

Procedural Justice and Legal Socialization Among Serious Adolescent Offenders:

A Longitudinal Examination

by

Kimberly A. Kaiser

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved April 2015 by the
Graduate Supervisory Committee:

Michael D. Reisig, Chair
Gary Sweeten
Kevin A. Wright

ARIZONA STATE UNIVERSITY

May 2016

ABSTRACT

Research on Tyler's process-based model has found strong empirical support. The premise of this model is that legitimacy and legal cynicism mediate the relationship between procedural justice and compliance behaviors. Procedural justice and legitimacy in particular have been linked to compliance and cooperation and a small, but growing body of literature has examined how these factors relate to criminal offending. There remains a number of unanswered questions surrounding the developmental processes and underlying mechanisms of procedural justice and legal socialization. The purpose of this study is twofold. First, this study will build upon recent trends in the literature to examine what factors influence changes in perceptions of procedural justice and legal socialization attitudes over time. In order to do so, the effects of a number of time-stable and time-varying covariates will be assessed. Second, this study will evaluate the effects of four possible mediating measures—legitimacy, legal cynicism, anger, and prosocial motivation—underlying the relationship between procedural justice and criminal offending. This section of the study will use a multilevel mediation method to assess whether mediation occurs between or within the individual.

Data from the Pathways to Desistance Study—a longitudinal study of 1,354 adolescents adjudicated of a serious offense followed-up for seven years—are used to address this research agenda. Results from this study offer three general conclusions. First, results show that perceptions of procedural justice are malleable, that is, they can change over time and are influenced by a number of factors. Legal socialization beliefs, however, demonstrate only marginal change over time, suggesting these beliefs to be more stable. Second, analyses indicate differing pathways and effects for direct and

vicarious experiences of procedural justice. Finally, the multilevel mediation analyses reveal that within-individual changes in direct experiences of procedural justice remains a robust predictor of offending, regardless of the presence of mediating variables.

Legitimacy was found to have the strongest mediation effect on between-individual differences in direct procedural justice, whereas anger partially mediated the effects of between-individual differences in vicarious procedural justice. This study concludes with a discussion of policy implications and avenues for future research.

ACKNOWLEDGMENTS

The completion of this project would not have been possible without the help and support of many people. First, I would like to thank my dissertation chair, Mike Reisig, for your guidance, attention, and time throughout this process. More than anything, I want to thank you for your constant encouragement and for always motivating me to keep moving forward. And thank you to my committee members, Gary Sweeten and Kevin Wright. Gary, thank you for always being available to answer my many questions and guiding me in the right direction. Kevin, thank you for your thoughtful and attentive suggestions and comments.

There are so many at ASU, both professors and fellow doctoral students, that have graciously shared their wisdom and support. Most especially, I would like to say thank you to Cassia Spohn. I have learned so much from working with you and I truly appreciate everything that you have done for me. I would also like to thank my friend and colleague, Kate Kempany. I am so appreciative of your friendship and support. Thank you for always listening and helping me to stay sane throughout our graduate training. You definitely made the experience much more enjoyable.

I would also be remiss not to acknowledge past mentors who continue to inspire me. First, thank you to Travis Pratt for sharing your wisdom and advising me during my first years as a doctoral student. I would also like to give special thanks to my first academic mentor, Robert Lockwood, for your continued support over the years. This dissertation, and my work generally, has been influenced by our many conversations of philosophy, law, and literature. I will always strive to use “clear and concise” writing and to never become another “sheep.”

Finally, I am forever grateful for the love and support of my parents, Joy and Roger Kaiser. You never let me settle for being less than my best and you taught me to never let fear of failure stop me from pursuing my goals. Without this encouragement, I would not have been able to finish my dissertation and I certainly would not have taken the chance to follow my passion.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vi
LIST OF FIGURES	viii
CHAPTER	
1 INTRODUCTION	1
The Theory of Procedural Justice and Legal Socialization	2
Longitudinal Patterns of Procedural Justice and Legal Socialization.....	4
Mechanisms of the Process-Based Model	6
Purpose of Current Study.....	9
Focus 1: Longitudinal Patterns of Procedural Justice and Legal Socialization.....	10
Focus 2: Mediating Mechanisms of Procedural Justice on Offending	11
Organization of Dissertation.....	14
2 LITERATURE REVIEW	15
Justice and Legitimacy.....	16
Process-Based Model of Regulation.....	21
Direct and Vicarious Experiences of Procedural Justice	22
Individual Variation in Perceptions of Procedural Justice.....	36
Longitudinal Patterns of Procedural Justice and Legal Socialization.....	39
The Process-Based Model and Offending	41
Mechanisms of Procedural Justice on Offending	44
Conclusions.....	56

CHAPTER	Page
3 DATA AND METHODS	58
Overview.....	58
Data.....	58
Sample.....	58
Procedures.....	59
Measures	61
Dependent, Independent, and Mediating Variables	61
Time-Varying Covariates.....	67
Time-Stable Covariates.....	71
Additional Control Variables	71
Analytic Strategy	72
4 RESULTS	73
Overview.....	73
Longitudinal Patterns of Procedural Justice and Legal Socialization.....	73
Analytic Strategy	73
Unconditional Growth Curve Models: Identification of Trajectories.....	75
Conditional Growth Curve Models.....	84
Fully Conditional Models	94
Summary of Findings.....	98
Mediation Models Predicting Offending	100
Analytic Strategy	100
Predicting Effects of Procedural Justice on Mediators	106

CHAPTER	Page
Analyses of Effects of Mediators on Offending	112
Analyses Testing Mediation	114
Summary of Findings.....	119
5 DISCUSSION.....	121
Focus 1: Longitudinal Patterns of Procedural Justice and Legal Socialization.....	122
Focus 2: Mediating Mechanisms of Procedural Justice on Offending	123
Study Limitations.....	125
The Path Forward: Policy and Research Implications	127
Policy Implications	127
Future Research	129
Conclusion	132
6 REFERENCES	133

LIST OF TABLES

Table	Page
1 Summary of Research on Procedural Justice and Criminal Justice Involvement..	25
2 Descriptive Statistics.....	62
3 Unconditional Growth Model of Procedural Justice of Police	77
4 Unconditional Growth Models of Procedural Justice of Courts	79
5 Unconditional Growth Model of Procedural Justice: Direct and Vicarious Experiences	81
6 Unconditional Growth Models of Legitimacy and Legal Cynicism.....	82
7 Time-Stable Conditional Models of Procedural Justice and Legal Socialization..	85
8 Percentage of Sample with Criminal Justice Contacts by Wave	89
9 Time-Varying Conditional Models of Procedural Justice	90
10 Time-Varying Conditional Models of Legal Socialization	92
11 Fully Conditional Models of Procedural Justice: Including Time-Stable & Time- Varying Covariates	95
12 Fully Conditional Models of Legal Socialization: Including Time-Stable & Time- Varying Covariates	97
13 Multilevel Regression Models of Procedural Justice on Legitimacy and Legal Cynicism	107
14 Multilevel Regression Model of Procedural Justice on Aggression.....	109
15 Multilevel Regression Model of Procedural Justice on Motivation	111
16 Negative Binomial Models of Mediators on Offending	113
17 Negative Binomial Mediation Models of Procedural Justice on Offending.....	116

Table	Page
18 Mediation Summary Results.....	120

LIST OF FIGURES

Figure	Page
1 Hypothesized Multilevel Mediation Model	13
2 Unconditional Growth Model of Procedural Justice of Police	77
3 Unconditional Growth Models of Procedural Justice of Courts	79
4 Unconditional Growth Model of Procedural Justice: Direct and Vicarious Experiences	81
5 Unconditional Growth Model of Legitimacy and Legal Cynicism	83

CHAPTER 1

INTRODUCTION

Research on legitimacy has demonstrated that authority figures are better able to motivate people to comply when they are viewed as legitimate (Sunshine & Tyler, 2003b; Tyler, 1990). In fact, legitimacy has been linked to various forms of compliance and cooperation with legal authorities (e.g., Huq, Tyler, & Schulhofer, 2011; Jackson et al., 2012; Murphy, Tyler, & Curtis, 2009; Papachristos, Meares, & Fagan, 2012; Reisig, Tankebe, & Meško, 2014). Procedural justice has been shown to be an important component of conferring legitimacy (e.g., Piquero, Fagan, Mulvey, Steinberg, & Odgers, 2005; Trinkner & Cohn, 2014; Tyler, Sherman, Strang, Barnes, & Woods, 2007; Tyler, 1990). When authority figures use their power in a way that is perceived as fair, just, and neutral, they are more likely to be viewed as legitimate (Tyler, 1990, 2006).

Beyond immediate compliance with directives of authority (see McCluskey, Mastrofski, & Parks, 1999), research has also found procedural justice and legal socialization (i.e., legitimacy and legal cynicism) to be related to broader compliance with the law and reductions in offending. In fact, there has been a growing body of literature on the effects of procedural justice and legal socialization on recidivism, crime, and misconduct behaviors (e.g., Gottfredson, Kearley, Najaka, & Rocha, 2007; Levi, Tyler, & Sacks, 2012; Reisig & Meško, 2009; Tyler et al., 2007). This early research has not only established procedural justice and legal socialization as important concepts for consideration for continued research, but has offered scholars a vast area for exploration. There remains a number of unanswered questions related to the pathways and underlying mechanisms to explain the influences of procedural justice and legal socialization on

many law-related behaviors, including criminal offending. Specifically, there are two emerging trends in the literature that deserve more attention. The first is the small body of research whose efforts are to understand the developmental patterns of the legal socialization process. Only recently has there been an opportunity for scholars to explore longitudinal trajectories of legal socialization with longitudinal data becoming readily available that include these measures. Second, continued research is needed to fully understand theorized mediating mechanisms that may explain *how* and *why* procedural justice and legal socialization matter for compliant/offending behavior.

The Theory of Procedural Justice and Legal Socialization

Instrumental theoretical perspectives, such as deterrence theory, have historically dominated the examination of the criminal justice system's ability to reduce offending behavior (Tyler, 1990). Alternatively, scholars have borrowed from the social psychological literature to develop and test the notion that the way people are treated may have more of an impact on their behavior than the threat of sanctions. In particular, the process-based model of regulation (Leventhal, 1980; Lind & Tyler, 1988; Thibaut & Walker, 1975; Tyler, 1990) argues that people are more willing to comply with laws and criminal justice officials when they believe that they have been treated fairly and with respect or, in other words, in a procedurally just manner.

According to Tyler (1988, 1990), citizens evaluate several aspects of the process in their judgments of whether actions of authority are fair. Factors such as "motivation, honesty, ethicality, the opportunities for representation, quality of the decisions, the opportunities for error correction, and the authorities' bias" represent aspects of procedural justice (Tyler, 1988, p. 128). There has been substantial support for the

procedural justice effect in criminal justice settings. This literature has primarily focused on the role of the police officer interactions (e.g., Paternoster, Brame, Bachman, & Sherman, 1997; Sunshine & Tyler, 2003b; Tyler, 2001), but others have also looked at courtroom actors such as judges and lawyers (e.g., Casper, Tyler, & Fisher, 1988; Sprott & Greene, 2010; Tyler, 2001). More recently, scholars have assessed perceptions of procedural justice in the context of corrections as well (e.g., Henderson, Wells, Maguire, & Gray, 2010; Reisig & Mesko, 2009; Tatar, Kaasa, & Cauffman, 2012; Tyler, 2010).

Procedural justice has been shown to influence perceptions of legitimacy and legal cynicism (e.g., Hinds & Murphy, 2007; Mazerolle, Antrobus, Bennett, & Tyler, 2013; Reisig & Lloyd, 2008; Sunshine & Tyler, 2003b; Tyler, 2004), which in turn, may influence compliance and cooperation with the law (Jackson, Bradford, Hough, et al., 2012; Sunshine & Tyler, 2003b; Tyler & Jackson, 2014; Tyler, 1990). This process—of procedural justice influencing legitimacy and legal cynicism—has become known as legal socialization (e.g., Piquero et al., 2005; Trinkner & Cohn, 2014). Legal socialization is the “process through which individuals acquire attitudes and beliefs about the law, legal authorities, and legal institutions” (Piquero et al., 2005, p. 267). Legitimacy beliefs are suggested to be comprised of two concepts: the obligation to obey and having trust in the legal authority (Reisig, Bratton, & Gertz, 2007; Tyler & Huo, 2002; Tyler, 1990). Legal cynicism refers to an individual’s beliefs about the law and social norms, with higher legal cynicism reflecting a belief that actions that violate the law are reasonable (Sampson & Bartusch, 1998).

Longitudinal Patterns of Procedural Justice and Legal Socialization

While research on the effects of procedural justice and legitimacy has been promising, less is known about the developmental processes of these perceptions over time. The seminal work by Tyler (1990) provided an assessment of procedural justice and legitimacy over two time periods, suggesting a causal link between procedural justice, legitimacy, and compliance. A study by Piquero and associates (2005) examined the developmental trajectories of legitimacy and legal cynicism of serious adolescent offenders. Using early data from the Pathways to Desistance Study, this study followed a sample of adolescent offenders for 18 months after their court adjudication for a serious offense. While this study found there to be little change in perceptions of legitimacy and legal cynicism over time, they did find that these perceptions were susceptible to influence of a variety of factors, including prior involvement in the criminal justice system. While this provided the first test of the longitudinal variations of legal socialization, it examined neither the longitudinal patterns of perceptions of procedural justice nor the effects of these concepts on later involvement in criminal or delinquent offending.

There has been a recent interest in using longitudinal methods to examine the effects of both procedural justice and legitimacy (see Barkworth & Murphy, 2014; Beijersbergen, Dirkzwager, Eichelsheim, Van der Laan, & Nieuwbeerta, 2014a; Beijersbergen et al., 2014b; Murphy & Tyler, 2008; Tyler, Sherman, Strang, Barnes, & Woods, 2007). All of these studies follow subjects only through one additional time period, generally ranging from a few weeks (i.e., Beijersbergen et al., 2014b) up to three years (i.e., Barkworth & Murphy, 2014) after the baseline assessment.

Recently, two studies have used the full seven years of data from the Pathways to Desistance study to examine longitudinal patterns of procedural justice and legal socialization. Fine and Cauffman (2015) examined whether the effects of legitimacy and legal cynicism attitudes on offending varied by race and ethnicity. In their study they found that development of these legal attitudes varies by race and ethnicity. Specifically, they found that Black youth had more negative attitudes. While the authors did examine the effects of police contacts on the development of legal socialization attitudes, they did not consider court contacts nor did they examine the role of procedural justice on these trends.

The second study focused on the developmental process of procedural justice perceptions. Augustyn (2016) examined whether perceptions of procedural justice varied over time and whether being arrested or knowing someone that had been arrested influenced the development of overall procedural justice perceptions. This study found that overall perceptions of procedural justice did vary over time, generally following a negative trajectory, suggesting that these perceptions got worse over time. Interestingly, she found that being arrested had a generally positive effect on procedural justice. These two studies suggest that perceptions of procedural justice and legal socialization beliefs do not remain stable over time. What factors influence this developmental process, however, has only marginally been explored and more research is needed. While both these studies examined the effects of police contacts, neither examined the effects of court contacts. Further, the effects of additional time-stable and time-varying factors, such as gender, prior arrest history, and peer delinquency, have not been examined.

Mechanisms of the Process-Based Model

The empirical study of procedural justice and legal socialization has mainly focused on the direct influences of these factors on various outcomes. The process-based model suggests that authority figures are best able to motivate compliance and cooperation when they are perceived as legitimate. We know that procedural justice has a fundamental influence on legitimacy beliefs (Fagan & Piquero, 2007; Fagan & Tyler, 2005; Piquero et al., 2005). What we know less about is *why* or *how* legitimacy affects compliance. Recent research has started exploring possible mediation effects. Scholars have examined how emotions can provide a link between procedural justice and legal compliance or cooperation (e.g., Barkworth & Murphy, 2014; Beijersbergen, Dirkzwager, Eichelsheim, Van der Laan, & Nieuwbeerta, 2014; K. Murphy & Tyler, 2008; Scheuerman, 2013). Scholars have also explored the role of social identity (Bradford, 2014), legal cynicism, and legitimacy itself (e.g., Trinkner & Cohn, 2014; Tyler & Blader, 2003; Tyler, Schulhofer, & Huq, 2010). Surprisingly, even though research has found legitimacy to be a predictor of compliance, few studies on the mediation of the process-based model includes legitimacy in their assessments.

Outside the context of criminal justice, research on possible mediators between procedural justice, legitimacy, and various outcomes is a bit more substantial, although also primarily focused on the role of emotions. Business and organizational scholars have provided rather consistent evidence that emotions, such as anger, partially mediate the effects of procedural justice on individual performance (Ambrose & Schminke, 2003; Aryee, Budhwar, & Chen, 2002; Chebat & Slusarczyk, 2005; Loi, Hang-Yue, & Foley, 2006; Moorman, Blakely, & Niehoff, 1998; Yang, Mossholder, & Peng, 2009; Zapata-

Phelan, Colquitt, Scott, & Livingston, 2009). Additionally, a study by Zapata-Phelan and associates (2009) found that while procedural justice continued to have a direct effect on task performance, intrinsic motivation partially explained this relationship (see also Bell, Wiechmann, & Ryan, 2006; Colquitt & Chertkoff, 2002).

While much of this literature has focused on the mediation of emotions and legal socialization, there is reason to assume that other factors may influence the relationship between procedural justice and outcomes, especially within the criminal justice context. For example, motivation—shown to be important in the desistance process (e.g., Benda, 2001; Maruna, 2001; McMurrin et al., 1998)—may mediate the effects of procedural justice and legitimacy for criminal justice involved individuals. There have been no studies to date that test the mediating role of motivation in the relationship between the process-based model and legal compliance or cooperation.

Beyond testing for the presence of various mediation effects, advances in mediation analysis techniques offers the opportunity to provide more nuanced assessments that can better inform our understanding of this process. Specifically, access to longitudinal data of repeated measures allows for the ability to test not only for mediation effects between-individuals, but also isolate within-individual mediation effects.

Most research on procedural justice and legitimacy has tested the mediation effects of various measures using cross-sectional data (e.g., Augustyn, 2015; Reisig & Lloyd, 2008; Sunshine & Tyler, 2003b; Trinkner & Cohn, 2014). This group of studies assess between-individual mediation—meaning that the individual differences in the mediating measure of interest explains the effects of procedural justice on offending. For

example, a recent study by Augustyn (2015) found that the effects of procedural justice and legitimacy differed between early onset and adolescent onset offenders. Additionally, the seminal research by Sunshine and Tyler (2003b) found that variation in legitimacy mediated the relationship between procedural justice and compliance behaviors and tested these effects across different racial and ethnic groups. While these studies provide important insights into between-individual differences in the mediation process, the underlying argument of the process-based model is that legitimacy and legal socialization mechanisms occur *within* the individual. Therefore, in order to properly test for mediation, it is necessary to examine within-individual change in perceptions of procedural justice, legal socialization, and other mechanisms. Cross-sectional data and analysis techniques are unable to test for within individual change and results from these studies may provide biased conclusions as to the true mediation intent argued by Tyler and others.

There have been many recent advancements on longitudinal mediation analyses and multiple methods have been developed. Research on the process-based model has forayed into using short-term longitudinal designs, often consisting of two time periods (e.g., Barkworth & Murphy, 2014; Beijersbergen et al., 2015; Murphy & Tyler, 2008). For example, Beijersbergen and associates (2015) used two waves of data in a Dutch prison sample to test the mediation effects of anger on the relationship between procedural justice and prison misconduct. For this study, they measured procedural justice and anger at time 1 and misconduct at time 2 (controlling for misconduct at time 1). These models are better able to test for causal processes of the mediation pathway.

