becomes commonplace in the field of criminology and criminal justice.

Chapter 3

METHODS:

DEVELOPING A CRIMINOMETRIC MEASURE OF PROCEDURAL JUSTICE

The intent of the project is to develop a measure of procedural justice in the context of policing using modern psychometric methods and analyses. Such emphasis on the rigorous development of a construct is rare in criminology and criminal justice. Therefore, following the procedures and analysis provided by psychology (psychometrics), this task of building a measure of procedural justice in the context of policing will be accomplished in two broad phases. First, a review and analysis of all previous items used to measure procedural justice in policing will be undertaken. Second, a series of surveys will be used to analyze and refine a new measure of procedural justice in policing. As such, the following methodological discussion will be broken down according to these phases. However, as a prelude to the methods used in this study, the process used to build a new construct or scale in psychology will be reviewed.

MEASUREMENT IN PSYCHOLOGY

The field of psychology has a long and storied history for developing and prioritizing their conceptual measures which may serve as the mold for criminology to develop measures (DuBois, 1970). Rooted in 200 B.C. China, the measurement of individual differences was originally used to identify those of high moral standards to become part of the Chinese government (DuBois, 1970). This idea was adopted by the British civil service commission in the 1850s and was further adopted in the United States in the 1960s (DuBois, 1970). Prior to these dates, both Britain and the United States used heredity or political favoritism to appoint individuals to public service roles (DuBois, 1970). In general, these civil service exams sought to measure and identify individuals who would be best suited and capable of performing the duties

of their respective civil service roles (e.g., postal clerk, physician, botanist) (DuBois, 1970).

However, at the time, these exams had no predictive validity, no methods of analyzing the test results, and no method of developing an adequate test/tool (DuBois, 1970).

Additionally, in schools, the testing of individuals dates back to 1219 at the University of Bologna, in which an individual's competence was tested prior to the awarding of a degree (DuBois, 1970). In 1441 at Louvain University, these competitive exams arranged candidates into four categories ranging from "rigorosi" (honor men) to failures (DuBois, 1970). However, the members of the Jesuit order (founded in 1540) pioneered the use of written exams for student placement and evaluation of students after instruction (DuBois, 1970). This type of testing was brought to the University of London in 1836, Oxford in 1803, and even earlier in Cambridge (DuBois, 1970). These types of university and civil service tests paved the way for researchers in England, the U.S., Germany, and France to develop the methods and statistics to measure individual differences (DuBois, 1970).

Cattal (1980) stoked this flame when asserting the need for such focus in his introduction to his own ten measures of individual differences stating boldly, "Psychology cannot attain the certainty and exactness of the physical sciences, unless it rests on a foundation of experiment and measurement" (p. 373). From this call to action, a flurry of activity between the 1880s and the 1930s, considered the pioneering stage, led to the development of test theory, the concepts and many of the common measures for validity and reliability, individual scales, statistical tools such as Pearson's correlation coefficient, the chi-square test of goodness-of-fit, the K-R 20, and factor analysis (DuBois, 1970).

Additionally, a second burst of growth, brought on by the availability of high-speed computers, from the 1940s through 1960s saw the development of even more rigorous

techniques to develop and analyze measures (Nunnally, 1975). Developments in this phase of psychometrics included the alpha coefficient (used in reliability), construct validity, understanding the importance of item characteristics, various extractions and rotations from multivariate factor analysis, and nonparametric techniques (Nunnally, 1975). Since the 1960s psychology has advanced its measures through the use of item response theory and its integration with hierarchical linear modeling (Kamata, 2001; 1998) and structural equation modeling (Kline, 2016).

PSYCHOLOGY'S CONSTRUCT DEVELOPMENT PROCESS

Although statistical techniques to develop rigorous measures has improved greatly since 200 B.C. China, today psychology uses the same general process to develop new measures that were used in the 1900s (though more detailed today) (DuBois, 1970). In brief, this systematic process develops measures of core constructs by:

1. Defining the construct of interest and its boundaries using theory;
2. Develop a pool of items to measure the construct of interest;
3. Pilot test these items with a sample;
4. Analyze and simplify the list of items into a tool to measure the construct;
5. Validate the tool by completing another test of the final items; and
6. Copyright the testing tool and develop documentation for its use (AERA, APA, & NCME, 2014).

More specifically, first, to develop a measure of a theoretical construct, the construct needs to be defined as to what it is and what it is not (AERA et al., 2014; Clark & Watson, 1995; Dawis, 1987; Devellis, 2011; Netemeyer, Bearden, & Sharma, 2003; Simms, 2008; Spector, 1992; Tangney, Baumeister, and Boone, 2004). Many scholars in this area suggest using

previous literature and theory to aid in defining a construct and its theoretical boundaries or distinctions from related constructs (AERA et al., 2014; Clark & Watson, 1995; Tangney et al., 2004). It is also important to examine past attempts of measurement to determine the process used to measure this construct successfully or unsuccessfully (Tangney et al., 2004).

Second, a large pool of potential items to measure this construct are developed (AERA et al., 2014; Clark & Watson, 1995; Dawis, 1987; Devellis, 2011; Loevinger, 1957; Netemeyer et al., 2003; Simms, 2008; Spector, 1992; Tangney et al., 2004). Using theory, previous literature, ethnographic research, interviews or panels with representative members of the target population, or other methods, a variety of survey items are developed (Dawis, 1987; Dillman, Smyth, & Christian, 2014). This pool of items may include similar questions with slightly different wording to attend to the influence of word choice on responses (AERA et al., 2014). For comparable reasons, response options or response format for items may vary (AERA et al., 2014; Clark & Watson, 1995; Dawis, 1987; Dillman et al., 2014; Spector, 1992). In this stage, the administration of the test or survey (e.g., online, in-person, computer-assisted, paper and pencil) is also determined (AERA et al., 2014). Alongside the pool of items developed, some researchers suggest the use of “anchor” or “comparison” scales to demarcate boundaries of a construct (Clark & Watson, 1995). Also, the inclusion of validation items may prove beneficial when examining social desirability bias in responses and examining construct validity in later steps of construct development (Devellis, 2012). Finally, it is recommended that the pool of items be reviewed by subject matter experts to ensure the universe of items that could be used to measure this construct are represented. The expert review of these items acts to improve the content validity of the initial pool of items (Devellis, 2012; Simms, 2008).

In the third stage, this pool of items is pilot tested with a sample, which is generally representative of the target population (AERA et al., 2014; Clark & Watson, 1995; Dawis, 1987; Devellis, 2012; Loevinger, 1957; Netemeyer et al., 2003; Simms, 2008; Spector, 1992; Tangney et al., 2004). Representativeness in a pilot sample is consequential because a non-representative pilot sample could lead to biased results that may lead to decisions such as the removal of items that would otherwise be relevant for measuring a construct (Netemeyer et al., 2003). In addition, the pilot sample size should be considered based on the dimensionality and complexity of a construct (Netemeyer et al., 2003). While Clark and Watson (1995) believe a sample size of 300 is sufficient, Netemeyer and colleagues (2003) suggest that larger sample sizes may be necessary for loosely defined constructs or multidimensional constructs. In addition to simply testing the measurement tool on a smaller sample, this initial pilot testing serves to identify early estimates of reliability and validity of the measurement tool (Netemeyer et al., 2003). Furthermore, pilot testing can aid in reducing the number of items needed to measure a construct (Netemeyer et al., 2003).

In the fourth stage, the results of the pilot test are analyzed with the intent of developing a more parsimonious and stronger tool that may become the finalized tool (AERA et al., 2014; Dawis, 1987; Devellis, 2012; Simms, 2008; Spector, 1992; Tangney et al., 2004). Using classical test theory, exploratory factor analysis is used to reduce the number of items in a scale while maintaining the maximal explained variance as well as to locate an underlying dimensionality of a measure (Netemeyer et al., 2003). After exploratory factor analysis, confirmatory factor analysis is often used to perform even more rigorous testing of the construct including examining invariance and confirming factor structure (Netemeyer et al., 2003). More recently, item response theory has provided a method of analyzing in more depth the contributions of items and

their responses to the value of the scale (Clark & Watson, 1995). In performing these statistical analyses, the goal is to evaluate the convergent, discriminant, and criterion-related validity as well as the reliability of the items used to measure the construct (Simms, 2008). Throughout this process, the tool is revised to optimize length while maintaining the reliability and validity of the construct. In addition, this stage may include the development of provisional scales (Simms, 2008).

Fifth, the revised pool of items is validated through administering the items to another representative sample (Clark & Watson, 1995; Dawis, 1987; Loevinger, 1957; Spector, 1992; Tangney et al., 2004). After administering the tool and receiving the results, the same statistical analyses are completed to examine the reliability and validity of the tool. In this stage, if the tool is not performing as desired, the items can be modified based on the original pool of items, piloted, analyzed, and validated again until satisfied (Furr, 2011).

Finally, in the sixth stage, documentation for the use of the tool and the tool itself is copyrighted for outside use (AERA et al., 2014; Simms, 2008). This documentation includes instructions for using the tool, interpretation of the results of the tool, and specifications for its use (AERA et al., 2014). Furthermore, the publication of this scale's development is suggested (AERA et al., 2014).

While this process may seem straightforward, it can often be long and arduous to complete. It can be far from the linear representation described here and may be more cyclical, especially when piloting and validating the tool (Furr, 2011). Although challenging, this psychometric process has been used to develop measures for over 100 years (DuBois, 1970).

PHASE I: SYSTEMATIC REVIEW OF EMPIRICAL ARTICLES USING PROCEDURAL JUSTICE IN POLICING

Consistent with the methodological steps for developing latent measures as outlined by psychometric experts, the first phase of building a new measure involves defining the construct that will be measured (AERA et al., 2014; Clark & Watson, 1995; Dawis, 1987; Devellis, 2012; Netemeyer, Bearden, & Sharma, 2003; Simms, 2008; Spector, 1992; Tangney, Baumeister, and Boone, 2004). For the current project, the construct of interest is procedural justice in the context of policing and police-citizen encounters and as viewed by the process-based model. As such, the definition of procedural justice that will be used is “the perception of fairness of the procedures used by police.” This definition is distinct from related constructs, such as police legitimacy and satisfaction with police, because it focuses specifically on the procedures used by police and the perceptions of equity or inequity that arise from these procedures. Although the police being perceived as legitimate is important and can develop from perceptions of equity, it is distinctly different. Likewise, satisfaction with police is a more global measure of police and police behavior and is not specifically or solely focused on the perceptions of processes used by police.

The second step of building a new measure involves reviewing previous literature for theory and items that have been used to measure the construct (AERA et al., 2014; Clark & Watson, 1995; Dawis, 1987; Devellis, 2012; Loevinger, 1957; Netemeyer et al., 2003; Simms, 2008; Spector, 1992; Tangney et al., 2004). The heavy use of procedural justice in the policing literature points to a need to systematically search for literature to capture all possible literature measuring this construct. Therefore, the following discussion describes the process to be used to identify, locate, and code this literature including inclusion and exclusion criteria, the search strategy for identifying relevant studies, the description of methods used in the component

studies, details of the coding of component studies, and the data analysis of these component studies.

Criteria for Inclusion and Exclusion

Prior to searching for literature, it is essential to define the criteria that will be used to include or exclude literature from those that will be reviewed (Chandler, Higgins, Deeks, Davenport, and Clarke, 2017). Predetermining these criteria reduces researcher bias and furthermore promotes internally valid searches that can be replicated (Chandler et al., 2017).

For this systematic search, literature will be included if it attempts to measure procedural justice in a policing context through empirical means. Studies may be included if procedural justice is used as an independent variable, dependent variable, or mediating variable. Conversely, literature that will be excluded are those strictly involving theory or discourse, those not attempting to measure procedural justice, and those measuring procedural justice in any other context, such as the workplace. Additionally, included studies will not be restricted to those in the United States and will instead come from anywhere in the world. However, only studies printed in English will be reviewed.

Search Strategy for the Identification of Relevant Studies

The search strategy in any systematic search is key to attempting to gather all relevant literature (Kitchenham & Charters, 2007). Strategies are built around three dimensions: (1) selection of databases, (2) selection of keywords, and (3) timeframe. Each of these dimensions contributes to locating relevant literature and is therefore discussed in more detail below.

Whereas procedural justice is a topic that spans multiple fields (e.g., psychology, sociology, criminology), it is essential that the databases used in this review examine a broad

range of subjects. Therefore, for this search strategy, three databases will be used: Criminal Justice Abstracts, PsycINFO, and Academic Search Complete. Criminal Justice Abstracts searches over 320 full-text magazines and journals and over 600 journals from around the world regarding the subjects of criminology, criminal justice, corrections and prisons, criminal investigations, probation and parole, and more (EBSCO Industries, 2018a). This database includes staple criminology and criminal justice journals, such as *Criminology*, *Criminology & Public Policy*, and the *Journal of Experimental Criminology*. PsycINFO searches over 2,500 journals, book chapters, and dissertations from around the world dating back to the 17th century (EBSCO Industries, 2018b). For the sake of this study, PsycINFO includes relevant titles, such as the *American Journal of Criminal Justice*, the *British Journal of Criminology*, *Applied Psychology in Criminal Justice*, and the *Journal of Police and Criminal Psychology*. Finally, and most broad, Academic Search Complete searches nearly 6,600 full-text journals and magazines and 6,000 full-text peer-reviewed journals regarding several subjects, such as law, psychology, and ethnic and multicultural studies (EBSCO Industries, 2018c). Relevant to this study, Academic Search Complete includes titles, such as the *Canadian Journal of Criminology & Criminal Justice*, *Crime & Delinquency*, and the *Journal of Criminal Justice*.

Next, the selection of proper keywords can be critical in locating relevant literature. Therefore, several related concepts and constructs were used in conjunction with procedural justice. For this systematic search, the following keywords were used:

- “Procedural Justice” AND “police”
- “Procedural Justice” AND “policing”
- “Procedural Justice” AND “law enforcement”
- “Procedural Justice” AND “measurement”
- “Procedural Justice” AND “scale”
- “Procedural Justice” AND “fairness”
- “Procedural Justice” AND “procedural fairness”
- “Procedural Justice” AND “due process”

- “Procedural Justice” AND “fundamental justice”
- “Procedural Justice” AND “natural justice”
- “Procedural Justice” AND “transparency”
- “Procedural Justice” AND “Process”
- “Procedural Justice” AND “Outcome”

These keywords attempt to capture the many uses of procedural justice in policing as an independent variable, dependent variable, and mediating variable. Furthermore, these keywords intend to locate research that uses procedural justice within the process-based model and more broadly in relation to fairness.

The third dimension necessary to define the search strategy is the timeframe that will be used when searching for relevant literature. For some topics, such as the bombing of Pearl Harbor, the search timeframe may be particularly relevant. For understanding how procedural justice has been measured in a policing context in the past, a timeframe is less relevant. Therefore, for this search strategy, the search timeframe will be non-restrictive. Although all literature meeting the inclusion criteria from any timespan will be included, it is expected that most literature will come from the 20th and 21st century with the majority occurring post-1960.

Given these three dimensions of a search strategy, several methods will be used to obtain the full-text versions of these studies for coding regarding their use and measurement of procedural justice. First, the electronic journals found in the University of Cincinnati library research databases will be reviewed for full-text versions of relevant literature. If electronic versions are unavailable, print versions of literature will be sought through the University of Cincinnati. Should electric or print versions be unavailable, requests will be made through the University of Cincinnati’s Interlibrary Loan Office (ILL) in an attempt to documents from other libraries. If the aforementioned attempts are unsuccessful, author(s) and/or funding agencies will be directly contacted in an attempt to gain full-text versions of relevant literature.

Description of Methods used in the Component Studies

Based on the exclusion criteria, it is expected that all studies will be quantitative in nature. These studies are likely to include experimental, quasi-experimental, non-experimental designs. Although experimental designs are preferred due to their strong internal validity, quasi-experiments and non-experimental designs provide insight into the generalizability of findings and thus are relevant and important to include in this systematic search (Farrington, Gottfredson, Sherman, & Welsh, 2002).

Further, the outcomes of these quantitative studies are expected to be diverse as a result of the multitude of theoretical promises made by the process-based model. Additionally, procedural justice may be a potential outcome in these studies due to the cyclical nature of the process-based model.

Details of Study Coding Categories

All studies located in the systematic search will be reviewed with the documentation of information (coding) occurring in three broad domains: (1) study information, (2) the use of procedural justice, and (3) measurement information. The following discussion provides more explicit details of these three domains.

First, information relevant to the study will be coded. The *reference information* will contain the title, authors, and publication information such as journal, volume, and page numbers. The *theoretical background* will contain authors and theories referenced as part of the study's theoretical backing. The *site* will contain the nature and description of the selected site(s) used in the study. The *sample size* will contain the number of participants or the number of units

analyzed in the study. The *methods* will contain the methodology used in the study (e.g., randomized experiment, quasi-experiment, pre/post-test). The *dependent variable* will contain the endogenous variables used in the study. The *independent variable* will contain the exogenous variables used in the study. The *statistical technique* will describe the statistics used within the study (e.g., structural equation modeling, ANOVA, factor analysis). The *hypothesis* will contain the described hypotheses tested in the study. The *findings* will contain the broad finding of the hypothesis tests.

Second, information specifically relevant to the study's use of procedural justice will be coded. Specifically, each study will be reviewed to determine if it *contains procedural justice items*. If provided, a *definition of procedural justice* will be coded. Additionally, the use of procedural justice as an *independent variable*, *dependent variable*, or *intervening variable* will be coded.

Third, specific information about the measurement of procedural justice will be extracted. If a study uses a *known scale* to measure procedural justice, the author(s) and year will be documented. The *scale construction* will contain information about how, if at all, the scale for procedural justice was built (e.g., additive, weighted). The *number of procedural justice items* will be documented, regardless of their appearance within the study's documentation. The *number of listed procedural justice items* will specifically document the number of items appearing within the study's documentation. The *reliability* of items, when presented, will be coded. Additionally, the *mean and range* of the procedural justice scale will be documented. Finally, for each of Tyler's (2000) four key components of procedural justice—*voice*, *trustworthiness*, *neutrality*, and *dignity/respect*—the specific items used to measure these items will be recorded. Furthermore, if *reliability* for each of these components is available, it will be

documented. In addition, any items that are not considered one of the four key components of procedural justice will be documented under *other items* and their *reliability* will be documented when present.

Data Analysis

Once all component studies are coded, data analysis will be used to identify and provide trends for items used. This will be primarily descriptive in nature and discuss the frequency of item use. Additionally, scale means and ranges will be examined to explore the directional bias of previously used scales. More critically, these items will be employed, in part, to develop a pool of items that will be used to construct a new measure of procedural justice. The development of this pool of items will be discussed in more detail in the next phase.

PHASE II: DEVELOPMENT OF A PROCEDURAL JUSTICE MEASURE

The second phase of this study involves the active development of a measure of procedural justice using psychometric techniques. Although the development of any measure is an iterative process using several rounds of surveys, this study will complete the first three iterations for procedural justice in a policing context. As such, the following section will be presented in three parts—the first pilot survey, the second pilot survey, and the nationally representative survey. This three-part discussion aligns with the three projected surveys that will be completed.

First Pilot Survey

The use of a pilot survey as the first iteration to attempt to build a measure of procedural justice can be divided into three broad steps. First, the pilot survey will be developed. Second,

the pilot survey has to be administered to a sample. Third, the results of the pilot survey must be analyzed. Each of these steps will be detailed below.

First, based in part on the results of Phase I, a pool of items will be developed. Items that historically performed well in producing reliable estimates will be considered. Furthermore, items that, on their face value, seek to measure procedural justice or its components as described by Tyler (2000) will be considered. Additionally, items that address theoretical components of procedural justice that are less frequently tested will be considered. However, these previously used items will not be the only items considered in the pool of items for the pilot survey.

Due to previous measurement concerns, new items will be added to the pool. These items will address concerns, such as direction or acquiescence bias, through the use of negatively worded questions and reverse coded items. Additionally, items of closely related constructs, such as legitimacy and distributive justice, will be included to help define the boundaries of procedural justice in policing. Finally, new items may be developed based on the theoretical models proposed by Tyler and colleagues. All items and response options will conform to Dillman and colleagues (2014) methods of building survey items and surveys.

Second, once the items for the pilot survey are selected, the pilot survey will be distributed to a convenience sample of approximately 500 MTurk workers. Although not ideal due to the lack of generalizability and potential for bias, the use of a convenience sample provides the benefits of a low-cost survey that can be used to eliminate items that clearly perform poorly. Additionally, the speed of obtaining these responses is quicker than many probability-based sampling procedures (Singleton & Straits, 2010). To obtain these surveys, MTurk workers will be recruited from Amazon's MTurk worker program. A small incentive (~\$2.55 USD) will

be provided as part of the study. Recruited participants will be provided with a link to a digital survey (via Qualtrics) where they may respond to the selected items for the first pilot survey.

This initial pilot survey will begin with a description of the study, a notice of confidentiality, the contact information of the project's primary investigator and the university's institutional review board, and an option to voluntarily participate. Next, items related to the measurement of procedural justice will be provided. Finally, a series of demographic questions will be asked in order for item invariance to be examined in the data analysis step. Following the completion of the survey, participants will be thanked for their participation and time.

Third, upon the completion of the distribution of the first pilot survey, data analysis of these responses will begin. This analysis will begin with descriptive statistics of demographics and item responses. Next, reliability analysis and exploratory factor analysis will be used to explore the relationship among and between items. At this point, items that clearly perform poorly (e.g., low factor loading, reduce reliability) will be removed from the analysis. The next steps of analysis will include confirmatory factor analysis to examine the model fit of constructs identified in the exploratory factor analysis.

Finally, item response theory techniques will be used to examine and refine the items and scale proposed as a measure of procedural justice. As the most recent advancement in psychometrics, item response theory seeks to model nonlinear (categorical) responses at the item level, as opposed to the test level that is modeled in classical test theory (de Ayala, 2009; Hambleton & Jones, 1993). Like classical test theory techniques, item response theory seeks to model a latent trait using items or questions to understand a respondent's latent trait or ability (de Ayala, 2009; Hambleton & Jones, 1993). Using item response theory, respondents and items are placed on the same unidimensional continuum, which has a mean of zero and a standard

deviation of 1 (Hambleton, Swaminathan, & Rogers, 1991). The value of items is therefore based on their ability to discriminate among respondents with varying levels of the underlying trait or ability (de Ayala, 2009). However, instead of summing items to a score and examining how respondents fare across the aggregation of items as done in classical test theory, item response theory examines the ability of individual items to discriminate among respondents who vary in their ability to correctly respond to or endorse specific items and weights responses accordingly to produce a scale (de Ayala, 2009; Hambleton & Jones, 1993; Hambleton, Swaminathan, & Rogers, 1991; Toland, 2014). Furthermore, groups of items are used to more accurately place individuals on the latent continuum (de Ayala, 2009). A summary of the differences between classical test theory and item response theory according to Hambleton & Jones (1993) are provided in Table 3.1.

Item response theory provides several advantages to classical test theory techniques. First, item response theory is a critical portion of this analysis because of its ability to examine not only the strengths and weaknesses of the scale but also the strengths and weaknesses of individual items used in the scale (de Ayala, 2009; Hambleton & Jones, 1993). Second, it allows for the modeling of items that may vary in their difficulty of endorsement or answering correctly (de Ayala, 2009). Third, item response theory provides for direct comparisons between an individual's ability and the difficulty of items used in a scale (de Ayala, 2009; Hambleton & Jones, 1993; Hambleton, Swaminathan, & Rogers, 1991). Therefore, by knowing the difficulty of the item, an individual's ability to respond correctly or to endorse the item can be predicted. Fourth, and most critically, parameters of item response theory are not sample or test dependent (Hambleton & Jones, 1993). Therefore, once scales and items are built and validated, they may be used to estimate the ability of individuals outside of the original sample. Likewise, should a

Table 3.1. Main Differences Between Classical and Item Response Theories and Models*

Area	Classical test theory	Item response theory
Model	Linear	Nonlinear
Level	Test	Item
Assumptions	Weak (i.e., easy to meet with test data)	Strong (i.e., more difficult to meet with test data)
Item-ability relationship	Not specified	Item characteristic functions
Ability	Test scores or estimated true scores are reported on the test-score scale (or a transformed test-score scale)	Ability scores are reported on the scale of $-\infty$ to $+\infty$ (or a transformed scale)
Invariance of item and person statistics	No—item and person parameters are sample dependent	Yes—item and person parameters are sample independent, if model fits the test data
Item statistics	p, r	B, a , and c (for the three-parameter model) plus corresponding item information functions
Sample size (for item parameter estimation)	200 to 500 (in general)	Depends on the IRT model but larger samples, i.e., over 500, in general, are needed

*From Hambleton & Jones (1993)

test developer know the ability of a special population and need to design a test for this specific group, the known parameters of items may be used to build an adequate test for such specialized population (Hambleton & Jones, 1993).

As a result of these benefits, item response theory techniques will be used to examine the pilot survey responses. Specifically, the analysis will focus on four facets. First, items will be examined for their (in)variance across a heterogeneous sample, known as differential item functioning (de Ayala, 2009). Items that are invariant among diverse samples will be retained, whereas items that provide evidence of variation among diverse samples will be flagged as candidates for possible removal (de Ayala, 2009). Second, various models (e.g., Rasch model, two parameter models, graded response models) and model fits will be examined to determine the best method of modeling items that comprise the latent trait of procedural justice (Toland, 2014). Items that fit the model of the latent trait are retained (Toland, 2014). Third, the assumptions of these models will be examined to ensure that the data meet the assumptions for item response theory. In particular, the assumptions of unidimensionality, local dependence, and functional form or model-data fit (of the selected model) (Toland, 2014). Fourth, the difficulty and discrimination of remaining items will be explored. Items that provide variability in difficulty and are sufficiently capable of discriminating between abilities will be retained. Items that provide little information for the latent trait may be removed due to their redundancy (Toland, 2014).

Second Pilot Survey

Following the results and analyses of the first pilot survey, a second pilot survey will be undertaken. This survey will be used to refine the previously developed measure. As with the first pilot survey, there are three broad steps to complete this phase. First, the survey will be

developed. Second, the survey has to be administered to a sample. Third, the results of the survey must be analyzed. Each of these steps will be detailed below.

First, based on the analysis from the first pilot survey, a second pilot survey will be developed using a narrower pool of items. The items will be selected based on their performance in the first pilot survey and theoretical importance for the construct of procedural justice in policing. Additionally, items of related constructs will be retained to help define the boundaries of the construct of procedural justice during analysis.

Second, the survey will be distributed to a convenience sample of approximately 500 MTurk workers recruited from Amazon's MTurk worker program. A small incentive will be provided as part of the study. Recruited participants will be provided with a link to a digital survey (via Qualtrics) where they may respond to the selected items for the second pilot survey.

This second pilot survey will begin with a description of the study, a notice of confidentiality, the contact information of the project's primary investigator and the university's institutional review board, and an option to voluntarily participate. Next, items related to the measurement of procedural justice will be provided. Finally, a series of demographic questions will be asked in order for item invariance to be examined in the data analysis step. Following the completion of the survey, participants will be thanked for their participation and time.

Third, upon the completion of the distribution of the second pilot survey, data analysis of these responses will begin. This analysis will begin with descriptive statistics of demographics and item responses. Next, reliability analysis and exploratory factor analysis will be used to explore the relationship among and between items. At this point, items that clearly perform poorly (e.g., low factor loading, reduce reliability) will be removed from the analysis. The next

steps of analysis will include confirmatory factor analysis to examine the model fit of constructs identified in the exploratory factor analysis.

Finally, item response theory techniques will be used to examine and refine the items and proposed scale as a measure of procedural justice. This item response theory analysis will focus on examining four facets of the items and responses. First, item (in)variance will be explored and confirmed for items that are intended to be used for the final measure of procedural justice (de Ayala, 2009). Second, multiple models and model fit will be considered to understand the best method of modeling the latent trait of procedural justice (Toland, 2014). Third, model assumptions will be examined to ensure the data and modeling of the data are adequate for item response theory techniques (Toland, 2014). Fourth, the item characteristics (e.g., difficulty, discrimination) will be explored (Toland, 2014). At the conclusion of this analysis, the goal is to have a more cohesive measure of procedural justice that will be tested using a nationally representative sample of participants.