These short term longitudinal designs, although better able to control for causal processes, may not be able to capture developmental processes that take place over a longer period of time (Preacher, 2015). More recent mediation techniques, such as the multilevel mediation model of repeated measures used in this study, can test for both between- and within-individual mediation using multiple mediators.

Purpose of Current Study

The broad purpose of this project is to assess the developmental processes and underlying mechanisms of procedural justice and legal socialization among those involved in the criminal justice system. The current study will build upon the recent trend in procedural justice literature and examine the possible mediating effects of legitimacy, legal cynicism, anger, and motivation. In doing so, this project will use data from the Pathways to Desistance Study, which is a longitudinal study of serious adolescent offenders adjudicated from juvenile and adult court systems.

This sample offers advantages for the focus of this study over more general population samples. First, this study seeks to understand how involvement in the criminal justice system influences procedural justice judgments and legal socialization. Using a sample that is heavily involved in the criminal justice system offers the opportunity to assess nuances within this relationship. For example, it allows for the ability to test the effects of various types of justice contacts, such as being picked up by the police, arrested, or appearing before court. Second, the Pathways to Desistance study follows this sample of adjudicated youth for seven years. Most studies on the process-based model are cross-sectional or at most cover only a short follow-up period, which limits the ability to test whether these perceptions vary over time. The Pathways data allows for a

longitudinal examination of the mediation processes of the relationship between procedural justice and offending in a way that has not yet been done. Finally, this study will employ a multilevel, longitudinal mediation technique to test at what level mediation occurs. The specific research questions that will be used to guide this project are discussed below.

Focus 1: Longitudinal Patterns of Procedural Justice and Legal Socialization

The first focus of this study is to examine what factors influence changes in perceptions of procedural justice and legal socialization attitudes. Broadly, this section seeks to answer the question of whether these perceptions change over time. Specifically, the research questions guiding this section are two-fold.

1. Is there variation in procedural justice and legal socialization over time?
 - a. Does the development of these perceptions vary for different groups of adolescents—such as by racial or ethnic groups or for those incarcerated or on community supervision?
2. What factors might influence the developmental trajectories of these perceptions over time?
 - a. Do changes in time-varying factors, such as peer delinquency and impulse control, influence the development of these perceptions over time?
 - b. Does contact with the criminal justice system influence changes in the development of these perceptions over time? Do different types of contact—such as being picked up by the police, arrested, summoned to

court, or making a court appearance—affect the development of these perceptions differently?

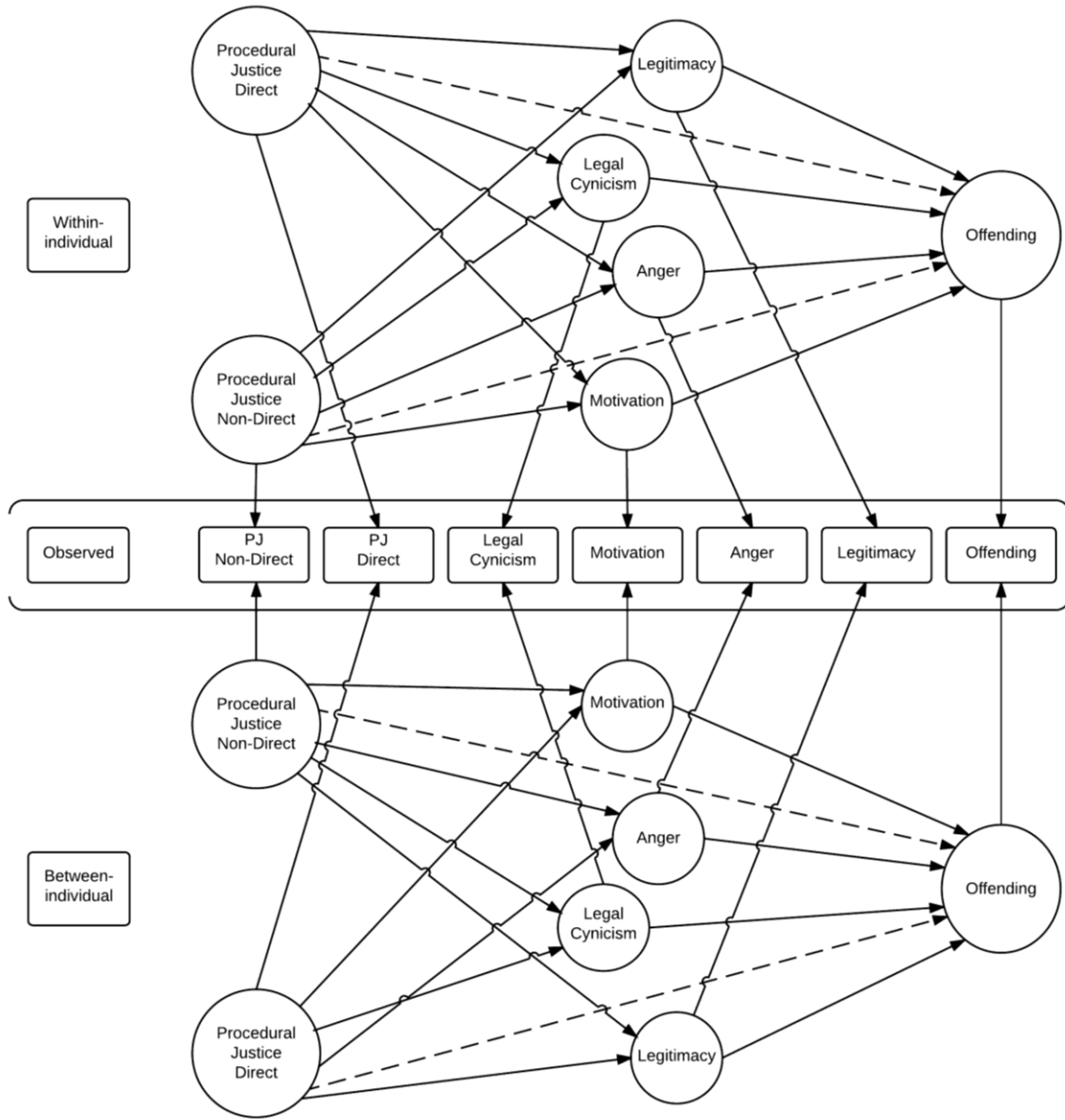
Focus 2: Mediating Mechanisms of Procedural Justice on Offending

The second focus of this study is to assess the effects of four possible mediating measures—legitimacy, legal cynicism, anger, and prosocial motivation. Each mediating mechanism was selected by a thorough review of theory and research. Broadly, this section of the study will use a multilevel mediation method to assess whether mediation occurs between or within the individual. That is, does mediation explain between-individual differences in the relationship between procedural justice and criminal offending or does within-individual changes in the mediation pathway explain changes in offending over time? The proposed mediation model is presented in Figure 1. As demonstrated in this figure, the various mediation pathways will be modeled at two levels (between- and within-individual) to test at what level mediation occurs. The specific research questions used for this stage of the study are presented below.

3. Do procedural justice perceptions directly or indirectly influence offending behaviors over time?
4. Do mediating measures, either individually or combined, explain the relationship between procedural justice and offending?
 - a. Does legal socialization, including legitimacy and legal cynicism, fully or partially mediate the relationship between procedural justice and offending? Does this mediation occur between and/or within individuals?

- b. Does anger mediate the relationship between procedural justice and offending? Does this mediation occur between and/or within individuals?
- c. Does prosocial motivation mediate the relationship between procedural justice and criminal offending? Does this mediation occur between and/or within individuals?

Figure 1
Hypothesized Multilevel Mediation Model



Organization of Dissertation

The subsequent sections of this dissertation will proceed as follows. Chapter Two will provide a comprehensive discussion of the guiding theoretical frameworks of this research. Specifically, the process-based model of regulation and other theories related to the underlying mechanisms of procedural justice will be discussed. This chapter will describe key concepts derived from various theoretical perspectives and review prior literature. Chapter Three describes the research design, data, and measures that will be used in this study. The fourth chapter of this dissertation will present the results of this study in two main sections. First, the longitudinal patterns of procedural justice judgments and legal socialization perceptions will be examined, including the influence of time-stable and time-varying covariates on the development of these perceptions over time. Second, the mediating effects of legitimacy, legal cynicism, anger, and motivation on the relationship between procedural justice and offending will be assessed. The final chapter of this dissertation will discuss the key findings of this project and future implications for research and policy.

CHAPTER 2

LITERATURE REVIEW

Research on procedural justice and legitimacy has shown these to be important factors in cooperation and compliance with legal authorities. This research suggests that the fairness of the process experienced by individuals during their encounters with the agents of social control (e.g., the police) is as important, if not more so, than the favorableness of the outcome received during that interaction (Sunshine & Tyler, 2003a; Thibaut & Walker, 1975; Tyler, 1990). Also, being treated fairly by legal authorities—whether police officers, judges, or correctional officers—has been shown to result in perceiving the legal system as more legitimate. The purpose of this chapter is to review the literature on the process-based model of regulation, including longitudinal studies and present several theories related to the mediation of the relationship between procedural justice and criminal offending.

This chapter is divided into several sections. First, an overview of the literature on justice and legitimacy is presented. The second section discusses the theoretical and empirical literature on the process-based model of regulation, including the effects of direct and vicarious experiences of procedural justice. This section will review empirical evidence for this model in police, courts, and correctional contexts. Third, the limited literature on the longitudinal development of procedural justice and legal socialization will be reviewed. Finally, the mechanisms underlying the procedural justice and offending relationship will be explored. Specifically, this section will begin with a review of the growing body of literature on the role of procedural justice on offending behavior, then delve into a review of the key concepts from research exploring the mechanisms that

underlie this relationship, with particular attention to three specific concepts: legal socialization, anger, and motivation.

Justice and Legitimacy

From ancient philosophers to recent scholars, there has been a long tradition of trying to define and understand notions of fairness and justice. Articulating the meaning of justice in a social context has not been an easy task, however, even for the masters of philosophical thought. Plato and Socrates identified two forms of justice: that of the city-state and that of the individual (trans. 1995). According to Aristotle, justice is defined in terms of lawfulness and fairness, universal and specific. Today, views on justice are often divided between distributive and procedural (see Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Tyler, 1990).

Research on organizational justice—which encompasses procedural, distributive, and interactional as the three main forms of justice—attempts to understand the impact of justice and how specific organizational behaviors influence perceptions of fairness (Colquitt et al., 2001). Interest in organizational justice, and procedural justice in particular, has proliferated in recent decades. As described by Colquitt and associates (2001), procedural justice theory conceptualizes justice through process control (Thibaut & Walker, 1975), consistency (Leventhal, 1980), and interpersonal treatment (Bies & Moag, 1986). These factors are assumed to influence one's beliefs about the procedural fairness. This differs from distributive justice theory, the dominant perspective guiding criminal justice practices prior to 1975, which defines justice in terms of the fairness of outcomes (Adams, 1965).

Issues of justice are perhaps most important in the context of the criminal justice system, where compliance and cooperation from the public are fundamental to its ability to uphold order and safety in society. Individuals involved in the criminal justice system often encounter outcomes that are unpleasant or negative, such as receiving a ticket, being arrested, or going to prison. Individuals rarely have any control over these outcomes and, often, these outcomes are not distributed equally across individuals. Most research on the criminal justice system focuses on this notion of distributive justice. Issues of procedural justice, however, tended to be overshadowed by this emphasis on questions of outcome disparity, proportionality, and inequality. For example, most studies on sentencing attempt to determine whether gender, racial, or ethnic disparities exist in sentencing outcomes (for review see Spohn, 2000; Ulmer, 2012; Zatz, 2000). Research in policing, likewise tends to question the racial and ethnic impact of policing conduct (i.e., Beckett, Nyrop, & Pfingst, 2006; Kochel, Wilson, & Mastrofski, 2011). For many obvious reasons, this line of research is necessary in order to ensure accountability and achieve equitability in the justice system.

Examining these concerns, while valuable for broad social implications, does not directly address how actions and processes of the criminal justice system influence individuals' perceptions of the system itself and how those perceptions might influence compliance and cooperation. As noted by Gottfredson and Gottfredson, equity may be "a necessary (though insufficient) condition of justice" (1988, p. 10). The question remains, whether you can achieve equitable outcomes (i.e., distributive justice) if the process that leads to those results are considered procedurally unjust.

Procedural justice seems to be integral in shaping perceptions of authority and views of legitimacy. The way people are treated by those in positions of authority can cause strong reactions and altered perceptions of legitimacy, not only of that authority figure but also of the system they represent (Bradford, Jackson, & Stanko, 2009; Murphy & Tyler, 2008; Sunshine & Tyler, 2003b; Tyler & Huo, 2002). French and Raven (1959) identified legitimate authority as one of the most influential bases of power. It is least likely to produce resistance compared to other forms of coercive power. Legitimacy has been defined as the obligation to obey authority, regardless of the personal gains or losses that may result (Weber, 1947) and legitimacy may reside in the individual authority figure or to the institution as a whole (Tyler, 1990).

Legitimacy beliefs and other legal orientations, such as legal cynicism, are developed through a process of legal socialization (Piquero et al., 2005). This process, according to scholars, is most likely to occur during adolescence, when individuals are beginning to develop their own understanding based on personal experiences (Cohn & White, 1990; Sherman, 1993). Prior to this period in life, children are less likely to have direct experiences with legal authorities and will rely on vicarious experiences of friends and family. As adolescents begin to have their own experiences with legal authorities, how they are treated during these encounters is likely to shape their legal socialization beliefs.

With regard to legal authority, those perceived as legitimate may be more likely to motivate individuals to comply with the law (Sunshine & Tyler, 2003b; Tyler & Fagan, 2006; Tyler & Jackson, 2014; Tyler, 2006). When legal authorities are viewed as legitimate, the public may be more likely to report crimes in their neighborhood (Tyler &

Fagan, 2006), cooperate with police directives (McCluskey et al., 1999; Tyler, 2005), and effect overall perceptions of the police (Sunshine & Tyler, 2003b). Additionally, judgments of procedural justice may influence perceptions of legitimacy of the police (Reisig & Lloyd, 2008), suggesting that when police are perceived as adhering to standards of procedural justice, they are significantly more likely to be viewed as a legitimate authority.

Legitimacy has typically been operationalized as the combination of two concepts (1) an obligation to obey the law and the authorization of legal authority to dictate appropriate behavior and (2) trust and confidence in legal authority (Reisig et al., 2007; Tyler & Jackson, 2013). Although this definition of legitimacy has received substantial empirical support (e.g., Engel, 2005; Reisig et al., 2007; Reisig, Wolfe, & Holtfreter, 2011; Sunshine & Tyler, 2003b), some recent scholars have suggested a more nuanced approach to the study of legitimacy (i.e., Bottoms & Tankebe, 2012; Tankebe, 2013; Tyler & Jackson, 2013, 2014). Bottoms and Tankebe (2012), for example, argue that the original conceptualization of legitimacy conflates it with the concept of obligation. According to the authors, obligation to obey legal authorities may be influenced by legitimacy perceptions, but may also be the result of fear, sense of powerlessness, or pragmatism. Essentially, they suggest that obligation is best conceptualized as a consequence or outcome of legitimacy rather than a component of it. Furthermore, Bottoms and Tankebe propose a multidimensional conceptualization of legitimacy that includes effectiveness, distributive fairness, procedural fairness, and lawfulness.

Tankebe (2013) tested this model of legitimacy using data from London and found that, while obligation to obey partially mediated the relationship between

legitimacy and cooperation, legitimacy maintained an independent effect. He also found that when obligation to obey was not controlled for, lawfulness was a key factor in predicting cooperation. When obligation was controlled for, however, procedural fairness became the predominant determinant. The multidimensional model proposed by Bottoms and Tankebe (2012) was also tested by Tankebe, Reisig, and Wang in 2016 using a cross-cultural sample. Using data from the United States and Ghana, Tankebe and associates found that obligation had different effects across the two settings. Specifically, they found that obligation mediated the relationship between legitimacy and cooperation in the United States, but in the Ghana sample legitimacy maintained an independent effect. This finding suggests that the mechanisms through which legitimacy influences cooperation and compliance may vary by cultural context.

Tyler and Jackson (2014) proposed an operationalization of legitimacy that includes the obligation, trust in authority, and moral alignment and suggest that these concepts may have differing effects depending on the outcome of interest. For example, they found that consent to authority was most important for compliance, trust and confidence in authority was more important for cooperation, and that moral alignment was most important for enhancing community involvement. Moral alignment is the identification with the police and the belief that the police have shared purposes, values, and goals with the individual (Jackson, Bradford, Stanko, & Hohl, 2012; Jackson, Bradford, Hough, et al., 2012). They also separated perceptions of legitimacy of the law, police, and courts and found broad support for legitimacy across all three domains.

The effects of procedural justice and legitimacy may also go beyond individual-level assessments. Taking a unique approach to testing the effects of procedural justice on

compliance, Levi, Tyler, and Sacks (2012) studied whether legitimacy perceptions (what they refer to as “value-based legitimacy”) were associated with lower crime rates at the macro-level. They compared data from the United States and Africa, using two different measures of crime. In the United States, they used official crime rate data and in Africa they used self-reported levels of crime in their area and they found consistent support for the relationship between value-based perceptions of legitimacy and lower rates of crime (what they term “behavioral legitimacy”). This study lends support to the idea that legitimacy perceptions may be important in reductions of crime, not just at the individual-level, but at a societal level as well.

Most research on procedural justice and legitimacy in the context of the criminal justice system tests the process-based model of regulation developed by Tyler (1990). According to Tyler’s model, legal authorities are perceived as being legitimate when they are respectful, polite, and fair in their decisions. In other words, acting in a procedurally just manner will increase perceptions of legitimacy for those in positions of legal authority. Scholarly literature has demonstrated empirical support for this model (e.g., Reisig, Bratton, & Gertz, 2007), as will be discussed in more detail in the sections that follow.

Process-Based Model of Regulation

Tyler’s process-based model of regulation (1990; see also Huo & Tyler, 2002)—which emphasizes both procedural justice and legitimacy in promoting compliance and cooperation with legal authorities—has enjoyed empirical support in a variety of contexts. Tyler began exploring the role of justice perceptions in the criminal justice context in the late 1980s and early 1990s (e.g., Casper, Tyler, & Fisher, 1988; Lind &

Tyler, 1988; Tyler, 1984, 1988, 1989). Through this early research, Tyler focused on issues of fairness primarily in court contexts and found that these perceptions were major determinants of satisfaction with legal authorities and that these effects remained important even in high-stakes cases and circumstances where individuals had little control over the outcome (Casper et al., 1988; Tyler, Rasinski, & Spodick, 1985).

Later, Lind and Tyler (1988) introduced the group-value model of procedural justice. According to this perspective, individuals are concerned about three aspects of procedural justice: neutrality, trust, and support for social standing. In the following year, Tyler (1989) found support for this model that these three aspects had more of an effect on judgments of procedural justice than issues of control as originally proposed by Thibaut and Walker. This suggests that perceptions of procedural justice were less about control and more about perceptions of fairness.

Tyler's work on procedural justice became increasingly recognized after the publication of his book, *Why People Obey the Law*, in 1990. In this book, Tyler argued that both procedural justice and legitimacy are important in promoting cooperation and compliance in the criminal justice system. There has been some criticism of this process-based model (D. R. Fox, 1993; Gibson, 1991; Herbert, 2006; Peffley & Hurwitz, 2010) and some studies have scrutinized the validity of the theoretical concepts (Gau, 2011; Reisig et al., 2007). This perspective, however, has received empirical support in multiple aspects of the criminal justice system, including police, courts, and corrections.