Third Survey

Following the results and analysis of the second pilot survey, a third survey will be undertaken. This survey will be used to validate and refine the previously developed measure. As with the pilot surveys, there are three broad steps to complete this phase. First, the survey will be developed. Second, the survey has to be administered to a sample. Third, the results of the survey must be analyzed. Each of these steps will be detailed below.

First, based on the analysis from the pilot surveys, a third survey will be developed using a narrower pool of items. The items will be selected based on their performance in the pilot surveys and theoretical importance for the construct of procedural justice in policing.

Additionally, items of related constructs will be retained to help define the boundaries of the construct of procedural justice during analysis.

Second, the survey will be distributed to a sample using a convenience sample of approximately 500 MTurk workers recruited from Amazon's MTurk worker program. A small incentive will be provided as part of the study. Recruited participants will be provided with a link to a digital survey (via Qualtrics) where they may respond to the selected items for the third survey.

Third, survey results will be analyzed similarly to the pilot surveys. Descriptive statistics will be used to understand the sample and responses to items. Next, reliability analysis and exploratory factor analysis will be used to understand the relationship between and among survey items. As with the pilot surveys, at this point in the data analysis process, any obviously poor performing items will be removed from the analysis. Next, confirmatory factor analysis will be used to examine the model fit of various models from the exploratory factor analysis. Finally, item response theory will be used to evaluate items and their responses as well as the scale for the proposed measure of procedural justice.

As with the pilot surveys, this item response theory analysis will focus on examining four facets of the items and responses. First, item (in)variance will be explored and confirmed for items that are intended to be used for the final measure of procedural justice (de Ayala, 2009). Second, multiple models and model fit will be considered to understand the best method of modeling the latent trait of procedural justice (Toland, 2014). Third, model assumptions will be examined to ensure the data and modeling of the data are adequate for item response theory techniques (Toland, 2014). Fourth, the item characteristics (e.g., difficulty, discrimination) will be explored (Toland, 2014). At the conclusion of this analysis, the goal is to have a cohesive

measure of procedural justice that can be used across a broad range of citizens in the United States to adequately measure their perceptions of procedural justice in the context of policing.

CONCLUSION

As a result of these two broad phases, this project seeks to build a psychometrically sound measure of procedural justice in the context of policing. Given the current push for agencies to adopt procedural justice techniques to repair police-community relations, it is critical that researchers be able to determine if these relations have indeed improved as a result of procedural justice. Under the current, heterogeneous measurement schemes of procedural justice, it is nearly impossible to reach any substantial conclusions about the effectiveness of procedurally just policing. Therefore, it is the intent of this study to provide one cohesive measure that can be used across communities and studies so that the effects of procedural justice can be conclusively understood. Furthermore, this study seeks to fulfill a broader mission of providing a case study in modern measurement techniques that should be adopted across the field of criminology and criminal justice to further the field's understanding of core constructs. That is, this project is an example of "criminometrics."

The findings of this study will be presented in the following two chapters. Each chapter will correspond with the two broad phases previously outlined.

Chapter 4

RESULTS: SYSTEMATIC REVIEW OF EMPIRICAL ARTICLES USING PROCEDURAL JUSTICE IN POLICING

As explained in Chapter 3, psychology has a systematic method of developing new measures of constructs in their field. Therefore, this dissertation seeks to follow this model to develop a measure of procedural justice in policing. The next two chapters will provide the results of this entire process. Specifically, this chapter seeks to detail the results of the systematic literature review of articles attempting to measure procedural justice in the context of policing. Chapter 5 will then present the findings of the series of surveys and analyses. Thus, the remainder of this chapter will discuss the systematic literature review in four parts: (1) the search, (2) the process of narrowing articles, (3) the final articles, and (4) the items.

THE SEARCH

The methods of searching for relevant articles were presented in Chapter 3 but will be reviewed briefly here. Three databases (Criminal Justice Abstracts, PsycINFO, and Academic Search Complete) were used in combination with the following keywords to locate potentially relevant manuscripts.

- “Procedural Justice” AND “police”
- “Procedural Justice” AND “policing”
- “Procedural Justice” AND “law enforcement”
- “Procedural Justice” AND “measurement”
- “Procedural Justice” AND “scale”
- “Procedural Justice” AND “fairness”
- “Procedural Justice” AND “procedural fairness”
- “Procedural Justice” AND “due process”
- “Procedural Justice” AND “fundamental justice”
- “Procedural Justice” AND “natural justice”
- “Procedural Justice” AND “transparency”
- “Procedural Justice” AND “Process”
- “Procedural Justice” AND “Outcome”

Additionally, the search timeframe was non-restrictive and produced manuscripts published between 1976 and 2017, as expected in Chapter 3. Using the described search terms, databases, and timeframe, this search was executed from February 9, 2017 through February 23, 2017, which resulted in 6,041 potential manuscripts being identified.

However, due to the large gap in time between the initial search and the coding process, a recent meta-analysis (Walters & Bolger, 2018) was used to capture quantitative articles attempting to measure procedural justice in 2017 and 2018. This meta-analysis sought to understand the influence of procedural justice and legitimacy on compliance with the law. Articles relevant to this meta-analysis covered the entire criminal justice system (e.g., police, courts, corrections). Therefore, of the 64 studies presented in this meta-analysis, this dissertation focused on those only related to policing. As a result, 19 more articles were added to the list of manuscripts to be considered under this systematic review. This led to an overall total of 6,060 manuscripts as part of the initial search process.

THE PROCESS OF NARROWING ARTICLES

As seen in Figure 4.1, these 6,060 articles were eventually reduced, over the course of three broad stages, to the final count of articles that were to be coded. In the first stage, duplicate manuscripts were located and removed using Google Sheet's (similar to Microsoft's Excel) Remove Duplicates add-on tool. Duplicates were defined as APA citations that shared the exact same publication year, authors, and title. This automated process reduced the pool of manuscripts to a total of 2,617 manuscripts. Additionally, these 2,617 manuscripts were manually searched through to remove duplicates that may have had, for example, different author formatting or missing title punctuation. Through the course of this process, non-English titles were also

Figure 4.1. Process of Narrowing Manuscripts

removed from the pool of manuscripts. The end of stage one led to a remaining pool of 2,201 unique manuscripts that were considered in stage two for the coding process.

In stage two, manuscript titles and abstracts were reviewed for potential relevance to policing and procedural justice. When in doubt, any manuscript titles or abstracts that were unclear in their relation to policing or procedural justice were retained for further review. This process resulted in the retention of 387 manuscripts.

In stage three, each of these 387 manuscripts was then reviewed in full to ensure it met the inclusion and exclusion criteria described in Chapter 3. Specifically, these studies needed to be (1) quantitative in nature, (2) attempt to measure procedural justice in the context of policing and from the perspective of the community, and (3) have a measure of procedural justice for police that excludes other criminal justice and government actors. At the end of this stage, the final total of manuscripts to be coded was 176 manuscripts, as seen in Table 4.1.

Within these 176 manuscripts, 67 unique sources were represented from a broad range of substantive fields. As seen in Table 4.2, individual dissertations were the most frequent source of research related to procedural justice in policing. The most common peer-reviewed sources of this research came from the *British Journal of Criminology*, *Policing & Society*, the *Journal of Experimental Criminology*, the *Journal of Criminal Justice & Society*, the *Journal of Criminal Justice*, and *Criminal Justice and Behavior*. Although the most common sources come from criminology, criminal justice journals, and dissertations, relevant research was also located in peer-reviewed journals related to law, psychology, political science, and more.

Additionally, these manuscripts spanned several decades, as seen in Figure 4.1. Based on this figure, it appears that a boom in this subject matter occurred following 2010 but then quickly declined after 2016. Finally, there were 252 unique authors represented in this literature review.

Table 4.1. List of 176 coded manuscripts

Manuscripts
Akinlabi, O. M. (2017). Young people, procedural justice and police legitimacy in Nigeria. <i>Policing & Society</i> , 27, 419-438.
Alalehto, T., & Larsson, D. (2016). Measuring trust in the police by contextual and individual factors. <i>International Journal of Law, Crime & Justice</i> , 46, 31-42.
Allen, A. N. (2017). Do Campus Police Ruin College Students' Fun?. <i>Deviant Behavior</i> , 38, 334-344.
Antrobus, E., & Pilotto, A. (2016). Improving forensic responses to residential burglaries: results of a randomized controlled field trial. <i>Journal of Experimental Criminology</i> , 12, 319-345.
Antrobus, E., Bradford, B., Murphy, K., & Sargeant, E. (2015). Community norms, procedural justice, and the public's perceptions of police legitimacy. <i>Journal of Contemporary Criminal Justice</i> , 31, 151-170.
Arndorfer, A., Malloy, L. C., & Cauffman, E. (2015). Interrogations, confessions, and adolescent offenders' perceptions of the legal system. <i>Law & Human Behavior</i> , 39, 503-513.
Augustyn, M. B. (2016). Updating perceptions of (in)justice. <i>Journal of Research In Crime And Delinquency</i> , 53, 255-286.
Aviv, G., & Weisburd, D. (2016). Reducing the gap in perceptions of legitimacy of victims and non-victims: The importance of police performance. <i>International Review of Victimology</i> , 22, 83-104.
Baker, T., Pelfrey, W. J., Bedard, L. E., Dhungana, K., Gertz, M., & Golden, K. (2014). Female inmates' procedural justice perceptions of the police and courts: Is there a spill-over of police effects?. <i>Criminal Justice And Behavior</i> , 41, 144-162.
Barkworth, J. M., & Murphy, K. (2015). Procedural justice policing and citizen compliance behaviour: The importance of emotion. <i>Psychology, Crime & Law</i> , 21, 254-273.
Barkworth, J., & Murphy, K. (2016). System contact and procedural justice policing: Improving quality of life outcomes for victims of crime. <i>International Review of Victimology</i> , 22, 105-122.
Bates, L. J., Antrobus, E., Bennett, S., & Martin, P. (2015). Comparing police and public perceptions of a routine traffic encounter. <i>Police Quarterly</i> , 18, 442-468.
Bates, L., Allen, S., & Watson, B. (2016). The influence of the elements of procedural justice and speed camera enforcement on young novice driver self-reported speeding. <i>Accident Analysis & Prevention</i> , 92, 34-42.
Boateng, F. D. (2016). <i>Trust in the police: Analysis of urban cities in Ghana</i> . Retrieved from Dissertation Abstracts International (3715163)
Bradford, B. (2014). Policing and social identity: procedural justice, inclusion and cooperation between police and public. <i>Policing & Society</i> , 24, 22-43.

- Bradford, B., Hohl, K., Jackson, J., & MacQueen, S. (2015). Obeying the rules of the road: Procedural justice, social identity, and normative compliance. *Journal of Contemporary Criminal Justice*, 31, 171-191.
- Bradford, B., Murphy, K., & Jackson, J. (2014). Officers as mirrors: Policing, procedural justice and the (re)production of social identity. *British Journal of Criminology*, 54, 527-550.
- Braga, A., Winship, C., Tyler, T., Fagan, J., & Meares, T. (2014). The salience of social contextual factors in appraisals of police interactions with citizens: A randomized factorial experiment. *Journal of Quantitative Criminology*, 30, 599-627.
- Brunson, R. K., & Miller, J. (2006). Young black men and urban policing in the United States. *British Journal of Criminology*, 46, 613-640.
- Buzarovska, G., Bachanovic, O., Kalajdziev, G., Drakulevski, A. G., Misoski, B., Gogov, B., & ... Jovanova, N. (2014). Students' views on the police in the Republic of Macedonia. *Journal of Criminal Justice & Security*, 16, 435-452.
- Carr, P. J., Napolitano, L., & Keating, J. (2007). We never call the cops and here is why: A qualitative examination of legal cynicism in three Philadelphia neighborhoods. *Criminology*, 45, 445-480.
- Cherney, A., & Murphy, K. (2013). Policing terrorism with procedural justice: The role of police legitimacy and law legitimacy. *Australian & New Zealand Journal of Criminology*, 46, 403-421.
- Clayman, S., & Sknns, L. (2012). To snitch or not to snitch? An exploratory study of the factors influencing whether young people actively cooperate with the police. *Policing & Society*, 22, 460-480.
- Czapska, J., Radomska, E., & Wójcik, D. (2014). Police Legitimacy, Procedural Justice, and Cooperation with the Police: A Polish Perspective. *Journal of Criminal Justice & Security*, 16, 453-470.
- Dai, M. (2008). *Procedural justice during police-citizen encounters* (Unpublished doctoral dissertation). University of Cincinnati, Cincinnati, Ohio.
- Dai, M., & Nation, D. (2009). Understanding non-coercive, procedurally fair behavior by the police during encounters. *International Journal of Law, Crime & Justice*, 37, 170-181.
- Dai, M., Frank, J., & Sun, I. (2011). Procedural justice during police-citizen encounters: The effects of process-based policing on citizen compliance and demeanor. *Journal of Criminal Justice*, 39, 159-168.
- Davis-Lipman, A., Tyler, T., & Andersen, S. (2007). Building community one relationship at a time: Consequences for the seeking and acceptance of help. *Social Justice Research*, 20, 181-206. (Study 1)
- De Angelis, J. (2009). Assessing the impact of oversight and procedural justice on the attitudes of individuals who file police complaints. *Police Quarterly*, 12, 214-236.
- De Cremer, D., & Tyler, T. R. (2007). The effects of trust in authority and procedural fairness on cooperation. *Journal of Applied Psychology*, 92, 639-649. (Study 3)

- Desmarais, S. L., Livingston, J. D., Greaves, C. L., Johnson, K. L., Verdun-Jones, S., Parent, R., & Brink, J. (2014). Police perceptions and contact among people with mental illnesses: Comparisons with a general population survey. *Psychology, Public Policy, And Law*, 20, 431-442.
- Dirikx, A., & Van den Bulck, J. (2014). Media use and the process-based model for police cooperation: An integrative approach towards explaining adolescents' intentions to cooperate with the police. *British Journal of Criminology*, 54, 344-365.
- Dirikx, A., Gelders, D., & Van den Bulck, J. (2013). Adolescent perceptions of the performance and fairness of the police: Examining the impact of television exposure. *Mass Communication & Society*, 16, 109-132.
- Dittloff, S. A. (2004). *The moderating influence among Hispanic students of superordinate group identification and subgroup identification on evaluations of overall procedural justice, overall distributive justice, and overall satisfaction in assessing experiences with law enforcement agencies*. Retrieved from Dissertation Abstracts International (3099690)
- Eckert, R. (2009). *Community Policing as Procedural Justice: Examination of Baltimore Residents After Implementation of Community Policing Variables*. Retrieved from Dissertation Abstracts International (1462400)
- Elliott, I., Thomas, S. M., & Ogloff, J. P. (2011). Procedural justice in contacts with the police: Testing a relational model of authority in a mixed methods study. *Psychology, Public Policy, And Law*, 17, 592-610.
- Engel, R. S. (2005). Citizens' perceptions of distributive and procedural injustice during traffic stops with police. *Journal of Research In Crime and Delinquency*, 42, 445-481.
- Factor, R., Castillo, J. C., & Rattner, A. (2014). Procedural justice, minorities, and religiosity. *Police Practice & Research*, 15, 130-142.
- Ferdik, F. V. (2014). The influence of strain on law enforcement legitimacy evaluations. *Journal of Criminal Justice*, 42, 443-451.
- Ferdik, F. V., Gist, J., & Blasco, N. (2016). Perceived police legitimacy: investigating its association with college-based informal social controls. *Psychology, Crime & Law*, 22, 252-275.
- Ferdik, F. V., Wolfe, S. E., & Blasco, N. (2014). Informal social controls, procedural justice and perceived police legitimacy: Do social bonds influence evaluations of police legitimacy?. *American Journal of Criminal Justice*, 39, 471-492.
- Fisher, C. (2016). *What matters: An analysis of victim satisfaction with the criminal justice system in a procedural justice framework*. Retrieved from Dissertation Abstracts International (3711224)
- Gau, J. M. (2010). A longitudinal analysis of citizens' attitudes about police. *Policing: An International Journal*, 33, 236-252.
- Gau, J. M. (2011). The convergent and discriminant validity of procedural justice and police legitimacy: An empirical test of core theoretical propositions. *Journal of Criminal Justice*, 39, 489-498.
- Gau, J. M. (2013). Consent searches as a threat to procedural justice and police legitimacy: An analysis of consent requests during traffic stops. *Criminal Justice Policy Review*, 24, 759-777.

- Gau, J. M. (2014). Procedural justice and police legitimacy: A test of measurement and structure. *American Journal of Criminal Justice*, 39, 187-205.
- Gau, J. M. (2015). Procedural justice, police legitimacy, and legal cynicism: a test for mediation effects. *Police Practice & Research*, 16, 402-415.
- Gau, J. M., Corsaro, N., Stewart, E. A., & Brunson, R. K. (2012). Examining macro-level impacts on procedural justice and police legitimacy. *Journal of Criminal Justice*, 40, 333-343.
- Gibbs, J. C., & Ahlin, E. M. (2013). The relationship between fairness and police-citizen hostility. *Journal of The Institute of Justice & International Studies*, 13, 47-67.
- Gossett, R. A. (2010). *Factors that affect perceptions of improper police behavior* (Unpublished doctoral dissertation). The Ohio State University, Ohio.
- Haberman, C. P., Groff, E. R., Ratcliffe, J. H., & Sorg, E. T. (2016). Satisfaction with police in violent crime hot spots: Using community surveys as a guide for selecting hot spots policing tactics. *Crime & Delinquency*, 62, 525-557.
- Hawk-Tourtelot, S. R., & Bradley-Engen, M. S. (2012). The role of policing education in college student satisfaction with police. *Journal Of Criminal Justice Education*, 23, 233-253.
- Hickman, L. J., & Simpson, S. S. (2003). Fair treatment or preferred outcome? The impact of police behavior on victim reports of domestic violence incidents. *Law & Society Review*, 37, 607-634.
- Hinds, L. (2007). Building Police-Youth Relationships: The Importance of Procedural Justice. *Youth Justice*, 7, 195-209.
- Hinds, L. (2009). Public satisfaction with police: the influence of general attitudes and police-citizen encounters. *International Journal of Police Science & Management*, 11, 54-66.
- Hinds, L., & Murphy, K. (2007). Public satisfaction with police: Using procedural justice to improve police legitimacy. *Australian & New Zealand Journal of Criminology*, 40, 27-42.
- Homolová, P. (2014). Trust in criminal justice and compliance with the law in Czech Society: Testing the normative hypothesis on 1999 and 2011 samples. *Journal of Criminal Justice & Security*, 16, 412-434.
- Huo, Y. J. (2003). Procedural justice and social regulation across group boundaries: Does subgroup identity undermine relationship-based governance. *Personality and Social Psychology Bulletin*, 29, 336-348.
- Huq, A. Z., Tyler, T. R., & Schulhofer, S. J. (2011). Mechanisms for eliciting cooperation in counterterrorism policing: Evidence from the United Kingdom. *Journal of Empirical Legal Studies*, 8, 728-761.
- Huq, A. Z., Tyler, T. R., & Schulhofer, S. J. (2011). Why does the public cooperate with law enforcement? The influence of the purposes and targets of policing. *Psychology, Public Policy, and Law*, 17, 419-450.

- Jackson, J., Asif, M., Bradford, B., & Zakar, M. Z. (2014). Corruption and police legitimacy in Lahore, Pakistan. *British Journal of Criminology*, 54, 1067-1088.
- Jackson, J., Bradford, B., Hough, M., Myhill, A., Quinton, P., & Tyler, T. R. (2012). Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology*, 52, 1051-1071.
- Jackson, J., Huq, A. Z., Bradford, B., & Tyler, T. R. (2013). Monopolizing force? Police legitimacy and public attitudes toward the acceptability of violence. *Psychology, Public Policy, And Law*, 19, 479-497.
- Jeleniewski, S. A. (2015). *Expanding legitimacy in the procedural justice model of legal socialization: Trust, obligation to obey and right to make rules*. Retrieved from Dissertation Abstracts International (3581200)
- Johnson, D., Maguire, E. R., & Kuhns, J. B. (2014). Public perceptions of the legitimacy of the law and legal authorities: Evidence from the Caribbean. *Law & Society Review*, 48, 947-978.
- Johnson, R. R. (2004). Citizen expectations of police traffic stop behavior. *Policing: An International Journal*, 27, 487-497.
- Jonathan-Zamir, T., & Harpaz, A. (2014). Police understanding of the foundations of their legitimacy in the eyes of the public: The case of commanding officers in the Israel national police. *British Journal Of Criminology*, 54, 469-489.
- Jonathan-Zamir, T., & Weisburd, D. (2013). The effects of security threats on antecedents of police legitimacy: Findings from a quasi-experiment in Israel. *Journal of Research in Crime and Delinquency*, 50, 3-32.
- Jonathan-Zamir, T., Hasisi, B., & Margalioth, Y. (2016). Is it the what or the how? The roles of high-policing tactics and procedural justice in predicting perceptions of hostile treatment: The case of security checks at Ben-Gurion Airport, Israel. *Law & Society Review*, 50, 608-636.
- Jonathan-Zamir, T., Mastrofski, S. D., & Moyal, S. (2015). Measuring procedural justice in police-citizen encounters. *Justice Quarterly*, 32, 845-871.
- Jonathan, T. (2010). Police involvement in counter-terrorism and public attitudes towards the police in Israel-1998–2007. *British Journal of Criminology*, 50, 748-771.
- Jorgensen, J. C. (2011). *Public perceptions matter: A procedural justice study examining an arrestee population* (Unpublished doctoral dissertation), Arizona State University, Arizona.
- Karakus, O. (2017). Instrumental and normative pathways to legitimacy and public cooperation with the police in Turkey: Considering perceived neighborhood characteristics and local government performance. *Justice Quarterly*, 34, 25-54.
- Kerstetter, W. A., & Rasinski, K. A. (1994). Opening a window into police internal affairs: Impact of procedural justice reform on third-party attitudes. *Social Justice Research*, 7, 107-127.

- Kirk, D. S., Papachristos, A. V., Fagan, J., & Tyler, T. R. (2012). The paradox of law enforcement in immigrant communities: Does tough immigration enforcement undermine public safety?. *Annals of the American Academy of Political and Social Science*, 641, 79-98.
- Kochel, T. R., & Weisburd, D. (2017). Assessing community consequences of implementing hot spots policing in residential areas: Findings from a randomized field trial. *Journal Of Experimental Criminology*, 13, 143-170.
- Kochel, T. R., Parks, R., & Mastrofski, S. D. (2013). Examining police effectiveness as a precursor to legitimacy and cooperation with police. *Justice Quarterly*, 30, 895-925.
- Kruger, D. J., Crichlow, V. J., McGarrell, E., Hollis, M., Jefferson, B. M., Reischl, T. M., & Zimmerman, M. A. (2016). Perceptions of procedural justice mediate the relationship between local violent crime density and crime reporting intentions. *Journal of Community Psychology*, 44, 807-812.
- Kunst, M. J., Rutten, S., & Knijf, E. (2013). Satisfaction with the initial police response and development of posttraumatic stress disorder symptoms in victims of domestic burglary. *Journal of Traumatic Stress*, 26, 111-118.
- Laxminarayan, M. (2012). Procedural justice and psychological effects of criminal proceedings: The moderating effect of offense type. *Social Justice Research*, 25, 390-405.
- Laxminarayan, M., Henrichs, J., & Pemberton, A. (2012). Procedural and interactional justice: A comparative study of victims in the Netherlands and New South Wales. *European Journal of Criminology*, 9, 260-275.
- Lee, H. D., Boateng, F. D., & Marenin, O. (2015). Trust in and legitimacy of the police among American college students. *Police Journal*, 88, 299-314.
- Lee, J. M., Steinberg, L., & Piquero, A. R. (2010). Ethnic identity and attitudes toward the police among African American juvenile offenders. *Journal of Criminal Justice*, 38, 781-789.
- Lee, J. V. (2011). *The ripple effect: The perception of racial profiling, procedural justice, and citizen confidence in government*. Retrieved from Dissertation Abstracts International (3416129).
- Leslie, E. M., Cherney, A., Smirnov, A., Wells, H., Kemp, R., & Najman, J. M. (2017). Willingness to cooperate with police: A population-based study of Australian young adult illicit stimulant users. *Criminology & Criminal Justice*, 17, 301-318.
- Levi, M., Sacks, A., & Tyler, T. (2009). Conceptualizing legitimacy, measuring legitimating beliefs. *American Behavioral Scientist*, 53, 354-375.
- Liu, S., & Liu, J. (2018). Police legitimacy and compliance with the law among Chinese youth. *International Journal of Offender Therapy and Comparative Criminology*, 62, 3536-3561,

- Livingston, J. D., Desmarais, S. L., Greaves, C., Parent, R., Verdun-Jones, S., & Brink, J. (2014). What influences perceptions of procedural justice among people with mental illness regarding their interactions with the police?. *Community Mental Health Journal*, 50, 281-287.
- Livingston, J. D., Desmarais, S. L., Verdun-Jones, S., Parent, R., Michalak, E., & Brink, J. (2014). Perceptions and experiences of people with mental illness regarding their interactions with police. *International Journal of Law And Psychiatry*, 37, 334-340.
- Lowrey, B. V., Maguire, E. R., & Bennett, R. R. (2016). Testing the effects of procedural justice and overaccommodation in traffic stops: A randomized experiment. *Criminal Justice and Behavior*, 43, 1430-1449.
- Lukić, N., Bajović, V., Tičar, B., & Eman, K. (2016). Trust in police by Serbian and Slovenian law students: A comparative perspective. *Journal of Criminal Justice & Security*, 18, 418-437.
- MacQueen, S., & Bradford, B. (2015). Enhancing public trust and police legitimacy during road traffic encounters: results from a randomised controlled trial in Scotland. *Journal of Experimental Criminology*, 11, 419-443.
- Madan, M., & Nalla, M. K. (2015). Exploring citizen satisfaction with police in India. *Policing: An International Journal*, 38, 86-101.
- Madon, N. S., Murphy, K., & Cherney, A. (2016). Promoting community collaboration in counterterrorism: Do social identities and perceptions of legitimacy mediate reactions to procedural justice policing?. *British Journal of Criminology*, 57, 1144-1164.
- Maguire, E. R., Lowrey, B. V., & Johnson, D. (2016). Evaluating the relative impact of positive and negative encounters with police: A randomized experiment. *Journal of Experimental Criminology*, 13, 367-391.
- Mastrofski, S. D., Jonathan-Zamir, T., Moyal, S., & Willis, J. J. (2016). Predicting procedural justice in police–citizen encounters. *Criminal Justice and Behavior*, 43, 119-139.
- Mazerolle, L., Antrobus, E., Bennett, S., & Tyler, T. R. (2013). Shaping citizen perceptions of police legitimacy: A randomized field trial of procedural justice. *Criminology*, 51, 33-63.
- Mazerolle, L., Bates, L., Bennett, S., White, G., Ferris, J., & Antrobus, E. (2015). Optimising the length of random breath tests: Results from the Queensland Community Engagement Trial. *Australian & New Zealand Journal Of Criminology*, 48, 256-276.
- Mazerolle, L., Bennett, S., Antrobus, E., & Eggins, E. (2012). Procedural justice, routine encounters and citizen perceptions of police: Main findings from the Queensland Community Engagement Trial (QCET). *Journal of Experimental Criminology*, 8, 343-367.
- McLean, K., & Wolfe, S. E. (2016). A sense of injustice loosens the moral bind of law: Specifying the links between procedural injustice, neutralizations, and offending. *Criminal Justice and Behavior*, 43, 27-44.
- Meares, T. L., Tyler, T. R., & Gardener, J. (2016). Lawful or fair? How cops and laypeople perceive good policing. *Journal of Criminal Law & Criminology*, 105, 297-343.

- Meško, G., Hacin, R., & Eman, K. (2014). Trust in police by Slovenian law and criminal justice and security students. *Journal of Criminal Justice & Security*, 16, 471-491.
- Metcalfe, C., Wolfe, S. E., Gertz, E., & Gertz, M. (2016). They protect our homeland but neglect our community: Homeland security overemphasis, legitimacy, and public cooperation in Israel. *Journal of Research in Crime and Delinquency*, 53, 814-839.
- Miles-Johnson, T. (2013). Confidence and trust in police: How sexual identity difference shapes perceptions of police. *Current Issues in Criminal Justice*, 25, 685-702.
- Miller, J., & D'Souza, A. (2016). Indirect effects of police searches on community attitudes to the police: Resentment or reassurance?. *British Journal of Criminology*, 56, 456-478.
- Moravcová, E. (2016). Willingness to cooperate with the police in four central European countries. *European Journal on Criminal Policy & Research*, 22, 171-187.
- Muratbegović, E., Vujović, S., & Fazlić, A. (2014). Procedural justice, police legitimacy and cooperation of Bosnian students with the police. *Journal of Criminal Justice & Security*, 16, 387-411.
- Murphy, K. (2009). Procedural justice and affect intensity: Understanding reactions to regulatory authorities. *Social Justice Research*, 22, 1-30. (Study 2)
- Murphy, K. (2009). Public satisfaction with police: The importance of procedural justice and police performance in police-citizen encounters. *Australian & New Zealand Journal of Criminology*, 42, 159-178.
- Murphy, K. (2015). Does procedural justice matter to youth? Comparing adults' and youths' willingness to collaborate with police. *Policing & Society*, 25, 53-76.
- Murphy, K., & Barkworth, J. (2014). Victim willingness to report crime to police: Does procedural justice or outcome matter most?. *Victims & Offenders*, 9, 178-204.
- Murphy, K., & Cherney, A. (2011). Fostering cooperation with the police: How do ethnic minorities in Australia respond to procedural justice-based policing?. *Australian & New Zealand Journal of Criminology*, 44, 235-257.
- Murphy, K., & Cherney, A. (2012). Understanding cooperation with police in a diverse society. *British Journal of Criminology*, 52, 181-201.
- Murphy, K., Hinds, L., & Fleming, J. (2008). Encouraging public cooperation and support for police. *Policing & Society*, 18, 136-155.
- Murphy, K., Mazerolle, L., & Bennett, S. (2014). Promoting trust in police: Findings from a randomised experimental field trial of procedural justice policing. *Policing & Society*, 24, 405-424.
- Murphy, K., Sargeant, E., & Cherney, A. (2015). The importance of procedural justice and police performance in shaping intentions to cooperate with the police: Does social identity matter?. *European Journal of Criminology*, 12, 719-738.

- Nalla, M. K., & Meško, G. (2015). What shapes security guards' trust in police? The role of perceived obligation to obey, procedural fairness, distributive justice, and legal cynicism. *Revija Za Kriminalistiko In Kriminologijo*, 66, 307-319.
- Nix, J., Wolfe, S. E., Rojek, J., & Kaminski, R. J. (2015). Trust in the police: The influence of procedural justice and perceived collective efficacy. *Crime & Delinquency*, 61, 610-640.
- Papachristos, A. V., Meares, T. L., & Fagan, J. (2012). Why do criminals obey the law? The influence of legitimacy and social networks on active gun offenders. *Journal of Criminal Law & Criminology*, 102, 397-440.
- Paternoster, R., Bachman, R., Brame, R., & Sherman, L. W. (1997). Do fair procedures matter? The effect of procedural justice on spouse assault. *Law & Society Review*, 31, 163-204.
- Pauwels, L., & De Waele, M. (2014). Youth involvement in politically motivated violence: Why do social integration, perceived legitimacy, and perceived discrimination matter?. *International Journal of Conflict & Violence*, 8, 135-153.
- Pryce, D. K. (2014). *Procedural justice, legitimacy, and cooperation with police: Evidence from a community of Ghanaian immigrants*. Retrieved from Dissertation Abstracts International (3638060).
- Ratcliffe, J. H., Groff, E. R., Sorg, E. T., & Haberman, C. P. (2015). Citizens' reactions to hot spots policing: Impacts on perceptions of crime, disorder, safety and police. *Journal of Experimental Criminology*, 11, 393-417.
- Reisig, M. D. (2007). Procedural justice and community policing: What shapes residents' willingness to participate in crime prevention programs?. *Policing: A Journal of Policy & Practice*, 1, 356-369.
- Reisig, M. D., & Lloyd, C. (2009). Procedural justice, police legitimacy, and helping the police fight crime: Results from a survey of Jamaican adolescents. *Police Quarterly*, 12, 42-62.
- Reisig, M. D., Bratton, J., & Gertz, M. G. (2007). The construct validity and refinement of process-based policing measures. *Criminal Justice and Behavior*, 34, 1005-1028.
- Reisig, M. D., Tankebe, J., & Meško, G. (2012). Procedural justice, police legitimacy, and public cooperation with the police among young Slovene adults. *Journal of Criminal Justice & Security*, 14, 147-164.
- Reisig, M., Tankebe, J., & Mesko, G. (2014). Compliance with the law in Slovenia: The role of procedural justice and police legitimacy. *European Journal on Criminal Policy & Research*, 20, 259-276.
- Rosenbaum, D. P., Lawrence, D. S., Hartnett, S. M., McDevitt, J., & Posick, C. (2015). Measuring procedural justice and legitimacy at the local level: The police-community interaction survey. *Journal of Experimental Criminology*, 11, 335-366.
- Sahin, N., Braga, A. A., Apel, R., & Brunson, R. K. (2016). The impact of procedurally-just policing on citizen perceptions of police during traffic stops: The Adana randomized controlled trial. *Journal of Quantitative Criminology*, 33, 701-726.
- Sargeant, E., Antrobus, E., Murphy, K., Bennett, S., & Mazerolle, L. (2016). Social identity and procedural justice in police encounters with the public: Results from a randomised controlled trial. *Policing & Society*, 26, 789-803.

- Sargeant, E., Murphy, K., & Cherney, A. (2014). Ethnicity, trust and cooperation with police: Testing the dominance of the process-based model. *European Journal of Criminology*, 11, 500-524.
- Schuck, A., & Martin, C. (2013). Residents' perceptions of procedural injustice during encounters with the police. *Journal of Ethnicity in Criminal Justice*, 11, 219-237.
- Scott, T. J. (2010). *Using a police community survey to determine procedural justice measures of police legitimacy*. Retrieved from Dissertation Abstracts International (3369716)
- Singer, L. (2013). London riots: Searching for a stop. *Policing: A Journal of Policy & Practice*, 7, 32-41.
- Slocum, L. A., Wiley, S. A., & Esbensen, F. (2016). The importance of being satisfied: A longitudinal exploration of police contact, procedural injustice, and subsequent delinquency. *Criminal Justice and Behavior*, 43, 7-26.
- Staubli, S. (2016). Investigations on the legitimacy of the Swiss police: Actual debates and empirical evidence. *Sociology of Crime, Law & Deviance*, 21, 97-114.
- Stroessner, S. J., & Heuer, L. B. (1996). Cognitive bias in procedural justice: Formation and implications of illusory correlations in perceived intergroup fairness. *Journal of Personality and Social Psychology*, 71, 717-728.(Study 1)
- Sun, I. Y., Wu, Y., Hu, R., & Farmer, A. K. (2017). Procedural justice, legitimacy, and public cooperation with police: Does western wisdom hold in China? *Journal of Research in Crime and Delinquency*, 54, 454-478.
- Sunshine, J. W. (2006). *New York and its police: The impact of perceptions of justice on officer credibility*. Retrieved from Dissertation Abstracts International (3222009)
- Sunshine, J., & Heuer, L. (2002). Deservingness and perceptions of procedural justice in citizen encounters with the police. In M. Ross, D. T. Miller, M. Ross, D. T. Miller (Eds.), *The Justice Motive in Everyday Life* (pp. 397-415). New York, NY, US: Cambridge University Press.
- Sunshine, J., & Tyler, T. (2003). Moral solidarity, identification with the community, and the importance of procedural justice: The police as prototypical representatives of a group's moral values. *Social Psychology Quarterly*, 66, 153-165.
- Sunshine, J., & Tyler, T. R. (2003). The role of procedural justice and legitimacy in shaping public support for policing. *Law & Society Review*, 37, 513-548.
- Sweeten, G., Piquero, A. R., & Steinberg, L. (2013). Age and the explanation of crime, revisited. *Journal of Youth And Adolescence*, 42, 921-938.
- Tankebe, J. (2008). Police effectiveness and police trustworthiness in Ghana: An empirical appraisal. *Criminology & Criminal Justice*, 8, 185-202.
- Tankebe, J. (2009). Public cooperation with the police in Ghana: Does procedural fairness matter. *Criminology*, 47, 1265-1293.

- Tankebe, J. (2009). Self-Help, policing, and procedural justice: Ghanaian vigilantism and the rule of law. *Law & Society Review*, 43, 245-270.
- Tankebe, J. (2010). Public confidence in the police: Testing the effects of public experiences of police corruption in Ghana. *British Journal of Criminology*, 50, 296-319.
- Tankebe, J. (2013). Viewing things differently: The dimensions of public perceptions of police legitimacy. *Criminology*, 51, 103-135.
- Tankebe, J., & Asif, M. (2016). Police legitimacy and support for vigilante violence in Pakistan. *International Journal Of Comparative & Applied Criminal Justice*, 40, 295-314.
- Taylor, R. B., & Lawton, B. A. (2012). An integrated contextual model of confidence in local police. *Police Quarterly*, 15, 414-445.
- Taylor, R. B., Wyant, B. R., & Lockwood, B. (2015). Variable links within perceived police legitimacy?: Fairness and effectiveness across races and places. *Social Science Research*, 49, 234-248.
- Trinkner, R. (2013). *Testing the procedural justice model of legal socialization: Expanding beyond the legal world*. Retrieved from Dissertation Abstracts International (3525074)
- Tyler, T. R. (2005). Policing in black and white: Ethnic group differences in trust and confidence in the police. *Police Quarterly*, 8, 322-342.
- Tyler, T. R., & Fagan, J. (2008). Legitimacy and cooperation: Why do people help the police fight crime in their communities?. *Ohio State Journal Of Criminal Law*, 6, 231-275.
- Tyler, T. R., & Folger, R. (1980). Distributional and procedural aspects of satisfaction with citizen-police encounters. *Basic and Applied Social Psychology*, 1, 281-292.
- Tyler, T. R., & Wakslak, C. J. (2004). Profiling and police legitimacy: Procedural justice, attributions of motive, and acceptance of police authority. *Criminology*, 42, 253-281.
- Van Craen, M. (2012). Determinants of ethnic minority confidence in the police. *Journal of Ethnic & Migration Studies*, 38, 1029-1047.
- Van Craen, M. (2013). Explaining majority and minority trust in the police. *Justice Quarterly*, 30, 1042-1067.
- Van Craen, M., & Skogan, W. G. (2015). Differences and similarities in the explanation of ethnic minority groups' trust in the police. *European Journal of Criminology*, 12, 300-323.
- Van Craen, M., & Skogan, W. G. (2015). Trust in the Belgian police: The importance of responsiveness. *European Journal of Criminology*, 12, 129-150.
- Van Damme, A. (2013). The roots and routes to compliance and citizens' cooperation with the Belgian police. *European Journal of Policing Studies*, 1(1), 40-63.

- Van Damme, A. (2017). The impact of police contact on trust and police legitimacy in Belgium. *Policing & Society*, 27, 205-228.
- Van Damme, A., & Pauwels, L. (2016). Why are young adults willing to cooperate with the police and comply with traffic laws? Examining the role of attitudes toward the police and law, perceived deterrence and personal morality. *International Journal of Law, Crime & Justice*, 46, 103-116.
- Van Damme, A., Pauwels, L., & Svensson, R. (2015). Why do Swedes cooperate with the police? A SEM analysis of Tyler's procedural justice model. *European Journal on Criminal Policy & Research*, 21, 15-33.
- Van der Toorn, J., Tyler, T. R., & Jost, J. T. (2011). More than fair: Outcome dependence, system justification, and the perceived legitimacy of authority figures. *Journal of Experimental Social Psychology*, 47, 127-138. (Study 3)
- Vidal, S., Cleary, H., Woolard, J., & Michel, J. (2017). Adolescents' legal socialization: Effects of interrogation and Miranda knowledge on legitimacy, cynicism, and procedural justice. *Youth Violence and Juvenile Justice*, 15, 419-440.
- Watson, A. C., & Angell, B. (2013). The role of stigma and uncertainty in moderating the effect of procedural justice on cooperation and resistance in police encounters with persons with mental illnesses. *Psychology, Public Policy, and Law*, 19, 30-39.
- Watson, A. C., Angell, B., Vidalon, T., & Davis, K. (2010). Measuring perceived procedural justice and coercion among persons with mental illness in police encounters: the Police Contact Experience Scale. *Journal of Community Psychology*, 38, 206-226.
- Wells, W. (2007). Type of contact and evaluations of police officers: The effects of procedural justice across three types of police-citizen contacts. *Journal of Criminal Justice*, 35, 612-621.
- Wemmers, J. (2013). Victims' experiences in the criminal justice system and their recovery from crime. *International Review of Victimology*, 19, 221-233.
- Wemmers, J., Van der Leeden, R., & Steensma, H. (1995). What is procedural justice: Criteria used by Dutch victims to assess the fairness of criminal justice procedures. *Social Justice Research*, 8(4), 329-350.
- White, M. D., Mulvey, P., & Dario, L. M. (2016). Arrestees' perceptions of the police: Exploring procedural justice, legitimacy, and willingness to cooperate with police across offender types. *Criminal Justice and Behavior*, 43, 343-364.
- Wolfe, S. E. (2011). The effect of low self-control on perceived police legitimacy. *Journal of Criminal Justice*, 39, 67-74.
- Wolfe, S. E., Chrusciel, M. M., Rojek, J., Hansen, J. A., & Kaminski, R. J. (2017). Procedural justice, legitimacy, and school principals' evaluations of school resource officers: Support, perceived effectiveness, trust, and satisfaction. *Criminal Justice Policy Review*, 28, 107-138.
- Wolfe, S. E., Nix, J., Kaminski, R., & Rojek, J. (2016). Is the effect of procedural justice on police legitimacy invariant? Testing the generality of procedural justice and competing antecedents of legitimacy. *Journal of Quantitative Criminology*, 32, 253-282.
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Table 4.2. Journal/Source Appearing 3 or More Times

Journal/Source	Frequency
Dissertation	13
British Journal of Criminology	11
Policing & Society	8
Journal of Experimental Criminology	7
Journal of Criminal Justice & Security	7
Journal of Criminal Justice	7
Criminal Justice and Behavior	7
Law & Society Review	6
Social Justice Research	5
Psychology, Public Policy, and Law	5
Police Quarterly	5
Journal of Research in Crime and Delinquency	5
European Journal of Criminology	5
Criminology	5
Australian & New Zealand Journal of Criminology	5
Justice Quarterly	4
Policing: An International Journal	3
Journal of Quantitative Criminology	3
International Review of Victimology	3
International Journal of Law, Crime & Justice	3
European Journal on Criminal Policy & Research	3

Figure 4.2. Frequency of Sources (1980-2018)

As seen in Table 4.3, two authors (Tom Tyler and Kristina Murphy) contribute much more frequently to this body of work. However, authors such as Justice Tankebe, Ben Bradford, Scott Wolfe, Adrian Cherney, and Emma Antrobus have frequently contributed to the understanding of procedural justice in the context of policing. Although these findings suggest that a small concentration of scholars are vigorously studying this topic, it is still worth noting the other 245 authors who have contributed to this area.

THE FINAL ARTICLES

The coding of the final 176 manuscripts provides some insight into the many locations, samples, methods, analyses, and scale properties that have been used to understand procedural justice in the context of policing. Starting with the diverse geography of these studies, Table 4.4 shows the frequency of studies completed in a range of regions. Of note, research on this topic has predominantly occurred in the United States, Europe, and Australia. However, other locations around the world—such as Israel, Ghana, and Canada—are also present, which suggests a near-global interest in this topic.

In regards to the samples used in this research, the sample sizes ranged between 40 and 115,260 units of analyses (usually participants/individuals). However, as seen in Table 4.5, the modal sample size ranged between 1,000 and 1,499 participants. Additionally, samples sizes between 100-199 and 300-399 were observed 17 times, and sample sizes between 200-299, 1,500-1,999, and 2,000-2,999 were observed 16 times. Given the wide variation in samples sizes across studies, it is possible that smaller studies may have been underpowered in their analyses leading to false negative findings, also known as type II error.

When examining specifically the types of individuals who took part in these studies, it should be noted that the vast majority of these studies used a general population,

Table 4.3. Frequency of Authorship of Coded Manuscripts (4+ manuscripts)

Author	Frequency
Tyler, T. T.	18
Murphy, K.	18
Tankebe, J.	8
Bradford, B.	8
Wolfe, S. E.	7
Cherney, A.	7
Antrobus, E.	7
Gau, J. M.	6
Bennett, S.	6
Reisig, M. D.	5
Mazerolle, L.	5
Jonathan-Zamir, T.	5
Jackson, J.	5
Van Damme, A.	4
Van Craen, M.	4
Sunshine, J.	4
Sargeant, E.	4
Meško, G.	4
Hinds, L.	4
Fagan, J.	4

Table 4.4. Frequency of Location of Study

Location	Frequency
United States	82
Europe	38
Australia	30
Other	10
Israel	7
Ghana	5
Canada	4
Total	176

Table 4.5. Frequency of Sample Sizes for 176 Studies

n	Frequency
0-49	2
50-99	7
100-199	17
200-299	16
300-399	17
400-499	15
500-599	9
600-699	7
700-700	1
800-899	5
900-999	8
1,000-1,499	26
1,500-1,999	16
2,000 - 2,999	16
3,000-3,999	5
4,000+	9
Total	176

which includes a subset of the population who may have been stopped by the police. As seen in Table 4.6, however, the use of youth samples is well represented as well as the number of studies focusing specifically on victims. It may be fruitful for future research to continue exploring perceptions of procedural justice in the context of policing with unique subsamples such as victims and juveniles.

Furthermore, Table 4.7 shows that overwhelmingly, most studies employed survey, interview, or questionnaire methodology to further understand perceptions of procedural justice with the police. However, several studies used secondary data sets, and a minority of studies used observational methods to study procedural justice. To analyze the data collected, most studies used some form of linear regression, as seen in Table 4.8. However, structural equation modeling (SEM)/path analysis, hierarchical modeling, and logistic/ordinal/multinomial regression were also frequently used. Within the 176 coded studies, procedural justice was used as an independent variable in 140 studies. Likewise, procedural justice was used as a dependent variable and an intervening variable in 47 studies and 16 studies respectively.

Finally, the scale construction used in these 176 studies was predominately unknown, as seen in Table 4.9. Of the studies that did report how their scale was construct, researchers most frequently used additive or summative scales followed by indices. Although most studies did not report scale construction, a larger proportion did report on the reliability of their scales, usually through the Cronbach alpha. As seen in Table 4.10, these values ranged between .60 and .98. Note that values between .70 and .95 are deemed acceptable by psychometricians (Devellis, 2003; Nunnally & Bernstein, 1994). However, as with the construction of the scales, a large proportion of studies did not report their scale's reliability. As such, the findings of these 69 studies should be evaluated with caution.

Table 4.6. Frequency of Types of Participants for 176 Studies

Type of Participant	Frequency
Community/household respondents	118
Students/youth/juveniles	34
Victims	13
Offenders (adult)	4
Other	7
Total	176

Table 4.7. Frequency of Study Methodology from 176 Studies

Method	Frequency
Survey/questionnaire/interview	141
Secondary data analysis	30
Observational data gathering	5
Total	176

Table 4.8. Frequency of Analyses from 176 Studies

Highest Analyses Completed	Frequency
Correlation	4
Chi square	4
ANOVA/MANOVA	4
T-tests	1
OLS/linear regression	66
Logistic/ordinal/multinomial regression	18
CFA/EFA	9
Hierarchical regression	27
SEM/path analysis	37
Other	6
Total	176

Table 4.9. Frequency of Scale Construction

Scale Construction	Frequency
Additive/summative	27
Averaged	12
Factor scores	2
Index	15
Z score	2
Other	4
Not available/applicable	114
Total	176

Table 4.10. Frequency of Cronbach Alpha's from 176 Studies

Alpha Range	Frequency
.90-1.00	48
.80-.899	38
.70-.799	22
.60-.699	6
.599 and below	0
Not available/applicable	69
Other reliability statistic (e.g., Lambda/Raykov)	2
Total	176

THE ITEMS

As part of the coding process, the individual items used to measure procedural justice in each of the 176 studies were extracted. This initial coding process uncovered 1,095 items used across these 176 studies. Of these 1,095 items, 32 items specifically captured Tyler's (2000) concept of voice, 52 items captured trustworthiness, 57 items captured neutrality, and 37 items captured dignity/respect. The remaining items either were not articulated as specifically measuring these concepts or attempted to measure another concept, such as Tyler and Bladder's (2000) quality of decision making.

Once duplicate items were removed from this initial pool, 769 unique items remained. Most frequently used items include:

- "The police treat everyone with dignity,"
- "The police explain their decisions to the people they deal with,"
- "The police clearly explain the reasons for their actions,"
- "Police treat people fairly,"
- "The police use rules and procedures that are fair to everyone,"
- "The police provide opportunity for unfair decisions to be corrected,"
- "The police make decisions based on the facts,"
- "Police listen to people before making decisions," and
- "Police are always polite when dealing with people."

However, simply because an item has been used frequently does not guarantee that it is an adequate item to be included in a scale of procedural justice. Additionally, specific articles (e.g., the, a, an) and noun choices (e.g., police officer, officer) prevented items from being deemed true duplicate items because word choice has been known to influence survey respondents' responses

(AERA et al., 2014). Therefore, in an attempt to condense this pool of items further, the initial articles and nouns in an item were removed. After removing duplicate items (without their initial articles and nouns), the item pool was reduced to 501 items.

Next, these 501 items were reviewed to determine if they conformed to the guidelines provided by Dillman and colleagues (2014). Specifically, items were reviewed to ensure they were applicable to all respondents (Guideline 4.2), asked one question at a time (Guideline 4.2), were technically accurate (Guideline 4.3), used simple or familiar words (Guideline 4.4), and used as few words as possible to ask the question (Guideline 4.7). As a result of this stage, the pool of items was reduced to 338 items.

In the next stage, items were grouped based on their ability to capture Tyler and Bladder's (2000) "quality of decision making" and "quality of treatment." Additionally, items that were reverse coded were identified. Finally, these 338 items were reduced to 124 items through removing items that asked similar (duplicate) questions and those that failed to achieve face validity. The final 124 items are presented in Table 4.11.

CONCLUSION

In sum, this systematic process of coding 176 studies produced 124 items for consideration as part of a measure of procedural justice in policing. Given these items, the next step toward developing a psychometric measure of procedural justice involved building a survey which would incorporate these items. Chapter 5 will detail the development of the survey instrument and the findings from the series of surveys.

Table 4.11. Final Procedural Justice Survey Items

“The police in my community...”	
Item	Item
abuse their power	know how to carry out their official duties properly
accurately understand the law	listen to people
act improperly	listen to people before making decisions
allow citizens to express their opinion before making a decision regarding their case	listen to the concerns of local people
allow citizens to express their views before making decisions	make clear what their expectations are for you
always act within the law	make decisions about what to do in fair ways
answer your questions well	make decisions based on facts
appear to know what he or she is doing	make decisions based on their own personal biases
apply the law consistently to everyone	make decisions not based on a personal opinion
are accountable for their actions	make fair decisions when they handle cases involving youth
are always polite when dealing with people	make sure citizens receive the outcomes they deserve under the law
are dishonest	make up their mind prior to receiving any information about an incident
are equally strict with everyone	provide better services to wealthier citizens
are helpful	provide opportunities for unfair decisions to be corrected
are not helpful	provide the same quality of service to all citizens
are open to people's suggestions about tackling problems	respect people's rights
are polite	respect young people
are prejudiced against minority persons	respect your basic rights
are respected by the community	seem concerned about your feelings
are respectful toward people like me	sincerely try to help people with their problems

are responsive to the needs of citizens	stop people without good reason
are sensitive to the public	take matters seriously
are too tough on the people they stop	take people's needs into consideration
are usually courteous	talk down to people
are usually fair	treat adolescents with respect
are usually friendly	treat all people equally according to the law
are usually honest	treat all people fairly
are usually rude	treat everyone equally
are very attentive when a victim reports a crime	treat everyone with dignity
behave properly	treat everyone with respect
can be relied upon to be there when you need them	treat people as if they can be trusted to do the right thing
can be trusted	treat people as if they only do the right thing when forced to
can be trusted to make decisions that are right for your community	treat people differently depending on their age
care about the well-being of everyone they deal with	treat people differently depending on their gender
clearly explain the reasons for their actions	treat people differently depending on their neighborhood
consider people's opinions when deciding what to do	treat people like human beings
consider people's views when deciding what to do	treat seriously those who approach them
consider race when deciding which cars to stop for possible traffic violations	treat some people better than others
deal with things that matter to people	treat young people differently from the way they treat adults
deal with you fairly	try to be fair
do their job well	try to bring the problem into the open so it could be solved
don't listen to all of the citizens involved before deciding what to do	try to find the best solution for people's problems
enforce the law consistently when dealing with all people	try to gather all necessary information
explain their actions to people	try to get the facts in a situation before deciding how to act
explain their decisions	understand the issues that affect this community

generally act professionally
 get the information they need to make a good decision
 give honest explanations for their actions
 give minorities less help because of their race
 give people a chance to express their opinions
 give people an opportunity to express their views
 give people opportunities to explain their situations
 go out of their way to be helpful
 handle problems fairly
 keep the public informed

use clear language
 use ethnic slurs against people in your neighborhood
 use excessive force against people in your community
 use insulting language when talking to people in your community
 use only the amount of force necessary to accomplish their tasks
 use unfair methods to get information
 usually treat people with respect
 would not issue a ticket to the privileged
 would treat you with respect if you had contact with them for any reason

(Statements)

The police are fair in terms of the procedures they use to handle the problems they deal with
 When stopped for a traffic violation, how the officer acts matters more to me than whether or not I receive a ticket
 I have absolute confidence that the police can do their job well
 The police are helpful when dealing with people around your community
 The police are fair in deciding which areas of a neighborhood to patrol
 It depends on what mood a police officers is in whether they tell you off or not
 I fully trust in police that they make the best decisions
 The police are fair in making decisions about who to stop for traffic violations

The police are fair in deciding which people in the neighborhood to help with their problems
 I have confidence that the police were doing the right thing
 People often receive fair outcomes from the police
 I am satisfied with the way police treat citizens
 I have a lot of confidence in the police in this area
 People's basic rights are well protected by the police
 The police are helpful when dealing with victims of crime

Chapter 5

RESULTS: THREE MTURK SURVEYS

Chapter 4 detailed the development of a list of potential items to measure procedural justice in the context of policing. As such, Chapter 5 will present the results of three surveys used to help narrow down the list of items used to best capture this construct. First, this chapter will review the development of the complete survey instrument as well as provide the results from the first survey. Second, this chapter will discuss the building of the second survey instrument and the results from the corresponding survey. Third, the development of and findings from a third survey will be presented.

DEVELOPMENT OF THE FIRST MTURK SURVEY

Alongside the 124 procedural justice items identified in Chapter 4, several other measures were added to the first survey to aid in analyses. As mentioned in Chapter 3, the addition of related constructs can be used to aid in defining the boundaries of a construct (Clark & Watson, 1995). Therefore, police legitimacy and law legitimacy (Trinker, Jackson, & Tyler, 2018), satisfaction with the police (Haberman, Groff, Ratcliffe, & Sorg, 2016), police effectiveness (Boateng, 2016), and cooperation with the police (White, Mulvey, & Dario, 2016) were included in this survey. These items are presented in Table 5.1.