Direct and Vicarious Experiences of Procedural Justice

The procedural justice literature is grounded in the idea that positive or negative interactions with the criminal justice system can have a substantial impact on an

individual's behavior. Some scholars have argued, however, that vicarious experiences or general perceptions play an integral role in this process as well. Few studies have examined the role of vicarious or general perceptions of procedural justice on offending behavior. Augustyn (2013) provides perhaps the only explicit examination comparing the effects of direct and vicarious or general experiences of procedural justice on legitimacy beliefs and offending behavior. Using a one-year period of the Pathways to Desistance data, Augustyn found that personal experience with police was more relevant to perceptions of legitimacy and offending behavior than general or vicarious experiences.

While research that explicitly tests the role of vicarious experiences of procedural justice on offending behavior is limited, some scholars have explored the relationship between direct and vicarious experiences with the criminal justice system more broadly. This body of literature has focused on the interplay between general perceptions or attitudes of the police and direct experiences. For example, Brandl and associates (1994) found that global attitudes towards the police had a substantial influence on an individual's assessments of police performance during specific encounters, but also found that specific assessments had only a modest influence on shaping general attitudes towards the police. Similarly, Rosenbaum and colleagues (Rosenbaum, Schuck, Costello, Hawkins, & Ring, 2005) found that direct contact with the police was not enough to shape general attitudes towards the police, but vicarious experiences did appear to shape these general attitudes. Additionally, they found that initial attitudes towards the police helped shape judgments of the police during subsequent direct and indirect experiences with the police as well as future attitudes.

Additional research has also explored the roles of direct and vicarious experiences with the police in shaping general perceptions such as police trustworthiness (Tankebe, 2010), respect (Warren, 2011), and attitudes towards the police more generally (Brunson, 2007; Hohl, Bradford, & Stanko, 2010; Mazerolle, Antrobus, et al., 2013; Reisig & Parks, 2003). These studies, however, have produced mixed findings and more research is needed. Specifically, little is known about the longitudinal stability of these perceptions over time and what role direct and vicarious perceptions may have in altering individual compliance or offending behaviors.

While there is limited research comparing the effects of direct and vicarious experiences of procedural justice, there is a substantial body of literature on the effects of procedural justice within the criminal justice system that uses various measures, including direct, vicarious, and general perceptions. Table 1 provides a summary the current research examining procedural justice in various criminal justice contexts and what type of procedural justice is measured (i.e., direct experience, vicarious experiences, or general perceptions). Overall, this literature has provided support for the importance of direct experiences of procedural justice in a variety of criminal justice contexts. The sections that follow will present the current body of research examining procedural justice in police, courts, and correctional settings.

Table 1
Summary of Research on Procedural Justice and Criminal Justice Involvement

Article	Type of PJ	Outcome(s)	Positive support?
Combined Contexts			
Augustin (2013)	Direct; General/Vicarious	Legitimacy	Yes
Tyler (1990)	Combined	Legitimacy	Yes
Police Contexts			
Bradford (2014)	General	Social identity; police legitimacy; cooperation with police	Yes (social identity; legitimacy); No (direct effect on cooperation, but did have indirect effect)
Bradford et al (2014)	General	Citizen identity; Police legitimacy	Yes
Jackson (2015)	Direct	Normative alignment; Obligation to obey; Social Identification	Yes
Mazerolle et al (2012)	Direct	Satisfaction with police; Compliance with police	Yes
Murphy (2009)	Direct	Satisfaction with police	Yes
Murphy et al. (2013)	Direct; General	Trust and confidence in police; Obligation to obey; Willingness to cooperate	Direct PJ: Yes (trust); No (Obligation); No (Cooperate) General PJ: Yes
Murphy et al. (2013)	Direct; General	Trust and confidence in police; Obligation to obey; Willingness to cooperate	Direct PJ: Yes (trust); No (Obligation); No (Cooperate) General PJ: Yes
Sunshine and Tyler (2001)	General	Police legitimacy	Yes
Reisig (2007)	General	Willingness to participate in police programs	Yes
Reisig et al. (2007)	General	Legitimacy	Yes
Reisig and Lloyd (2008)	General	Police legitimacy; Cooperation with police	Yes
Reisig et al. (2012)	General	Legitimacy	Yes
Reisig et al (2014)	General	Police legitimacy	Yes
Tankebe (2013)	General	Cooperate with Police	Yes
Tyler and Jackson (2014)	Direct; General	Legitimacy	Yes
Tyler and Wakslak (2004)	Direct; General	Willingness to accept decision; Profiling; Institutional support; Legitimacy	Yes

(continued)

Article	Type of PJ	Outcome(s)	Positive support?
Court Contexts			
Canada and Hiday (2014)	Direct	Treatment adherence; Jail, Probation violation; arrests; program termination	Yes (program termination); No (treatment adherence, jail, probation violation, arrests)
Casper et al. (1988)	Direct	Outcome satisfaction	Yes
Gottfredson et al. (2007)	Direct	Criminal behavior	Yes
Frazer (2006)	Direct	Fairness	Yes
Landls and Goodstein (2014)	Direct	Outcome fairness	Yes
Tatar et al. (2012)	Direct	Facility attitudes; Institutional behavior; emotional well-being	Yes
Tyler (1984)	Direct	Outcome satisfaction; Evaluation of judge; Evaluation of court	Yes
Tyler and Huo (2002)	Direct	Acceptance of decisions; satisfaction with decision maker	Yes
Tyler et al. (2007)	Direct	Legitimacy; Recidivism	Yes (Legitimacy) No (direct effect on recidivism)
Correctional Contexts			
Beijersbergen et al (2014)	Direct	Mental health problems	Yes
Beijersbergen et al. (2015)	Direct	Prison misconduct	Yes
Beijersbergen et al. (2016)	Direct	Legitimacy; Recidivism after release	Yes
Penner et al. (2014)	Direct	Legitimacy; Recidivism	Yes (legitimacy); Partial support (offending)
Reisig and Mesko (2009)	General (related to prisoner treatment)	Self-reported misconduct; official misconduct	Yes

Police contacts. While the earliest research on procedural justice in the criminal justice system focused on courtroom contexts, most attention has been given to the role of procedural justice in police-citizen encounters. It is in this context where it has received much support (e.g., Mazerolle, Bennett, Davis, Sargeant, & Manning, 2013; Reisig et al., 2007). Police are often the first line of contact individuals have with the criminal justice system, whether through self-initiated (e.g., reporting a crime) or police-initiated (e.g., being arrested) contacts. Perhaps for this reason (among others), many scholars have applied procedural justice research to this context.

There are two predominant trends in assessing the role of experiences of procedural justice in policing. First, most research on procedural justice and legitimacy within the police context emphasizes satisfaction and support for police as the outcomes of interest. Second, studies have also focused on how procedural justice or legitimacy affect compliance and cooperation with police authority. Sunshine and Tyler (2003b) performed one of the most well-known studies on the determinants of police legitimacy and how judgments of legitimacy affected compliance, cooperation, and support for police policies. Using a phone survey of registered voters in New York City before and after September 11, 2001, Sunshine and Tyler examined what factors influences people's perceptions of the police. The results of their study showed that procedural justice was the primary indicator of perceptions of police legitimacy and that police legitimacy was the strongest predictor of cooperation with the police. Thus, Sunshine and Tyler (2003b) demonstrated an indirect effect of procedural justice on citizen compliance with the police by shaping individuals' judgments of legitimacy.

While the majority of studies on procedural justice and legitimacy are conducted in the United States, there has been international support for this relationship as well (e.g., Bradford, 2014; Murphy, 2009; Reisig & Camille, 2008; Reisig, Tankebe, & Mesko, 2014). Recently, Reisig and associates (Reisig et al., 2014a; Reisig, Tankebe, & Meško, 2014b) tested Tyler's process-based model using a sample of young adults in Slovenia and found support for the application of this theoretical model to a post-socialist country. Bradford (2014) tested how procedural justice was associated with social identity in a British sample. Interestingly, Bradford found that the relationship between procedural justice, social identity, and cooperation was strongest for those with multiple national identities. For those with a singular British identity, judgments of legitimacy were the strongest determinants of cooperation.

Bradford, Hohl, Jackson, and MacQueen (2014) also tested the relationship between procedural justice, social identity, and compliance using a Scottish sample. The underlying assumption of this model is that those who more strongly identify with the group that the police represent are more likely to comply with laws that govern that group. Interestingly, while they did find that procedural justice enhanced perceptions of police legitimacy, they also found that social identity partially mediated this relationship between procedural justice and legitimacy. This association supports the group-engagement model of procedural justice. A group of studies by Murphy and colleagues has examined the role of procedural justice and legitimacy among an Australian population, as well (e.g., Hinds & Murphy, 2007; Murphy & Cherney, 2011; Murphy, 2009).

The results from the previous studies may be limited by their measurement of police legitimacy. Some studies for example, operationalize legitimacy as a combined measure of the moral obligation to obey and trust in the police. This is a common method of measurement of legitimacy, however this operationalization of legitimacy has been questioned (Reisig et al., 2007; Tankebe, 2013; Tyler & Jackson, 2014). Reisig and associates (2007) found that trust in police was predictive of both cooperation with police and overall compliance with the law, however obligation to obey was not significantly predictive of either. Using data from London, Tankebe (2013) found that legitimacy actually encompassed several dimensions, including procedural fairness, distributive fairness, lawfulness, and effectiveness. He also found that this operationalization of legitimacy had a direct effect on cooperation with police, independent of obligation to obey. More recently, Tyler and Jackson (2014) suggested that legitimacy should be conceptualized as multidimensional, differentiating between obligation to obey, trust and confidence, and normative alignment. Additionally, these authors found that some elements of legitimacy are more important than others in varying contexts. For example, they found that obligation was important for compliance, but that normative alignment was most important for community facilitation.

Police strategies and procedural justice. Tyler and Wakslak (2004) sought to determine how different types of police behavior influence people's beliefs that police were conducting racial profiling. Additionally, they sought to understand what effects these beliefs had on support for police. In order to address these questions, the authors used telephone interviews with residents in Oakland and Los Angeles and identified a sample of 1,656 residents that had personal contact with either the police or courts and

they came to two major conclusions. First, consistent with prior research, they found that when residents attributed their police contact to racial profiling they were less likely to support the police. Second, these authors found that policing strategies that represented procedural justice practices minimized the likelihood that people would attribute profiling as a reason for being stopped by the police. Essentially, Tyler and Wakslak (2004) found that when people were treated fairly they were less likely to think the police are using profiling tactics. These findings also negated the direct effects of ethnicity, age or gender. In a separate study within the same paper, Tyler and Wakslak found that procedural justice perceptions, not just based on personal experience, but also general judgments of the police, were significantly related to judgments of profiling behaviors. Another study, conducted by Gau and Brunson (2010), also looked at the effects of specific policing strategies. They found that order maintenance policing tactics, which are often characterized by zero-tolerance for lower level infractions, negatively impacted judgments of police legitimacy by reducing their perceptions of procedural justice.

Scholars have also used rigorous random control experiments to test the effects of police practices that are informed by procedural justice. Mazerolle and colleagues (Mazerolle, Antrobus, et al., 2013; Mazerolle, Bennett, Antrobus, & Eggins, 2012) used an experimental field trial design to directly test the effects of procedural justice. During traffic road blocks with random breath testing, officers in the experimental group were given scripts that exemplify components of procedural justice, such as citizen participation, dignity and respect, neutrality, and trustworthy motives, while the control group interacted with citizens in their usual way (Mazerolle, Antrobus, et al., 2013). These authors found that citizens exposed to procedurally-just interactions had more

favorable views of the direct encounter and more positive general views of police legitimacy. In 2015, Jackson also used a randomized controlled trial in Scotland, replicating the Queensland Community Engagement Trial in Australia (Mazerolle, Antrobus, et al., 2013; Mazerolle et al., 2014; Murphy, Mazerolle, & Bennett, 2013), to test the effects of procedurally just policing practices and found empirical support for these methods as well.

Court contacts. Early examinations of procedural justice and legitimacy focused on court settings; however, as the theory evolved researchers focused more predominately on policing. Research that has been done finds empirical support for the application of the process-based model to the court context. The section that follows highlights some of the main contributions to the study of procedural justice and legitimacy in the courtroom setting.

As noted earlier, Tyler's (1984) early work focused on how perceived fairness influenced satisfaction with the court system and others examined both police and courts (Tyler & Huo, 2002; Tyler, 1990). Tyler (1984) examined the role of perceived fairness in traffic and misdemeanor courts and found that procedural justice was significantly related to satisfaction with judges and general satisfaction with the court system, but was not influential on outcome satisfaction. Casper and associates (1988) expanded on this by testing the role of procedural justice in a felony court context, where arguably the outcomes are more serious. Over half of the participants in their study were incarcerated and all faced the possibility of serious sanctions for felony offenses. The results from this study also confirmed that those who perceived the process as more just were more satisfied with the outcome, regardless of the actual outcome they received. This suggests

that even when individuals are facing potentially serious outcomes, they remain concerned about just and fair treatment by the court. Additionally, this study expanded the definition of procedural justice by questioning defendants about their lawyer, the judge, and the prosecutor, whereas many studies only focus on perceptions of the judge.

Even when the outcome of the case resulted in incarceration, evidence suggested that procedural justice remains influential in judgments about the court. Using a sample of inmates, Landls and Goodstein (2014) questioned them about their perceptions of procedural justice in the case that resulted in their incarceration. They also examined varying perceptions of the defense attorney, prosecutor, and judge and found that, when controlling for other factors such as outcome fairness, mode of conviction, severity of charges, and sentence length, procedural justice had the strongest impact on overall satisfaction. Also, similar to Casper and associates (1988) they found that those who plead guilty had more favorable procedural justice judgments than those that went to trial. It is possible that those who plead guilty feel more sense of control over the process. A study examining the effects of procedural justice using a sample of incarcerated young females also suggests that perceived procedural injustice in court experiences were related to increased levels of depressive symptoms, institutional offending, and substance use while incarcerated (Tatar et al., 2012).

Court strategies and procedural justice. Research within the court system has tested whether various types of courts (e.g., traditional versus specialized courts) were more conducive to enhancing perceptions of procedural justice and legitimacy. This research has compared traditional and restorative justice court settings (Scheuerman & Matthews, 2014; Tyler et al., 2007) and examined procedural justice in various

specialized court programs (i.e., Canada & Watson, 2012; Frazer, 2006; Gottfredson, Kearley, Najaka, & Rocha, 2007; Gover, Brank, & MacDonald, 2007; McIvor, 2009; Poythress, Pettila, McGaha, & Boothroyd, 2002; Wales, Hiday, & Ray, 2010). Tyler and associates (2007) sought to test whether traditional or restorative justice court settings were more conducive to promoting perceptions of legitimacy, increasing support for the law, and reducing recidivism. While they did not find significant differences in recidivism rates between the two groups, evidence from the study suggested that perceptions of fair procedures did influence offenders' viewing the law as legitimate. Legitimacy, in turn, was found to reduce recidivism two years after involvement in the court system. A later study conducted by Sheuerman and associates (2014) found that in the context of restorative justice conferences, negative emotionality and low constraint personality characteristics of the defendant directly affected perceptions of procedural justice. Additionally, they found that procedural justice fully mediated the relationship between negative emotionality and reintegrative shaming and that negative emotionality increases disintegrative shaming (i.e., stigmatization that can reduce prosocial community integration) because those offenders that are high in negative emotionality are likely to perceive restorative justice conferences as procedurally unjust.

There have been a few studies which test the role of procedural justice within a specialized court context, most of which rely on simple statistical techniques, but do offer support for the idea that these types of programs promote perceptions of procedural justice. Most studies have tested procedural justice in mental health courts (i.e., Canada & Hiday, 2014; Canada & Watson, 2012; Poythress et al., 2002; Redlich & Han, 2014; Wales et al., 2010), and generally found procedural justice to be important in this type of

program. For example, Canada and Hiday (2014) found that perceptions of procedural justice were associated with successful graduation and retention in the mental health court. Additionally, Redlich and Han (2014) found that perceptions of procedural justice were related to offending recidivism and performance within the mental health court program up to 12 months later. Also, they found that procedural justice had an indirect effect on graduation up to four years after entering the program.

Procedural justice was found to be influential in other specialized court programs as well, including community courts (Frazer, 2006), domestic violence courts (Gover et al., 2007), and drug courts (Gottfredson et al., 2007; McIvor, 2009). In one of the first empirically-rigorous tests of procedural justice in a specialized court context, Frazer (2009) found that social control and procedural justice were both related to reductions in recidivism. Specifically, he found that social control measures were best at reducing drug use frequency and procedural justice was more effective at reducing overall offending. Similarly, Gottfredson and associates (2007) randomly assigned defendants to either drug courts or traditional court programs and found that procedural justice had both direct and mediating effects on recidivism. While many examinations of procedural justice in specialized court programs suffer from limited or simplistic methodology, some studies have found support for this relationship using more empirically sophisticated methods and multivariate statistics (Frazer, 2006; Gottfredson et al., 2007; Redlich & Han, 2014).

Correctional contacts. As scholarship on procedural justice and legitimacy has progressed, scholars have started turning their attention to the correctional component of the justice system. According to Sparks and Bottoms (1995) the prison system suffers inherently from a chronic problem of legitimacy. Also, with few opportunities for

rewards and limited effects of sanctions (Reisig & Meško, 2009), prison environments may benefit from a better understanding of the role of procedural justice and legitimacy in the maintenance of order and reduction of prisoner misconduct.

Some of the research discussed above has already highlighted how procedural justice judgments can influence outcomes in community-based correctional contexts (e.g., Canada & Hiday, 2014; Frazer, 2006; Gottfredson et al., 2007; Redlich & Han, 2014). The first to empirically examine the role of procedural justice in a prison context was Reisig and Meško in 2009. Their study tested whether perceptions of procedural justice and legitimacy influenced the occurrences of prisoner misconduct in a high-security prison in Slovenia. They found mixed support for the application of Tyler's process-based model. They did find that procedural justice perceptions were related to reports of engagement in misconduct and charges of rule violations. They did not find a significant relationship, however, between legitimacy perceptions and misconduct (Reisig & Meško, 2009).

Correctional strategies and procedural justice. Looking at how different correctional strategies influenced perceptions of legitimacy, Franke and associates (2010) found that over the course of incarceration, perceptions of legitimacy changed. Perhaps surprisingly, they found that these perceptions lowered during the course of incarceration, but did not for those that participated in a boot camp program. Similar to studies examining perceptions of legitimacy in other contexts, these authors found that equitable treatment and positive experiences were important in promoting judgments of legitimacy.

There have been two recent studies that assess the long-term impact of procedural justice using an incarcerated sample (Beijersbergen et al., 2014, 2015). Both studies use

an incarcerated Dutch sample to determine what effects procedural justice may have in a correctional institution setting. One study examined the relationship between procedural justice and misconduct and found that those who reported being treated in a more procedurally just way shortly after arrival were less likely to engage in misconduct three months later (Beijersbergen et al., 2015). The authors also found, however, that feelings of anger fully mediated this relationship. In another study, these authors found that those who reported higher perceptions of procedural justice were less likely to report later mental health problems (Beijersbergen et al., 2014).

Individual Variation in Perceptions of Procedural Justice

Research has examined how judgments of procedural justice and perceptions of procedural justice and legitimacy may vary by individual characteristics, such as race, gender, and age. This body of work attempts to understand whether certain characteristics or circumstances explain variations in perceptions. Overall, the findings of this literature suggest that African Americans have generally lower perceptions of procedural justice and legitimacy compared to Caucasian individuals. Research also suggests that specific circumstances of criminal justice contacts influence perceptions of procedural justice and legitimacy as well. This research is reviewed in the section that follows.