Additionally, the ideal items in any measure will be invariant across different populations (de Ayala, 2009). This helps to assure that measurement bias is minimized and results are indeed a result of the underlying trait that is being measured—in this case, perceptions of procedural justice in the context of policing (de Ayala, 2009). Therefore, participant year of birth, education, ethnicity, race, gender, income, zip code, marital status, employment, and political identification were included in the survey. Given that direct and vicarious experience may influence

Table 5.1. Additional Constructs and Items Included in the Survey Instrument

Construct	Item	Response options
Police Legitimacy		
	You should support the decision made by police officers even when you disagree with them.	1 “Strongly agree” - 5 “Strongly disagree”
	You should do what the police tell you even if you do not understand or agree with the reasons.	1 “Strongly agree” - 5 “Strongly disagree”
	The police in your community are legitimate authorities and you should do what they tell you to do.	1 “Strongly agree” - 5 “Strongly disagree”
	You should do what the police tell you to do even if you do not like how they treat you.	1 “Strongly agree” - 5 “Strongly disagree”
	The police stand up for values that are important to you	1 “Strongly agree” - 5 “Strongly disagree”
	You generally support how the police act in your community.	1 “Strongly agree” - 5 “Strongly disagree”
	The police usually act in ways consistent with your own ideas about what is right and wrong.	1 “Strongly agree” - 5 “Strongly disagree”
Law Legitimacy		
	All laws should be strictly obeyed	1 “Strongly agree” - 5 “Strongly disagree”
	Some laws are made to be broken	1 “Strongly agree” - 5 “Strongly disagree”
	Sometimes doing the right thing means breaking the law.	1 “Strongly agree” - 5 “Strongly disagree”
	There are times when it is ok to ignore the law.	1 “Strongly agree” - 5 “Strongly disagree”
	Sometimes you have to bend the law for things to come out right.	1 “Strongly agree” - 5 “Strongly disagree”

Your own feelings about what is right and wrong usually agree with the laws that are enforced by the police and the courts.	1 “Strongly agree” - 5 “Strongly disagree”
The laws in your community are consistent with your own intuitions about what is right and just.	1 “Strongly agree” - 5 “Strongly disagree”
The laws of our criminal justice system are generally consistent with the views of the people in our community about what is right and wrong.	1 “Strongly agree” - 5 “Strongly disagree”
People should do what the law says.	1 “Strongly agree” - 5 “Strongly disagree”
Satisfaction with the Police (“How good...”)	
are the police doing in dealing with problems that really concern people in the neighborhood	1 “Very poor” - 5 “Very good”
a job are the police doing keeping order on the streets/sidewalks	1 “Very poor” - 5 “Very good”
a job are the police doing in reducing violent crime	1 “Very poor” - 5 “Very good”
a job are the police doing in reducing non-violent crime	1 “Very poor” - 5 “Very good”
a job are the police doing solving crimes once they occur	1 “Very poor” - 5 “Very good”
a job are the police doing preventing crime in your neighborhood	1 “Very poor” - 5 “Very good”
Police Effectiveness	
The police are effective in controlling public disturbances in your neighborhood	1 “Strongly disagree” - 5 “Strongly agree”
The police always provide assistance to the general public when needed	1 “Strongly disagree” - 5 “Strongly agree”
The police respond quickly when they are called for help	1 “Strongly disagree” - 5 “Strongly agree”

The police are always ready to provide satisfactory assistance to victims of crime	1 “Strongly disagree” - 5 “Strongly agree”
When the police stop people, they usually handle the situation well	1 “Strongly disagree” - 5 “Strongly agree”
Overall, the police are doing a good job in my neighborhood	1 “Strongly disagree” - 5 “Strongly agree”
Cooperation with Police	
To report a theft/burglary where you were the victim	1 “Extremely unlikely” - 4 “Extremely likely”
To report a minor (misdemeanor) crime	1 “Extremely unlikely” - 4 “Extremely likely”
To report a serious (felony) crime	1 “Extremely unlikely” - 4 “Extremely likely”
To report a violent crime where you were the victim	1 “Extremely unlikely” - 4 “Extremely likely”
To report suspicious activity near your house/apartment/residence	1 “Extremely unlikely” - 4 “Extremely likely”
To report suspicious activity near your neighborhood	1 “Extremely unlikely” - 4 “Extremely likely”
To provide information to help find a suspected criminal	1 “Extremely unlikely” - 4 “Extremely likely”
To provide information anonymously to help find a suspected criminal	1 “Extremely unlikely” - 4 “Extremely likely”

perceptions of the police (see e.g., Brunson, 2007; Gau & Brunson, 2010; Rosenbaum, Schuck, Costello, Hawkins, & Ring, 2005), participants were also asked about direct and vicarious contacts with the police in the last year.

Following Dillman and colleagues' (2014) method, the procedural justice items were asked first, followed by items asking about direct and vicarious experiences, and concluded with the demographic-related items. This question ordering intends to keep the survey interesting to participants and reduce attrition over the course of the survey (Dillman et al., 2014). Procedural justice items were placed in blocks of approximately 15 items in which the presentation of items within a block were randomized to avoid any item ordering effects (Dillman et al., 2014). Respondents were provided with the response options of (1) "Strongly disagree," (2) "Disagree," (3) "Agree," and (4) "Strongly agree." A five-point likert scale was not used with the purpose of avoiding ambivalent responses which would have to be modeled during the analyses (Garland, 1991; Krosnick & Fabrigar, 1997). Additionally, within two blocks, instructed response attention check items were used to identify and remove inattentive respondents thereby improving data quality (Gummer, Robman, & Silber, 2018). These randomly placed questions asked respondents to "Mark strongly agree for this question" and to "Mark strongly disagree for this question." Failure to follow the instructions of either of these questions suggests the responses from respondents may not be valid and should therefore be removed prior to data analysis.

To gather participants, Amazon's MTurk workers were employed. In this system, "workers" are given access to a list of "tasks" that they can opt-in to complete for a specified dollar amount (Amazon Mechanical Turk, 2018). These types of opt-in online surveys provide several advantages to traditional paper and phone surveys such as, the reduction of measurement error, satisficing behaviors, interviewer effects, and social desirability effects (Chang &

Krosnick, 2009). Following the completion of a task, the worker is paid by the individual who posted the task. These workers can be limited in which tasks they are capable of completing by their location, age, and expertise in completing tasks. For the sake of this survey, participants were restricted to those 18 years of age or older and those living in the United States.

The workers (participants) for this first MTurk survey were recruited through the following post which was listed as a reward rate of \$2.70 for survey participation:

We are conducting an academic survey about perceptions of the police. We need to understand your opinion of the police. Select the link below to complete the survey. At the end of the survey, you will receive a code to paste into the box below to receive credit for taking our survey. Make sure to leave this window open as you complete the survey. When you are finished, you will return to this page to paste the code into the box.

Using a hyperlink, participants were redirected to a Qualtrics.com webpage that hosted the survey. This webpage collected and stored participant responses to the survey questions presented above. Once participants completed the survey, they were presented with a unique random number to paste into their MTurk window to denote completion of the task. This random number serves as the unique identification number for survey responses. Care was taken to ensure that no MTurk worker was able to complete the survey more than once.

Prior to placement in the field, this study (#2019-0090) was approved by the University of Cincinnati Institutional Review Board on February 5, 2019. The request for “work” for the MTurk “workers” began on February 6, 2019, and was completed on February 7, 2019.

RESULTS OF THE FIRST MTURK SURVEY

The first MTurk survey was completed by 557 participants. However, based on responses to the instructed response attention check items, 64 participants were removed for the sample due to responding incorrectly to these two items. This left 493 surveys eligible for analyses.

Table 5.2. MTurk Survey 1 Sample Descriptive Statistics

Demographics (n=493)	n (%)	General U.S. Population (US Census estimates July 1, 2018)
Sex		
Male	307 (62.3%)	49.2%
Female	186 (37.7%)	50.8%
Race		
White	372 (75.5%)	76.6%
Black	70 (14.2%)	13.4%
American Indian	5 (1%)	1.3%
Asian	32 (6.5%)	5.8%
Native Hawaiian/Pacific Islander	5 (1%)	.2%
Other	9 (1.8%)	--
Ethnicity		
Hispanic/Latino	75 (15.2%)	18.1%
Education		
High School Graduate	69 (14%)	22.2%
Some college but no degree	87 (17.6%)	14.3%
Associate degree	57 (11.6%)	7.5%
Bachelor's degree	205 (41.6%)	15.9%
Master's degree	72 (14.6%)	6.6%
Doctoral degree	3 (.6%)	1.4%
Income		
0-\$9,999	7 (1.4%)	4.4%
\$10,000-19,999	50 (10.1%)	6.2%
\$20,000-39,999	135 (27.4%)	15.7%
\$40,000-59,999	138 (28%)	14.3%
\$60,000-79,999	77 (15.6%)	12.9%
\$80,000-99,999	44 (8.9%)	10.8%

\$100,000+	42 (8.5%)	35.8%
Employment		(In civilian labor force, 16+) 63%
Full-time	367 (74.4%)	
Part-time	51 (10.3%)	
Unemployed	26 (5.3%)	2.1%
Retired	2 (.4%)	
Permanently disabled	2 (.4%)	
Homemaker	20 (4.1%)	
Student	11 (2.2%)	
Other	14 (2.8%)	
Marital Status		
Single	227 (46%)	45.0%
Married	200 (40.6%)	39.5%
Cohabiting	39 (7.9%)	--
Separated	3 (.6%)	1.2%
Divorced	20 (4.1%)	8.0%
Widowed	4 (.8%)	--
Political		(as of January 22-10, 2019)**
Republican	131 (26.6%)	25%
Democrat	221 (44.8%)	34%
Independent	122 (24.7%)	39%
Not sure	3 (.6%)	--
Other	7 (1.4%)	--
No preference	9 (1.8%)	--

*Percentages may not sum to 100% due to rounding

**(Gallup, 2019)

Prior to examining the items used to measure procedural justice, analyses were undertaken to understand the sample as a whole. As seen in Table 5.2, compared to U.S. Census data (n.d.a), the sample was more male, had attained higher levels of education, and reported lower annual income compared to the general population. However, this sample approximately reflected the racial and ethnic background, the political affiliation, and the marital status of the general population. In addition, the mean age of the sample was 36.47 years old ($SD = 9.55$), with the age of respondents ranging from 19 to 73. This sample is slightly younger than the estimated population age of 37.8 years old (United States Census Bureau, n.d.b). Finally, although this sample may not perfectly reflect the population of the United States, the sample's high heterogeneity lends itself to be able to be useful in the item response theory framework (de Ayala, 2009).

Table 5.3 presents the descriptive statistics for the procedural justice items used in the first MTurk Survey. As can be seen, based on the item scale ranges of 1 “strongly disagree” to 4 “strongly agree,” mean item responses ranged from 2.29 to 3.18 with standard deviations ranging from .699 to 1.052. This finding suggests responses tended to hover around the center of the response options with variability on either side of agreement or disagreement.

Following the brief descriptive analyses of the sample and the items of interest, a preliminary examination of the reliability of these items was undertaken. Using all 124 items and a sample size of 492 (1 respondent listwise deleted due to missing responses), a Cronbach's alpha of .992 was calculated. Additionally, analyses suggested that this value could not be improved upon by removing any of the items in the pool. Although this Cronbach's alpha value suggests these items provide high internal validity, the use of 124 items to measure procedural justice in multiple future studies is limited.

Table 5.3. Procedural Justice Item Descriptive Statistics

	n	Mean	Std. Dev.	Min	Max
“The police in my community...”					
abuse their power	493	2.70	1.014	1	4
accurately understand the law	493	2.99	.731	1	4
act improperly	493	2.77	.949	1	4
allow citizens to express their opinion before making a decision regarding their case	493	2.75	.799	1	4
allow citizens to express their views before making decisions	493	2.77	.759	1	4
always act within the law	493	2.88	.802	1	4
answer your questions well	493	2.97	.741	1	4
appear to know what he or she is doing	493	3.10	.724	1	4
apply the law consistently to everyone	493	2.81	.855	1	4
are accountable for their actions	493	2.92	.891	1	4
are always polite when dealing with people	493	2.81	.834	1	4
are dishonest	493	2.80	.929	1	4
are equally strict with everyone	493	2.72	.846	1	4
are helpful	493	3.01	.727	1	4
are not helpful	493	2.87	.817	1	4
are open to people's suggestions about tackling problems	493	2.76	.800	1	4

are polite	493	2.89	.802	1	4
are prejudiced against minority persons	493	2.64	1.016	1	4
are respected by the community	493	3.01	.785	1	4
are respectful toward people like me	493	3.03	.775	1	4
are responsive to the needs of citizens	493	2.99	.749	1	4
are sensitive to the public	493	2.85	.803	1	4
are too tough on the people they stop	493	2.61	.866	1	4
are usually courteous	493	2.98	.773	1	4
are usually fair	493	2.94	.794	1	4
are usually friendly	493	2.96	.837	1	4
are usually honest	493	3.00	.805	1	4
are usually rude	493	2.78	.998	1	4
are very attentive when a victim reports a crime	493	3.01	.76	1	4
behave properly	493	3.01	.783	1	4
can be relied upon to be there when you need them	493	2.97	.810	1	4
can be trusted	493	2.89	.868	1	4
can be trusted to make decisions that are right for your community	493	2.89	.830	1	4
care about the well-being of everyone they deal with	493	2.87	.822	1	4
clearly explain the reasons for their actions	493	2.85	.848	1	4

consider people's opinions when deciding what to do	493	2.72	.818	1	4
consider people's views when deciding what to do	493	2.72	.808	1	4
consider race when deciding which cars to stop for possible traffic violations	493	2.61	1.052	1	4
deal with things that matter to people	493	2.97	.699	1	4
deal with you fairly	493	2.98	.793	1	4
do their job well	493	3.02	.775	1	4
don't listen to all of the citizens involved before deciding what to do	493	2.61	.964	1	4
enforce the law consistently when dealing with all people	493	2.82	.897	1	4
explain their actions to people	493	2.91	.821	1	4
explain their decisions	493	2.90	.799	1	4
generally act professionally	493	3.09	.772	1	4
get the information they need to make a good decision	493	2.94	.771	1	4
give honest explanations for their actions	493	2.88	.830	1	4
give minorities less help because of their race	493	2.69	1.041	1	4
give people a chance to express their opinions	493	2.85	.793	1	4
give people an opportunity to express their views	493	2.86	.789	1	4
give people opportunities to explain their situations	493	2.89	.807	1	4
go out of their way to be helpful	493	2.84	.863	1	4
handle problems fairly	493	2.89	.785	1	4

keep the public informed	493	2.85	.816	1	4
know how to carry out their official duties properly	493	3.01	.756	1	4
listen to people	493	2.92	.767	1	4
listen to people before making decisions	493	2.84	.766	1	4
listen to the concerns of local people	493	2.93	.750	1	4
make clear what their expectations are for you	493	3.05	.773	1	4
make decisions about what to do in fair ways	493	2.93	.796	1	4
make decisions based on facts	492	3.01	.766	1	4
make decisions based on their own personal biases	493	2.38	.975	1	4
make decisions not based on a personal opinion	493	2.77	.858	1	4
make fair decisions when they handle cases involving youth	493	2.93	.772	1	4
make sure citizens receive the outcomes they deserve under the law	493	2.93	.771	1	4
make up their mind prior to receiving any information about an incident	493	2.53	.957	1	4
provide better services to wealthier citizens	493	2.32	1.023	1	4
provide opportunities for unfair decisions to be corrected	493	2.77	.790	1	4
provide the same quality of service to all citizens	493	2.78	.904	1	4
respect people's rights	493	3.00	.800	1	4
respect young people	493	2.80	.842	1	4
respect your basic rights	493	3.09	.790	1	4

seem concerned about your feelings	493	2.63	.912	1	4
sincerely try to help people with their problems	493	2.95	.796	1	4
stop people without good reason	493	2.63	.990	1	4
take matters seriously	493	3.18	.726	1	4
take people's needs into consideration	493	2.92	.794	1	4
talk down to people	493	2.60	.963	1	4
treat adolescents with respect	493	2.84	.837	1	4
treat all people equally according to the law	493	2.84	.889	1	4
treat all people fairly	493	2.81	.875	1	4
treat everyone equally	493	2.79	.922	1	4
treat everyone with dignity	493	2.88	.816	1	4
treat everyone with respect	493	2.85	.852	1	4
treat people as if they can be trusted to do the right thing	493	2.78	.843	1	4
treat people as if they only do the right thing when forced to	493	2.53	.918	1	4
treat people differently depending on their age	493	2.39	.934	1	4
treat people differently depending on their gender	493	2.59	.968	1	4
treat people differently depending on their neighborhood	493	2.48	1.015	1	4
treat people like human beings	493	3.06	.816	1	4
treat seriously those who approach them	493	3.09	.752	1	4

treat some people better than others	493	2.29	.969	1	4
treat young people differently from the way they treat adults	493	2.33	.896	1	4
try to be fair	493	2.99	.795	1	4
try to bring the problem into the open so it could be solved	493	2.83	.751	1	4
try to find the best solution for people's problems	493	2.93	.768	1	4
try to gather all necessary information	493	3.04	.760	1	4
try to get the facts in a situation before deciding how to act	493	2.97	.744	1	4
understand the issues that affect this community	493	3.00	.749	1	4
use clear language	493	3.14	.705	1	4
use ethnic slurs against people in your neighborhood	493	3.10	.973	1	4
use excessive force against people in your community	493	2.84	.966	1	4
use insulting language when talking to people in your community	493	2.94	.996	1	4
use only the amount of force necessary to accomplish their tasks	493	2.90	.785	1	4
use unfair methods to get information	493	2.70	.992	1	4
usually treat people with respect	493	3.01	.730	1	4
would not issue a ticket to the privileged	493	2.76	.969	1	4
would treat you with respect if you had contact with them for any reason	493	3.00	.726	1	4
Statements					
The police are fair in terms of the procedures they use to handle the problems they deal with	493	2.86	.790	1	4

When stopped for a traffic violation, how the officer acts matters more to me than whether or not I receive a ticket	493	2.84	.866	1	4
I have absolute confidence that the police can do their job well	493	2.82	.895	1	4
The police are helpful when dealing with people around your community	493	3.02	.765	1	4
The police are fair in deciding which areas of a neighborhood to patrol	493	2.85	.839	1	4
It depends on what mood a police officers is in whether they tell you off or not	493	2.34	.975	1	4
I fully trust in police that they make the best decisions	493	2.74	.878	1	4
The police are fair in making decisions about who to stop for traffic violations	493	2.84	.878	1	4
The police are fair in deciding which people in the neighborhood to help with their problems	493	2.86	.843	1	4
I have confidence that the police were doing the right thing	493	2.87	.919	1	4
People often receive fair outcomes from the police	493	2.91	.804	1	4
I am satisfied with the way police treat citizens	493	2.83	.909	1	4
I have a lot of confidence in the police in this area	493	2.87	.919	1	4
People's basic rights are well protected by the police	493	2.92	.869	1	4
The police are helpful when dealing with victims of crime	493	3.02	.765	1	4

Therefore, an exploratory factor analysis was completed in order to understand the structure of these items using Principal Component Analysis as a method of extraction and Promax rotation. This analysis yielded a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of .984, which suggests the sample size is large enough to undergo exploratory factor analysis. Additionally, Bartlett's test of sphericity was statistically significant (approximate Chi-Square = 65605.43, $df = 7626$, $p < .000$), which suggests the correlation matrix is not an identity matrix and thus is suitable for analyses.

As seen in Table 5.4, the factor analysis identified 8 factors that provide a total eigenvalue greater than 1. Furthermore, most of the variance (52.59%) is explained in the first factor. Table 5.5 provides the pattern matrix of items and their corresponding factor loadings with loadings larger than .4 being presented. When reviewing the items that load to this first factor, it becomes clear that these items likely reflect the underlying idea of procedural justice. Of note, all of the reverse coded items loaded to factor 2, which suggests that "procedural injustice" may be a distinct concept from procedural justice. This idea should be explored in future research. Finally, items that loaded to factor 3 seem to reflect the idea of "voice" as presented by Tyler (2000).

Like the assessment of reliability, this exploratory factor analysis provided some insight into the structure of the items and their responses. In the traditional classical test theory, the majority of these items would be retained based on their high reliability and their high factor loadings. However, the remaining list of items would be far too long to administer to a general population repeatedly. Therefore, all items were retained and moved to item response theory analyses. To begin item response theory analyses, a series of varying models were attempted in

Table 5.4. Explained Variance from Exploratory Factor Analysis

Total Variance Explained - Initial Eigenvalues			
Component	Total Variance Explained	% of Variance	Cumulative %
1	65.212	52.590	52.590
2	11.000	8.871	61.461
3	2.327	1.877	63.338
4	1.739	1.402	64.740
5	1.391	1.121	65.862
6	1.211	.976	66.838
7	1.142	.921	67.759
8	1.096	.884	68.643

Table 5.5. Pattern Matrix of Procedural Justice Items*

	1	2	3	4	5	6	7	8
“The police in my community...”								
abuse their power		.824						
accurately understand the law	.552				.427			
act improperly		.785						
allow citizens to express their opinion before making a decision regarding their case	.602		.434					
allow citizens to express their views before making decisions	.543		.485					
always act within the law	.761							
answer your questions well	.680							
appear to know what he or she is doing	.683							
apply the law consistently to everyone	.672							
are accountable for their actions	.808							
are always polite when dealing with people	.775							
are dishonest		.730						
are equally strict with everyone	.583					.433		
are helpful	.656							
are not helpful		.790						
are open to people's suggestions about tackling problems	.584		.472					

are polite	.782
are prejudiced against minority persons	.809
are respected by the community	.806
are respectful toward people like me	.703
are responsive to the needs of citizens	.818
are sensitive to the public	.848
are too tough on the people they stop	.793
are usually courteous	.864
are usually fair	.851
are usually friendly	.824
are usually honest	.859
are usually rude	.804
are very attentive when a victim reports a crime	.653
behave properly	.783
can be relied upon to be there when you need them	.795
can be trusted	.886
can be trusted to make decisions that are right for your community	.771
care about the well-being of everyone they deal with	.810
clearly explain the reasons for their actions	.735

consider people's opinions when deciding what to do	.541	.532
consider people's views when deciding what to do	.638	.460
consider race when deciding which cars to stop for possible traffic violations		.715
deal with things that matter to people	.555	
deal with you fairly	.795	
do their job well	.774	
don't listen to all of the citizens involved before deciding what to do		.744
enforce the law consistently when dealing with all people	.801	
explain their actions to people	.739	
explain their decisions	.776	
generally act professionally	.684	
get the information they need to make a good decision	.754	
give honest explanations for their actions	.856	
give minorities less help because of their race		.832
give people a chance to express their opinions	.686	
give people an opportunity to express their views	.657	
give people opportunities to explain their situations	.760	
go out of their way to be helpful	.702	
handle problems fairly	.815	

keep the public informed	.701
know how to carry out their official duties properly	.542
listen to people	.665
listen to people before making decisions	.595
listen to the concerns of local people	.699
make clear what their expectations are for you	484
make decisions about what to do in fair ways	.730
make decisions based on facts	.656
make decisions based on their own personal biases	.742
make decisions not based on a personal opinion	.598
make fair decisions when they handle cases involving youth	.766
make sure citizens receive the outcomes they deserve under the law	.713
make up their mind prior to receiving any information about an incident	.795
provide better services to wealthier citizens	.727
provide opportunities for unfair decisions to be corrected	.681
provide the same quality of service to all citizens	.811
respect people's rights	.732
respect young people	.804
respect your basic rights	.711

seem concerned about your feelings	.689	
sincerely try to help people with their problems	.760	
stop people without good reason	.719	
take matters seriously	.515	.541
take people's needs into consideration	.788	
talk down to people	.799	
treat adolescents with respect	.817	
treat all people equally according to the law	.845	
treat all people fairly	.817	
treat everyone equally	.823	
treat everyone with dignity	.885	
treat everyone with respect	.872	
treat people as if they can be trusted to do the right thing	.764	
treat people as if they only do the right thing when forced to	.707	
treat people differently depending on their age	.702	.579
treat people differently depending on their gender	.762	.458
treat people differently depending on their neighborhood	.763	
treat people like human beings	.791	
treat seriously those who approach them	.520	.573

treat some people better than others	.720	
treat young people differently from the way they treat adults	.708	.445
try to be fair	.836	
try to bring the problem into the open so it could be solved	.676	
try to find the best solution for people's problems	.685	
try to gather all necessary information	.467	
try to get the facts in a situation before deciding how to act	.601	
understand the issues that affect this community	.565	
use clear language	.475	
use ethnic slurs against people in your neighborhood	.848	
use excessive force against people in your community	.821	
use insulting language when talking to people in your community	.866	
use only the amount of force necessary to accomplish their tasks	.710	
use unfair methods to get information	.801	
usually treat people with respect	.673	
would not issue a ticket to the privileged	.742	
would treat you with respect if you had contact with them for any reason	.535	

Statements

The police are fair in terms of the procedures they use to handle the problems they deal with	.829	
When stopped for a traffic violation, how the officer acts matters more to me than whether or not I receive a ticket		.816
I have absolute confidence that the police can do their job well	.817	
The police are helpful when dealing with people around your community	.806	
The police are fair in deciding which areas of a neighborhood to patrol	.833	
It depends on what mood a police officers is in whether they tell you off or not	.732	
I fully trust in police that they make the best decisions	.766	
The police are fair in making decisions about who to stop for traffic violations	.826	
The police are fair in deciding which people in the neighborhood to help with their problems	.885	
I have confidence that the police were doing the right thing	.856	
People often receive fair outcomes from the police	.796	
I am satisfied with the way police treat citizens	.870	
I have a lot of confidence in the police in this area	.827	
People's basic rights are well protected by the police	.858	
The police are helpful when dealing with victims of crime	.734	

*Only values greater than .4 are presented

Table 5.6. Model Fit for Tested Models

Model	AIC	BIC	Log-Lik
Partial Credit Model	109240.7	110803.3	-54248.36
1D Graded Response Model	100174.0	102257.45	-49590.997
2D Graded Response Model without Factor Covariance	93544.24	95627.69	-46276.119
2D Graded Response Model with Factor Covariance	93367.9	95455.55	-46186.950

the search for the best fitting model for this data. Given that the responses to these items are polytomous, a partial credit model and multiple graded response models were examined. Two of these three graded response models were multidimensional to explore the findings from the exploratory factor analysis, which suggested the potential for multidimensionality. As suggested by the exploratory factor analysis, two major factors were explored in which the second factor was comprised of all of the negatively worded items. Table 5.6 provides the corresponding model fits for these models. Based on the Akaike Information Criterion (AIC) statistics, the best fitting model is the 2-dimensional graded response model that allows for covariance between the two factors (Akaike, 1974).

Furthermore, item statistics provided insight into the performance of each question within these models. As seen in Table 5.7, the discrimination parameters for the items used in three graded response models are presented. Questions with higher discrimination parameters, relative to other items within the same model, “do a better job of discriminating among respondents located at different points on the continuum” of the latent construct than do items with lower discrimination parameters (de Ayala, 2009, p. 19). Therefore, items consistently exhibiting relatively lower discrimination parameters across the three graded response models were removed from the pool. The process of fitting the models and removing items exhibiting low discrimination parameters occurred over three iterations. This iterative process helped to ensure that items with somewhat low item discrimination were not inadvertently removed due to other poor discriminating items within the model. Items removed from this process are provided in Table 5.8.

In the next phase of analyses, items were examined for differential functioning. Differential item functioning occurs when items function “differently across manifest groups of

Table 5.7. Procedural Justice Item Discrimination for Various Models

Item	1D Graded Response Model	2D Graded Response Model without Factor Covariance	2D Graded Response Model with Factor Covariance
“The police in my community...”			
abuse their power	1.424	4.170	3.822
accurately understand the law	1.974	1.723	1.715
act improperly	1.335	3.569	3.265
allow citizens to express their opinion before making a decision regarding their case	2.082	1.880	1.870
allow citizens to express their views before making decisions	1.859	1.676	1.665
always act within the law	2.320	1.989	1.977
answer your questions well	2.679	2.340	2.317
appear to know what he or she is doing	2.536	2.185	2.167
apply the law consistently to everyone	2.346	2.040	2.032
are accountable for their actions	3.130	2.641	2.639
are always polite when dealing with people	2.468	2.140	2.123
are dishonest	1.383	3.143	2.884
are equally strict with everyone	1.942	1.678	1.670
are helpful	2.468	2.087	2.073

are not helpful	1.210	2.830	2.588
are open to people's suggestions about tackling problems	1.779	1.582	1.573
are polite	2.846	2.431	2.420
are prejudiced against minority persons	1.40	3.369	3.649
are respected by the community	2.201	1.897	1.880
are respectful toward people like me	2.572	2.151	2.138
are responsive to the needs of citizens	3.450	2.923	2.911
are sensitive to the public	2.586	2.254	2.250
are too tough on the people they stop	1.275	3.505	3.196
are usually courteous	3.243	2.713	2.687
are usually fair	3.947	3.199	3.178
are usually friendly	3.071	2.511	2.495
are usually honest	3.585	2.874	2.874
are usually rude	1.200	3.241	2.974
are very attentive when a victim reports a crime	2.323	1.961	1.944
behave properly	3.412	2.735	2.736
can be relied upon to be there when you need them	2.620	2.210	2.193
can be trusted	3.564	2.924	2.901
can be trusted to make decisions that are right for your community	3.518	2.925	2.933

care about the well-being of everyone they deal with	3.197	2.794	2.784
clearly explain the reasons for their actions	3.126	2.700	2.673
consider people's opinions when deciding what to do	1.967	1.767	1.754
consider people's views when deciding what to do	2.190	1.954	1.935
consider race when deciding which cars to stop for possible traffic violations	1.176	2.664	2.448
deal with things that matter to people	2.002	1.717	1.718
deal with you fairly	3.640	2.929	2.909
do their job well	3.709	3.149	3.137
don't listen to all of the citizens involved before deciding what to do	1.418	2.654	2.435
enforce the law consistently when dealing with all people	3.832	3.184	3.187
explain their actions to people	2.818	2.400	2.381
explain their decisions	3.090	2.694	2.666
generally act professionally	3.171	2.559	2.550
get the information they need to make a good decision	3.534	3.020	3.009
give honest explanations for their actions	4.419	3.681	3.655
give minorities less help because of their race	1.059	3.369	3.098
give people a chance to express their opinions	2.664	2.311	2.289
give people an opportunity to express their views	2.475	2.241	2.220
give people opportunities to explain their situations	2.925	2.587	2.567

go out of their way to be helpful	2.291	1.987	1.973
handle problems fairly	4.144	3.437	3.439
keep the public informed	2.308	2.003	1.999
know how to carry out their official duties properly	2.239	1.858	1.852
listen to people	3.226	2.792	2.774
listen to people before making decisions	2.746	2.424	2.407
listen to the concerns of local people	2.460	2.130	2.119
make clear what their expectations are for you	1.941	1.649	1.634
make decisions about what to do in fair ways	3.335	2.829	2.806
make decisions based on facts	3.024	2.535	2.518
make decisions based on their own personal biases	1.078	2.346	2.140
make decisions not based on a personal opinion	1.821	1.551	1.545
make fair decisions when they handle cases involving youth	2.897	2.511	2.498
make sure citizens receive the outcomes they deserve under the law	3.013	2.590	2.575
make up their mind prior to receiving any information about an incident	.848	2.134	1.935
provide better services to wealthier citizens	1.060	2.240	2.049
provide opportunities for unfair decisions to be corrected	2.522	2.267	2.257
provide the same quality of service to all citizens	3.538	3.019	3.016
respect people's rights	3.26	2.647	2.634

respect young people	2.716	2.356	2.351
respect your basic rights	3.116	2.540	2.527
seem concerned about your feelings	2.426	2.120	2.114
sincerely try to help people with their problems	3.032	2.564	2.546
stop people without good reason	1.131	2.405	2.198
take matters seriously	1.893	1.591	1.581
take people's needs into consideration	3.191	2.786	2.770
talk down to people	1.296	3.195	2.913
treat adolescents with respect	2.874	2.479	2.474
treat all people equally according to the law	4.012	3.408	3.398
treat all people fairly	3.770	3.039	3.023
treat everyone equally	3.706	3.033	3.017
treat everyone with dignity	4.040	3.371	3.360
treat everyone with respect	4.302	3.665	3.645
treat people as if they can be trusted to do the right thing	3.158	2.717	2.705
treat people as if they only do the right thing when forced to	.600	1.596	1.446
treat people differently depending on their age	.663	1.691	1.528
treat people differently depending on their gender	.862	2.142	1.966
treat people differently depending on their neighborhood	.935	2.270	2.072

treat people like human beings	3.240	2.608	2.600
treat seriously those who approach them	2.013	1.732	1.718
treat some people better than others	1.136	2.252	2.066
treat young people differently from the way they treat adults	.750	1.699	1.545
try to be fair	3.989	3.224	3.210
try to bring the problem into the open so it could be solved	2.429	2.133	2.114
try to find the best solution for people's problems	2.937	2.532	2.511
try to gather all necessary information	2.357	2.016	1.998
try to get the facts in a situation before deciding how to act	2.635	2.289	2.273
understand the issues that affect this community	2.436	2.050	2.038
use clear language	1.744	1.490	1.477
use ethnic slurs against people in your neighborhood	.431	2.033	1.844
use excessive force against people in your community	.757	2.432	2.216
use insulting language when talking to people in your community	.654	2.451	2.213
use only the amount of force necessary to accomplish their tasks	2.268	1.906	1.894
use unfair methods to get information	1.161	3.015	2.742
usually treat people with respect	3.135	2.644	2.623
would not issue a ticket to the privileged	.849	2.094	1.984
would treat you with respect if you had contact with them for any reason	2.517	2.106	2.089

Statements			
The police are fair in terms of the procedures they use to handle the problems they deal with	3.82	3.192	3.184
When stopped for a traffic violation, how the officer acts matters more to me than whether or not I receive a ticket	.153	.154	.152
I have absolute confidence that the police can do their job well	3.943	2.629	2.626
The police are helpful when dealing with people around your community	3.399	2.794	2.782
The police are fair in deciding which areas of a neighborhood to patrol	2.84	2.402	2.389
It depends on what mood a police officers is in whether they tell you off or not	.964	2.052	1.873
I fully trust in police that they make the best decisions	3.267	2.786	2.780
The police are fair in making decisions about who to stop for traffic violations	2.924	2.428	2.421
The police are fair in deciding which people in the neighborhood to help with their problems	3.261	2.76	2.755
I have confidence that the police were doing the right thing	3.943	3.258	3.253
People often receive fair outcomes from the police	3.094	2.560	2.565
I am satisfied with the way police treat citizens	3.944	3.264	3.242
I have a lot of confidence in the police in this area	3.508	2.887	2.883
People's basic rights are well protected by the police	3.761	3.179	3.169
The police are helpful when dealing with victims of crime	2.496	2.133	2.120

Table 5.8. Items Dropped Due to Poor Discrimination

Round 1 Removed
use ethnic slurs against people in your neighborhood
treat people as if they only do the right thing when forced to
make up their mind prior to receiving any information about an incident
treat people differently depending on their age
treat people differently depending on their gender
treat young people differently from the way they treat adults
When stopped for a traffic violation, how the officer acts matters more to me than whether or not I receive a ticket
would not issue a ticket to the privileged
It depends on what mood a police officers is in whether they tell you off or not
Round 2 Removed
treat people differently depending on their neighborhood
provide better services to wealthier citizens
treat some people better than others
accurately understand the law
allow citizens to express their opinion before making a decision regarding their case
allow citizens to express their views before making decisions
always act within the law
are equally strict with everyone
are open to people's suggestions about tackling problems
go out of their way to be helpful
try to gather all necessary information
use only the amount of force necessary to accomplish their tasks
use clear language

make clear what their expectations are for you
consider people's opinions when deciding what to do
keep the public informed
know how to carry out their official duties properly
consider people's views when deciding what to do
deal with things that matter to people
take matters seriously
treat seriously those who approach them
are respected by the community
are very attentive when a victim reports a crime
make decisions not based on personal opinion

Round 3 Removed

apply the law consistently to everyone
are helpful
understand the issues that affect this community

individuals (e.g., Hispanics and non-Hispanics” (de Ayala, 2009, p. 324). As seen in Table 5.9, the following characteristics were used to examine item functioning: sex, education, income, employment, political identity, marital status, if the person was stopped by the police in the last year, if the person called the police for help in the last year, age, and race. Because the two-dimensional graded response model fit best, this differential functioning was examined independently for each factor. For each respondent characteristic examined, items exhibiting differential functioning items were marked with an “X.” As seen in Table 5.9, several items exhibited differential functioning across these models. However, only one item (“...would treat you with respect if you had contact with them for any reason”) did not provide differential functioning among the groups of characteristics tested. To be conservative in the removal of items, those that exhibited differential functioning in three or fewer models were retained for further analyses.

At this point, it should be noted that all reverse coded items exhibited differential item functioning in four or more models and were thus removed. This removal also corresponds with the factor analysis results demonstrating that these items likely make up a related, but distinctly different, construct. As such, the remaining models assume a unidimensional structure, which is reflected in future analyses.

Following the removal of items exhibiting differential item functioning across four or more models, the convergent and discriminant validity of the remaining items were examined. First, a correlation matrix of the remaining procedural justice items and several other constructs were examined. The remaining procedural justice items were generally highly correlated with each other as well as the related construct of satisfaction with the police. Furthermore, the remaining procedural justice items did not correlate highly with unrelated items, such as

Table 5.9. Procedural Justice Item Differential Item Functioning Models

Item	Sex Factor 1	Sex Factor 2	Edu Factor 1	Edu Factor 2	Income F1	Income F2	Employment Factor 1	Employment Factor 2	Political F1	Political F2	Marital F1	Marital F2	Stop Factor1	Stop Factor2	Help F1	Help F2	Age Factor1	Age Factor2	Race F1	Race F2	Number of Times DIF in Models
Act improperly			X	X					X		X		X	X							6
Listen to people before making decisions				X		X				X		X				X			X		6
Are always polite when dealing with people				X				X		X		X				X					5
Are prejudiced against minority persons			X						X				X	X					X		5
Clearly explain the reasons for their actions		X		X						X		X				X					5
Treat everyone with respect				X				X		X		X				X					5
Are polite		X		X				X		X						X					5
Are sensitive to the public		X		X						X		X				X					5
I have absolute confidence that the police can do their job well				X		X				X		X				X					5
Care about the wellbeing of everyone they deal with				X						X		X				X					4
Give minorities less help because of their race			X										X	X					X		4
Treat all people equally according to the law				X						X		X				X					4
Treat all people fairly				X						X		X				X					4
Treat people as if they can be trusted to do the right thing						X				X		X				X					4
Stop people without good reason			X										X	X					X		4
Explain their decisions						X				X		X				X					4
Get the information they need to make a good decision				X						X		X				X					4

Give honest explanations for their actions		X	X	X	X		4
Handle problems fairly	X		X	X	X		4
Use unfair methods to get information	X			X	X	X	4
Are responsive to the needs of citizens	X		X	X	X		4
Don't listen to all of the citizens involved before deciding what to do	X			X	X	X	4
Consider race when deciding which cars to stop for possible traffic violations	X			X	X	X	4
Behave properly		X	X	X	X		4
The police are fair in making decisions about who to stop for traffic violations	X		X	X	X		4
I have confidence that the police were doing the right thing		X	X	X	X		4
Answer your questions well			X	X	X		3
Try to get the facts in a situation before deciding how to act			X	X	X		3
Can be trusted to make decisions that are right for your community			X	X	X		3
Treat adolescents with respect	X			X	X		3
Try to be fair			X	X	X		3
Enforce the law consistently when dealing with all people			X	X	X		3
Give people an opportunity to express their views			X	X	X		3
Give people a chance to express their opinions			X	X	X		3
Give people opportunities to explain their situations				X	X	X	3

Are accountable for their actions		X	X	X	3
I fully trust in police that they make the best decisions		X	X	X	3
I have a lot of confidence in the police in this area	X	X		X	3
Appear to know what he or she is doing		X		X	2
Usually treat people with respect		X		X	2
Make decisions about what to do in fair ways		X		X	2
Make fair decisions when they handle cases involving youth			X	X	2
Respect people's rights		X		X	2
Respect your basic rights		X		X	2
Do their job well		X		X	2
Treat people like human beings		X		X	2
Explain their actions to people		X		X	2
Generally act professionally	X			X	2
Can be trusted		X		X	2
Are usually honest		X		X	2
The police are fair in terms of the procedures they use to handle the problems they deal with			X	X	2
The police are helpful when dealing with victims of crime		X		X	2
People often receive fair outcomes from the police		X		X	2
The police are fair in deciding which people in the neighborhood to help		X		X	2

Try to bring the problem into the open so it could be solved	X	1
Make decisions based on facts	X	1
Would treat you with respect if you had contact with them for any reason		0

likelihood of voting for Donald J. Trump in the 2020 election. Second, an additional exploratory factor analysis was completed, which included items from related measures, such as cooperation with police, police legitimacy, law legitimacy, and satisfaction with the police. Overall, results from the correlation matrix and factor analysis suggest that the retained items are indeed a related, but distinctly different, underlying construct.

Finally, retained procedural justice items were used to examine their behavior as a latent trait in a structural equation model with related constructs that are part of the process-based model of policing. Because the intent of this research is to build a measure of procedural justice, not necessarily test the process-based model in this sample, details of these results will not be presented. However, as expected by the process-based model of policing, the modeled latent trait of procedural justice significantly predicted legitimacy and cooperation with the police. As a result of the preceding analyses, Table 5.10 presents the procedural justice items that were retained for further testing.

DEVELOPMENT OF THE SECOND MTURK SURVEY

Based on the analyses described above, 41 items remained in the pool of potential items used to measure procedural justice. Along with these 41 items, several other measures were included, as with the first MTurk survey, to aid in analyses. Therefore, the same related constructs used in the first MTurk survey were included in the second MTurk survey. These related constructs were police legitimacy and law legitimacy (Trinker, Jackson, & Tyler, 2018), satisfaction with the police (Haberman, Groff, Ratcliffe, & Sorg, 2016), police effectiveness (Boateng, 2016), and cooperation with the police (White, Mulvey, & Dario, 2016).

As with the first MTurk survey, several demographic characteristics were collected to aid in understanding any differential functioning of items between groups of the sample. These

Table 5.10. Retained Items Based on MTurk Survey 1*

Item	Item	Item
answer your questions well	generally act professionally	sincerely try to help people with their problems
appear to know what he or she is doing	give people a chance to express their opinions	take people's needs into consideration
are accountable for their actions	give people an opportunity to express their views	The police are fair in deciding which people in the neighborhood to help with their problems
are respectful toward people like me	give people opportunities to explain their situations	The police are fair in terms of the procedures they use to handle the problems they deal with
are usually courteous	I fully trust in police that they make the best decisions	The police are helpful when dealing with victims of crime
are usually fair	I have a lot of confidence in the police in this area	treat adolescents with respect
are usually friendly	make decisions about what to do in fair ways	treat everyone with dignity
are usually honest	make decisions based on facts	treat people like human beings
can be trusted	make fair decisions when they handle cases involving youth	try to be fair
can be trusted to make decisions that are right for your community	make sure citizens receive the outcomes they deserve under the law	try to bring the problem into the open so it could be solve
deal with you fairly	People often receive fair outcomes from the police	try to get the facts in a situation before deciding how to act
do their job well	People's basic rights are well protected by the police	usually treat people with respect
enforce the law consistently when dealing with all people	respect people's rights	would treat you with respect if you had contact with them for any reason
explain their actions to people	respect your basic rights	

*Arranged alphabetically

demographic characteristics were participant year of birth, education, ethnicity, race, gender, income, zip code, marital status, employment, political identification, and direct and vicarious contacts with the police in the last year.

Following Dillman and colleagues' (2014) method, as with the first MTurk survey, the procedural justice items were asked first, followed by items asking about satisfaction with the police, police effectiveness, cooperation with the police, police and law legitimacy, and direct and vicarious experiences with the police. The survey concluded with the demographic-related items. Procedural justice items were placed in three blocks that were randomized within block to avoid any item ordering effects (Dillman et al., 2014). As with the first MTurk survey, respondents were provided with the response options of (1) "Strongly disagree", (2) "Disagree", (3) "Agree", and (4) "Strongly agree." Additionally, within two of the three blocks, instructed response attention check items were used to identify and remove inattentive respondents thereby improving data quality (Gummer, Robman, & Silber, 2018). These randomly placed questions asked respondents to "Mark strongly agree for this question" and to "Mark strongly disagree for this question." Failure to follow the instructions of either of these questions suggests the responses from respondents may not be valid and should therefore be removed prior to data analysis.

To gather participants, Amazon's MTurk workers were employed. For the sake of this survey, participants were restricted to those 18 years of age or older and those living in the United States. The participants for this second MTurk survey were recruited through the following post that was listed as a reward rate of \$3.75 for survey participation:

We are conducting an academic survey about perceptions of the police. We need to understand your opinion of the police. Select the link below to complete the survey. At the end of the survey, you will receive a code to paste into the box below to receive credit

for taking our survey. Make sure to leave this window open as you complete the survey. When you are finished, you will return to this page to paste the code into the box.

Using a hyperlink, participants were redirected to a Qualtrics.com webpage that hosted the survey. This webpage collected and stored participant responses to the survey questions mentioned above. Once participants completed the survey, they were presented with a unique random number to paste into their MTurk window to denote completion of the task. This random number serves as the unique identification number for survey responses. Care was taken to ensure that no MTurk worker was able to complete the survey more than once. The request for “work” for the MTurk “workers” for the second MTurk survey began on March 9, 2019 and was completed on March 10, 2019.

RESULTS OF THE SECOND MTURK SURVEY

The second MTurk survey was completed by 613 participants. However, based on responses to the instructed response attention check items, 109 participants were removed for the sample due to responding incorrectly to these two items. This left 504 surveys eligible for analyses.

Prior to examining the items used to measure procedural justice, analyses were undertaken to understand the sample as a whole. As seen in Table 5.11, compared to U.S. Census data (n.d.a), the sample was more male, more White, had attained higher levels of education, reported lower annual income, and identified as slightly more Democratic compared to the general population. However, this sample approximately reflected the marital status of the general population. In addition, the mean age of the sample was 38.25 years old ($SD = 11.27$), with the age of respondents ranging from 20 to 72. This sample is slightly older than the estimated population age of 37.8 years old (United States Census Bureau, n.d.b). Finally, like the first Mturk sample, this sample may not perfectly reflect the population of the United States.

Table 5.11. MTurk Survey 1 & 2 Sample Descriptive Statistics

	MTurk 1 (n=493)	MTurk 2 (n=504)	
Demographics	n (%)	n (%)	General U.S. Population (US Census estimates July 1, 2018)
Sex			
Male	307 (62.3%)	294 (58.3%)	49.2%
Female	186 (37.7%)	210 (41.7%)	50.8%
Race			
White	372 (75.5%)	397 (78.8%)	76.6%
Black	70 (14.2%)	34 (6.7%)	13.4%
American Indian	5 (1%)	0 (0%)	1.3%
Asian	32 (6.5%)	33 (6.5%)	5.8%
Native Hawaiian/Pacific Islander	5 (1%)	0 (0%)	.2%
Other	9 (1.8%)	25 (5%)	--
Ethnicity			
Hispanic/Latino	75 (15.2%)	15 (3%)	18.1%
Education			
High School Graduate	69 (14%)	56 (11.1%)	22.2%
Some college but no degree	87 (17.6%)	114 (22.6%)	14.3%
Associate degree	57 (11.6%)	52 (10.3%)	7.5%
Bachelor's degree	205 (41.6%)	209 (41.5%)	15.9%
Master's degree	72 (14.6%)	66 (13.1%)	6.6%
Doctoral degree	3 (.6%)	6 (1.2%)	1.4%
Income			
0-\$9,999	7 (1.4%)	13 (2.6%)	4.4%
\$10,000-19,999	50 (10.1%)	49 (9.7%)	6.2%
\$20,000-39,999	135 (27.4%)	129 (25.6%)	15.7%
\$40,000-59,999	138 (28%)	127 (25.2%)	14.3%

\$60,000-79,999	77 (15.6%)	88 (17.5%)	12.9%
\$80,000-99,999	44 (8.9%)	43 (8.5%)	10.8%
\$100,000+	42 (8.5%)	55 (10.9%)	35.8%
Employment			(In civilian labor force, 16+) 63%
Full-time	367 (74.4%)	363 (72%)	
Part-time	51 (10.3%)	60 (11.9%)	
Unemployed	26 (5.3%)	25 (5%)	2.1%
Retired	2 (.4%)	12 (2.4%)	
Permanently disabled	2 (.4%)	3 (.6%)	
Homemaker	20 (4.1%)	15 (3%)	
Student	11 (2.2%)	9 (1.8%)	
Other	14 (2.8%)	17 (3.4%)	
Marital Status			
Single	227 (46%)	199 (39.5%)	45.0%
Married	200 (40.6%)	209 (41.5%)	39.5%
Cohabiting	39 (7.9%)	29 (5.8%)	--
Separated	3 (.6%)	9 (1.8%)	1.2%
Divorced	20 (4.1%)	47 (9.3%)	8.0%
Widowed	4 (.8%)	4 (.8%)	--
Political			(as of January 22-10, 2019)**
Republican	131 (26.6%)	118 (23.4%)	25%
Democrat	221 (44.8%)	209 (41.5%)	34%
Independent	122 (24.7%)	147 (29.2%)	39%
Not sure	3 (.6%)	7 (1.4%)	--
Other	7 (1.4%)	15 (3%)	--
No preference	9 (1.8%)	8 (1.6%)	--

*Percentages may not sum to 100% due to rounding

**(Gallup, Inc., 2019)

However, the sample's high heterogeneity lends itself to be able to be useful in the item response theory framework (de Ayala, 2009).

Relatedly, compared to the first MTurk sample, this sample is slightly more female, more White, less Hispanic, more educated, report a higher annual income, less full-time employed, more married, and self-identify more as Republicans. As such, this sample's heterogeneity compared to the first sample will provide a more rigorous testing of the remaining procedural justice items so that they may more closely reflect an adequate measure of this construct.

Table 5.12 presents the descriptive statistics for the procedural justice items used in the second MTurk Survey. As can be seen, based on the item scale ranges of 1 "strongly disagree" to 4 "strongly agree," mean item responses ranged from 2.73 to 3.13 with standard deviations ranging from .71 to .88. This finding suggests responses tended to hover around the third response options ("Agree") with variability on either side of agreement or disagreement.

Following the brief descriptive analyses of the sample and the items of interest, a preliminary examination of the reliability of these items was undertaken. Using all 41 items and a sample size of 504, a Cronbach's alpha of .986 was calculated. Additionally, analyses suggested that this value could not be improved upon by removing any of the items in the pool. Although this Cronbach's alpha value suggests that these items provide high internal validity, the use of 41 items to measure procedural justice in multiple future studies is limited.

Therefore, an exploratory factor analysis was completed in order to understand the structure of these items using Principal Component Analysis as a method of extraction and Promax rotation. This analysis yielded a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of .987, which suggests the sample size is large enough to undergo exploratory factor analysis. Additionally, Bartlett's test of sphericity was statistically significant (approximate Chi-

Table 5.12. Procedural Justice Item Descriptive Statistics

	n	Mean	Std. Dev.	Min	Max
“The police in my community...”					
answer your questions well	504	2.91	.80	1	4
appear to know what he or she is doing	504	3.09	.75	1	4
are accountable for their actions	504	2.83	.86	1	4
are respectful toward people like me	504	3.08	.79	1	4
are usually courteous	504	3.04	.80	1	4
are usually fair	504	3.01	.78	1	4
are usually friendly	504	2.98	.81	1	4
are usually honest	504	2.95	.80	1	4
can be trusted	504	2.91	.82	1	4
can be trusted to make decisions that are right for your community	504	2.91	.74	1	4
deal with you fairly	504	3.03	.77	1	4
do their job well	504	3.02	.74	1	4
enforce the law consistently when dealing with all people	504	2.83	.84	1	4
explain their actions to people	504	2.83	.81	1	4
generally act professionally	504	3.13	.74	1	4
give people a chance to express their opinions	504	2.81	.78	1	4
give people an opportunity to express their views	504	2.84	.77	1	4
give people opportunities to explain their situations	504	2.88	.74	1	4
make decisions about what to do in fair ways	504	2.93	.73	1	4
make decisions based on facts	504	2.97	.71	1	4
make fair decisions when they handle cases involving youth	504	2.95	.76	1	4
make sure citizens receive the outcomes they deserve under the law	504	2.95	.72	1	4

respect people's rights	504	2.98	.77	1	4
respect your basic rights	504	3.04	.74	1	4
sincerely try to help people with their problems	504	3.03	.83	1	4
take people's needs into consideration	504	2.90	.78	1	4
treat adolescents with respect	504	2.87	.85	1	4
treat everyone with dignity	504	2.87	.86	1	4
treat people like human beings	504	3.02	.81	1	4
try to be fair	504	3.04	.74	1	4
try to bring the problem into the open so it could be solved	504	2.90	.74	1	4
try to get the facts in a situation before deciding how to act	504	2.90	.72	1	4
usually treat people with respect	504	2.97	.80	1	4
would treat you with respect if you had contact with them for any reason	504	3.04	.79	1	4

Statements

The police are fair in terms of the procedures they use to handle the problems they deal with	504	2.91	.76	1	4
I fully trust in police that they make the best decisions	504	2.73	.88	1	4
The police are fair in deciding which people in the neighborhood to help with their problems	504	2.86	.77	1	4
People often receive fair outcomes from the police	504	2.88	.74	1	4
I have a lot of confidence in the police in this area	504	2.86	.83	1	4
People's basic rights are well protected by the police	504	2.95	.81	1	4
The police are helpful when dealing with victims of crime	504	3.04	.73	1	4

Square = 20316.865, $df = 820$, $p < .000$), which suggests that the correlation matrix is not an identity matrix and thus is suitable for analyses.

As seen in Table 5.13, the factor analysis identified 2 factors that provide a total eigenvalue greater than 1. Furthermore, most of the variance (64.129%) is explained in the first factor. Table 5.14 provides the pattern matrix of items and their corresponding factor loadings with loadings larger than .4 being presented. When reviewing the items that load to this first factor, it becomes clear that these items likely reflect the underlying idea of procedural justice. Additionally, items that loaded to factor 2 seem to reflect the idea of “voice” as presented by Tyler (2000).

As with the assessment of reliability, this exploratory factor analysis provided some insight into the structure of the items and their responses. However, the remaining list of items would be too long to administer to a general population repeatedly. Therefore, all items were retained and moved to item response theory analyses.

To begin item response theory analyses, a series of varying models were attempted in the search for the best fitting model for this data. Given that the responses to these items are polytomous, a partial credit model and multiple graded response models were examined. Two of these three graded response models were multidimensional to explore the findings from the exploratory factor analysis, which suggested the potential for multidimensionality. Items that loaded on to the second factor in the EFA were used as the second factor for these analyses. Table 5.15 provides the corresponding model fits for these models. Based on the Akaike Information Criterion (AIC) statistics, the best fitting model is the 2-dimensional graded response model that allows for covariance between the two factors (Akaike, 1974).

Furthermore, item statistics provided insight into the performance of each question within

Table 5.13. Explained Variance from Exploratory Factor Analysis

Total Variance Explained - Initial Eigenvalues			
Component	Total Variance Explained	% of Variance	Cumulative %
1	26.293	64.129	64.129
2	1.062	2.590	66.718

Table 5.14. Pattern Matrix of Procedural Justice Items*

	1	2
“The police in my community...”		
answer your questions well		.564
appear to know what he or she is doing	.410	.414
are accountable for their actions	.532	
are respectful toward people like me	.782	
are usually courteous	.582	
are usually fair	.810	
are usually friendly	.478	
are usually honest	.689	
can be trusted	.755	
can be trusted to make decisions that are right for your community	.835	
deal with you fairly	.748	
do their job well	.866	
enforce the law consistently when dealing with all people	.658	
explain their actions to people		.751
generally act professionally	.671	
give people a chance to express their opinions		.940
give people an opportunity to express their views		.998
give people opportunities to explain their situations		.767
make decisions about what to do in fair ways	.773	
make decisions based on facts	.759	
make fair decisions when they handle cases involving youth	.645	
make sure citizens receive the outcomes they deserve under the law	.829	
respect people's rights	.713	
respect your basic rights	.791	

sincerely try to help people with their problems	.752
take people's needs into consideration	.513
treat adolescents with respect	.616
treat everyone with dignity	.729
treat people like human beings	.806
try to be fair	.808
try to bring the problem into the open so it could be solved	.480
try to get the facts in a situation before deciding how to act	.522
usually treat people with respect	.669
would treat you with respect if you had contact with them for any reason	.734
<hr/> Statements <hr/>	
The police are fair in terms of the procedures they use to handle the problems they deal with	.741
I fully trust in police that they make the best decisions	.686
The police are fair in deciding which people in the neighborhood to help with their problems	.792
People often receive fair outcomes from the police	.680
I have a lot of confidence in the police in this area	.734
People's basic rights are well protected by the police	.795
The police are helpful when dealing with victims of crime	.725

*Only values greater than .4 are presented

Table 5.15. Model Fit for Tested Models

Model	AIC	BIC	Log-Lik
Partial Credit Model	30490.42	31009.79	-15122.21
1D Graded Response Model	28841.81	29534.31	-14256.9
2D Graded Response Model without Factor Covariance	29413.71	30106.21	-14542.85
2D Graded Response Model with Factor Covariance	28657.69	29354.42	-14163.85

these models. As seen in Table 5.16, the discrimination parameters for the items used in three graded response models are presented. Questions with higher discrimination parameters, relative to other items within the same model, “do a better job of discriminating among respondents located at different points on the continuum” of the latent construct than do items with lower discrimination parameters (de Ayala, 2009, p. 19). Therefore, items consistently exhibiting relatively lower discrimination parameters across the three graded response models should be removed from the pool. However, all items appeared to show relatively high discrimination parameters, which remained relatively consistent over each model. Therefore, no items were removed from the pool based on this analysis.