Police. To explore how procedural justice factors compare to instrumental factors (i.e., distributive justice), Engel (2005) examined data from the Police-Public Contact Survey to determine the influences of normative and instrumental concerns and also whether these perceptions vary by race. Looking at traffic stops, she found that citizen perceptions favorable to police were affected by perceived fairness of the procedures as well as the outcomes they received. Specifically, Engel found that the initial reason for

the stop, police use of force, and performing searches of the vehicle all significantly influenced both perceptions of procedural and distributive justice.

Engel also found that perceptions of justice varied by race and age. Her study found that African American citizens were less likely to have perceptions of distributive or procedural justice compared to Caucasians and that this relationship held out even when examining race-income interactions. Wells (2007) also found that perceptions varied by race, and age, with Caucasians and older individuals having better evaluations of officer performance, however other studies did not find a significant relationship between demographics and police satisfaction (i.e., Murphy, 2009).

More recently, scholars have examined the role of procedural justice in police encounters with persons who have serious mental illness (Watson & Angell, 2012). The authors used data from the Police Contact Experience Survey and identified a sample of 154 persons with serious mental illness who reported police contact within the past year. These individuals were interviewed and provided information regarding characteristics of the contact, cooperation and resistance, and procedural justice perceptions. The authors found that for these vulnerable populations, greater procedural justice was associated with self-reported increased cooperation and less resistance during police encounters.

Researchers have also found that perceptions of procedural justice vary across types of encounters. Wells (2007) looked at three different types of interactions—traffic stops, victim contacts, and car accidents—and found that, regardless of circumstance, procedural justice was a strong correlate of evaluations of officer performance. Additionally, Murphy (2009) found that procedural justice was a strong predictor of satisfaction with police in both self-initiated and police-initiated contacts.

Courts. Research has also examined how perceptions of procedural justice vary by different types of individuals within the court context. Heinz (1985) was the first study to test whether perceptions of procedural justice had different effects for defendants, victims, and police officers. Procedural justice and distributive justice were independent of each other for victims and police officers, but the two variables represented a single construct for defendants when predicting satisfaction with the outcomes of settlement hearings. In general, however, Heinz (1985) found that higher levels of perceived procedural justice lead to greater satisfaction with the outcome for defendants, victims, and police officers. Alternatively, a recent case study by Pennington (2015) found that parents whose kids were involved in the juvenile justice system have lowered perceptions of procedural justice over time. She also suggested that parents' views of the court system were not static and developed through a process of "mutual causation," meaning that individuals do not passively receive the law, but are active participants that can influence the legal process through their patterned beliefs, understandings, and behaviors (p. 15). Additionally, Pennington found that views on legitimacy of the justice system were relational and varied depending on their communication with family members and others in their social group.

Tyler and Huo (2002) looked at whether procedural justice had different effects depending on whether contact with the court was self-initiated or the result of forced encounter. They found that regardless of type of contact, of those who had contact with the court, those with higher perceptions of procedural justice had more positive evaluations of the court and were more willing to accept decisions of judges. Additionally, these results remained regardless of the race, age, or gender of the

respondent. Rottman (2005) compared perceptions of procedural justice for residents of California to that of practicing attorneys in the area. Interestingly, Rottman found that procedural justice was the strongest predictor of having confidence in the court system for residents, but attorneys placed more emphasis on fair outcomes.

While most research on procedural justice in the court context focuses on the role of the judge, some studies have examined perceptions of procedural justice and legitimacy in relation to other courtroom actors, such as lawyers (e.g., Casper et al., 1988; Landls & Goodstein, 1986; Raaijmakers, de Keijser, Nieuwbeerta, & Dirkzwager, 2014; Sprott & Greene, 2010). Sprott and Green (2010) sampled adolescents that were involved in the court system in Ontario, Canada and found that how youths perceived they were treated by their lawyers or by the judge significantly affected their views on overall legitimacy of the court system. Furthermore, they found that these views changed over time. That is, between the time of their first appearance and sentencing hearings youths' evaluations of procedural justice reduced. More recently, scholars tested whether procedural justice influenced defendants' satisfaction with their defense attorney (Raaijmakers et al., 2014) and found that the majority of those in their sample of Dutch prisoners were satisfied with their lawyers and that perceptions of procedural fairness was a significant part of this satisfaction.

Longitudinal Patterns of Procedural Justice and Legal Socialization

Few studies to date have tested the developmental patterns of procedural justice and legal socialization over time. Studies of procedural justice and legal socialization have predominately used cross-sectional data and few have provided short-term longitudinal studies testing the effects of procedural justice up to one or two time points

later (e.g., Beijersbergen et al., 2014, 2015; Penner, Viljoen, Douglas, & Roesch, 2014; Tyler, 1990). There has been a recent interest, however, in exploring the developmental patterns of procedural justice and legal socialization.

There have been recent studies that have used multi-wave longitudinal data to examine developmental patterns of procedural justice. Using a sample of incarcerated females, Tatar and associates (2012) found that perceptions of procedural injustice had implications for emotional and behavioral outcomes during the length of incarceration. They found that females who experienced procedural injustice during the court process were more likely to experience feeling of depression and engage in institutional misconduct. Additionally, they found that the length of incarceration exacerbated the psychological effects of perceived procedural injustice.

Augustyn (2016) found that overall judgments of procedural justice were influenced by both direct and vicarious experiences of arrests. The results from her study confirm that perceptions of procedural justice are not static over time, but can be influenced by a number of other factors, including direct and indirect contact with the criminal justice system. While her study focused only on the direct and vicarious experiences of arrests, this study provides meaningful insight into possible long-term influences of criminal justice interactions and related perceptions.

More attention has been given to the longitudinal patterns of legal socialization measures, such as legitimacy and legal cynicism. In perhaps the first study to assess longitudinal trends of legal socialization, Piquero and associates (2005) used the first four waves of the Pathways to Desistance data to analyze the developmental trajectories of legitimacy and legal cynicism. Covering a period of approximately two years, the authors

concluded that these beliefs tend to remain relatively stable over time, although they also found a significant relationship between perceptions of procedural justice and legal socialization beliefs. More recently, Schubert and colleagues (2016) examined the longitudinal trajectories of legitimacy, comparing individuals who successfully desisted from crime from those who did not. In their study, they found that the successful desisters had a positive change in legitimacy over time whereas the trajectory of legitimacy for others remained stable. Fine and Cauffman (2015) examined whether legitimacy and legal socialization attitudes differed by race and ethnicity, finding that Black youth had more negative legal socialization attitudes compared to White youth.

The Process-Based Model and Offending

Research has been fairly consistent in demonstrating that procedural justice and legitimacy influence cooperation and compliance with legal authorities in a variety of contexts, including police, courts, and corrections. These findings may also hold important implications for the study of desistance and rehabilitation, suggesting that procedural justice and legitimacy may lead to desistance from crime. As Tyler (2009) has noted, the goals of the criminal justice system are shifting. No longer is strict and immediate compliance under the direct eye of criminal justice officials enough, society wants long-term adherence to the law, cooperation with the legal system to prevent and respond to crime, and prosocial commitment to society (Tyler & Jackson, 2014; Tyler, 2009). In essence, society wants individuals to be motivated to comply with legal authorities and become prosocial members, not for fear that big brother is always watching, but as the result of voluntary acceptance and cooperation. As Tyler suggests

(2009), this changing focus requires “a change in the type of motivation that we need to create among community residents” (pg. 313).

Several scholars suggest that procedural justice and legitimacy may promote rehabilitation (Wexler, 2001), prosocial community engagement (Tyler & Jackson, 2014), and the self-regulative capacity of individuals (Tyler, 2009), which will lead to decreases in criminal behaviors. In fact, there has been a growing body of literature studying the effects of procedural justice and legitimacy on recidivism, crime, and misconduct behaviors (e.g., Beijersbergen et al., 2014b; Gottfredson et al., 2007; Levi, Tyler, & Sacks, 2012; Reisig & Mesko, 2009; Scheuerman, 2013; Tyler et al., 2007; Tyler, 2009; Wexler, 2001), which has found mostly positive support for this relationship (cf. Hipple, Gruenewald, & McGarrell, 2011).

One of the earlier studies that tested the relationship between procedural justice and recidivism was by Paternoster et al. (1997). This study focused on offenders arrested for spousal assault and found that those who perceived the arresting officer’s conduct as procedurally just were less likely to engage in subsequent domestic violence. Their findings also suggested that this effect remained, even when accounting for favorable outcomes or offender’s stakes in conformity (i.e., marriage and employment).

The study by Paternoster and colleagues (1997) represents one of the few that tests the effects of perceptions of police procedural justice on future recidivism. Where this relationship has been tested more often is in the courts or correctional contexts. Studies looking at the effects of specialized court programs, such as drug and mental health courts, have provided empirical support for the role of procedural justice and legitimacy on recidivism, although not always in similar ways. For example, some

researchers have found that procedural justice has a direct effect on reductions of criminal offending (Gottfredson et al., 2007), while others have found that this relationship was mediated by perceptions of legitimacy (Tyler et al., 2007). Using a longitudinal sample of offenders involved in either traditional prosecution or a diversion program based on reintegrative shaming and procedural justice strategies, Tyler and associates (2007) found that while procedural justice did not have direct effects on future offending, it did lead to increased perceptions of legitimacy. Legitimacy, in turn, was found to reduce future offending.

Not all studies have found support for a relationship between procedural justice, legitimacy, and reduced recidivism. Hipple, Gruenewald, and McGarrell (2011) did not find procedural justice to be relevant in predicting reoffending in a sample of individuals involved in family group conferences, although they did find that these conferences were generally viewed as high in procedural justice, thus limiting possible variation in their measure. Alternatively, studies examining the role of procedural justice in correctional programming has shown that it may also influence treatment success (Canada & Hiday, 2014), promote relationships with probation and treatment providers (Skeem, Loudon, Polaschek, & Camp, 2007), and increase acceptance of drug testing (Konovsky & Cropanzano, 1991).

Tyler and Jackson (2014) suggest that the role of law and legal authority is no longer to strictly maintain social order, but also to “facilitate development of the type of attitudes and values that will lead communities to address their underlying problems, problems recognized as being the root causes of crime and disorder” (pg. 79) and even Andrews and Bonta have identified “perceptions of injustice” as a route to criminal

activity (2010, pg. 111). In their recent article, Tyler and Jackson tested whether perceptions of legitimacy enhanced community engagement and found that not only does the law motivate law abiding behavior, but also has a role in community engagement. Specifically, they found that perceptions of legitimacy influenced social capital and facilitated social, political, and economic development within the community. The results showed that legitimacy was the strongest and most consistent predictor of cooperation and community engagement.

There has been progress made on the understanding of the possible relationship between procedural justice, legitimacy, and desistance from criminal behavior. This research, however, is still in its infancy and more development is needed, both empirically and theoretically. Procedural justice and legitimacy may play a direct role in the desistance process by contributing to desistance narratives (Maruna, 2001; Wexler, 2001), suggesting that when offenders perceive the law or legal authorities as more legitimate, they may be less likely to hold views favorable to breaking the law or disobeying authority. Increased views of legitimacy, however, may also increase other socio-cognitive processes that can, in turn, lead to future desistance and prosocial involvement in the community. Specifically, research from other disciplines suggests that authority figures seen as more legitimate may be more able to motivate individuals to success toward a variety of outcomes, such as in the fields of academic and work performance.

Mechanisms of Procedural Justice on Offending

The process-based model of regulation argues that procedural justice holds both a direct effect and indirect effect on compliance behavior through legal socialization

(Tyler, 2003). Multiple studies have confirmed the relationship between procedural justice and legitimacy and, in turn, some studies have provided evidence of a partial or full mediation effect of legitimacy on the procedural justice-compliance relationship (e.g., Murphy, Hinds, & Fleming, 2008; Sunshine & Tyler, 2003; Trinkner & Cohn, 2014; Tyler, 2003). More recently, however, there has been interest in exploring other possible mechanisms to explain the relationship between procedural justice and outcome behaviors. This work has been driven primarily by two perspectives, although other possible mechanisms—such as self-control—have also been explored (e.g., Reisig et al., 2011). Scholars of the legal socialization perspective incorporate legal cynicism as an additional mediator (e.g., Fagan & Piquero, 2007; Trinkner & Cohn, 2014); whereas, those using the defiance theory or general strain theory perspective suggest that anger or other negative emotions plays a meaningful role in this relationship (e.g., Barkworth & Murphy, 2014; Krehbiel & Cropanzano, 2000; Murphy & Tyler, 2008; Sherman, 1993). Outside the literature on offending or legal compliance, recent scholars of organizational research have examined the role of motivation in the relationship between procedural justice and positive performance outcomes (e.g., Zapata-Phelan, Colquitt, Scott, & Livingston, 2009). The empirical and theoretical foundations for these three mediation hypotheses will be explored in the sections that follow.

The role of legal socialization. A fundamental component of the process-based model of regulation, as argued by Tyler (2003), is the mediating role of legitimacy beliefs on the relationship between procedural justice perceptions and legal compliance. According to Tyler’s model, perceptions of procedural justice are tied to two outcomes: “variations in willingness to accept decisions [legitimacy] and differences in the level of

general cooperation” (2003, p. 285). He also states that compliance is also the result of an individual’s legitimacy belief, thus providing a partial mediation hypothesis.

Research has shown rather consistently that procedural justice is an important antecedent to legitimacy (e.g., Murphy, Hinds, & Fleming, 2008; Reisig et al., 2007; Sunshine & Tyler, 2003; Tyler & Lind, 1992; Tyler et al., 2007) and that legitimacy is an important predictor of compliance and cooperation (e.g., Jackson, Bradford, Hough, et al., 2012; Murphy et al., 2008; Reisig et al., 2007, 2014, 2011; Tyler, 1990). In general, research has suggested at least a partial mediation effect of legitimacy, but this relationship has not been found in all contexts and populations. In fact, studies with incarcerated or highly criminal justice involved samples have suggested that legitimacy does not mediate the effects of procedural justice on compliance (e.g., Augustyn, 2013; Reisig & Meško, 2009).

The theoretical mechanisms of procedural justice have expanded to incorporate legitimacy into a broader construct of legal socialization, which also includes the concept of legal cynicism (e.g., Cohn & White, 1990; Fagan & Tyler, 2005; Piquero et al., 2005; Reisig et al., 2011; Trinkner & Cohn, 2014; Tyler & Huo, 2002; Tyler, 2009).¹ Research has shown that both legitimacy and legal cynicism are predictive of offending behavior (Reisig et al., 2011). Trinkner and Cohn (2014) further confirmed that both legitimacy and legal cynicism mediates the effects of procedural justice concepts on rule-violation behaviors.

¹ Although, scholars have also incorporated additional components into the concept of legal socialization, such as moral disengagement (Fagan & Tyler, 2005), institutional trust (Tyler & Huo, 2002), and moral credibility (Robinson, 1995), legitimacy and legal cynicism are the most commonly tested components in the context of legal compliance and cooperation (Reisig et al., 2011).

The role of emotion. One of the current trends in research on procedural justice and legitimacy is testing mediating effects of other factors, mostly examining the role of emotions (e.g., Barkworth & Murphy, 2014; Beijersbergen et al., 2015; Krehbiel & Cropanzano, 2000; Mikula, Scherer, & Athenstaedt, 1998; Murphy & Tyler, 2008). This is consistent with Sherman's defiance theory (1993) and general strain theory (Agnew, 1992; Scheuerman, 2013).

Sherman's defiance theory integrates Braithwaite's (1989) theory of reintegrative shaming and Tyler's (1990) procedural justice to suggest that an individual's emotional response to sanctions involve four key considerations: legitimacy, social bonds, shame, and pride. Defiance theory argues that people are more likely to feel angry and resent the police when they are not treated with dignity and respect. These negative feelings then have the potential to lead to retaliatory behavior (Braithwaite, 1989; Sherman, 1993). Sherman's defiance theory has provided the foundation for several studies exploring the relationship between procedural justice and anger (e.g., Barkworth & Murphy, 2014).

Others scholars have relied on Agnew's (1992; 2001) general strain theory to establish that procedural injustice experiences can be associated with strain that induces negative emotional responses, such as anger, which will increase the likelihood of delinquency (Beijersbergen et al., 2015). According to general strain theory, there are several types of strains that can result in a range of negative emotions. Agnew (2006) states that those strains that result in feelings of anger are most likely to result in criminal coping strategies. Among those strains that produce feelings of anger is unjust treatment (Agnew, 1992). Similar to Sherman's defiance theory, Agnew argues that anger "creates a desire for retaliation/vengeance, energizes the individual for action, and lowers

inhibitions, in part because individuals believe that others will feel their aggression is justified” (1992, p. 60) and that “the experience of negative affect, especially anger, typically creates a desire to take corrective steps, with delinquency being one possible response” (p. 60). According to general strain theory, experiences of unjust treatment by individuals in positions of legal authority may not result in retaliation directed at that specific authority figure, but may lead to more general delinquency. Additionally, under general strain theory, the frequency of procedurally unjust experiences would increase the amount of strain. This suggests that the more unjust treatment a person experiences over their lifetime, the more involved in criminal behaviors they are likely to become. Taken together, Sherman’s defiance theory and Agnew’s general strain theory provide a strong theoretical foundation for the connection between procedural justice, anger, and offending.

Research outside of criminal justice has also explored the relationship between procedural justice and emotional responses, particularly anger (see Cropanzano, Stein, & Nadisic, 2011; Krehbiel & Cropanzano, 2000; Weiss, Suckow, & Cropanzano, 1999). These studies have shown that perceptions of procedural justice are linked to emotions such as happiness, joy, pride, anger, frustration and anxiety (e.g., Krehbiel & Cropanzano, 2000; Weiss et al., 1999).

There are studies that suggest that these emotional responses—anger, in particular, may mediate the relationship between procedural justice and behavioral reactions (Chebat & Slusarczyk, 2005; Gordijn, Yzerbyt, Wigboldus, & Dumont, 2006; Vanyperen, Hagedoorn, Zweers, & Postma, 2000). More recently, studies have explored this mediation hypothesis in the context of criminal behavior and compliance (Barkworth

& Murphy, 2014; Beijersbergen et al., 2015; Murphy & Tyler, 2008; Scheuerman, 2013). Looking at whether negative emotions mediated the effects of procedural justice on tax payer compliance behaviors after a taxation dispute, Murphy and Tyler (2008) found that feeling of anger directed at the taxation office mediated the relationship between procedural justice and subsequent compliance.

In the context of police interactions, Barkworth and Murphy (2014) found similar results, that negative emotions relating to experiences of police treatment mediated the relationship between procedural justice perceptions and compliance. While this study was the first to test the mediation of emotions in relation to criminal justice involvement, there are some limitations to its findings. Primarily, this study measured compliance as a “willingness to obey the police and the law” rather than actual behavioral compliance (Barkworth & Murphy, 2014, p. 7). This measure consisted of items such as “disobeying the police is sometimes justified” and “there are times when it is ok for you to break the law.” These items may in actuality be capturing legal orientations such as legitimacy or legal cynicism beliefs as opposed to actual behavioral change. If so, this study may suggest a possible mediation effect of anger between procedural justice and legal orientations rather than compliance behavior. A study by Scheuerman (2013) also tested the possible mediation effect of anger using a general population sample and used a dependent variable that more closely tested compliance behavior. In this study, using a vignette survey, the author tested whether situational anger relating to the scenario presented mediated the effects of procedural justice on whether a person reported they were likely to engage in either violent or drinking behaviors. This study also found that anger mediated the relationship between injustice and crime intention.