In the next phase of analyses, items were examined for differential functioning. As seen in Table 5.17, the following characteristics were used to examine item functioning: sex, race, education, income, employment, political identity, marital status, if the person was stopped by the police in the last year, if the person called the police for help in the last year, race, and age. Although the two-dimensional graded response model fit best, this differential functioning was examined as a unidimensional model as this is the theoretic structure for procedural justice. For each respondent characteristic examined, items exhibiting differential functioning items were marked with an “X.” As seen in Table 5.17, several items exhibited differential functioning across these models. To be conservative in the removal of items, those that exhibited differential functioning in four or fewer models were retained for further analyses.

Following the removal of items exhibiting differential item functioning across five or more models, the convergent and discriminant validity of the remaining items were examined. First, a correlation matrix of the remaining procedural justice items and several other constructs were examined. The remaining procedural justice items were generally highly correlated with

Table 5.16. Procedural Justice Item Discrimination for Various Models

	1D Graded Response Model	2D Graded Response Model without Factor Covariance	2D Graded Response Model with Factor Covariance
“The police in my community...”			
answer your questions well	2.634	2.633	2.699
appear to know what he or she is doing	2.760	2.632	2.522
are accountable for their actions	2.771	2.623	2.522
are respectful toward people like me	3.224	3.201	3.049
are usually courteous	2.840	2.761	2.656
are usually fair	2.549	3.505	3.317
are usually friendly	2.550	2.449	2.370
are usually honest	3.580	3.396	3.288
can be trusted	3.453	3.305	3.183
can be trusted to make decisions that are right for your community	3.281	3.191	3.055
deal with you fairly	3.341	3.224	3.091
do their job well	2.539	2.497	2.382
enforce the law consistently when dealing with all people	2.872	2.772	2.679
explain their actions to people	2.256	2.486	2.403

generally act professionally	2.990	2.902	2.788
give people a chance to express their opinions	2.419	3.821	3.108
give people an opportunity to express their views	2.223	3.260	2.744
give people opportunities to explain their situations	2.583	3.263	3.037
make decisions about what to do in fair ways	2.996	2.926	2.811
make decisions based on facts	3.252	3.138	2.994
make fair decisions when they handle cases involving youth	2.649	2.580	2.474
make sure citizens receive the outcomes they deserve under the law	2.865	2.809	2.683
respect people's rights	3.777	3.632	3.547
respect your basic rights	3.662	3.568	3.422
sincerely try to help people with their problems	2.956	2.904	2.807
take people's needs into consideration	3.267	3.047	3.012
treat adolescents with respect	2.984	2.885	2.768
treat everyone with dignity	4.115	4.013	3.832
treat people like human beings	3.325	3.300	3.159
try to be fair	3.571	3.486	3.330
try to bring the problem into the open so it could be solved	2.610	2.521	2.666

try to get the facts in a situation before deciding how to act	3.167	3.142	3.413
usually treat people with respect	4.569	4.346	4.228
would treat you with respect if you had contact with them for any reason	3.005	2.931	2.806

Statements			
The police are fair in terms of the procedures they use to handle the problems they deal with	3.455	3.311	3.182
I fully trust in police that they make the best decisions	3.218	3.049	2.947
The police are fair in deciding which people in the neighborhood to help with their problems	3.215	3.181	3.041
People often receive fair outcomes from the police	3.061	2.954	2.874
I have a lot of confidence in the police in this area	3.595	3.429	3.336
People's basic rights are well protected by the police	3.415	3.330	3.182
The police are helpful when dealing with victims of crime	2.481	2.449	2.347

Table 5.17. Procedural Justice Item Differential Item Functioning Models

Item	Sex	Race	Education	Income	Employment	Political	Marital	Status	Stop	Help	Age Group	count
Make decisions based on facts	X		X	X		X	X				X	6
Make fair decisions when they handle cases involving youth		X	X	X		X	X					5
Respect peoples' rights		X	X	X		X	X					5
Do their job well			X	X		X	X		X			5
Sincerely try to help people with their problems			X	X		X	X		X			5
Treat people like human beings			X	X		X	X		X			5
Treat adolescents with respect		X				X	X		X		X	5
Treat everyone with dignity			X	X		X	X				X	5
Give people an opportunity to express their views			X	X			X		X	X		5
Give people a chance to express their opinions			X	X		X	X		X			5
Are respectful toward people like me	X	X	X			X	X					5
Are accountable for their actions			X	X		X	X				X	5
Make decisions about what to do in fair ways						X	X		X	X		4
Make sure citizens receive the outcome they deserve under the law			X	X		X	X					4
Are usually fair				X		X	X		X			4
Would treat you with respect if you had contact with them for any reason		X	X			X	X					4
Explain their actions to people		X	X			X	X					4
Give people opportunities to explain their situations		X	X			X	X					4
Usually treat people with respect		X	X			X			X			4
Try to bring the problem into the open so it could be solved		X	X			X					X	4
Try to be fair		X	X			X						3

Are usually friendly	X		X		X		3
Enforce the law consistently when dealing with all people			X	X		X	3
Deal with you fairly		X X		X			3
Are usually courteous		X X	X				3
Are usually honest		X X	X				3
Answer your questions well			X	X		X	3
I fully trust in police that they make the best decisions	X		X	X			3
People often receive fair outcomes from the police			X	X		X	3
Respect your basic rights			X	X			2
Can be trusted to make decisions that are right for your community	X		X				2
The police are helpful when dealing with victims of crime			X		X		2
Peoples' basic rights are well protected by the police			X	X			2
I have a lot of confidence in the police in this area			X	X			2
The police are fair in deciding which people in the neighborhood to help with their problems			X	X			2
Take peoples' needs into consideration				X			1
Generally act professionally					X		1
Can be trusted			X				1
Try to get the facts in a situation before deciding how to act			X				1
The police are fair in terms of the procedures they use to handle the problems they deal with			X				1
Appear to know what he or she is doing							0

each other and moderately correlated with related constructs, such as satisfaction with the police. Furthermore, the remaining procedural justice items did not correlate highly with unrelated items, such as marital status.

Second, an additional exploratory factor analysis was completed, which included items from related measures, such as cooperation with police, police legitimacy, law legitimacy, and satisfaction with the police. Overall, results from the correlation matrix and factor analysis suggest that the retained items are indeed a related, but distinctly different, underlying construct.

Finally, retained procedural justice items were used to examine their behavior as a latent trait in a structural equation model with related constructs that are part of the process-based model of policing. Because the intent of this research is to build a measure of procedural justice, not necessarily test the process-based model in this sample, details of these results will not be presented. However, as expected by the process-based model of policing, the modeled latent trait of procedural justice significantly predicted legitimacy and cooperation with the police. As a result of the preceding analyses, Table 5.18 presents the 29 procedural justice items that were retained for further testing.

DEVELOPMENT OF THE THIRD MTURK SURVEY

Based on the analyses from the second MTurk survey, 29 items remained in the pool of potential items to be used to measure procedural justice. In addition, several other items were included in this third MTurk survey, as with the first two surveys, to aid in the analyses. These constructs covered the following: police legitimacy and law legitimacy (Trinker, Jackson, & Tyler, 2018), satisfaction with the police (Haberman, Groff, Ratcliffe, & Sorg, 2016), police effectiveness (Boateng, 2016), and cooperation with the police (White, Mulvey, & Dario, 2016).

Additionally, as with the first two surveys, several demographic characteristics were

Table 5.18. Retained Items Based on MTurk Survey 2*

Item	Item
answer your questions well	make decisions about what to do in fair ways
appear to know what he or she is doing	make sure citizens receive the outcomes they deserve under the law
are usually courteous	People often receive fair outcomes from the police
are usually fair	People's basic rights are well protected by the police
are usually friendly	respect your basic rights
are usually honest	take people's needs into consideration
can be trusted	The police are fair in deciding which people in the neighborhood to help with their problems
can be trusted to make decisions that are right for your community	The police are fair in terms of the procedures they use to handle the problems they deal with
deal with you fairly	The police are helpful when dealing with victims of crime
enforce the law consistently when dealing with all people	try to be fair
explain their actions to people	try to bring the problem into the open so it could be solved
generally act professionally	try to get the facts in a situation before deciding how to act
give people opportunities to explain their situations	usually treat people with respect
I fully trust in police that they make the best decisions	would treat you with respect if you had contact with them for any reason
I have a lot of confidence in the police in this area	

*Arranged alphabetically

inserted to aid in differential item functioning analysis. These characteristics included participant year of birth, education, ethnicity, race, gender, income, zip code, marital status, employment, political identification, and direct and vicarious contacts with the police in the last year.

Using Dillman and colleagues' (2014) method, the procedural justice items were placed first in the survey, followed by items asking about satisfaction with the police, police effectiveness, cooperation with the police, police and law legitimacy, and direct and vicarious experiences with the police. Finally, the survey concluded with the demographic-related items. Procedural justice items were placed in two blocks that were randomized within block to avoid any item ordering effects (Dillman et al., 2014). As with the previous MTurk surveys, respondents were provided with the response options of (1) "Strongly disagree", (2) "Disagree", (3) "Agree", and (4) "Strongly agree." Additionally, within each of the three blocks, items used as instructed response attention check were incorporated to identify and remove inattentive respondents thereby improving data quality (Gummer, Robman, & Silber, 2018). These randomly placed questions asked respondents to "Mark strongly agree for this question" and to "Mark strongly disagree for this question." Failure to follow the instructions of either of these questions suggests the responses from respondents may not be valid and should therefore be removed prior to data analysis.

Amazon's MTurk workers were employed as participants for this survey. Furthermore, for the sake of this survey, participants were restricted to those 18 years of age or older and those living in the United States. The participants for this third MTurk survey were recruited through the following post that was listed as a reward rate of \$3.60 for survey participation:

We are conducting an academic survey about perceptions of the police. We need to understand your opinion of the police. Select the link below to complete the survey. At the end of the survey, you will receive a code to paste into the box below to receive credit

for taking our survey. Make sure to leave this window open as you complete the survey. When you are finished, you will return to this page to paste the code into the box.

Using a hyperlink, participants were redirected to a Qualtrics.com webpage that hosted the survey. This webpage collected and stored participant responses to the survey questions mentioned above. Once participants completed the survey, they were presented with a unique random number to paste into their MTurk window to denote completion of the task. This random number serves as the unique identification number for survey responses. Care was taken to ensure that no MTurk worker was able to complete the survey more than once. The request for “work” for the MTurk “workers” for the third MTurk survey began on April 13, 2019 and it was completed on April 14, 2019.

RESULTS OF THE THIRD MTURK SURVEY

The third MTurk survey was completed by 627 participants. However, based on responses to the instructed response attention check items, 131 participants were removed for the sample due to responding incorrectly to these two items. This left 496 surveys eligible for analyses.

Prior to examining the items used to measure procedural justice, analyses were undertaken to understand the sample as a whole. As seen in Table 5.19, compared to U.S. Census data (n.d.a), the sample was more male, less White, had attained higher levels of education, reported lower annual income, and identified as slightly more Democratic compared to the general population. However, this sample approximately reflected the marital status of the general population. In addition, the mean age of the sample was 36.49 years old ($SD = 11.25$), with the age of respondents ranging from 19 to 73. This sample is slightly younger than the estimated population age of 37.8 years old (United States Census Bureau, n.d.b). Finally, like the previous two Mturk samples, this sample may not perfectly reflect the population of the United

Table 5.19. MTurk Survey 1, 2, & 3 Sample Descriptive Statistics

	MTurk 1 (n=493)	MTurk 2 (n=504)	MTurk 3 (n=496)	
Demographics	n (%)	n (%)	n (%)	General U.S. Population (US Census estimates July 1, 2018)
Sex				
Male	307 (62.3%)	294 (58.3%)	265 (53.4%)	49.2%
Female	186 (37.7%)	210 (41.7%)	231 (46.6%)	50.8%
Race				
White	372 (75.5%)	397 (78.8%)	348 (70.2%)	76.6%
Black	70 (14.2%)	34 (6.7%)	47 (9.5%)	13.4%
American Indian	5 (1%)	0 (0%)	4 (0.8%)	1.3%
Asian	32 (6.5%)	33 (6.5%)	38 (7.7%)	5.8%
Native Hawaiian/ Pacific Islander	5 (1%)	0 (0%)	1 (0.2%)	.2%
Other	9 (1.8%)	25 (5%)	35 (7.1%)	--
Ethnicity				
Hispanic/Latino	75 (15.2%)	15 (3%)	23 (4.6%)	18.1%
Education				
High School Graduate	69 (14%)	56 (11.1%)	44 (8.9%)	22.2%
Some college but no degree	87 (17.6%)	114 (22.6%)	89 (17.9%)	14.3%
Associate degree	57 (11.6%)	52 (10.3%)	63 (12.7%)	7.5%
Bachelor's degree	205 (41.6%)	209 (41.5%)	229 (46.2%)	15.9%
Master's degree	72 (14.6%)	66 (13.1%)	57 (11.5%)	6.6%
Doctoral degree	3 (.6%)	6 (1.2%)	14 (2.8%)	1.4%
Income				
0-\$9,999	7 (1.4%)	13 (2.6%)	21 (4.2%)	4.4%
\$10,000-19,999	50 (10.1%)	49 (9.7%)	42 (8.5%)	6.2%
\$20,000-39,999	135 (27.4%)	129 (25.6%)	120 (24.2%)	15.7%
\$40,000-59,999	138 (28%)	127 (25.2%)	105 (21.2%)	14.3%

\$60,000-79,999	77 (15.6%)	88 (17.5%)	105 (21.2%)	12.9%
\$80,000-99,999	44 (8.9%)	43 (8.5%)	50 (10.1%)	10.8%
\$100,000+	42 (8.5%)	55 (10.9%)	53 (10.7%)	35.8%
Employment	(In civilian labor force, 16+) 63%			
Full-time	367 (74.4%)	363 (72%)	359 (72.4%)	
Part-time	51 (10.3%)	60 (11.9%)	63 (12.7%)	
Unemployed	26 (5.3%)	25 (5%)	18 (3.6%)	2.1%
Retired	2 (.4%)	12 (2.4%)	11 (2.2%)	
Permanently disabled	2 (.4%)	3 (.6%)	2 (.4%)	
Homemaker	20 (4.1%)	15 (3%)	15 (3%)	
Student	11 (2.2%)	9 (1.8%)	18 (3.6%)	
Other	14 (2.8%)	17 (3.4%)	10 (2%)	
Marital Status				
Single	227 (46%)	199 (39.5%)	204 (41.1%)	45.0%
Married	200 (40.6%)	209 (41.5%)	201 (40.5%)	39.5%
Cohabiting	39 (7.9%)	29 (5.8%)	37 (7.5%)	--
Separated	3 (.6%)	9 (1.8%)	8 (1.6%)	1.2%
Divorced	20 (4.1%)	47 (9.3%)	30 (6%)	8.0%
Widowed	4 (.8%)	4 (.8%)	3 (.6%)	--
Domestic Partnership	0 (0%)	0 (0%)	13 (2.6%)	
Political	(as of January 22-10, 2019)**			
Republican	131 (26.6%)	118 (23.4%)	143 (28.8%)	25%
Democrat	221 (44.8%)	209 (41.5%)	223 (45%)	34%
Independent	122 (24.7%)	147 (29.2%)	112 (22.6%)	39%
Not sure	3 (.6%)	7 (1.4%)	4 (.8%)	--
Other	7 (1.4%)	15 (3%)	7 (1.4%)	--
No preference	9 (1.8%)	8 (1.6%)	7 (1.4%)	--

*Percentages may not sum to 100% due to rounding

**(Gallup, 2019)

States. However, the sample's high heterogeneity lends itself to be able to be useful in the item response theory framework (de Ayala, 2009).

Relatedly, compared to the first and second MTurk sample, this sample is slightly more female, less White, more educated, report a higher annual income, and self-identify less as Independent politically. As such, this sample's heterogeneity compared to the first two samples will provide a more rigorous testing of the remaining procedural justice items so that they may more closely reflect an adequate measure of this construct.

Table 5.20 presents the descriptive statistics for the procedural justice items used in the third MTurk Survey. As can be seen, based on the item scale ranges of 1 "strongly disagree" to 4 "strongly agree," mean item responses ranged from 2.72 to 3.15 with standard deviations ranging from .693 to .832. This finding suggests responses tended to hover around the third response options ("Agree") with variability on either side of agreement or disagreement.

Following the brief descriptive analyses of the sample and the items of interest, a preliminary examination of the reliability of these items was undertaken. Using all 29 items and a sample size of 496, a Cronbach's alpha of .973 was calculated. Additionally, analyses suggested that this value could not be improved upon by removing any of the items in the pool. Although this Cronbach's alpha value suggests that these items provide high internal validity, the use of 29 items to measure procedural justice in multiple future studies is limited.

Therefore, an exploratory factor analysis was completed in order to understand the structure of these items using Principal Component Analysis as a method of extraction and Promax rotation. This analysis yielded a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of .981, which suggests the sample size is large enough to undergo exploratory factor analysis. Additionally, Bartlett's test of sphericity was statistically significant (approximate Chi-

Table 5.20. Procedural Justice Item Descriptive Statistics

	n	Mean	Std. Dev.	Min	Max
“The police in my community...”					
answer your questions well	496	3.04	.756	1	4
appear to know what he or she is doing	496	3.12	.693	1	4
are usually courteous	496	3.07	.745	1	4
are usually fair	496	3.01	.738	1	4
are usually friendly	496	3.06	.758	1	4
are usually honest	496	3.00	.755	1	4
can be trusted	496	2.97	.827	1	4
can be trusted to make decisions that are right for your community	496	2.98	.749	1	4
deal with you fairly	496	3.01	.745	1	4
enforce the law consistently when dealing with all people	496	2.88	.832	1	4
explain their actions to people	496	2.90	.826	1	4
generally act professionally	496	3.15	.711	1	4
give people opportunities to explain their situations	496	2.96	.763	1	4
make decisions about what to do in fair ways	496	2.99	.725	1	4
make sure citizens receive the outcomes they deserve under the law	496	2.95	.725	1	4
respect your basic rights	496	3.10	.740	1	4
take people's needs into consideration	496	2.95	.773	1	4
try to be fair	496	3.08	.716	1	4
try to bring the problem into the open so it could be solved	496	2.89	.742	1	4
try to get the facts in a situation before deciding how to act	496	2.98	.713	1	4
usually treat people with respect	496	3.08	.737	1	4
would treat you with respect if you had contact with them for any reason	496	3.04	.736	1	4

Statements					
The police are fair in terms of the procedures they use to handle the problems they deal with	496	2.92	.721	1	4
I fully trust in police that they make the best decisions	496	2.72	.840	1	4
The police are fair in deciding which people in the neighborhood to help with their problems	496	2.87	.790	1	4
People often receive fair outcomes from the police	496	2.88	.711	1	4
I have a lot of confidence in the police in this area	496	2.87	.826	1	4
People's basic rights are well protected by the police	496	2.90	.741	1	4
The police are helpful when dealing with victims of crime	496	2.99	.743	1	4

Square = 10861.063, $df = 406$, $p < .000$), which suggests that the correlation matrix is not an identity matrix and thus is suitable for analyses.

As seen in Table 5.21, the factor analysis identified 2 factors that provide a total eigenvalue greater than 1. Furthermore, most of the variance (57.051%) is explained in the first factor. Table 5.22 provides the pattern matrix of items and their corresponding factor loadings with loadings larger than .4 being presented. When reviewing the items that load to this first factor, it becomes clear that these items likely reflect the underlying idea of procedural justice. However, the items in factor two are less distinct. Therefore, based on the low eigenvalue of factor two and the incoherent second factor, a logical decision was made to evaluate a one-factor solution.

Table 5.23 presents the pattern matrix of a one-factor solution with factor loadings greater than .4 being presented. As can be seen, a one-factor solution provides a more coherent measure of procedural justice based on the eigenvalues and the item factor loadings from the one-factor solution. Therefore, the remaining analysis of the third MTurk data focused on the one-dimensional model of procedural justice.

The assessment of reliability of these items and their exploratory factor analysis provided some insight into the structure of the items and their responses. Still, this list of 29 items may be too long to administer to a general population repeatedly. Based on the factor loadings, there were no definitively poorly performing items. Therefore, all items were retained and moved to item response theory analyses.

To begin item response theory analyses, two models were attempted in the search for the best fitting model for this data. Given that the responses to these items are polytomous, a partial credit model and a graded response model were examined. Table 5.24 provides the

Table 5.21. Explained Variance from Exploratory Factor Analysis

Total Variance Explained - Initial Eigenvalues			
Component	Total Variance Explained	% of Variance	Cumulative %
1	16.545	57.051	57.051
2	1.094	3.773	60.823

Table 5.22. Pattern Matrix of Procedural Justice Items – Two Factor*

	1	2
“The police in my community...”		
answer your questions well	.567	
appear to know what he or she is doing	.574	
are usually courteous	.940	
are usually fair	.513	
are usually friendly	.885	
are usually honest	.634	
can be trusted	.485	
can be trusted to make decisions that are right for your community		.518
deal with you fairly	.574	
enforce the law consistently when dealing with all people		.616
explain their actions to people	.666	
generally act professionally	.663	
give people opportunities to explain their situations	.570	
make decisions about what to do in fair ways	.522	
make sure citizens receive the outcomes they deserve under the law	.470	
respect your basic rights	.643	
take people's needs into consideration	.561	
try to be fair	.574	
try to bring the problem into the open so it could be solved		.407
try to get the facts in a situation before deciding how to act	.596	
usually treat people with respect	.859	
would treat you with respect if you had contact with them for any reason	.746	
Statements		
The police are fair in terms of the procedures they use to handle the problems they deal with		.877

I fully trust in police that they make the best decisions	.854
The police are fair in deciding which people in the neighborhood to help with their problems	.878
People often receive fair outcomes from the police	.759
I have a lot of confidence in the police in this area	.661
People's basic rights are well protected by the police	.775
The police are helpful when dealing with victims of crime	.758

*Only values greater than .4 are presented

Table 5.23. Pattern Matrix of Procedural Justice Items – One-Factor*

	1
“The police in my community...”	
answer your questions well	.694
appear to know what he or she is doing	.703
are usually courteous	.735
are usually fair	.779
are usually friendly	.713
are usually honest	.784
can be trusted	.803
can be trusted to make decisions that are right for your community	.796
deal with you fairly	.753
enforce the law consistently when dealing with all people	.759
explain their actions to people	.725
generally act professionally	.735
give people opportunities to explain their situations	.748
make decisions about what to do in fair ways	.789
make sure citizens receive the outcomes they deserve under the law	.784
respect your basic rights	.753
take people's needs into consideration	.751
try to be fair	.800
try to bring the problem into the open so it could be solved	.733
try to get the facts in a situation before deciding how to act	.778
usually treat people with respect	.775
would treat you with respect if you had contact with them for any reason	.768
Statements	
The police are fair in terms of the procedures they use to handle the problems they deal with	.767

I fully trust in police that they make the best decisions	.757
The police are fair in deciding which people in the neighborhood to help with their problems	.760
People often receive fair outcomes from the police	.750
I have a lot of confidence in the police in this area	.793
People's basic rights are well protected by the police	.721
The police are helpful when dealing with victims of crime	.678

*Only values greater than .4 are presented

Table 5.24. Model Fit for Tested Models

Model	AIC	BIC	Log-Lik
Partial Credit Model	22866.53	23232.51	-11346.27
1D Graded Response Model	22076.77	22564.73	-10922.383

corresponding model fits for these models. Based on the Akaike Information Criterion (AIC) statistics, the best fitting model is the 1-dimensional graded response model (Akaike, 1974).

In addition, item statistics provided insight into the performance of each question within these models. As seen in Table 5.25, the discrimination parameters for the items used in the graded response model are presented. Questions with higher discrimination parameters, relative to other items within the same model, “do a better job of discriminating among respondents located at different points on the continuum” of the latent construct than do items with lower discrimination parameters (de Ayala, 2009, p. 19). Therefore, items exhibiting relatively lower discrimination parameters should be removed from the pool. However, all items appeared to show relatively high discrimination parameters, which remained relatively consistent over each model. Therefore, no items were removed from the pool based on this analysis.

In the next phase of analyses, items were examined for differential functioning. As seen in Table 5.26 the following characteristics were used to examine item functioning: sex, race, education, income, employment, political identity, marital status, if the person was stopped by the police in the last year, if the person called the police for help in the last year, race, and age. For each respondent characteristic examined, items exhibiting differential functioning items were marked with an “X.” As seen in Table 5.26, several items exhibited differential functioning across these models.

Additionally, the convergent and discriminant validity of the remaining items were examined. First, a correlation matrix of the remaining procedural justice items and several other constructs were examined. The remaining procedural justice items were generally highly correlated with each other and moderately correlated with related constructs, such as satisfaction

Table 5.25. Discrimination Parameters of Procedural Justice Items*

	1D Graded Response Model
“The police in my community...”	
answer your questions well	1.916
appear to know what he or she is doing	2.161
are usually courteous	2.361
are usually fair	2.751
are usually friendly	2.146
are usually honest	2.760
can be trusted	2.986
can be trusted to make decisions that are right for your community	2.953
deal with you fairly	2.510
enforce the law consistently when dealing with all people	2.570
explain their actions to people	2.173
generally act professionally	2.359
give people opportunities to explain their situations	2.378
make decisions about what to do in fair ways	2.881
make sure citizens receive the outcomes they deserve under the law	2.852
respect your basic rights	2.507
take people's needs into consideration	2.388
try to be fair	3.079
try to bring the problem into the open so it could be solved	2.333
try to get the facts in a situation before deciding how to act	2.806
usually treat people with respect	2.699

would treat you with respect if you had contact with them for any reason	2.636
--	-------

Statements	
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The police are fair in terms of the procedures they use to handle the problems they deal with	2.529
---	-------

I fully trust in police that they make the best decisions	2.400
---	-------

The police are fair in deciding which people in the neighborhood to help with their problems	2.381
--	-------

People often receive fair outcomes from the police	2.328
--	-------

I have a lot of confidence in the police in this area	2.700
---	-------

People's basic rights are well protected by the police	2.168
--	-------

The police are helpful when dealing with victims of crime	1.834
---	-------

Table 5.26. Procedural Justice Item Differential Item Functioning Models

	Sex	Race	Educatio	Income	Employ	Political	Marital	Stopped	Request	Age	Count
usually treat people with respect				X		X	X	X	X	X	6
enforce the law consistently when dealing with all people			X			X	X		X	X	5
appear to know what he or she is doing						X		X	X	X	4
The police are helpful when dealing with victims of crime		X				X	X		X		4
try to be fair						X	X		X	X	4
try to get the facts in a situation before deciding how to act						X	X	X	X		4
can be trusted						X	X		X		3
explain their actions to people			X			X			X		3
make decisions about what to do in fair ways						X		X		X	3
People's basic rights are well protected by the police						X		X	X		3
take people's needs into consideration						X			X	X	3
The police are fair in terms of the procedures they use to handle the problems they deal with				X		X				X	3
can be trusted to make decisions that are right for your community			X							X	2
generally act professionally						X				X	2
give people opportunities to explain their situations								X	X		2
I fully trust in police that they make the best decisions				X					X		2
I have a lot of confidence in the police in this area						X			X		2
would treat you with respect if you had contact with them for any reason						X		X			2
answer your questions well									X		1
are usually courteous						X					1

are usually friendly		X	1
are usually honest	X		1
deal with you fairly		X	1
make sure citizens receive the outcomes they deserve under the law		X	1
People often receive fair outcomes from the police		X	1
respect your basic rights		X	1
The police are fair in deciding which people in the neighborhood to help with their problems	X		1
are usually fair			0
try to bring the problem into the open so it could be solved			0

with the police. Furthermore, the remaining procedural justice items did not correlate highly with unrelated items, such as marital status.

Second, an additional exploratory factor analysis was completed, which included items from related measures, such as cooperation with police, police legitimacy, law legitimacy, and satisfaction with the police. Overall, results from the correlation matrix and factor analysis suggest that the retained items are indeed a related, but distinctly different, underlying construct.

Finally, retained procedural justice items were used to examine their behavior as a latent trait in a structural equation model with related constructs that are part of the process-based model of policing. Because the intent of this research is to build a measure of procedural justice, not necessarily test the process-based model in this sample, details of these results will not be presented. However, as expected by the process-based model of policing, the modeled latent trait of procedural justice significantly predicted legitimacy and cooperation with the police. As a result of the preceding analyses, all 29 procedural justice items that were retained for further testing.

FINALIZING THE MEASUREMENT OF PROCEDURAL JUSTICE

Following the analysis of the third MTurk survey, an effort was made to develop and test three different potential scales for the measurement of procedural justice. The subsequent discussion describes the development of a 25-item scale, a 16-item scale, and a 10-items scale. Finally, each of these scales is examined using the responses from each of the three rounds of surveys.

The 25-Item Scale

Starting from the third MTurk survey's 29 items, based on item discrimination and differential item functioning, four items were removed resulting in a 25-item scale. These four items were:

- are usually friendly
- answer your questions well
- appear to know what he or she is doing
- The police are helpful when dealing with victims of crime.

For each of the three rounds of the MTurk surveys, the performance of these 25 items was assessed using Classical Test Theory (CTT) (e.g., reliability, factor analysis) and Item Response Theory (IRT) (e.g., a one-dimensional graded response model). As seen in Table 5.27, the reliability (Cronbach's alpha) of this 25-item scale was .980, .978, and .970, respectively, for each of the three rounds or surveys. The consistency in these reliability figures can be argued to show that this 25-item scale is highly reliable internally and across multiple samples.

Using factor analysis, this 25-item scale was examined for all three samples. As seen in Table 5.28, factor loadings range from .720 to .980 across these samples. In addition, the explained variance of this scale ranged from 58.626% to 67.940% across these samples. Taken together, these factor loadings and the percentage of explained variance can be argued to demonstrate that this scale is unidimensional and cohesive.

However, examining the reliability and factor analyses of this scale provide limited information about the items that comprise this scale. Therefore, this scale was examined using a one-dimensional graded response model under the IRT framework. As seen in Table 5.29, the discrimination parameters for this 25-item scale ranged from 2.157 to 4.456 across these three

Table 5.27. Scale Reliabilities by Scale Length and Survey Round

Scale Length	Round 1	Round 2	Round 3
25-item	.980	.978	.970
16-item	.968	.967	.957
10-item	.953	.952	.938

Table 5.28. Scale Factor Loadings by Round - 25-item Scale*

Items	Round 1	Round 2	Round 3
are usually courteous	.826	.788	.728
are usually fair	.862	.838	.783
are usually honest	.841	.842	.789
can be trusted to make decisions that are right for your community	.838	.820	.801
can be trusted	.847	.837	.806
deal with you fairly	.849	.829	.753
enforce the law consistently when dealing with all people	.848	.787	.763
explain their actions to people	.802	.720	.724
generally act professionally	.812	.794	.732
give people opportunities to explain their situations	.807	.762	.752
I fully trust in police that they make the best decisions	.828	.815	.758
I have a lot of confidence in the police in this area	.833	.835	.791
make decisions about what to do in fair ways	.831	.798	.794
make sure citizens receive the outcomes they deserve under the law	.812	.793	.786
People often receive fair outcomes from the police	.818	.812	.753
People's basic rights are well protected by the police	.864	.835	.722
respect your basic rights	.810	.830	.753
take people's needs into consideration"	.826	.815	.750
The police are fair in deciding which people in the neighborhood to help with their problems	.860	.837	.766
The police are fair in terms of the procedures they use to handle the problems they deal with	.824	.817	.769
try to be fair	.861	.833	.802
try to bring the problem into the open so it could be solved	.761	.775	.736

try to get the facts in a situation before deciding how to act	.766	.808	.782
usually treat people with respect	.818	.869	.769
would treat you with respect if you had contact with them for any reason	.749	.797	.767
<hr/>			
Factor 1 Eigenvalue	16.985	16.483	14.656
% of Explained Variance	67.940	65.933	58.626

*Only loadings greater than .4 are presented

Table 5.29. One-Dimensional Graded Response Model Discrimination by Round - 25-item Scale

Items	Round 1	Round 2	Round 3
are usually courteous	3.413	2.751	2.296
are usually fair	4.126	3.570	2.759
are usually honest	3.697	3.581	2.782
can be trusted to make decisions that are right for your community	3.486	3.271	2.975
can be trusted	3.719	3.524	2.973
deal with you fairly	3.800	3.379	2.501
enforce the law consistently when dealing with all people	3.771	2.821	2.588
explain their actions to people	2.813	2.180	2.157
generally act professionally	3.235	2.969	2.313
give people opportunities to explain their situations	2.953	2.526	2.367
I fully trust in police that they make the best decisions	3.366	3.300	2.383
I have a lot of confidence in the police in this area	3.598	3.502	2.642
make decisions about what to do in fair ways	3.390	2.875	2.910
make sure citizens receive the outcomes they deserve under the law	3.216	2.877	2.827
People often receive fair outcomes from the police	3.281	3.091	2.339
People's basic rights are well protected by the police	4.059	3.561	2.158
respect your basic rights	3.184	3.505	2.484
take people's needs into consideration"	3.348	3.115	2.359
The police are fair in deciding which people in the neighborhood to help with their problems	4.113	3.254	2.411
The police are fair in terms of the procedures they use to handle the problems they deal with	3.402	3.635	2.528

try to be fair	4.147	3.606	3.078
try to bring the problem into the open so it could be solved	2.578	2.607	2.330
try to get the facts in a situation before deciding how to act	2.621	3.137	2.814
usually treat people with respect	3.286	4.456	2.617
would treat you with respect if you had contact with them for any reason	2.500	2.904	2.600
<hr/>			
Model Fit			
<hr/>			
RMSEA (CI)	.039 (.032-.045)	.049 (.043-.055)	.056 (.050-.062)
CFI/TLI	.994/.993	.989/.987	.978/.975
SRMSR	.024	.027	.038
<hr/>			

samples. Furthermore, the model fit statistics in Table 5.29 provide evidence of adequate fit for these models. Arguably, this finding demonstrates that these items are adequately capable of discriminating among individuals of differing levels of perceived procedural justice.

Additionally, the range of difficulty of the thresholds for these items fell between -2.696 and 1.204, as seen in Table 5.30. This range demonstrates that these items capture a broad array of perceptions of procedural justice, as opposed to a more limited range. Finally, as seen in Table 5.31, the 25-item scale's information is broad and high enough (above 10) to adequately locate individuals on the underlying continuum of perceptions of procedural justice in all three samples.

Finally, an analysis using SEM was undertaken to examine how this scale performed with its theoretically related constructs. It is not the intent of this project to make inferences from this scale; therefore, no coefficients will be presented. Nonetheless, the 25-item scale performed as theoretically expected in an SEM model with police legitimacy, law legitimacy, satisfaction with police, cooperation with police, and several control variables.

The 16-Item Scale

Stemming from the 25-item scale, a 16-item scale was developed to capture Tyler's four components of procedural justice (trustworthiness, voice, neutrality, and dignity/respect). Each of the items in the 16-items scale was sorted by these four components with the top four items from each component being included in this scale. The complete list of these items can be seen in Table 5.32.

As with the 25-item scale, the 16-item scale was analyzed using CTT and IRT methods. As seen in Table 5.27, the reliability (Cronbach's alpha) of this 16-item scale was .968, .967, and .957, respectively, for each of the three rounds or surveys. The consistency in these reliability figures can be argued to show this 16-item scale highly reliable internal and across multiple

Table 5.30. Item Threshold Difficulty Ranges By Round

Scale	Round 1	Round 2	Round 3
25-Item	-2.276 - 1.155	-2.435 - 1.085	-2.696 - 1.204
16-Item	-2.269 - 1.156	-2.157 - 1.097	-2.545 - .965
10-Item	-2.253 - .858	-2.291 - .973	-2.513 - .930

Table 5.31. Scale Test Information Curves by Round

samples.

Using factor analysis, this 16-item scale was examined for all three samples. As seen in Table 5.32, factor loadings range from .740 to .865 across these samples. In addition, the explained variance of this scale ranged from 60.684% to 67.462% across these samples. Taken together, these factor loadings and the percentage of explained variance can be argued to demonstrate that this scale is unidimensional and cohesive.

However, examining the reliability and factor analyses of this scale provide limited information about the items that comprise this scale. Therefore, this scale was examined using a one-dimensional graded response model under the IRT framework. As seen in Table 5.33, the discrimination parameters for this 16-item scale ranged from 2.168 to 4.314 across these three samples. Furthermore, the model fit statistics in Table 5.33 provide evidence of adequate fit for these models. Arguably, this finding demonstrates that these items are adequately capable of discriminating among individuals of differing levels of perceived procedural justice. Additionally, the range of difficulty of the thresholds for these items fell between -2.545 and 1.156, as seen in Table 5.30. This range demonstrates that these items capture a broad array of perceptions of procedural justice, as opposed to a more limited range. Finally, as seen in Table 5.31, the 16-item scale's information is broad and high enough (above 10) to adequately locate individuals on the underlying continuum of perceptions of procedural justice in all three samples.

Finally, an analyses using SEM was undertaken to examine how this scale performed with its theoretically related constructs. As mentioned, it is not the intent of this project to make inferences from this scale; therefore, no coefficients will be presented. Nonetheless, the 16-item scale performed as theoretically expected in an SEM model with police legitimacy, law legitimacy, satisfaction with police, cooperation with police, and several control variables.

Table 5.32. Scale Factor Loadings by Round - 16-item Scale*

Items	Round 1	Round 2	Round 3
are usually courteous	.831	.792	.749
are usually honest	.838	.843	.808
make decisions about what to do in fair ways	.837	.809	.800
make sure citizens receive the outcomes they deserve under the law	.813	.800	.793
respect your basic rights	.832	.832	.760
usually treat people with respect	.824	.870	.784
take people's needs into consideration	.827	.827	.760
try to get the facts in a situation before deciding how to act	.779	.815	.786
try to bring the problem into the open so it could be solved	.773	.781	.740
would treat you with respect if you had contact with them for any reason	.756	.807	.775
give people opportunities to explain their situations	.821	.768	.764
can be trusted	.852	.839	.813
can be trusted to make decisions that are right for your community	.836	.826	.801
try to be fair	.865	.839	.806
People often receive fair outcomes from the police	.818	.812	.741
I have a lot of confidence in the police in this area	.832	.832	.780
Factor 1 Eigenvalue	10.794	10.718	9.709
% of Explained Variance	67.462	66.990	60.684

*Only loadings greater than .4 are presented

Table 5.33. One-Dimensional Graded Response Model Discrimination by Round - 16-item Scale

Items	Round 1	Round 2	Round 3
are usually courteous	3.512	3.725	2.406
are usually honest	3.517	3.530	2.952
make decisions about what to do in fair ways	3.421	2.965	2.850
make sure citizens receive the outcomes they deserve under the law	3.131	2.867	2.827
respect your basic rights	3.221	3.414	2.467
usually treat people with respect	3.262	4.392	2.702
take people's needs into consideration	3.306	3.201	2.405
try to get the facts in a situation before deciding how to act	2.610	3.131	2.770
try to bring the problem into the open so it could be solved	2.636	2.595	2.297
would treat you with respect if you had contact with them for any reason	2.489	2.964	2.593
give people opportunities to explain their situations	3.056	2.513	2.413
can be trusted	3.655	3.424	3.015
can be trusted to make decisions that are right for your community	3.434	3.241	2.903
try to be fair	4.314	3.630	3.002
People often receive fair outcomes from the police	3.104	2.955	2.168
I have a lot of confidence in the police in this area	3.379	3.343	2.474
Model Fit			
RMSEA (CI)	.048 (.037-.058)	.057 (.047-.067)	.051 (.040-.061)
CFI/TLI	.988/.986	.982/.978	.977/.972
SRMSR	.025	.028	.033

The 10-Item Scale

Finally, derived from the 25-item scale, a 10-item scale capturing Tyler's two-factor model (quality of treatment and quality of decision-making) was developed. As with the 16-item scale, each of the 25 items were arranged by their alignment with the two factor model. Finally, the top 5 items from each factor were used to build the 10-item scale. As with the previous scales, this 10-item scale was analyzed using CTT and IRT methods. Seen in Table 5.27, the reliability (Cronbach's alpha) of this 10-item scale was .953, .952, and .938, respectively, for each of the three rounds or surveys. The consistency in these reliability figures can be argued to show this 10-item scale highly reliable internal and across multiple samples.

Using factor analysis, this 10-item scale was examined for all three samples. As seen in Table 5.34, factor loadings range from .770 to .875 across these samples. In addition, the explained variance of this scale ranged from 64.135% to 70.152% across these samples. Taken together, these factor loadings and the percentage of explained variance can be argued to demonstrate this scale is unidimensional and cohesive.

However, examining the reliability and factor analyses of this scale provide limited information about the items that comprise this scale. Therefore, this scale was examined using a one-dimensional graded response model under the IRT framework. As seen in Table 5.35, the discrimination parameters for this 10-item scale ranged from 2.512 to 4.295 across these three samples. Furthermore, the model fit statistics in Table 5.35 provide evidence of adequate fit for these models. Arguably, this finding demonstrates that these items are adequately capable of discriminating among individuals of differing levels of perceived procedural justice. Additionally, the range of difficulty of the thresholds for these items fell between -2.513 and .973, as seen in Table 5.30. This range demonstrates that these items capture a broad array of

Table 5.34. Scale Factor Loadings by Round - 10-item Scale*

Items	Round 1	Round 2	Round 3
are usually courteous	.833	.800	.772
are usually honest	.845	.848	.817
make decisions about what to do in fair ways	.841	.823	.801
make sure citizens receive the outcomes they deserve under the law	.830	.818	.810
respect your basic rights	.846	.846	.775
usually treat people with respect	.836	.875	.804
would treat you with respect if you had contact with them for any reason	.770	.822	.788
can be trusted	.860	.840	.827
can be trusted to make decisions that are right for your community	.844	.838	.804
try to be fair	.868	.852	.809
Factor 1 Eigenvalue	7.015	6.997	6.413
% of Explained Variance	70.152	69.971	64.135

*Only loadings greater than .4 are presented

Table 5.35. One-Dimensional Graded Response Model Discrimination by Round - 10-item Scale

Items	Round 1	Round 2	Round 3
are usually courteous	3.359	2.710	2.455
are usually honest	3.419	3.413	2.955
make decisions about what to do in fair ways	3.249	3.050	2.727
make sure citizens receive the outcomes they deserve under the law	3.176	2.943	2.913
respect your basic rights	3.535	3.574	2.512
usually treat people with respect	3.323	4.359	2.827
would treat you with respect if you had contact with them for any reason	2.536	3.054	2.586
can be trusted	3.573	3.169	3.108
can be trusted to make decisions that are right for your community	3.366	3.285	2.778
try to be fair	4.259	3.711	2.912
Model Fit			
RMSEA (CI)	.025 (0-.052)	.017 (0-.047)	.066 (.045-.087)
CFI/TLI	.997/.994	.998/.997	.963/.938
SRMSR	.023	.031	.035

perceptions of procedural justice, as opposed to a more limited range. Finally, as seen in Table 5.31, the 10-item scale's information is broad and high enough (above 10) to adequately locate individuals on the underlying continuum of perceptions of procedural justice in all three samples.

Finally, an analyses using SEM was undertaken to examine how this scale performed with its theoretically related constructs. As mentioned, it is not the intent of this project to make inferences from this scale; therefore, no coefficients will be presented. Nonetheless, the 10-item scale performed as theoretically expected in an SEM model with police legitimacy, law legitimacy, satisfaction with police, cooperation with police, and several control variables.

CONCLUSION

Throughout this chapter, a process of narrowing the list of potential items to be used to measure procedural justice has been discussed. This strategy has resulted in the development of three potential scales, with each demonstrating its ability to stand as a potential scale to measure procedural justice in the context of policing. The decision to use of any one of these three scales has its strengths and weaknesses in terms of accuracy and expediency. Chapter 6 will discuss these scales in more detail and explore the substantive and disciplinary implications of these results.

Chapter 6

THE FUTURE OF CRIMINOMETRICS

Although this project has focused specifically on the measurement of procedural justice in policing, it would be an understatement to say that criminology as a field has struggled with measurement. Research in criminology has been plagued by the use of convenience measures consisting of differing items and differing numbers of items. Furthermore, as a field, the over-reliance on secondary data has led to the development of convenience measures of core criminological constructs that produce limited information (Cullen, Pratt, & Graham, 2019; DeVellis, 2012). This deficit is evidenced in the lack of explained variation (between 10% and 20%) in most studies across the field of criminology, which has remained quite stagnant over the last 40 years (Weisburd & Piquero, 2005). Albeit, the use of ad hoc, convenience measures is viewed as acceptable; however, these measures still need to be empirically evaluated and validated beyond face validity (Furr, 2011).

DeVellis (2012) warns of the dangers of using such flawed measurements, noting that the costs of this practice may outweigh the benefits gained. He indicates that “poor measurement imposes an absolute limit on the validity of the conclusions one can reach” (p. 15). This limit can be viewed in the use of incomplete or insufficient measures in longitudinal research in criminology, which at times are used to justify poor measures in cross-sectional research (Cullen et al., 2019). Therefore, it is important for researchers to address the issue of valid measurement of constructs prior to addressing substantive issues and distributing questionnaires (DeVellis, 2012). Although many researchers using these limited constructs temper their study’s findings with a sentence or two about the limits of their measure, this obligatory admission does not exempt the field from producing valid measures of constructs.

To aid in the improvement of our understanding of criminology, it has become clear that researchers must take the next steps toward systematically developing clear and consistent measures of core criminological constructs. In this context, this dissertation has served as a case study in “criminometrics,” the measurement of criminological concepts. The goal has been to identify the steps that, on a standard basis, researchers should take to produce sound and solid measures of core criminological constructs. As such, this dissertation has focused on the construct of procedural justice in the context of policing.

The previous chapters have detailed the building and analysis of three potential scales to be used to measure procedural justice in the context of policing. Although these scales are not the final word for the development of this measure, this chapter will look toward the future of criminometrics in two parts. First, this discussion will focus on the implications of these three scales for the measurement of procedural justice. Second, using a broader lens, the implications for criminology will be considered. Finally, this chapter will conclude with a few closing thoughts.

IMPLICATIONS OF THIS MEASURE FOR PROCEDURAL JUSTICE

This dissertation set out to use psychometric methods to build a measure of procedural justice in the context of policing, in part, due to its increasing importance in the field of policing. Throughout the preceding chapters, this process has been detailed and resulted in the development of three potential scales to be used to measure procedural justice. In short, this process, following the methods set forth by psychology, used the following steps: (1) defined “procedural justice” in the context of policing, (2) developed a pool of items to measure it based on previous literature, (3) pilot tested these items in a sample, (4) analyzed the responses and simplified the list of items, (5) completed another pilot test of the simplified list of items, (6)

analyzed the responses and simplified the list of items, and (7) completed a third test of these items to validate the final items (AERA, APA, & NCME, 2014). What has yet to be completed is the copyrighting of these scales and the development of documentation surrounding the use of these scales (AERA, APA, & NCME, 2014). However, this will be undertaken following further testing of these three scales.

Relatedly, the decision to build three scales is important. Although all three show high reliability and validity in statistical testing, each scale attempts to measure procedural justice in the context of policing slightly differently. However, it should be noted that all three do intend to measure the same underlying construct. The 25-item scale, seen in Table 6.1, provides the most accurate measure of procedural justice but may be a bit lengthy for researchers intending to include several related constructs in a community survey, for example. Alternatively, the 16-item, seen in Table 6.2 scale seems more manageable in length, but due to fewer items, may hold more measurement error. Furthermore, this 16-item scale intends to capture Tyler's (2000) theoretic four key components of procedural justice, which provides stronger validity to the 16-item scale. Finally, the 10-item scale, seen in Table 6.3, provides researchers with a much shorter scale, but this scale too may hold more measurement error than the 25-item scale. This 10-item scale also holds stronger validity in the sense that it is intended to capture Tyler and Blader's (2003) two-factor model of procedural justice.

Future Research with These Scales

The development of these scales has huge implications for research in procedural justice and the process-based model in policing. Future testing must be done to validate these scales using a national-level sample, such as one produced by YouGov. Results of this testing will provide further evidence regarding the ability of these scales to examine perceptions of

Table 6.1. The 25-Item Scale

Items
“The police in my community...”
are usually courteous
are usually fair
are usually honest
can be trusted to make decisions that are right for your community
can be trusted
deal with you fairly
enforce the law consistently when dealing with all people
explain their actions to people
generally act professionally
give people opportunities to explain their situations
make decisions about what to do in fair ways
make sure citizens receive the outcomes they deserve under the law
respect your basic rights
take people's needs into consideration"
try to be fair
try to bring the problem into the open so it could be solved
try to get the facts in a situation before deciding how to act
usually treat people with respect
would treat you with respect if you had contact with them for any reason
Statements
I fully trust in police that they make the best decisions
I have a lot of confidence in the police in this area
People often receive fair outcomes from the police
People's basic rights are well protected by the police
The police are fair in deciding which people in the neighborhood to help with their problems
*All items use the 4 point Likert response options of <i>Strongly Disagree</i> , <i>Disagree</i> , <i>Agree</i> , and <i>Strongly Agree</i>
**All items are presented in random order to participants within “The police in my community...” and within “Statements” groups

Table 6.2. The 16-Item Scale

Items	Component:
<hr/> “The police in my community...” <hr/>	
are usually courteous	Dignity/Respect
are usually honest	Trustworthiness
make decisions about what to do in fair ways	Neutrality
make sure citizens receive the outcomes they deserve under the law	Neutrality
respect your basic rights	Dignity/Respect
usually treat people with respect	Dignity/Respect
take people's needs into consideration	Voice
try to get the facts in a situation before deciding how to act	Voice
try to bring the problem into the open so it could be solved	Voice
would treat you with respect if you had contact with them for any reason	Dignity/Respect
give people opportunities to explain their situations	Voice
can be trusted	Trustworthiness
can be trusted to make decisions that are right for your community	Trustworthiness
try to be fair	Neutrality
<hr/> Statements <hr/>	
I have a lot of confidence in the police in this area	Trustworthiness
People often receive fair outcomes from the police	Neutrality
<hr/> *All items use the 4 point Likert response options of <i>Strongly Disagree</i> , <i>Disagree</i> , <i>Agree</i> , and <i>Strongly Agree</i> <hr/>	
<hr/> **All items are presented in random order to participants within “The police in my community...” and within “Statements” groups <hr/>	

Table 6.3. The 10-Item Scale

Items	Factor:
<hr/> “The police in my community...” <hr/>	
are usually courteous	Quality of Treatment
are usually honest	Quality of Treatment
can be trusted	Quality of Decision Making
can be trusted to make decisions that are right for your community	Quality of Decision Making
make decisions about what to do in fair ways	Quality of Decision Making
make sure citizens receive the outcomes they deserve under the law	Quality of Decision Making
respect your basic rights	Quality of Treatment
try to be fair	Quality of Decision Making
usually treat people with respect	Quality of Treatment
would treat you with respect if you had contact with them for any reason	Quality of Treatment
<hr/>	
*All items use the 4 point Likert response options of <i>Strongly Disagree</i> , <i>Disagree</i> , <i>Agree</i> , and <i>Strongly Agree</i>	
**All items are presented in random order to participants within “The police in my community...”	

procedural justice in the context of policing across a variety of samples. Furthermore, this testing will provide further evidence about the strengths and weakness of using each scale to measure procedural justice.

Beyond further validation, it is unknown if these scale may be used to measure incident-specific perceptions of procedural justice. As they currently stand, these scales measure general perceptions of procedural justice. It is entirely possible that these items may or may not adequately capture perceptions in both the general and specific domain of policing and police-citizen contacts. As seen in other research, global/general attitudes about the police can be distinctly different from specific attitudes about the police (Brandl, Frank, Worden, & Bynum, 1994). Furthermore, these global/general attitudes can influence specific attitudes about the police and vice versa (Brandl et al., 1994).

In that vein, researchers still need to understand which specific situations, if any, these scales may be used to adequately measure procedural justice. Preliminary analyses in differential item functioning suggest that general perceptions of procedural justice of those who had been stopped by the police, as opposed to those who had not, may indeed be different. In addition, the same analyses provide evidence that these general perceptions may be different for those who call the police as opposed to those who do not. Therefore, when researchers wish to understand perceptions of those stopped by police or those who have called the police, a different measure for procedural justice may be required.

Given the validation of these scales, the potential for future research in this domain seems nearly limitless. For example, researchers could examine perceptions of procedural justice over time within a jurisdiction to understand if the use of procedural justice by police has a longstanding influence on community member perceptions. These measures may also be useful

to understand or evaluate the implementation of procedural justice training within a department from the perspective of community members. Additionally, these scales, once validated, have the potential for use in comparing levels of perceived procedural justice across jurisdictions or geographical areas.

Future Research with the Process-Based Model

Throughout this project, only one of the several constructs in the process-based model has been addressed via psychometric methods; procedural justice. Therefore, these three measures of procedural justice can serve as the foundation for building the remaining constructs in this model, which may lead to a better understanding of the precursors of cooperation and compliance with police. Measures that remain in need of psychometric measurement include: police legitimacy, law legitimacy, cooperation with police, compliance with police, satisfaction with the police, moral alignment with the police, and moral alignment with the law. Additionally, Tyler and his colleagues have provided several other constructs that may be fruitfully used in modeling compliance, such as the perception of self in the context of police-citizen interactions (De Cremer & Tyler, 2005) or personal identity judgments (Tyler & Blader, 2003). Given a more accurate understanding of each of these constructs individually and as a system, researchers and police practitioners may be able to capitalize upon this knowledge to induce cooperation and compliance with police and the law more generally.

Once validated, these three scales have the potential to alter our understanding of procedural justice in policing. As such, the psychometric measurement of procedural justice should serve not only as a means of understanding more completely procedural justice within and across jurisdictions, but also as case study for measuring future process-based model constructs.

IMPLICATIONS FOR CRIMINOLOGY

Beyond measuring procedural justice in policing and the remaining related constructs of the process-based model, this dissertation also has serious implications for the field of criminology. The following discussion provides two of the many implications.

First, this dissertation provides a case study or roadmap for the psychometric measurement of other criminological constructs. In short, this systematic process is:

1. Define the construct of interest and its boundaries using theory.
2. Develop a pool of items to measure the construct of interest.
3. Pilot test these items with a sample.
4. Analyze and simplify the list of items into a tool to measure the construct.
5. Validate the tool by completing another test of the final items.
6. Copyright the testing tool and develop documentation for its use (AERA, APA, & NCME, 2014).

Prior to testing various models and relationships between constructs, in areas of sustained research, the proper measurement of a construct should be completed. Given a valid and reliable measure of a construct, the field may more readily build knowledge and build upon knowledge produced by a valid and reliable measure. Conversely, criminological research commonly uses various measures of constructs and is unable to accumulate knowledge due to such inadequate and heterogeneous measurement of core concepts (e.g., procedural justice in policing) (Cullen, Pratt, & Graham, 2019).

Likewise, the rigorous methods of psychometric measurement of core constructs should also be used to reduce measurement error within and between studies. Analyses provided in the previous chapter describe the adequacy of the three scales to measure procedural justice, which

demonstrates their ability to accurately measure this construct with limited error. Additionally, the use of these three scales across multiple samples and studies will reduce the potential error by attempting to capture the exact same underlying construct as opposed to slightly different variations of a construct.

Furthermore, the use of rigorously developed, valid, and reliable measures has the potential to aid in expanding the explained variation in our models as a field. Currently stagnant at between 10% and 20% explained variation in most studies across the field of criminology, the use of proper measures has the potential to allow researchers to explain more of the variation of key outcomes, such as crime and deviance, by determining what constructs are conclusively relevant or irrelevant within theoretic models (Weisburd & Piquero, 2005). Once constructs are ruled in or out as relevant for a model, researchers may rid themselves of an obsessive focus on mixed findings (stemming in part from heterogeneous measurement) and instead focus on which constructs improve these models empirically and theoretically.