Beijersbergen and associates (2015) recently tested the anger mediation hypothesis in a correctional context. Their study assessed whether feelings of anger—conceptualized as resentment and irritation regarding treatment in correctional facility—mediated the relationship between general perceptions of procedural justice and self-reported and official misconduct. Using a short-term longitudinal design, the authors found that anger was a substantial mediator in the procedural justice and crime relationship. This study provides the only test to date on the mediation effects of anger on actual compliance behaviors. Additionally, it is the first to test this relationship using more general perceptions of procedural justice and feelings of anger not related to a specific interaction.

Research exploring the emotional responses of procedural justice and its potential mediation effects on compliance behavior is still in the early stages of development. As such, there are still many questions that remain unanswered. One such question is whether specific feelings of anger in one interaction—such as that tested in many of the studies discussed above—would result in sustained or long-term behavioral changes in non-compliance or criminal behaviors or whether procedurally unjust actions result in more prolonged feelings of trait-based anger or inability to suppress aggression. Additionally, research has used various measures to test emotional mediation, including feelings of resentment and irritation (Beijersbergen et al., 2015), negative affect (Barkworth & Murphy, 2014), and state-based anger (Murphy & Tyler, 2008). There has yet to be a consensus as to the appropriate measurement for the emotional mediation hypothesis. These uncertainties offer unexamined areas for future research.

The role of motivation. The premise of the research discussed in the section above is that those who are treated in a procedurally unjust manner are likely to experience feelings of anger and frustration that may lead to them acting out in an anti-social fashion. Alternatively, it may be that those treated in a way considered procedurally just, fair, and neutral, may express happiness and an overall sense of well-being, which will then lead to compliance, cooperation, and, ultimately, to desistance from crime. This basic assumption makes sense, but it is possible that there are other cognitive processes being neglected. For example, the ability to regulate one's own emotions or their internalized motivations may be more meaningful for long-term behavioral changes than the momentary effects of feeling angry. Tyler (e.g., Lind & Tyler, 1988; Tyler & Blader, 2003; Tyler, 2009) has suggested that procedural justice and legitimacy may lead to lasting changes in one's self-regulation and improve ties with the social order.

Issues of justice are often discussed in reviews of motivation literature (Kanfer, 1990; Latham & Pinder, 2005) and equity theory has long been considered a component of motivation (e.g., Latham & Pinder, 2005; Parker, Bindl, & Strauss, 2010; Trommsdorff, 1983). Literature also discusses the effects of procedural justice in terms of its capacity to motivate compliance and cooperation. It would be logical to assume, therefore, that the motivational effects of justice are well-understood. Most discussions of justice within the motivation literature, however, focus on distributive justice and outcome expectations (cf. Bell, Wiechmann, & Ryan, 2006; Colquitt & Chertkoff, 2002) and issues of motivation have largely been ignored within the procedural justice literature. As noted by Zapata-Pehlan and colleagues (2009), "scholars have failed to

examine the motivational consequences of other justice dimensions,” such as procedural justice (p. 93).

The mediating effects of motivation on the relationship between procedural justice and task performance was the focus of the study conducted by Zapata-Phelan and associates in 2009. Using two study designs, one in a laboratory and the other in a field setting, they tested the effects of procedural justice, interactional justice, and motivation on performance of various work related tasks. In both studies, they found a significant relationship between procedural justice and intrinsic motivation, regardless of the tasks specificity (i.e., specific task versus overall job duties) and varying measures of motivation (i.e., self-reported and free choice measures). They did not find a similar relationship to interpersonal justice.

Research has also found a relationship between procedural justice and self-efficacy (Bell et al., 2006; Li & Bagger, 2008) as well as leadership effectiveness and the motivation of their followers. Research has suggested that effective leadership styles are associated with various motivational concepts, such as self-esteem, self-efficacy, and motivation (e.g., Eyal & Roth, 2011; Johnson, Chang, & Rosen, 2010; Kark & Van Dijk, 2007; Paarlberg & Lavigna, 2010; Shamir, House, & Arthur, 1993). For example, Johnson, Change, and Rosen (2010) found that perceptions of fairness were related to motivational concepts of self-identity and self-regulation using sample of undergraduates in an experimental design.

Empirical and theoretical examinations of the effects of procedural justice and legitimacy on motivation remains underdeveloped. Additionally, research on the possible mediating effects of motivation on the relationship between procedural justice,

legitimacy, and prosocial outcomes is also just beginning. According to Johnson and associates (2010, p. 3021), “Opening the motivational ‘black box’ that underlies justice experiences also helps researchers anticipate other possible effects of justice that have not yet received attention.” Through this line of research inquiry, researchers may find that the “effects of justice are more extensive than what is currently thought” (R. E. Johnson et al., 2010).

Future outlook and goal orientation. Theories of motivation have long attributed a goal- or future- oriented perspective as a necessary component of motivation (e.g., Bandura, 2012; Butler, 1993; Dweck & Leggett, 1988; Elliot & Harackiewicz, 1994; Locke & Latham, 1990; Schunk, 1990, 1991). Bandura (1986) and Schunk (1990, 1991) argue that self-efficacy and improved performance are influenced by the proximity, specificity, and level of challenge of the goals of an individual. Bandura (1989) noted that people are motivated into action through forethought, stating that motivated individuals “anticipate likely outcomes or prospective actions, set goals for themselves, and plan courses of action designed to realize valued futures” (p. 729). Additionally, he states that future events not only translate into current motivation but also regulate behavior.

Scholars within the goal theory tradition (e.g., Ames, 1992; Blumenfeld, 1992; Butler, 1993) relate individuals’ immediate achievement-related performance goals to behaviors and perceived ability and efficacy. A goal orientation has been broadly defined as the “desire to develop, attain, or demonstrate competence at an activity” (Harackiewicz & Elliot, 1993, p. 904) and this perspective hypothesizes that those who possess a positive goal orientation will more likely engage in performance behaviors because of

their desire for competence and mastery of that task (Harackiewicz & Elliot, 1993; Nicholls, 1984).

There is variation in the conceptualization of the goal-orientation framework. Whereas some scholars view “goal-orientation” as similar to other motivational theories, others differentiate the “goal” aspect of the perspective from other self-concepts or self-beliefs, such as affect, attributions, and self-efficacy (Hulleman, Schrage, Bodmann, & Harackiewicz, 2010). Recent scholarship of achievement goals—or goal-orientation—suggests a more complex understanding of goal-orientation, such as “a future focused cognitive representation that guides behavior to a competence-related end state that the individual is committed to either approach or avoid” (Hulleman et al., 2010, p. 423). Regardless of the definition, theories of motivation continue to view aspects of goal achievement or orientation as a necessary component of motivation.

Empirical evidence tends to support the roles of goal-orientations in achievement success and motivation. Several meta-analyses have found support for a relationship between goal orientation and positive academic performance behaviors, for example (Hulleman et al., 2010; Linnenbrink-Garcia, Tyson, & Patall, 2008; Payne, Youngcourt, & Beaubien, 2007; Rawsthorne & Elliot, 1999; Utman, 1997). Payne and associates (2007) found that individuals with a goal-orientation state had higher levels of self-efficacy, but this effect was only present for learning-based goal-orientations rather than performance-based goals. A relationship between goal-orientation and self-efficacy was found by other scholars as well (Ford, Smith, Weissbein, Gully, & Salas, 1998). A strong goal-orientation was also related to a positive correlation with learning and academic performance. While these results are promising, there is also high variability among

measurement and conceptualizations of goal-orientation (Hulleman et al., 2010). In a recent article, Cerasoli and Ford (2014) found that the relationship between intrinsic motivation and performance was mediated by goal orientations, suggesting that intrinsically motivated individuals are more likely to adopt an orientation of goal mastery, which is predictive of improved performance.

Future outlook is a related concept to goal-orientation. According to the future time perspective, the setting of motivational goals in the future creates a future orientation perspective (de Volder & Lens, 1982). This future time perspective is defined as the “present anticipation of future goals” (Simons, Vansteenkiste, Lens, & Lacante, 2004, p. 123) and is a product of motivational goal setting (Nuttin, 1980). Individuals vary in their ability to consider future goals and consequences. Some individuals may be able to see clearly the potential future benefits of certain actions and work towards future goals, but others may be less concerned with the future and focused more exclusively on the present situation (e.g., Husman & Lens, 1999; Peetsma & van der Veen, 2011).

Research has found that having a future orientation is related to motivation and persistence. According to De Volder and Lens (1982) students who place more value on goals in the distant future are more likely to be motivated in their schoolwork. These students were also found to be more persistent toward their future goals and viewed studying hard as more instrumental to their future success. Additionally, Lens and Decryencaere (1991) found that individuals who were more aware of the importance of school in their success later in life were more motivated in academic tasks. Research has also supported a relationship between longer future perspectives and persistence in

working towards goals (i.e., Brickman, Miller, & Roedel, 1997; Husman & Lens, 1999; Husman, 1998; Lasane & Jones, 1999; Miller, DeBacker, & Greene, 1999).

Conclusions

While there has been a growing body of literature on the role of procedural justice and legitimacy in the context of criminal justice and legal compliance, there are several gaps in the literature that remain. First, as this literature review has demonstrated, there has been only limited research comparing the effects of direct, vicarious and general perceptions of procedural justice on offending behavior. The majority of research on procedural justice focuses on either direct or general perceptions of procedural justice and, of the few studies that compare the two, the outcomes of interest have been primarily attitudinal (e.g., legitimacy and satisfaction with police) rather than behavioral. Second, the understanding of the longitudinal development of procedural justice and legal socialization attitudes remains underdeveloped. Although interest in the longitudinal patterns of procedural justice and legal socialization has grown in recent years, there are many questions that remain unanswered. Directly tied to the first gap in the literature stated above, whether perceptions of procedural justice based on direct or vicarious experiences follow similar developmental trajectories is a question that has yet to be fully addressed.

Finally, there are several questions that remain regarding the underlying mechanisms between procedural justice, legitimacy, and offending. The relationship between procedural justice and legitimacy has been well established in the literature and some research has found legitimacy to have a mediating role in the relationship between procedural justice and various outcomes. This mediation effect has not been a universal

finding and there is reason to suggest that there may be other or additional mechanisms at play. Additionally, most tests of a possible mediation effect examine between-individual mediation—that is, whether individual differences in legitimacy mediate the relationship between procedural justice and offending—rather than testing for within-individual mediation effects. This strategy for testing mediation, although informative, does not hold true to the hypothesized process set forth by the process-based model introduced by Tyler, which argues that when an individual is treated in a procedurally just way, this will enhance their perceptions of legitimacy in the legal system and will further lead to improved behavioral outcomes. According to this model, the mediation process should occur within the individual, however, the research testing this process in this manner has been limited.

In light of these questions that remain unresolved, the purpose of this current study is three fold. The first goal of this study is to provide insights into the longitudinal patterns of procedural justice and legal socialization, focusing on those individuals who are actively justice-involved. Second, this project will assess the processes by which these constructs may interact. Specifically, this study will examine four potential intervening mechanisms—legitimacy, legal cynicism, anger, and motivation—to mediate the effects of procedural justice on offending both within- and between-individuals. Finally, this study will focus on the influence of procedural justice based on direct experiences as well as those based on vicarious and general perceptions and use both measures throughout this study.

CHAPTER THREE

DATA AND METHODS

Overview

This chapter describes the data and measures used in the present study and is comprised of three sections. First, the characteristics and sampling procedures of the Pathways to Desistance data are described. The second section describes the dependent, independent, and mediating variables, as well as the time-varying, time-stable, and control variables that will be used in various models. The psychometric properties of these measures will be provided. The final section of this chapter will introduce the analytic strategy used to guide the analyses, which will be expanded upon in chapter four.

Data

Sample

The data for this study is from the Pathways to Desistance project, which is a longitudinal study of 1,354 serious adolescent offenders adjudicated from the juvenile and adult court systems in Maricopa County, Arizona (N = 654) and Philadelphia County, Pennsylvania (N = 700; Schubert et al., 2004). The Pathways project enrolled youth ages 14 to 17 years old between November 2000 and January 2003 and were followed for a period of seven years. Those enrolled in the study were young males (n = 1,170) and females (n = 185) found guilty of mostly felony or a serious weapon, property, or sexual assault misdemeanor offense. The number of male drug offenders in the sample was limited to 15% to maintain a heterogeneous sample of serious offenders. The sample consisted of predominately African American (41%) and Hispanic (34%) adolescents who were an average of 16 years of age at the time of the baseline interview.

Procedures

Between November 2000 and January 2003, approximately 10,461 adolescents meeting the age and charge selection criteria for the study were processed in the court systems of Maricopa County, Arizona and Philadelphia County, Pennsylvania (Schubert et al., 2004). Some of the 10,461 adolescents did not qualify for inclusion in the study for several reasons, including not being adjudicated, charges being reduced below a felony-level offense ($n = 5,832$), or the court cases not being sufficiently clear to determine eligibility. Additionally, other juveniles were excluded due to constraints of the study design, such as overwhelming the available interviewers or reaching the 15 percent cap of drug offenders. Of those who were approached for the study, 67 percent were enrolled.

There are a few statistically significant differences between those enrolled in the study and those that were not. Adolescents enrolled in the study are generally younger (15.9 versus 16.1 years of age), had more prior court petitions (2.1 versus 1.5), and were more likely to be female (14 percent versus 9 percent), but less likely to be African American (44 percent versus 49 percent). These statistically significant differences, however, do not present substantive concerns for this study.

Baseline interviews of the enrolled adolescents were conducted within 75 days of their adjudication in juvenile court and within 90 days of their decertification hearing (Philadelphia County, PA) or arraignment (Maricopa County, AZ) for those processed in adult court (Schubert et al., 2004). Subjects then participated in follow-up interviews every six months for the first 3 years and then annually thereafter through the seven years of the project, for a total of 10 post-baseline waves of interviews.

Following the baseline interview, subjects then participated in two types of interviews: time-point and release interviews (Schubert et al., 2004). Time-point interviews were scheduled at nearly equal intervals for all participants based on date of their baseline interview. Interviewers would begin attempts to contact each participant within 6 weeks of their next interview date. If an interview was not completed within eight weeks of the target date, that time-point was considered missed (Schubert et al., 2004).

Overall, retention in this project is rather impressive for a longitudinal study, with approximately 86 percent of participants completing at least eight of the ten follow-up interviews throughout the seven-year period (see <http://www.pathwaysstudy.pitt.edu>). When working with longitudinal data, missing data due to nonresponse and subject attrition can be common (Diggle, Heagerty, Liang, & Zeger, 2002; Spratt et al., 2010; Verbeke & Molenberghs, 2000). While the Pathways data maintains a healthy rate of retention, it is inevitable that some missing data will occur. The Pathways data has few missing observations on the variables of interest and most variables are missing less than two percent of observations on time varying covariates.

Of the measures of interest for this study, the rate of missing data is minimal. All of the independent and mediation variables of interests retain the full 1,352 sample of individuals, who were interviewed about 9.15 to 9.99 times out of eleven (including baseline), on average (NT = 12,395 to 13,537 for all independent and mediating

measures).² The dependent variable of overall offending retains 1,336 of the total sample who were interviewed 12,148 times in ten waves of data. Of the remaining time-varying covariates, less than one percent are missing in waves where delinquency is measured.

Measures

Dependent, Independent, and Mediating Variables

Offending. The main dependent variable of interest for the mediation models is a variety scale measure of overall offending behaviors. The self-reported offending measures were adapted from Huizinga, Esbensen, and Weiher (1991). Variety scores are the preferred method for measuring criminal offending because they are high in both reliability and validity. They also reduce potential influence of common non-serious offenses (Sweeten, 2012). *Offending* is a variety score comprised of the number of various acts committed during the recall period. This variety score is a 22-item measure representing an adolescents' involvement in different types of offenses between each wave, including violent, drug, and property crimes.³ This measure was originally provided as a variety proportion where the number of acts committed was divided by the number of questions answered, resulting in a value between 0 and 1. In order to ease interpretation, however, these proportions were converted into variety scores by multiplying them by 22 and rounding to the nearest whole number (Larson, 2013). Table 2 presents the descriptive statistics for the variables of interest for this study.

² When baseline interviews are excluded, the number of subjects drops to 1,336 for all measures except for procedural justice of police-indirect and procedural justice of courts-indirect, which drop to 1,335. Number of interviews per ten waves range from 11,042 to 12,174. This averages to approximately 8.27 to 9.11 out of ten interviews per individual.

³ The original study included 24 items, however two items ("ever went joyriding" and "ever broke into a car to steal") were added after a large number of participants had completed the baseline or six-month interview. Therefore, these were excluded from the calculations of self-reported offending scores.

Table 2
Descriptive Statistics (N = 1,352, NT = 13,537)

Variable	Overall		Between SD	Within SD	Range
	Mean	SD			
Offending	1.35	2.34	1.57	1.77	1-19
PJ Police-Direct	3.19	.75	.42	.63	1-5
PJ Police-Vicarious	2.64	.72	.48	.53	1-5
PJ Courts-Direct	3.29	.73	.40	.61	1-5
PJ Courts-Vicarious	3.05	.73	.48	.55	1-5
Legitimacy	2.34	.60	.46	.39	1-4
Legal Cynicism	2.00	.62	.45	.43	1-4
Anger	2.59	.57	.39	.42	1-4
Motivation	3.02	.97	.73	.64	1-5
Picked up by Police	.07				0-1
Arrested	.22				0-1
Summons	.06				0-1
Court Appearance	.31				0-1
Impulse Control	3.20	.97	.74	.62	1-5
Resist Peer Influence	3.24	.57	.39	.42	1-4
Peer Delinquency	1.78	.82	.53	.64	1-4
Moral Disengagement	1.48	.36	.26	.25	1-3
Emotional Regulation	2.81	.68	.47	.50	1-4
Cost of Punishment	3.11	.93	.59	.73	1-5
Punishment Certainty	5.58	2.97	2.11	2.12	0-10
Age at First Arrest	14.93	1.64	1.64		9-18
Number of Priors	3.16	2.22	2.22		1-15
Female	.14				0-1
Black	.41				0-1
Hispanic	.34				0-1
Other Race	.05				0-1
White	.20				0-1
Phoenix	.48				0-1

Note: SD = Standard Deviation

Procedural justice. There are six measures of procedural justice used in this study, which were adapted from prior research (Tyler & Huo, 2002; Tyler, 1997). Overall procedural justice judgments of the police and courts are measured using two 19-item indices. The scores on each individual item were averaged to create the scales and include both direct and indirect (i.e., vicarious) experiences. If the subject had no direct contact with the police or courts, those scales are computed using only the mean of seven items relating to indirect experiences.

The *procedural justice of police-combined* measure is the mean of 19 items (seven items if no direct experience was reported) using a 5-point Likert type scale and includes items of both direct and vicarious experiences (e.g., “The police treat me the same way they treat most people my age”). A one-factor confirmatory factor analysis was conducted by the Pathways study investigators and found this item to have adequate model fit at the baseline level and they also found internal consistency across all waves (Cronbach’s alpha ranges from .74 to .81). The measure of *procedural justice of courts-combined* is a similar index of the mean of nineteen 5-point Likert type items (seven items if no direct experience was reported) that represent both direct and indirect experiences with the court process (e.g., “The court considered the evidence/viewpoints in this incident fairly”). Confirmatory factor analyses of this measure at baseline level indicate adequate model fit and Cronbach’s alpha indicate similar internal consistency, ranging from .77 to .81.

In order to isolate the effects of procedural justice based on direct experiences with the criminal justice system, the combined procedural justice measures were disaggregated into separate measures of perceptions based on direct experiences and

those based on vicarious experiences or general perceptions. *Procedural justice of police-direct* represents an individual's procedural justice perceptions based on direct encounters with the police. For the most cases, this measure is a mean of 14 items, such as "during your last contact with the police when you were accused of a crime, how much of your story did the police let you tell?" and "during my last encounter with the police, they treated me in the way that I thought I should be treated." However, if the subject did not have contact with the police during the recall period, only two items ("Think back to the last time the police accused you of doing something wrong. Did they police treat you with respect and dignity or did they disrespect you?" and "Think back to the last time the police accused you of doing something wrong. Did they police show concern for your rights?") were used to calculate this measure.⁴ Similar items were used to represent direct experiences with the courts. *Procedural justice of courts-direct* is a mean score of 19 items representing perceptions based on direct experiences with the court process (e.g., "the court considered the evidence/viewpoints in this incident fairly"). As with the previous item, if the subject did not have contact with the courts during the recall period, only two items were used to calculate this measure.⁵ While this change in measurement is not ideal, this information can be useful to determine how various types of police contacts may change these perceptions based on direct experiences over time. Both measures have

⁴ Approximately 75 percent of cases had contact with the police where they were accused of something during one or more of the follow-up waves.

⁵ Over 90 percent of participants had court contact where they were accused of something during one or more of the follow-up waves.

good internal consistency, with alpha scores ranging from .74 to .81 across waves, and the confirmatory factor analyses indicate adequate fit.

The final two measures of procedural justice represent perceptions based on the experiences of others. These measures include items that ask about vicarious experiences (e.g., “of the people you know who have had contact with the police...”) as well as general perceptions of procedural justice that are not related to specific criminal justice contacts (e.g., “police treat people differently depending on their race/ethnicity group”). *Procedural justice of police-others* is a mean of five items and *procedural justice of courts-others* is a mean of seven items.⁶ The Cronbach’s alpha coefficients for these scales suggest only marginal internal consistency, although this seems to improve over time. The alpha scores at the first wave are .57 for procedural justice of police-indirect and .66 for procedural justice of courts-indirect. However, both scores exceed .70 by the last wave of data collection.

Legal socialization. The *legitimacy index* includes 11 items (e.g., “I feel people should support the police”) and has Cronbach’s alpha scores ranging from .83 to .88 across all waves. According to the data investigators (Mulvey, 2013), this measure of legitimacy is consistent with Tyler and Huo’s (2002) conceptualization, however the individual items of these scales are not provided. This measure of legitimacy has also been used in several prior studies (e.g., Lee, Steinberg, & Piquero, 2010; Lee, Steinberg, Piquero, & Knight, 2011; Piquero et al., 2005; Sweeten, Piquero, & Steinberg, 2013). Also included as an independent variable is a measure of legal

⁶ “Procedural Justice experiences of others” and “vicarious procedural justice” terminology will be used interchangeably throughout this dissertation to refer to this construct.

cynicism. *Legal Cynicism* is a 5-item index that includes measures such as “laws are meant to be broken.” Higher scores on this measure indicate higher levels of legal cynicism and this scale was found to be reliable with an alpha score ranging from .60 to .73 across waves.

Anger. This study uses a measure of aggression as a proximate measure for trait-based *anger*. This item was adapted from a subset of questions from the Weinberger and Schwartz (1990) adjustment inventory and is a mean of 7 Likert-type items, including “people who get me angry better watch out” and “I lost my temper and ‘let people have it’ when I’m angry.” Confirmatory factor analyses indicate that this measure has suitable model fit (CFI = .97; RMSEA = .055) and internal consistency (Cronbach’s alpha = .78 at baseline).

Prosocial motivation. As motivation is described and operationalized in various ways, this study will rely on the future orientation perspective to inform the selected measure of *motivation*, the future-outlook inventory scale. This measure incorporates items from the Life Orientation Task (Scheier & Carver, 1985), Zimbardo Time Perspective Scale (Zimbardo, 1990), and the Consideration of Future Consequences Scale (Strathman, Gleicher, Boninger, & Edwards, 1994). Adolescents responded to each item on a 4-point scale ranging from 1 (never true) to 4 (always true) to statements such as “I will keep working at difficult, boring tasks if I know they will help me get ahead later.” The means of eight items were calculated to create the final measure and the respondent had to respond to at least seven items for their responses to be calculated into the final scale. Higher scores on the scale represent a greater future orientation, which is a consistent measure of motivation (see de Volder & Lens, 1982;

Lens & Decruyenaere, 1991). Confirmatory factor analyses at the baseline level indicate that this measure has adequate model fit (CFI = .97; RMSEA = .03) and Cronbach's alpha estimates at future waves indicate good internal consistency, ranging from .69 to .73.

Time-Varying Covariates

Criminal justice involvement. Using data from the Contacts with the Justice System Calendar available within the Pathways data, six measures are used to capture whether an individual had contact with, or were involved in, the criminal justice system during the recall period. The first four measures are dichotomous indicators for whether the individual was *picked up by the police, arrested, received summons, or made a court appearance* during the recall period (1 = contact; 0 = no contact).⁷

The second set of criminal justice involvement variables report whether, at any time during the recall period, the adolescent was involved in a type of formal supervision. This includes whether the subject was on probation (or parole) or incarcerated. The measure of *probation* is a dichotomous indicator of whether the individual was under probation or parole supervision during the recall period (1 = under supervision, 0 = no supervision). Overall, 40.54% of adolescents were on probation or parole during at least one wave of the Pathways Data. A similar item for *incarceration* is included, measured dichotomously (1 = incarcerated, 0 = not

⁷ The item for whether an individual was "picked up by the police" in the calendar data differs from the measure available in the pathways data, which adds the requirement that the individual must be accused of something during the police contact. The item used in this study, taken from the calendar data, does not include this requirement for contact, but only whether there was *any* police contact during the recall period.

incarcerated), to represent whether an individual had been incarcerated or in a secure setting (e.g., inpatient treatment) during the recall period.

Moral disengagement. *Moral disengagement* is a 32-item measure that represents an adolescent's attitudes concerning treatment of others and was adapted from Bandura and associates (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). The 32 items represent eight dimensions, including moral justification (e.g., "it is alright to beat someone who bad mouths your family"), euphemistic language (e.g., "Slapping and shoving someone is just a way of joking"), advantageous comparison (e.g., "It is okay to insult a classmate because beating him/her is worse"), displacement of responsibility (e.g., "Kids cannot be blamed for using bad words when all their friends do it"), diffusion of responsibility (e.g., "A kid in a gang should not be blamed for the trouble the gang causes"), distorting consequences (e.g., "Teasing someone does not really hurt them"), attribution of blame (e.g., "If kids fight and misbehave in school it is their teacher's fault"), and dehumanization (e.g., "Some people deserve to be treated like animals"). Each item in the scale is a 3-point Likert scale ranging from "disagree" to "agree" and higher values on this scale indicate higher levels of moral detachment. The moral disengagement scale is calculated as the average of the 32 responses and subjects must have responded to at least 24 of the 32 items to be included. This measure has good internal consistency at all waves with alphas ranging from .88 to .92, however, confirmatory factor analyses were slightly less than adequate at finding a single factor model at the baseline level (CFI = .87; RMSEA = .04).

Emotional regulation. Another time-varying covariate represents *emotional regulation*, which is adapted from the Children’s Emotion Regulation scale (Walden, Harris, & Catron, 2003). The self-regulation scale includes nine items that feature 4-point Likert scales, such as “I know things to do to make myself more happy” and “I can change my feelings by thinking of something else.” These scales range from “not at all like me” and “really like me” and tap into an adolescent’s belief that they can regulate their emotions. The emotional regulation measure is computed as the mean of the nine items. Data must be available for at least six items for this measure to be calculated. Confirmatory factor analyses suggest that this measure produces adequate fit (CFI = .96; RMSEA = .06) and good internal consistency across waves (alpha ranges from .81 to .88). Higher scores on this measure indicate greater ability to regulate emotion.

Impulse control. A mean of 8-items adapted from the Weinberger Adjustment Inventory (1990) was used to assess an individual’s level of *impulse control*. Each item uses a Likert-type scale to measure their behaviors during the recall period, such as “I say the first thing that comes into my mind without thinking enough about it.” Data must be available in at least six of the eight items for this measure to be calculated. Higher scores indicate a better ability to control impulsivity. This measure has sufficient model fit (CFI = .95; RMSEA = .07) and good internal consistency (alpha = .78).

Resistance to peer influence and peer delinquency. In order to assess the influence of peers on behaviors and perceptions of the individual, two measures are included in relevant analyses. First, a measure of *resistance to peer influence*, represents the “degree to which adolescents act autonomously in interactions with their peer group” (Mulvey, 2013). Participants were presented with scenarios, such as “some people go

along with their friends just to keep their friends happy” and “other people refuse to go along with what their friends want to do, even though they know it will make their friends unhappy.” The participants are then asked to rate the degree to which the statement is accurate. The scenarios presented represent 10 dimensions of peer influence: go along with friends, fitting in with friends, changing their mind, knowingly do something wrong, hiding true opinion, breaking the law, changing the way you usually act, taking risks, saying things you don’t really believe, and going against the crowd. The final measure is a mean score of these ten dimensions and higher scores indicate less peer influence.

A second measure used to capture the role of peers in some of the models presented is *peer delinquency*. This measure is a subset of items developed by the Rochester Youth Study (Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994) used to assess the amount of antisocial activity among an adolescent’s peers. Antisocial peer behavior is a mean score of 12 behavioral items, such as “during the recall period how many of your friends have sold drugs?”

Deterrence. Three measures are used to represent deterrence, otherwise known as the instrumental perspective (Tyler, 1990), *costs of punishment*, *punishment certainty*, and *rewards of crime*. These items represent an individual’s perceived likelihood of receiving punishment and the consequences of that punishment. Cost of punishment is a mean of six items (e.g., “If the police catch me doing something that breaks the law, how likely is it that I would be suspended from school?”). A one-factor model indicates adequate fit (CFI = .95; RMSEA = .07) and internal consistency (alpha = .68). The second item, certainty of punishment, is a mean score of seven items (e.g., “How likely is

it that you would be caught and arrested for fighting?”), this measure also has adequate model fit (CFI= .98; RMSEA = .07) and internal consistency (alpha = .98). The final measure of rewards of crime is also a mean score of seven items (e.g., “How much ‘thrill’ or ‘rush’ is it to break into a store or home?”). This measure also had good internal consistency, with an alpha score of .88 at baseline.

Time-Stable Covariates

Additional variables include dichotomous variables for *female* (male = 0, female = 1) and *Phoenix* (Philadelphia = 0, Phoenix = 1). Over the course of the study, the average age of the sample was about 19 years (SD = 2.35, range = 14-26). Several measures are also included representing race and ethnicity, including *Black*, *Hispanic*, and *Other*, using white as the reference group. Finally, two measures were included to control for prior criminal involvement, including *age at first arrest* and *number of prior arrests* at baseline.

Additional Control Variables

In the analyses predicting offending, several additional control variables are included. First, a measure of *exposure* and *exposure*² represents the time in months for each recall period (i.e., time between interviews) and this measure squared (see Piquero et al., 2001). These measures controls for the variation in the amount of time between interviews for each individual. Second, a variable for the *proportion of time in community* is included to account for the amount of time an individual spent out of a secure facility. While time in a secure facility reduced the opportunity for individuals to commit some offenses, adolescents continued to report offending during confinement.

Analytic Strategy

The analyses for this project will proceed in two broad stages. First, to examine the longitudinal patterns of procedural justice judgements and legal socialization among the sample of youthful offenders, this study will present a set of growth curve models. Specifically, this section will first present unconditional growth curve models of procedural justice and legal socialization over the full seven years of data. Then, the conditional effects of time-stable and time-varying covariates on these developmental trajectories will be modeled.

The second set of analyses will be used to test the mediation effects of legitimacy beliefs, legal cynicism, anger, and motivation on the relationship between procedural justice and overall offending. This set of analyses will include a series of multilevel, longitudinal negative binomial models following the Baron and Kenney (1986) approach to mediation testing, adapted for multilevel mediation testing (Krull & MacKinnon, 2001; Mathieu & Taylor, 2007; Zhang, Zyphur, & Preacher, 2009). These analyses will begin by testing whether procedural justice predicts the mediating variables of interest. Next, a series of models will assess the significance of the relationship between the mediators and offending. Finally, multilevel models will be presented to determine whether legitimacy, legal cynicism, anger, and motivation—separately or in combination—mediate the direct relationship between procedural justice and offending. Figure 1 presents the multilevel mediation model that will be tested. The specific analytic strategies for the two stages of analyses will be discussed in more detail in the next chapter.

CHAPTER FOUR

RESULTS

Overview

This chapter is comprised of two broad sections. First, longitudinal patterns of procedural justice and legal socialization (i.e., legitimacy and legal cynicism) are modeled using a series of multilevel growth curve models. These models include unconditional growth curve models and a series of conditional models that test the effects of time-stable and time-varying covariates. The second section presents a series of multilevel mediation models for longitudinal data that test the mediation effects of legal socialization, anger, and motivation on the relationship between procedural justice and offending.

Longitudinal Patterns of Procedural Justice and Legal Socialization

Analytic Strategy

In order to model the longitudinal patterns for procedural justice and legal socialization, this section of analyses will proceed in four stages. First, unconditional growth curve models will be used to assess the average patterns of each component of procedural justice and legal socialization measures over time (Singer & Willett, 2003). For the purpose of these and subsequent models, time is estimated as a function of time since the baseline interview (i.e., T1 = 6 months post baseline; T2 = 12 months post baseline; T3 = 18 months post baseline; T4 = 24 months post baseline; T5 = 30 months post baseline; T6 = 36 months post baseline; T7 = 48 months post baseline; T8 = 60 months post baseline; T9 = 72 months post baseline; T10 = 84 months post baseline). Patterns of change were estimated using a multilevel longitudinal approach using Stata 12

that allows for the estimation of both within-individual (level-1) and between-individual (level-2) variation on the outcome measures. Unconditional models are useful to assess whether there is statistically significant variation in the individual initial status (intercept) and rate of change (slope). Additionally these models will be estimated sequentially—incorporating linear, quadratic, and cubic measures of time—in order to select the highest order polynomial that best summarizes individual change (Singer & Willett, 2003). In order to determine what trajectory model offers the best fit, model fit statistics will be analyzed and compared between models.

Second, the conditional effects of time-invariant covariates, such as race/ethnicity and gender, on the longitudinal patterns of procedural justice and legal socialization measures are assessed. These models will demonstrate whether the intercepts and slopes of the longitudinal trajectories differ based on these characteristics. Finally, the conditional effects of time-varying covariates (i.e., measures whose values change over time, such as criminal justice contacts and peer delinquency) will be examined. In order to derive unbiased estimates of the within-individual changes in the time-varying covariates, these models follow the technique introduced by Bryk and Raudenbush (2002) to decompose the within-individual change from between-individual differences. In essence, this involves two steps, (1) grand-mean centering the time-varying measures across waves to estimate between-individual differences and then (2) calculating the within-individual deviation from their mean at each wave (see, e.g., Sweeten, Bushway, & Paternoster, 2009). The final stage of models will present fully-conditional growth curve models that includes both time-stable and time-varying covariates to determine

whether the inclusion of these covariates fully account for variation in procedural justice and legal socialization perceptions over time.

Unconditional Growth Curve Models: Identification of Trajectories

The first step in modeling longitudinal patterns of procedural justice and legal socialization is to estimate unconditional growth curve models to examine the average patterns of change over time. Linear and curvilinear change were estimated in a series of progressive polynomial growth models and the best-fitting models were selected for each measure. Model fit was evaluated with information criteria fit indices: Bayesian information criterion (Schwarz, 1978) and Akaike's information criterion (Akaike, 1987). For each model presented, the fixed-effects intercept provides information regarding the mean intercepts (i.e., starting point) that characterize the estimated growth curve (Curran, Obeidat, & Losardo, 2010; Duncan & Duncan, 2009) and the rate of change over time is represented collectively by the polynomial function of time indicating either linear, quadratic, or cubic trajectories (Singer & Willett, 2003). The random-effects component estimates the between-person variability in the individual intercepts and slopes (Curran et al., 2010). Larger coefficients of the random-effects suggest that there is more variation between individuals in the study.

Procedural justice of police. Table 3 presents the best-fitting unconditional growth curve models for perceptions of procedural justice of police. Both Models 1 (direct experience) and 3 (combined experiences) present cubic models of change whereas in Model 2 (others experience) uses a quadratic form to best represent the type of change present. As can be seen in Model 1, the fixed-effects of perceptions of procedural justice of police based on direct experience has an initial intercept of 2.832 (p

< .001) and an instantaneous rate of change of .262 ($p < .001$) initially after baseline followed by a curvature of -.047 ($p < .001$) and .003 ($p < .001$). This pattern suggests that the trajectories of direct procedural justice initially rises, with the initial status increasing by .262 at the first wave post baseline ($p < .001$), but the curvature suggest that this rate of change *does not* remain steady over time. Figure 2 shows the developmental courses for perceptions of procedural justice of the police for direct, others, and combined experiences.

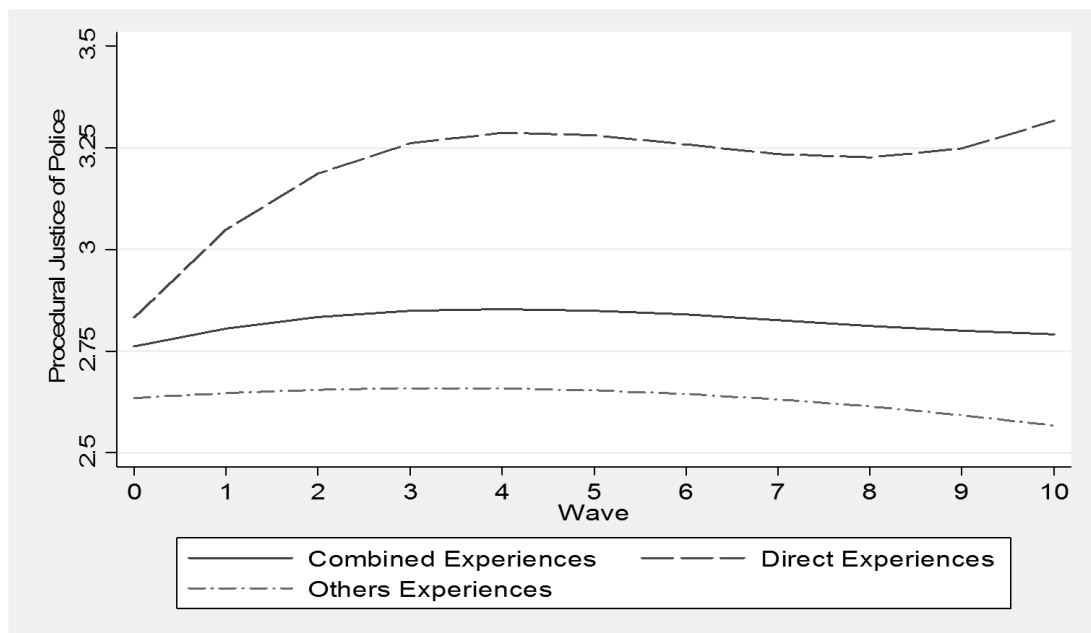
As can be seen in Figure 2, the trajectory for Model 1 (direct procedural justice) appears to peak between waves 4 and 5, then decreases slightly before increasing again towards waves 9 and 10. This trajectory is in contrast to that seen in Model 2, which shows a subtler, yet still statistically significant, quadratic pattern of change over time, with an instantaneous rise of .014 post baseline ($p < .01$) followed by a slight curvature of -.002 ($p < .001$). Finally, Model 3 demonstrates the trajectory pattern that occurs when perceptions of procedural justice of police are combined. While this model also shows statistically significant rate of change—with an initial rise of .053 ($p < .001$) and a curvature of -.009 ($p < .001$) and a small, positive cubic slope less than .001 ($p < .001$)—this combined trajectory obviously masks much of the change over time in perceptions based on direct experiences as presented in Model 1. The random-effects of all three models also show that there is significant variation in both the intercepts and linear slope parameters across individuals.