Second, although not necessarily viewed as glamorous or flashy in our field, there is immense value in the first-class measurement of constructs, which provide significant implications. As discussed in previous chapters, psychology has a long history of building and developing measures for constructs—dating back to 200 B.C. China, measurement of individual differences was used to identify those of high moral standards to become part of the Chinese government (DuBois, 1970). Given the youth of this field relative to other areas of study, such as psychology and sociology, the field of criminology should mimic this obsession with measurement to gain legitimacy as a field as well as produce more valid and reliable knowledge.

To date, this obsession with measurement leading to the construction of a singular scale to measure a core construct has only been advanced prominently in the area of self-control in our

field (e.g., Grasmick et al., 1993). However, even this measure struggled with validity and reliability because it was built using a biased sample—college students—and was built prior to the surge in psychometric advancements, such as IRT (Grasmick et al., 1993). More currently, researchers have taken up this scale using IRT discovering that its properties varied by gender (Piquero, MacIntosh, & Hickman, 2000) and that a shortened 16-item scale produced a more valid scale (Higgins, 2007).

In closing, the failure to take measurement seriously has two serious implications. It provides both weaknesses and opportunities. Ignoring measurement is a weakness in the sense that our knowledge hardly builds upon itself, in part because of inconsistent measurement. As such, this field risks knowing little, becoming irrelevant, or finding little growth in the academe. However, not all is lost. There is a plethora of opportunity due to our reluctance to take measurement seriously thus far. It provides the next generation of criminologists an opportunity to work endlessly on developing these measures for which future research will be able to build a substantial body of knowledge.

CONCLUSION

Although these implications for criminological research may weigh heavily, there is more work to be done for criminometric measurement in this field and more specifically for the measurement of procedural justice. For the three scales of procedural justice that have been produced in this dissertation, validation via a large national-level sample stills needs to be completed. As noted in previous chapters, the challenge of measurement may never truly be “complete” in the sense that it is an iterative process that requires repeated validation over a multitude of samples and over an array of time periods (Furr, 2011). However, this dissertation should stand as a case study and roadmap for future scale development in criminology.

By developing robust, valid, and reliable measures, we can more adequately test theories that have been squabbled over for the last several decades. Furthermore, we may produce a cohesive body of knowledge that builds upon itself to produce concrete conclusions about the sources and mechanisms of crime and deviant behavior. Given the dearth of adequate criminological measures, there is abundant opportunity for the next generation of criminological researchers to focus on this concern and develop the area of criminometrics.

REFERENCES

- Abramovsky, A., & Edelstein, J. I. (1999). Pretext stops and racial profiling after *Whren v. United States*: The New York and New Jersey responses compared. *Alabama Law Review*, 63, 725-748.
- Adams, J. S. (1963). Towards an understanding of inequity. *Journal of Abnormal and Social Psychology*, 67, 422-436.
- Akaike, H. (1974). A new look at the statistical model identification. In *Selected Papers of Hirotugu Akaike* (pp. 215-222). New York, NY: Springer.
- Alpert, G. P., & Dunham, R. G. (1997, October). *The force factor: Measuring police use of force relative to suspect resistance*. Washington, DC: Police Executive Research Forum.
- Amazon Mechanical Turk. (2018). *Features*. Retrieved from <https://www.mturk.com/product-details>.
- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *The standards for educational and psychological testing*. Washington, DC: American Educational Research Association.
- Anti-Drug Abuse Act of 1988, Public Law 100-690, 102 Statute 4181, (1988).
- Anti-Drug Abuse Act of 1986, Public Law 99-570, 100 Statute 3207, (1986).
- Balko, R. (2011, September 12). *A decade after 9/11, police departments are increasingly militarized*. Retrieved from https://www.huffingtonpost.com/2011/09/12/police-militarization-9-11-september-11_n_955508.html
- Balko, R. (2013). *Rise of the warrior cop: The militarization of America's police forces*. New York: PublicAffairs.
- Boateng, F. D. (2016). Students and the police in Ghana: Mixed feelings. *Police Practice & Research: An International Journal*, 17, 555-569. Doi: 10.1080/15614263.2015.1086877
- Beckett, K., & Sasson, T. (2003). *The politics of injustice: Crime and punishment in America*. Thousand Oaks: Sage Publications.
- Bond, C. E., Murphy, K., & Porter, L. E. (2015). Procedural justice in policing: the first phase of an Australian longitudinal study of officer attitudes and intentions. *Crime, Law and Social Change*, 64, 229-245.
- Braga, A. A. (2015, September). *New perspectives in policing: Crime and policing revisited*. Washington, DC: National Institute of Justice

- Braga, A. A., Weisburd, D., & Turchan, B. (2018). Focused deterrence strategies and crime control: An updated systematic review and meta-analysis of the empirical evidence. *Criminology and Public Policy*, 17, 505–550.
- Brandl, S. G., Frank, J., Worden, R. E., & Bynum, T. S. (1994). Global and specific attitudes toward the police: Disentangling the relationship. *Justice Quarterly*, 11, 119-134.
- Brunson, R. K. (2007). “Police don't like black people”: African-American young men's accumulated police experiences. *Criminology & Public Policy*, 6, 71–101.
- Butler, P. (2017). *Chokehold: Policing Black men*. New York, NY: The New Press.
- Capehart, J. (2015, February 27). *From Trayvon Martin to ‘black lives matter’*. Retrieved from https://www.washingtonpost.com/blogs/post-partisan/wp/2015/02/27/from-trayvon-martin-to-black-lives-matter/?utm_term=.ef190272605c
- Cattel, J. M. (1890). Mental tests and measurements. *Mind*, 15, 373-381.
- Chandler, J., Higgins, J.P.T., Deeks, J.J., Davenport, C., & Clarke, M.J. (2017, February). Chapter 1: Introduction. In J.P.T. Higgins, R. Churchill, J. Chandler, & M.S. Cumpston (Eds). *Cochrane handbook for systematic reviews of interventions version 5.2.0*. London, UK: Cochrane.
- Chang, L., & Krosnick, J. A. (2009). National surveys via RDD telephone versus the Internet: Comparing sample representativeness and response quality. *Public Opinion Quarterly*, 73, 641–678
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological assessment*, 7(3), 309-319.
- Cohn, E. G., (2011). Changes in scholarly influence in major American criminology and criminal justice journals between 1986 and 2005. *Journal of Criminal Justice Education*, 22, 493-525.
- Cohn, E. G., & Farrington, D. P. (1994). Who are the most influential criminologists in the English-speaking world? *British Journal of Criminology*, 34, 204-225.
- Cohn, E. G., & Farrington, D. P. (1994). Who are the most influential criminologists in the English-speaking world? *British Journal of Criminology*, 34, 204-225.
- Community Oriented Policing Services (n.d.). *About*. Retrieved from <https://cops.usdoj.gov/about>
- Comprehensive Drug Abuse Prevention and Control Act, Public Law 91-513, 84 Statute 1236 (1970).

- Couper, D. C. (2012). *Arrested development: A veteran police chief sounds about protest, racism, corruption and the seven steps necessary to improve our nation's police*. North Charleston, SC: CreateSpace Independent Publishing Platform.
- Cronbach, L. J. (1946). Response sets and test validity. *Educational and psychological measurement*, 6, 475-494.
- Curley, C. (2015, December 3). *Tough on crime: How the United States packed its own prisons*. Retrieved from <http://www.genfkd.org/tough-on-crime-united-states-packed-prisons>
- Cullen, F. T., Pratt, T. C., & Graham, A. (2019). Why Longitudinal Research is Hurting Criminology. *The Criminologist*, 44, 1-7.
- Dawis, R. V. (1987). Scale construction. *Journal of Counseling Psychology*, 34, 481-489.
- de Ayala, R. J. (2009). *The theory and practice of item response theory*. New York, NY: Guilford Press.
- De Cremer, D., & Tyler, T. R. (2005). Managing group behavior: The interplay between procedural justice, sense of self, and cooperation. *Advances in experimental social psychology*, 37, 151-218.
- Democratic Party Platform. (1992, July 13). *1992 Democratic Party platform*. Retrieved from <http://www.presidency.ucsb.edu/ws/index.php?pid=29610>
- DeVilles, R. F. (2011). *Scale development: Theory and applications (applied social research methods)*. Washington, DC: Sage.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: the tailored design method*. Hoboken, NJ: John Wiley & Sons.
- Doherty, J. B. (2016). Us vs. Them: The Militarization of American Law Enforcement and the Psychological Effect on Police Officers and Civilians. *Southern California Interdisciplinary Law Journal*, 25, 415-450.
- Drug Enforcement Agency Museum and Visitor Center (2007). *DEA history book 1970-1975*. Retrieved from https://web.archive.org/web/20070928044643/http://www.deamuseum.org/dea_history_book/1970_1975.htm
- DuBois, P. H. (1970). *A history of psychological testing*. Boston: Allyn and Bacon.

- EBSCO Industries. (2018a). *Criminal Justice Abstracts with full text*. Retrieved from <https://www.ebsco.com/products/research-databases/criminal-justice-abstracts-full-text>.
- EBSCO Industries. (2018b). *PsycINFO*. Retrieved from <https://www.ebsco.com/products/research-databases/psycinfo>.
- EBSCO Industries. (2018c). *Academic Search Complete*. Retrieved from <https://www.ebsco.com/products/research-databases/academic-search-complete>.
- Engel, R. S. (2005). Citizens' perceptions of distributive and procedural injustice during traffic stops with police. *Journal of Research in Crime and Delinquency*, 42, 445-481.
- Engel, R. S., & Eck, J. E. (2015). *Effectiveness vs equity in policing: Is a tradeoff inevitable*. Washington, DC: Police Foundation.
- Floyd v. City of New York, 959 F. Supp. 2d 540 (2013)
- Forman, J., Jr., (2017). *Locking up our own: Crime and punishment in Black America*. New York: Farrar, Straus and Giroux.
- Forst, B. (2014). Local police and the “war” on terrorism. In M. D. Reisig & R. J. Kane (Eds.), *The Oxford handbook of police and policing* (pp. 623-642). New York: Oxford University Press.
- Furr, M. (2011). *Scale construction and psychometrics for social and personality psychology*. SAGE Publications Ltd.
- Gallup, Inc. (2019). *Party affiliation*. Retrieved from <https://news.gallup.com/poll/15370/party-affiliation.aspx>
- Garland, R. (1991). The mid-point on a rating scale: Is it desirable? *Marketing Bulletin*, 2, 66-70.
- Garza, A. (2014). *A herstory of the #BlackLivesMatter movement*. The Feminist Wire. Retrieved June 2, 2018 from <http://www.thefeministwire.com/2014/10/blacklivesmatter-2/>.
- Gau, J. M. (2011). The convergent and discriminant validity of procedural justice and police legitimacy: An empirical test of core theoretical propositions. *Journal of Criminal Justice*, 39, 489-498.
- Gau, J. M. (2014). Procedural justice and police legitimacy: A test of measurement and structure. *American Journal of Criminal Justice*, 39, 187-205.
- Gau, J. M., & Brunson, R. K. (2010). Procedural justice and order maintenance policing: A study of inner-city young men's perceptions of police legitimacy. *Justice Quarterly*, 27, 255–279.

- Gau, J. M., Corsaro, N., Stewart, E. A., & Brunson, R. K. (2012). Examining macro-level impacts on procedural justice and police legitimacy. *Journal of Criminal Justice*, 40, 333-343.
- Gelman, A., Fagan, J., & Kiss, A. (2007). An analysis of the New York City police department's "stop-and-frisk" policy in the context of claims of racial bias. *Journal of the American Statistical Association*, 102, 813-823.
- Gibbs, J. (2016, October 18). *Research in brief: Meaning of police legitimacy differs among groups*. Harrisburg, PA: Pennsylvania State Data Center.
- Gotanda, N. (1999). Comparative racialization: Racial profiling and the case of Wen Ho Lee. *UCLA Law Review*, 47, 1689-1702.
- Grasmick, H. G., Tittle, C. R., Bursik Jr, R. J., & Arneklev, B. J. (1993). Testing the core empirical implications of Gottfredson and Hirschi's general theory of crime. *Journal of research in crime and delinquency*, 30(1), 5-29.
- Gummer, T., Robmann, J., & Silber, H. (2018). Using instructed response items as attention checks in web surveys: Properties and implementation. *Sociological Methods & Research*, 0049124118769083.
- Haberman, C. P., Groff, E. R., Ratcliffe, J. H. & Sorg, E. T. (2016). Satisfaction with police in violent crime hot spots: Using community surveys as a guide for selecting hot spots policing tactics. *Crime & Delinquency*, 62, 525-557. doi: 10.1177/0011128713516840
- Hambleton, R. K., & Jones, R. W. (1993). Comparison of classical test theory and item response theory and their applications to test development. *Educational Measurement: Issues and Topics*, Fall 1993, 38-47.
- Hambleton, R. K., Swaminathan, H., & Rogers, H. J. (1991). *Fundamentals of item response theory*. Newbury Park, CA: Sage.
- Harcourt, B. E. (1998). Reflecting on the subject: A critique of the social influence conception of deterrence, the broken windows theory, and order-maintenance policing New York style. *Michigan Law Review*, 97, 291-389.
- Harkin, D. (2015). Police legitimacy, ideology and qualitative methods: A critique of procedural justice theory. *Criminology & Criminal Justice*, 15, 594-612.
- Harris, D. A. (1996). Driving while black and all other traffic offenses: The Supreme Court and pretextual traffic stops. *Journal of Criminal Law & Criminology*, 87, 544-582.
- Harris, D. A. (1999). *Driving while black: Racial profiling on our nation's highways*. Retrieved from <https://www.aclu.org/report/driving-while-black-racial-profiling-our-nations-highways>

- Hayes, C. (2017). *A colony in a nation*. New York, NY: W. W. Norton.
- Helson, H. (1964). *Adaptation-level theory*. New York, NY: Harper and Row.
- Hinton, E. (2015, March 20). *Why we should reconsider the War on Crime*. Retrieved from <http://time.com/3746059/war-on-crime-history/>
- Higgins, G. E. (2007). Examining the original Grasmick scale: A Rasch model approach. *Criminal Justice and Behavior*, 34(2), 157-178.
- John, A. (2014, April 22). *A timeline of the rise and fall of "Tough on Crime" drug sentencing*. Retrieved from <https://www.theatlantic.com/politics/archive/2014/04/a-timeline-of-the-rise-and-fall-of-tough-on-crime-drug-sentencing/360983/>
- Johnson, D., Wilson, D. B., Maguire, E. R., & Lowrey-Kinberg, B. V. (2017). Race and perceptions of police: Experimental results on the impact of procedural (in)justice. *Justice Quarterly*, 34, 1184-1212.
- Johnson, L. B. (1965, July 26a). *Statement by the President on establishing the President's Commission on Law Enforcement and Administration of Justice* [Transcript]. Retrieved from <http://www.presidency.ucsb.edu/ws/?pid=27110>
- Johnson, L. B. (1965, September 22b). *Statement by the President following the signing of Law Enforcement Assistance Bills* [Transcript]. Retrieved from <http://www.presidency.ucsb.edu/ws/index.php?pid=27270>
- Kamata, A. (2001). Item analysis by the hierarchical generalized linear model. *Journal of Educational Measurement*, 38, 79-93.
- Kamata, A. (1998, April). One-parameter hierarchical generalized linear logistic model: An application of HGLM to IRT. In *Annual Meeting of American Educational Research Association, San Diego, CA*.
- Kelling, G. L., & Moore, M. H. (1988). *The evolving strategy of policing*. Washington, DC: US Department of Justice, Office of Justice Programs, National Institute of Justice.
- Kelling, G. L., Pate, T., Dieckman, D., & Brown, C. E. (1974). *The Kansas City preventive patrol experiment*. Washington, DC: Police Foundation.
- Kitchenham, B. & Charters, S. (2007). Guidelines for performing systematic literature reviews in software engineering. In *Proceedings of the 28th international conference on software engineering* (pp. 1051-1052). Association for Computing Machinery.
- Kline, R. B. (2016). *Principles and practice of structural equation modeling*. New York: The Guilford Press.

- Krosnick, J. A. & Fabringar, L. R. (1997). Designing rating scales for effective measurement in surveys. In L. Lyberg, P. Biemer, M. Collins, L. Decker, E. D. de Leeuw, C. Dippo, N. Schwarz, & D. Trewin (Eds.), *Survey measurement and process quality* (pp. 141-164). New York, NY: Wiley-Interscience.
- Leventhal, G. S. (1980). What should be done with equity theory? New approaches to the study of fairness in social relationships. In K.J. Gergen, M. S. Greenberg, & R. H. Willis (Eds.), *Social exchange: Advances in Theory and Research* (pp. 27-55). New York: Plenum Press.
- Lind, E. A., & Tyler, T. R. (1988). *The social psychology of procedural justice*. New York, NY: Plenum Press.
- Loevinger, J. (1957). Objective tests as instruments of psychological theory. *Psychological reports*, 3, 635-694.
- MacQueen, S., & Bradford, B. (2015). Enhancing public trust and police legitimacy during road traffic encounters: results from a randomised controlled trial in Scotland. *Journal of Experimental Criminology*, 11, 419-443.
- Maguire, E. R., & Johnson, D. (2010). Measuring public perceptions of the police. *Policing: An International Journal of Police Strategies & Management*, 33, 703-730.
- Marshall, J. (1999, March). *Information bulletin no. 9: Zero tolerance policing*. Washington DC: Office of Crime Statistics.
- Mazerolle, L., Antrobus, E., Bennett, S., & Tyler, T. R. (2013). Shaping citizen perceptions of police legitimacy: A randomized field trial of procedural justice. *Criminology*, 51, 33-63.
- Mazerolle, L., Bates, L., Bennett, S., White, G., Ferris, J., & Antrobus, E. (2015). Optimising the length of random breath tests: Results from the Queensland Community Engagement Trial. *Australian & New Zealand Journal of Criminology*, 48, 256-276.
- Mazerolle, L., Bennett, S., Antrobus, E., & Eggins, E. (2012). Procedural justice, routine encounters and citizen perceptions of police: Main findings from the Queensland Community Engagement Trial (QCET). *Journal of Experimental Criminology*, 8, 343-367.
- Mazerolle, L., Bennett, S., Davis, J., Sargeant, E., & Manning, M. (2013). Procedural justice and police legitimacy: A systematic review of the research evidence. *Journal of Experimental Criminology*, 9, 245-274.
- Meyerson, C. (2017, December 1). *Protesters against police violence risk the very thing they're fighting*. Retrieved from <https://www.thenation.com/article/protesters-against-police-violence-risk-the-very-thing-theyre-fighting/>

- Miller, L., Tolliver, J., & Police Executive Research Forum (2014). *Implementing a body-worn camera*. Washington, DC: Police Executive Research Forum (PERF).
- Murphy, K. (2009). Procedural justice and affect intensity: Understanding reactions to regulatory authorities. *Social Justice Research*, 22, 1-30.
- National Academies of Sciences, Engineering, and Medicine. (2018). *Proactive policing: Effects on crime and communities*. Washington, DC: The National Academies Press.
- National Advisory Commission on Civil Disorders. (1968). *Report of the National Advisory Commission on civil disorders*. New York: Bantam Books.
- National Institute of Justice, Bureau of Justice Statistics. (1999, October). *Use of force by police: Overview of national and local data*. Washington, DC: U.S. Department of Justice.
- National Research Council. (2004). *Fairness and effectiveness in policing*. W. Skogan & K. Frydli (Eds.), Washington, DC: National Academies Press.
- Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). *Scaling procedures: Issues and applications*. Sage Publications.
- Nixon, R. (1970, October 27). *Remarks on signing the Comprehensive Drug Abuse Prevention and Control Act of 1970* [Transcript]. Retrieved from <http://www.presidency.ucsb.edu/ws/?pid=2767>
- Nunnally, J. C. (1975). Psychometric theory—25 years ago and now. *Educational Researcher*, 4, 7-21.
- Ohio Attorney General. (n.d.). *Instructor training courses: Community diversity and procedural justice instructor*. Retrieved from <https://www.ohioattorneygeneral.gov/Law-Enforcement/Ohio-Peace-Officer-Training-Academy/Course-Catalog/Course-Categories/Instructor-Training-Courses/Community-Diversity-Instructor>
- Parenti, C. (2000). *Lockdown America: Police and prisons in the age of crisis*. New York: Verso.
- Pérez-Peña, R. (2015, July 29). University of Cincinnati officer indicted in shooting death of Samuel Dubose. *The New York Times*. Retrieved from <https://www.nytimes.com/2015/07/30/us/university-of-cincinnati-officer-indicted-in-shooting-death-of-motorist.html?smid=pl-share>
- PEW Research Center (2016, August 12). *Social media conversations about race*. Retrieved from http://www.pewinternet.org/2016/08/15/social-media-conversations-about-race/pi_2016-08-15_race-and-social-media_3-01/

- Platt, T. (1987). US criminal justice in the Reagan era: An assessment. *Crime and Social Justice*, 29, 58-69.
- Piquero, A. R., MacIntosh, R., & Hickman, M. (2000). Does self-control affect survey response? Applying exploratory, confirmatory, and item response theory analysis to Grasmick et al.'s self-control scale. *Criminology*, 38(3), 897-930.
- President's Task Force on 21st Century Policing. (2015). *Final report of the President's task force on 21st century policing*. Washington, DC: Office of Community Oriented Policing Services.
- Rawls, J. (1971). *A theory of justice*. Cambridge, MA: Harvard University.
- Reisig, M. D., Bratton, J., & Gertz, M. G. (2007). The construct validity and refinement of process-based policing measures. *Criminal Justice and Behavior*, 34, 1005-1028.
- Rosenbaum, D. P., & Lawrence, D. S. (2011). *Teaching respectful police-citizen encounters and good decision making: Results of a randomized control trial with police recruits*. Washington, DC: National Police Research Platform.
- Rosenbaum, D. P., Schuck, A. M., Costello, S. K., Hawkins, D. F., & Ring, M. K. (2005). Attitudes toward the police: The effects of direct and vicarious experience. *Police quarterly*, 8, 343-365.
- Sahin, N., Braga, A. A., Apel, R., & Brunson, R. K. (2017). The impact of procedurally-just policing on citizen perceptions of police during traffic stops: The Adana randomized controlled trial. *Journal of Quantitative Criminology*, 33, 701-726.
- Sampson, R. (2004). Neighbourhood and community: Collective efficacy and community safety. *New Economy*, 11, 106-113.
- Schmidt, M. S. & Apuzzo, M. (2015, April 7). South Carolina officer is charged with murder of Walter Scott. *New York Times*, Retrieved from <https://www.nytimes.com/2015/04/08/us/south-carolina-officer-is-charged-with-murder-in-black-mans-death.html>
- Simms, L. J. (2008). Classical and modern methods of psychological scale construction. *Social and Personality Psychology Compass*, 2, 414-433.
- Simon, D. (2017, February 26). *Trayvon Martin's death sparked a movement that lives on five years later*. Retrieved from <https://www.cnn.com/2017/02/26/us/trayvon-martin-death-anniversary/index.html>
- Skolnick, J. H., & Fyfe, J. J. (1993). *Above the law: Police and the excessive use of force*. New York: Free Press.

- Singleton, R., & Strait, B. (2010). *Approaches to social research* (5th ed.). New York: Oxford University Press.
- Smith, K. (2018, January 1). We were wrong about stop-and-frisk. *National Review*. Retrieved from <https://www.nationalreview.com/2018/01/new-york-city-stop-and-frisk-crime-decline-conservatives-wrong/>
- Spector, P. E. (1992). *Summated rating scale construction: An introduction* (No. 82). Newbury Park: SAGE.
- Sunshine, J., & Tyler, T. R. (2003a). The role of procedural justice and legitimacy in shaping public support for policing. *Law & Society Review*, 37, 513-548.
- Sunshine, J., & Tyler, T. (2003b). Moral solidarity, identification with the community, and the importance of procedural justice: The police as prototypical representatives of a group's moral values. *Social Psychology Quarterly*, 66, 153-165.
- Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, 72, 271-332.
- Taylor, J. & Whitney, G. (1999). Crime and racial profiling by U.S. police: Is there an empirical basis? *Journal of Social, Political, and Economical Studies*, 24, 485-510.
- Taylor, R. (2018). *Breaking away from broken windows: Baltimore neighborhoods and the nationwide fight against crime, grime, fear, and decline*. New York: Routledge.
- The President's Commission on Law Enforcement and Administration of Justice. (1967). *Task Force report: The police*. Washington, DC: U.S. Government Printing Office.
- Thibaut, J. W., & Walker, L. (1975). *Procedural justice: A psychological analysis*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Thibaut, J., & Walker, L. (1978). A theory of procedure. *California Law Review*, 66, 541.
- Thompson, I. (2016). *The impact of procedural justice on first year constables' interactions with citizens: A randomised controlled trial* (Unpublished master thesis). Fitzwilliam College, Cambridge, England.
- Toland, M. D. (2014). Practical guide to conducting an item response theory analysis. *The Journal of Early Adolescence*, 34, 120-151.
- Trinker, R., Jackson, J. & Tyler, T. R. (2018). Bounded authority: Expanding “appropriate” police behavior beyond procedural justice. *Law and Human Behavior*, 42, 280-293. doi: 10.1037/lhb0000285

- Tyler, T. (2017). Procedural Justice and Policing: A Rush to Judgment?. *Annual Review of Law and Social Science*, 13, 29-53.
- Tyler, T. R. (2004). Enhancing police legitimacy. *Annals of the American Academy of Political and Social Science*, 593, 84-99.
- Tyler, T. R. (2000). Social justice: Outcome and procedure. *International Journal of psychology*, 35(2), 117-125.
- Tyler, T. R. (1990). *Why people obey the law*. New Haven, CT: Yale University Press.
- Tyler, T. R. (1989). The psychology of procedural justice: A test of the group-value model. *Journal of Personality and Social Psychology*, 57, 830-838.
- Tyler, T. R., & Blader, S. L. (2003). The group engagement model: Procedural justice, social identity, and cooperative behavior. *Personality and social psychology review*, 7, 349-361.
- Tyler, T. R., & Blader, S. L. (2000). *Cooperation in groups: Procedural justice, social identity, and behavioral engagement*. Philadelphia, PA: Psychology Press.
- Tyler, T. R., & Fagan, J. (2008). Legitimacy and cooperation: Why do people help the police fight crime in their communities? *Ohio State Journal of Criminal Law*, 6, 231-275.
- Tyler, T. R., & Huo, Y. (2002). *Trust in the law: Encouraging public cooperation with the police and courts through*. New York, NY: Russell Sage Foundation.
- Tyler, T. R., & Lind, E. A. (1992). A relational model of authority in groups. In *Advances in Experimental Social Psychology* (Vol. 25, pp. 115-191). Cambridge, MA: Academic Press.
- United States Sentencing Commission. (2002). *Report to the Congress: Cocaine and Federal sentencing policy*. Washington, DC: United States Sentencing Commission.
- United States Census Bureau. (n.d.a). *QuickFacts United States*. Retrieved from <https://www.census.gov/quickfacts/fact/table/US/PST045218#PST045218>
- United States Census Bureau. (n.d.b). *Current Population Survey*. Retrieved from <https://www.census.gov/cps/data/cpstables.html>
- Violent Crime Control and Law Enforcement Act of 1994, Public Law 103-322 (1994).
- Weisburd, D., & Braga, A. A. (Eds.). (2006). *Police innovation: Contrasting perspectives*. New York, NY: Cambridge University Press.

- Weisburd, D., & Piquero, A. R. (2008). How well do criminologists explain crime? Statistical modeling in published studies. *Crime and Justice*, 37(1), 453-502.
- Wheller, L., Quinton, P., Fildes, A., & Mills, A. (2013). *The Greater Manchester Police procedural justice training experiment*. Coventry, UK: College of Policing.
- White, M. D., Mulvey, P., & Dario, L. M. (2016). Arrestees' perceptions of the police: Exploring procedural justice, legitimacy, and willingness to cooperate with police across offender types. *Criminal Justice and Behavior*, 43, 343-364.
- Wilson, J. Q., & Kelling, G. L. (1982). Broken windows. *Atlantic monthly*, 249(3), 29-38.
- Worden, R. E., & McLean, S. J. (2018). Measuring, managing, and enhancing procedural justice in policing: Promise and pitfalls. *Criminal Justice Policy Review*, 29, 149-171.
- Yang, G. (2017, October 20). *Racism today versus racism after 9/11*. Retrieved from <https://bpr.berkeley.edu/2017/10/30/racism-today-versus-racism-after-911/>
- Zimring, F. E. (2012). *The city that became safe: New York's lessons for urban crime and its control*. New York, NY: Oxford University Press.