Table 3
Unconditional Growth Models of Procedural Justice of Police

Effect	Model 1		Model 2		Model 3	
	Direct Experience		Others Experience		Combined	
	<i>b</i>	(SE)	<i>b</i>	(SE)	<i>b</i>	(SE)
Fixed Effect						
Intercept	2.832***	(.018)	2.635***	(.017)	2.761***	(.014)
Linear Slope	.262***	(.015)	.014**	(.006)	.053***	(.010)
Quadratic Slope	-.047***	(.004)	-.002***	(.001)	-.009***	(.003)
Cubic Slope	.003***	(<.001)			<.001***	(<.001)
Random Effect						
Intercept	.325***	(.015)	.457***	(.013)	.337***	(.010)
Linear Slope	.037***	(.003)	.045***	(.002)	.035**	(.002)
Level 1 Error	.643***	(.004)	.537***	(.004)	.452***	(.003)
Model Fit						
-2 Log Likelihood	-13156.67		-12505.78		-10033.11	
AIC	26329.33		25025.56		20082.23	
BIC	26388.73		25078.15		20142.33	

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses; * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Figure 2
Unconditional Growth Model of Procedural Justice of Police



Procedural justice of courts. The best-fitting unconditional growth curve models for perceptions of procedural justice of the courts are presented in Table 4. Similar to Table 3, the three models here represent perceptions based on direct (Model 1), vicarious (Model 2), and combined (Model 3) experiences. Overall, these measures have higher intercepts than for the measures of procedural justice of police, with procedural justice of courts ranging from 3.138 to 3.224 ($p < .001$; compared to a range of intercepts of 2.635 to 2.932 for police).⁸ In both Models 1 (direct experience) and 2 (others experience), the quadratic trajectory presents the best fit. Model 1 suggests that perceptions of procedural justice of the courts based on direct experiences has an instantaneous rate of change of .022 ($p < .001$) and a curvature of .001 ($p < .05$), indicating that these perceptions have a slight, yet statistically significant increase over time. Model 2, however, demonstrates that perceptions of procedural justice of the courts based on the experiences of others initially decreases by -.05 ($p < .001$) with a curvature of .002 ($p < .001$). Once again, in Model 3 it is evident that by combining perceptions based on both direct and vicarious experiences, the differences between these two trajectories becomes masked and the overall trajectory becomes linear with a decreasing slope of -.007 ($p < .001$). Although the coefficients of the fixed-effects models are modest, the random-effects coefficients suggest that there is significant variation in both the intercepts and slopes between individuals. Figure 3 shows the trajectories of the three models in Table 4. As this figure indicates, the three measures (direct, others, and combined experiences) have similar

⁸ As all measures are on the same Likert-type scales, comparisons between models can be drawn regarding initial starting values and changes in perceptions over time.

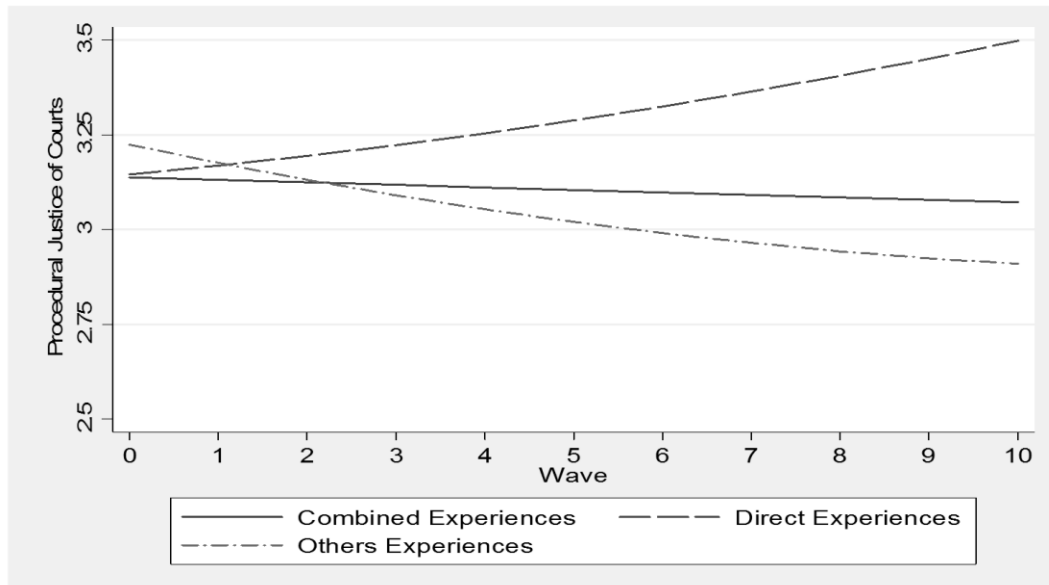
intercepts—suggesting that they have similar starting values—but, they have different trajectories over time.

Table 4
Unconditional Growth Models of Procedural Justice of Courts

Effect	Model 1 Direct Experience		Model 2 Others Experience		Model 3 Combined	
	<i>b</i>	(SE)	<i>b</i>	(SE)	<i>b</i>	(SE)
Fixed Effect						
Intercept	3.146***	(.017)	3.224***	(.017)	3.138***	(.012)
Linear Slope	.022***	(.007)	-.050***	(.006)	-.007***	(.002)
Quadratic Slope	.001*	(<.001)	.002***	(<.001)		
Random Effect						
Intercept	.372***	(.015)	.454***	(.013)	.335***	(.011)
Linear Slope	.040***	(.003)	.046***	(.002)	.037***	(.002)
Level 1 Error	.626***	(.004)	.553***	(.004)	.467***	(.003)
Model Fit						
-2 Log Likelihood	-12914.31		-12861.77		-10406.64	
AIC	25842.63		25737.55		20825.28	
BIC	25894.63		25790.14		20870.36	

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses; * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Figure 3
Unconditional Growth Models of Procedural Justice of Courts



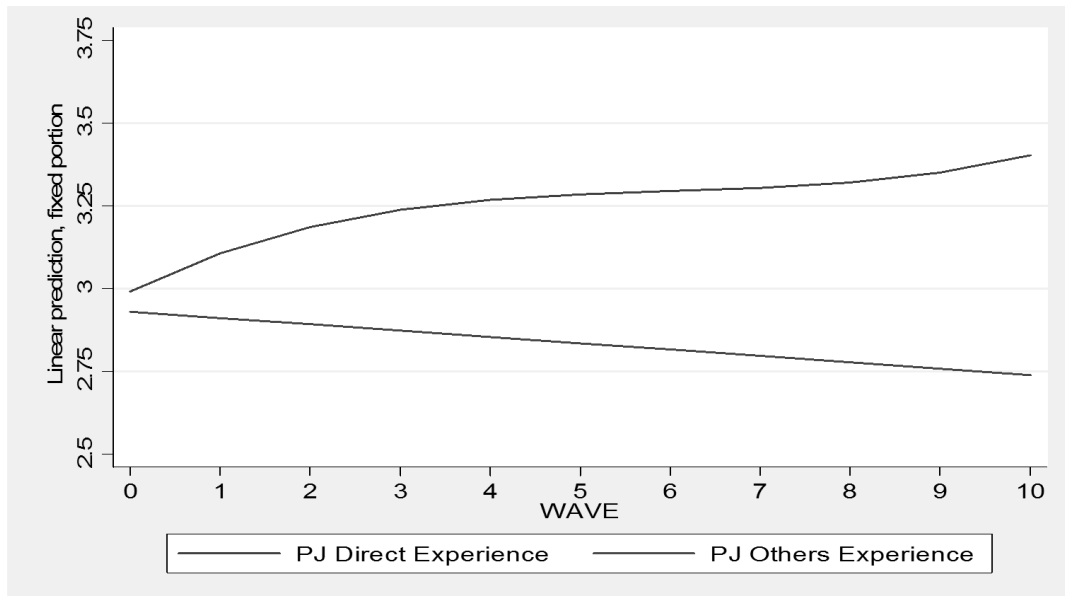
Direct and vicarious procedural justice patterns. Given the similar patterns in the trajectories for direct and vicarious experiences for perceptions of procedural justice of both courts and police, the next set of models present the unconditional growth curve models of these combined measures: (1) Procedural justice of police and courts based on direct experiences, and (2) procedural justice of police and courts based on the experiences of others. These models are presented in Table 5 and the growth curve trajectories are illustrated in Figure 4. Model 1 presents the quadratic trajectory model for procedural justice perceptions based on direct experiences and Model 2 shows the linear trajectory for perceptions based on the experiences of others. Both models have similar intercepts, 2.991 and 2.931 respectively ($p < .001$). Model 1 further indicates that combined perceptions of procedural justice based on direct experiences has an instantaneous rate of change during the initial waves of .135 ($p < .001$) and a very slight curvature of .001 ($p < .001$), whereas Model 2 demonstrates a linear decrease of -.019 in perceptions of procedural justice based on the experiences of others ($p < .001$). Additionally, the random-effects coefficients of both models suggest that there is statistically significant between-individual variation in the intercepts and slopes.

Table 5
Unconditional Growth Model of Procedural Justice: Direct and Vicarious Experiences

Effect	Model 1		Model 2	
	Direct Experience		Others Experience	
	<i>b</i>	(SE)	<i>b</i>	(SE)
Fixed Effect				
Intercept	2.991***	(.015)	2.931***	(.014)
Linear Slope	.135***	(.012)	-.019***	(.002)
Quadratic Slope	.001***	(<.001)		
Random Effect				
Intercept	.324***	(.012)	.424***	(.012)
Linear Slope	.036***	(.002)	.042***	(.001)
Level 1 Error	.507***	(.004)	.468***	(.046)
Model Fit				
-2 Log Likelihood		-10416.87		-10788.33
AIC		20849.73		21588.66
BIC		20909.11		21633.73

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses; *** $p < .001$ (two-tailed test).

Figure 4
Unconditional Growth Model of Procedural Justice: Direct and Vicarious Experiences



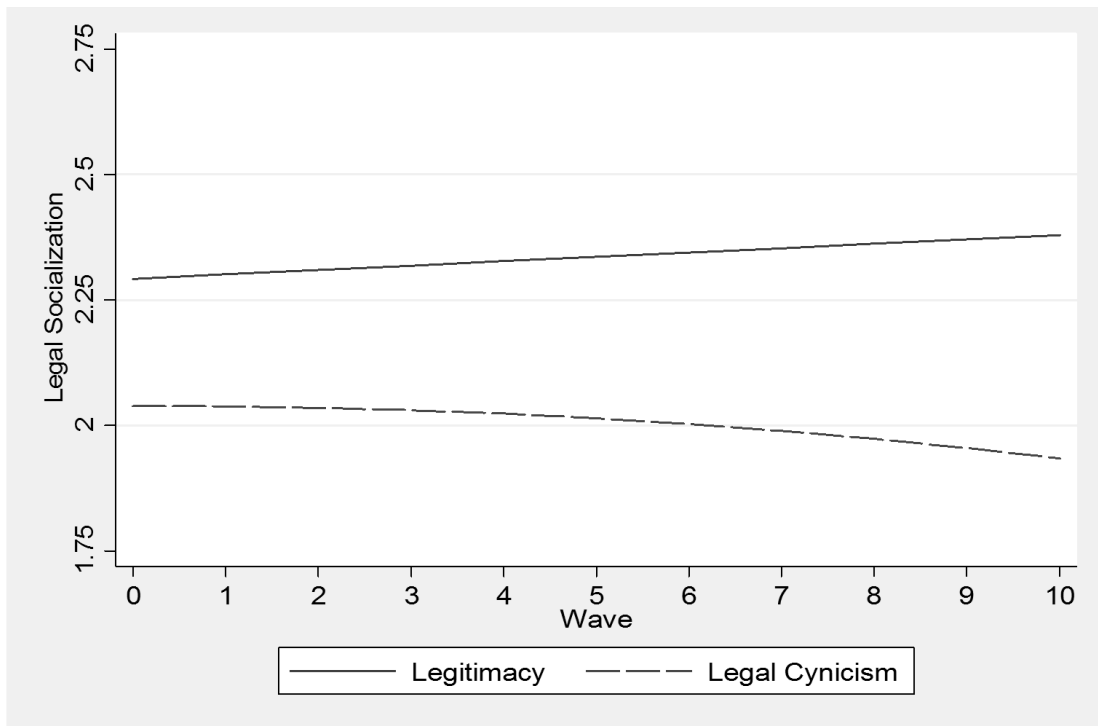
Legal socialization. Table 6 presents unconditional growth curve models for legitimacy beliefs (Model 1) and legal cynicism (Model 2), which are also presented graphically in Figure 5. Model 1 of legitimacy presents a linear growth trajectory as the best-fitting model. The intercept is statistically significant at 2.292 ($p < .001$) and, while the coefficient for the linear slope is statistically significant, its value of .009 ($p < .001$) indicates only a slight increase in this trajectory over time. Model 2 presents a quadratic trajectory for legal cynicism. The intercept for this model is at 2.038 ($p < .001$) and the non-significance of the linear slope coefficient suggests that this value remains relatively stable during the initial waves followed by a slight, negative curvature of $-.001$ ($p < .01$). Even though these models present statistically significant change over time, altogether the fixed-effects intercepts and slopes for these two models indicate that legal socialization measures tend to remain relatively stable.

Table 6
Unconditional Growth Models of Legitimacy and Legal Cynicism

Effect	Model 1 Legitimacy		Model 2 Legal Cynicism	
	<i>b</i>	(SE)	<i>b</i>	(SE)
Fixed Effect				
Intercept	2.292***	(.014)	2.038***	(.015)
Linear Slope	.009***	(.002)	.000	(<.001)
Quadratic Slope			-.001**	(<.001)
Random Effect				
Intercept	.455***	(.011)	.447***	(.011)
Linear Slope	.047***	(.002)	.039***	(.002)
Level 1 Error	.387***	(.003)	.433***	(.003)
Model Fit				
-2 Log Likelihood		-8682.79		-9817.28
AIC		17377.57		19648.56
BIC		17422.65		19701.15

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses; * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Figure 5
Unconditional Growth Model of Legitimacy and Legal Cynicism



Summary. Overall, the unconditional growth curve patterns reveal that perceptions of procedural justice do, in fact, change over time. The pattern of change, however, differs when disaggregated between perceptions based on direct or vicarious experiences. Perceptions of procedural justice based on direct experiences—whether of the police or courts—has a generally positive trajectory, indicating that these perceptions tend to improve over time. Perceptions based on vicarious experiences, however, are generally lower to begin with and decrease slightly over time. The growth curve models for legitimacy and legal cynicism suggest that these legal socialization beliefs tend to

remain relatively stable across time, although, there is significant variation between individuals.

Conditional Growth Curve Models

The unconditional growth curve models indicated that perceptions of procedural justice and legal socialization measures had significant variance in both the intercept and slope parameters, indicating that there are significant individual differences in both the initial starting values and rates of change in these perceptions over time. The next set of models will test what factors might explain some of the between-individual and within-individual variation in perceptions of procedural justice and legal socialization.

Time-stable covariates. For the second stage of the analyses of longitudinal patterns, a series of conditional growth curve models test the effects of time-stable covariates, including gender, race, site location, age at first arrest, and number of prior arrests at baseline. These covariates were selected as predictors of variance in perceptions of procedural justice and legal socialization based on a review of prior research and theory. In order to provide parsimonious predictive models, the uncontrolled effects of each time-invariant covariates were estimated individually in a series of intermediate models. Following the approach outlined by Singer and Willet (2003), the results in Table 7 include only those covariates that demonstrated significant effects during these intermediate models.

Model 1 of Table 5 presents the effects of all theoretically-relevant time-stable predictors of perceptions of procedural justice of police based on direct experience. According to these results, the estimated differential in initial perceptions of direct

Table 7
Time-Stable Conditional Models of Procedural Justice and Legal Socialization

Effect	Police			Courts			Legal Socialization					
	Model 1		Model 2	Model 3		Model 4	Model 5		Model 6			
	Direct Experience	Others Experience	Direct Experience	Others Experience	Others Experience	Legitimacy	Legal Cynicism	Legal Cynicism				
B	SE	B	SE	B	SE	B	SE	B	SE			
Fixed Effect												
Intercept	2.729***	(.080)	2.780***	(.123)	2.887***	(.062)	2.855***	(.086)	2.748***	(.177)	2.119***	(.158)
Female	.023	(.040)	.140**	(.038)			.128***	(.038)	.080*	(.040)	-.201***	(.034)
Black	-.046	(.041)			-.030	(.034)	.002	(.041)	-.165***	(.041)	.088*	(.037)
Hispanic	-.101**	(.038)			-.019	(.037)	.026	(.036)	-.045	(.037)	.175***	(.033)
Other Race	-.165*	(.069)			-.096	(.055)	-.091	(.065)	-.079	(.059)	.113	(.059)
Phoenix	.127***	(.029)			.190***	(.007)	.163***	(.037)	.074*	(.030)	.036	(.033)
Age at First Arrest			-.020**	(.008)					-.031***	(.010)	-.005	(.008)
Prior Arrests	-.016**	(.006)					-.007	(.006)	-.033***	(.007)	.020***	(.006)
Linear Slope	.252***	(.016)	.014**	(.006)	.034***	(.007)	.046***	(.006)	-.018	(.020)	.005	(.005)
Quadratic Slope	-.047***	(.004)	-.002	(.005)	.001*	(<.001)	.002***	(.001)			-.001**	(.000)
Cubic Slope	.003***	(<.001)										
Female x Wave	.021***	(.006)										
Black x Wave	.010	(.006)							-.012**	(.004)		
Hispanic x Wave	-.001	(.006)			-.012**	(.005)			-.011**	(.004)		
Other Race x Wave	.018	(.011)										
Phoenix x Wave					-.017***	(.005)	-.008*	(.004)			-.009**	(.003)
Age First Arrest x Wave									.002	(.001)		
Prior Arrests x Wave	.001	(.001)							-.000	(<.001)		
Random Effect												
Intercept	.312***	(.015)	.454**	(.013)	.352***	(.015)	.444***	(.013)	.438**	(.011)	.433***	(.011)
Linear Slope	.036***	(.003)	.045***	(.002)	.039***	(.003)	.045***	(.002)	.046***	(.002)	.039***	(.002)
Level 1 Error	.643***	(.005)	.537***	(.004)	.626***	(.004)	.553***	(.004)	.387***	(.033)	.433***	(.003)
Model Fit												
-2 Log Likelihood	-13121.49		-12496.57		-12883.64		-12836.80		-8594.19		-9767.08	
AIC	26280.99		25011.13		25793.28		25701.61		17224.38		19564.15	
BIC	26422.06		25078.75		25889.86		25806.78		17359.60		19676.83	

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

procedural justice between White and Hispanic individuals is $-.101$ ($p < .01$) and the differential estimates between Whites and those of other races is $-.165$ ($p < .05$), when controlling for all other time-invariant covariates. Additionally, Hispanic individuals have a higher differential in the initial status of legal cynicism, at $.175$ ($p < .001$), yet show no other statistically significant differences from the intercept in the other models. While there are no statistically significant effects for the estimated differential between males and females in Model 1, additional models show statistically significant differences. Specifically, Models 2 and 4 suggest that females have significantly higher perceptions of procedural justice of both the police and courts based on vicarious experiences compared to males ($.140$, $p < .01$ and $.128$, $p < .001$, respectively). Model 5 further suggests that women are slightly higher in their initial status of legitimacy, with an estimated differential of $.08$ ($p < .05$), and Model 6 suggests that they have a lower initial status of legal cynicism compared to males ($-.201$; $p < .001$). Individuals that reside in Phoenix tend to be higher in all but one measure of procedural justice (Model 2) compared to those in Philadelphia and also have a higher estimated differential of legitimacy (Model 5) at $.074$ ($p < .05$).

With regard to the rates of change, Model 1 suggests that females have a slight estimated differential rate of change in direct procedural justice perceptions of the police of $.02$ ($p < .01$), yet no other statistically significant differences in change over time between males and females. Additionally, the only estimated differential in the rate of change over time between Black and White individuals is that for legitimacy in Model 5, at $-.012$ ($p < .01$) and the differential rates of change between Hispanics and Whites is statistically significant for Models 3 and 5 ($-.012$ and $-.011$, respectively; $p < .01$). These

modest effect sizes indicate that there are only small, if any, differences based on gender and race in the changes in perceptions of procedural justice and legal socialization beliefs over time. Perhaps most notable, Model 5 shows that—when controlling for time-invariant covariates—the coefficient for the linear slope for legitimacy become nonsignificant, suggesting that all within-individual change in legitimacy beliefs over time is accounted for by the inclusion of these time-stable characteristics.

Summary. The effects of the time-stable covariates on the longitudinal patterns of procedural justice and legal socialization offer a number of insights into how these perceptions vary by groups of individuals. Of interest, these models indicate that females have generally higher vicarious procedural justice perceptions and legitimacy beliefs compared to males. There are no statistical differences in the initial direct procedural justice perceptions between males and females, however, females tend to have more improved perceptions over time. Additionally, the differences in perceptions of procedural justice and legal socialization by race and ethnicity appear to be mixed. In fact, the results indicate that there are no differences in procedural justice perceptions between Black and White individuals, however African Americans generally have lower legitimacy and higher legal cynicism beliefs than White individuals. Finally, overall, these models suggest that those subjects that reside in Phoenix have generally higher procedural justice and legitimacy perceptions.

Time-varying covariates. This section presents the effects of time-varying covariates on changes in perceptions of procedural justice and legal socialization beliefs. Following the technique introduced by Bryk and Raudenbush (1992), the time-varying covariates are decomposed into static and time-varying predictors by separating the

between individual differences and within-individual change components. This process involves calculating the mean levels of each time-varying variable over all waves for each individual and then calculating the within-individual deviation from their individual mean at each wave. The mean centered calculation represents the between-individual differences in level of each independent variable and the within-person deviation represents the individual's change over time.

Table 8 presents the variations in criminal justice contacts for each wave—including being picked up by the police, arrested, summoned to court, or made a court appearance—during the study time period. This represents the percentage of individuals that reported these specific criminal justice contacts during each wave of data collection and demonstrates the variability among types of contacts.⁹ Along with the four measures for criminal justice contacts, additional time-varying covariates are included that are theoretically related to perceptions of procedural justice and legal socialization. These include impulse control, resistance to peer influence, peer delinquency, incarceration, and probation (Easton & Dennis, 1969; Fagan & Tyler, 2005; Reisig et al., 2011; Tyler, 2003). For models predicting legal socialization, measures of procedural justice perceptions of courts and police, separated by direct and vicarious experiences, are also included.

⁹ This also indicates that the subject participants were able to differentiate between being picked up by police and being arrested as well between being summoned to court and otherwise making a court appearance for other reasons. In order to assess the possible different effects of these measures, it is important to demonstrate the variability among these types of contacts.

Table 8
Percentage of Sample with Criminal Justice Contacts by Wave

	1	2	3	4	5	6	7	8	9	10
Picked up by police	13.23	8.33	6.10	5.69	5.26	5.60	7.49	6.79	6.02	4.50
Arrested	17.51	18.16	17.98	20.80	18.56	22.73	28.72	28.00	26.38	22.51
Received Summons	13.79	8.41	6.75	6.01	4.78	3.98	6.34	5.47	5.34	1.85
Court Appearance	43.19	32.59	27.42	28.43	25.85	26.46	32.75	31.40	30.36	28.68

Table 9 presents the multilevel models of procedural justice including the theoretically-relevant time-varying covariates. Model 1 shows the effects of these time-varying covariates on perceptions of direct procedural justice of the police. Of interest in this model, being arrested has the largest effect size of the criminal justice contact measures in explaining both the between-individual differences in perceptions of procedural justice ($-.566, p < .001$) and within-individual change over time ($-.347, p < .001$). The between-individual coefficient indicates that those who are arrested have lower perceptions of procedural justice of the police than those who are not and the within-individual effect suggests that being arrested has an additional negative effect on lowering an individual's perceived procedural justice of the police. Model 3—predicting perceptions of direct procedural justice of the courts—shows that being summoned to court had a small, yet statistically significant within-individual positive effect ($.057, p < .05$). Additionally, this model shows that individuals that appeared in court had an average perception of procedural justice that is lower than those that did not ($-.226, p < .001$), however receiving a summons had no statistically significant effect on the between-individual differences. Throughout all four models of Table 9, within-individual

Table 9
Time-Varying Conditional Models of Procedural Justice (Excluding Baseline)

Effect	Police						Courts					
	Model 1			Model 2			Model 3			Model 4		
	Direct Experience	Others Experience	SE	Direct Experience	Others Experience	SE	Direct Experience	Others Experience	SE	Direct Experience	Others Experience	SE
Fixed Effect												
Intercept	3.064***	3.309***	(.125)	3.309***	(.127)		2.919***	3.944***	(.119)			(.020)
Between-Individual Effects												
Impulse Control	-.006	.070***	(.018)	.070***	(.020)		-.017	.028	(.018)			(.020)
Resistance to Peer Influence	.040	-.185***	(.032)	-.185***	(.034)		.101***	-.161***	(.031)			(.035)
Peer Delinquency	-.046	-.151***	(.026)	-.151***	(.026)		-.033	-.151***	(.026)			(.027)
Picked up by Police	-.263*		(.136)									
Arrested	-.566***		(.074)									
Summons							.031		(.119)			
Court Appearance							-.226***		(.060)			
Within-Individual Effects												
Impulse Control	.027**	.071***	(.011)	.071***	(.008)		.029**	.059***	(.011)			(.008)
Resistance to Peer Influence	.005	-.004	(.017)	-.004	(.013)		.046**	.005	(.017)			(.013)
Peer Delinquency	-.062*	-.040***	(.026)	-.040***	(.008)		-.014	-.008	(.011)			(.008)
Picked up by Police	-.062*		(.026)									
Arrested	-.347***		(.017)									
Summons							.057*		(.028)			
Court Appearance							-.027		(.015)			
Linear Slope	.164***	.005	(.028)	.005	(.006)		.054***	-.054***	(.010)			(.006)
Quadratic Slope	-.026***	-.002**	(.006)	-.002**	(<.001)		-.001	.002	(.001)			(.001)
Cubic Slope	.001***		(<.001)									
Random Effect												
Intercept	.459***	.441***	(.019)	.441***	(.013)		.465***	.443***	(.019)			(.013)
Linear Slope	.044***	.045***	(.004)	.045***	(.002)		.046***	.045***	(.004)			(.002)
Level 1 Error	.631***	.535***	(.005)	.535***	(.004)		.629***	.552***	(.038)			(.004)
Model Fit												
-2 Log Likelihood	-11374.81	-12161.57		-12161.57			-11411.41	-12543.18				
AIC	22785.61	24349.14		24349.14			22856.82	25112.37				
BIC	22916.80	24446.53		24446.53			22980.80	25209.76				

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses; * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed test).

changes in impulse control remained statistically significant, although the effect sizes are modest.

The within- and between-individual effects of time-varying covariates on legitimacy beliefs and legal cynicism are presented in Table 10. For each model, the between-individual effects are presented in the column on the left and the within-individual effects are in the column on the right. Model 1 shows that, among the four procedural justice measures, vicarious procedural justice of the courts has the largest between-individual coefficient at .323 ($p < .001$), however, all but one are significantly related to legitimacy in the expected direction. Additionally, the within-individual effects of these measures suggest that a positive, within-individual change in perceptions of procedural justice are related to an increase in legitimacy beliefs. Being incarcerated is also statistically significant in explaining between-individual differences in legitimacy beliefs at $-.287$ ($p < .001$). This suggests that those who are incarcerated tend to score lower on legitimacy than those who are not.

Model 2 presents the effects of the time-varying covariates on legal cynicism. According to this model, only two measures of between-individual differences in procedural justice are statistically significant in predicting legal cynicism—with both procedural justice of police based on direct experience ($-.09$, $p < .01$) and procedural justice of the courts based on the experiences of others ($-.085$, $p < .05$) negatively related to the development of legal cynicism. Within-individual change in both of these measures, as well as the measure of procedural justice of the police based on others' experiences, are also negatively related to legal cynicism. The inclusion of these time-

Table 10
Time-Varying Conditional Models of Legal Socialization (Excluding Baseline)

Effect	Model 1 Legitimacy			Model 2 Legal Cynicism			
	Between-Individual		Within-Individual	Between-Individual		Within-Individual	
	B	(SE)	B	B	SE	B	SE
Fixed Effect							
Intercept			(.142)	3.211***	(.011)	(.158)	
PJ Police-Direct	.190***	(.032)	.054***	-.090**	(.038)	-.010**	(.036)
PJ Police-Others	.053	(.034)	.049***	.032	(.038)	-.052***	(.010)
PJ Courts-Direct	.093**	(.032)	.046***	-.036	(.036)	-.013	(.007)
PJ Courts-Others	.323***	(.035)	.103***	-.085*	(.039)	-.019*	(.010)
Incarcerated	-.287***	(.035)	-.055***	.107***	(.039)	-.021	(.015)
Probation	.040	(.045)	.007	-.054	(.050)	-.029**	(.011)
Impulse Control	.013	(.015)	.027***	-.147***	(.017)	-.074***	(.007)
Resistance to Peer Influence	-.126***	(.026)	.002	-.162***	(.030)	-.046***	(.011)
Peer Delinquency	-.111***	(.022)	-.013*	.221***	(.025)	.057***	(.007)
Picked up by Police	.077	(.117)	-.004	-.248*	(.007)	-.248	(.130)
Arrested	-.095	(.083)	-.041***	.077	(.092)	-.013	(.014)
Summons	-.179	(.104)	.013	.015	(.116)	-.005	(.019)
Court Appearance	-.172*	(.073)	-.048***	-.013	(.081)	-.001	(.012)
Linear Slope			(.002)	-.001		(.007)	
Quadratic Slope				-.001		(.001)	
Random Effect							
Intercept	.391***		(.011)	.434***		(.002)	
Linear Slope	.043***		(.002)	.039***		(.002)	
Level 1 Error	.351***		(.030)	.416***		(.003)	
Model Fit							
-2 Log Likelihood							-7382.61
AIC							14831.22
BIC							15071.58

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses
 * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed test).

varying predictors into the legal cynicism model reduces both the linear and quadratic slope coefficients to non-significance, suggesting that the inclusion of these measures fully accounts for changes in legal cynicism over time.

Summary. The time-varying conditional models of procedural justice and legal socialization are perhaps most interesting when considering the between- and within-individual effects separately. Of the between-individual effects, these models suggest that, overall, those individuals who were more likely to experience contact with criminal justice officials had general lower perceptions of direct procedural justice. Additionally, as theoretically expected, peer delinquency was negatively related to vicarious procedural justice, but had no statistically significant effect on direct procedural justice perceptions. This may indicate that these individuals are able to separate their own experiences with the criminal justice system from the experiences of their peers. For the most part, those individuals who had overall higher perceptions of procedural justice also reported higher legitimacy beliefs and lower levels of legal cynicism.

The within-individual effects of the time-varying covariates also conveys some insightful information. Specifically, when an individual has police contact, their perceptions of direct procedural justice are lower than during waves in which they did not have contact with the police. This pattern did not hold true for court contacts, however. Also, all measures of procedural justice increased as an individual's impulse control increased. A within-individual change in perceptions of procedural justice, was generally consistent in predicting higher legitimacy beliefs and lower legal cynicism.

Fully Conditional Models

The final set of models of longitudinal patterns of procedural justice and legal socialization are presented in Tables 11 and 12. Table 11 presents the fully conditional growth curve models of procedural justice measures, including both time-stable and time-varying covariates. As with the models presented above, the time-varying independent variables are separated by their between-individual and within-individual effects. For the time-stable covariates, such as gender, race, and site location, among others, each model includes the between individual differences in initial status and differences in rate of change over time for each model.

According to Model 1, three time-varying covariates are statistically related to within-individual changes in perceptions of procedural justice based on direct experience even after controlling for the time-stable covariates. These include impulse control (.026, $p < .05$) and being picked up by the police (.062, $p < .05$)—both positively related to procedural justice of the police—and being arrested (-.347, $p < .001$), which is negatively related to perceptions of procedural justice of the police. Additionally, the between-individual differences in police contact show that being picked up by the police had no significant effects whereas those individuals that were arrested had a lower perceptions of procedural justice of the police than those who were not arrested. Model 2 estimates the effects of the covariates on perceptions of procedural justice of police based on vicarious experiences. Of the time-varying covariates, impulse control and peer delinquency are statistically significant in predicting within-individual changes in procedural justice, although in opposite directions, with impulse control at .07 ($p < .001$) and peer

Table 11
Growth Curve Models of Procedural Justice Measures: Including Time-Stable & Time-Varying Covariates (Excluding Baseline)

Effect	Model 1			Model 2			Model 3			Model 4		
	PJ of Police-Direct			PJ of Police-Others			PJ of Courts-Direct			PJ of Courts-Others		
	Between-Individual	Within-Individual	SE	Between-Individual	Within-Individual	SE	Between-Individual	Within-Individual	SE	Between-Individual	Within-Individual	SE
Fixed Effect												
Intercept	2.412***	(.271)		3.804***	(.268)		2.155***	(.276)		3.820***	(.274)	
Female	-.035	(.053)		.072	(.050)		-.038	(.054)		.076	(.054)	
Black	-.051	(.056)		.092	(.053)		.056	(.057)		.006	(.054)	
Hispanic	-.150**	(.049)		.031	(.047)		.030	(.051)		.041	(.048)	
Other Race	-.193*	(.090)		.021	(.085)		-.031	(.092)		.001	(.086)	
Phoenix	.196***	(.046)		-.026	(.044)		.203***	(.048)		.118**	(.045)	
Age at First Arrest	.018	(.013)		-.032**	(.012)		.018	(.013)		-.030*	(.012)	
Prior Arrests	.016	(.010)		-.010	(.009)		.015	(.010)		-.017	(.009)	
Female x Wave	.154*	(.007)		.009	(.006)		-.001	(.007)		.011	(.006)	
Black x Wave	.004	(.008)		-.009	(.007)		-.016*	(.008)		-.003	(.007)	
Hispanic x Wave	.006	(.007)		-.003	(.006)		-.019**	(.007)		-.006	(.006)	
Other Race x Wave	.019	(.013)		-.006	(.011)		-.009	(.007)		-.017	(.011)	
Phoenix x Wave	-.012*	(.006)		.001	(.006)		-.017**	(.006)		-.001	(.006)	
Age First Arrest x Wave	-.002	(.002)		.000	(.001)		.000	(.001)		.001	(.002)	
Prior Arrests x Wave	-.002	(.001)		.001	(.002)		.001	(.001)		-.001	(.001)	
Impulse Control	.016	(.019)	.026**	(.011)	.070***	(.009)	-.000	(.019)	.029**	(.011)	.053*	(.021)
Resistance to Peer Influence	.057	(.033)	.007	(.017)	-.207***	(.037)	.133***	(.033)	.049**	(.018)	-.124***	(.039)
Peer Delinquency	-.025	(.027)	-.014	(.011)	-.165***	(.030)	-.035	(.026)	-.016	(.011)	-.148***	(.030)
Picked up by Police	-.247	(.134)	.062*	(.026)	-.180	(.150)	-.024	(.022)				
Arrested	-.551***	(.075)	-.347***	(.017)	.146	(.083)	.001	(.014)				
Summons												
Court Appearance												
Linear Slope	.205***	(.041)		-.002	(.027)		.093	(.119)	.057*	(.028)	.122	(.138)
Quadratic Slope	-.026***	(.006)		-.002**	(<.001)		-.215***	(.061)	-.028	(.015)	.181**	(.070)
Cubic Slope	.001***	(<.001)					.073*	(.030)			-.036	(.028)
Random Effect												
Intercept	.424***	(.019)		.470***	(.015)		.456***	(.019)		.472***	(.016)	
Linear Slope	.043***	(.003)		.047***	(.003)		.045***	(.004)		.047***	(.003)	
Level 1 Error	.631***	(.053)		.529***	(.004)		.629***	(.005)		.546***	(.004)	
Model Fit												
-2 Log Likelihood		-11350.39			-10922.17			-11387.59			-11251.20	
AIC		22764.79			21906.35			22837.18			22564.39	
BIC		22998.01			22135.35			23063.27			22793.40	

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses; * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

delinquency at $-.36$ ($p < .001$). The within-individual effect of impulse control is statistically significant in the expected directions across all models. Also, as theoretically expected, Models 2 and 4 show that within-individual change in peer delinquency is only significant in predicting vicarious procedural justice perceptions for both the police ($-.36$, $p < .001$) and courts ($-.027$, $p < .01$). This indicates that as peer delinquency increases over time, it negatively influences an individuals' perceptions of procedural justice based on vicarious experiences. Peer delinquency also has statistically significant between-individual effects, suggesting that those who associate with more delinquent peers have lower perceptions of procedural justice of both police ($-.165$, $p < .001$) and courts ($-.148$, $p < .001$).

Surprisingly, the between-individual results of Models 2 and 4 suggest that those who score higher on resistance to peer influence overall have statistically significantly lower perceptions of procedural justice of the police ($-.207$, $p < .001$) and courts ($-.124$, $p < .001$) based on the experiences of others. This measure, however, is positively related to procedural justice of the courts based on direct experiences in Model 3 ($.113$, $p < .001$). Also in Model 3, the between-individual effect of appearing in court shows that those who appear in court have lower perceptions of procedural justice of the courts at $-.215$ ($p < .001$), however there appears to be no additional within-individual effect of this measure. Conversely, receiving a summons to court has a positive within-individual effect on procedural justice perceptions ($.057$, $p < .05$).

Table 12

Fully Conditional Models of Legal Socialization: Including Time-Stable & Time-Varying Covariates

Effect	Model 1				Model 2			
	Legitimacy		Legal Cynicism		Legitimacy		Legal Cynicism	
	Between-Individual	Within-Individual	Between-Individual	Within-Individual	Between-Individual	Within-Individual	Between-Individual	Within-Individual
	<i>B</i>	(SE)	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE
Fixed Effect								
Intercept	1.324***	(.227)			3.371***	(.225)		
Female	-.083*	(.040)			-.086*	(.044)		
Black	-.155***	(.042)			.179***	(.047)		
Hispanic	-.049	(.037)			.184***	(.042)		
Other Race	-.022	(.067)			.125	(.075)		
Phoenix	-.009	(.034)			-.027	(.039)		
Age at First Arrest	-.019*	(.009)			-.005	(.011)		
Prior Arrests	-.008	(.007)			.003	(.008)		
Female x Wave	.013**	(.005)			.002	(.005)		
Black x Wave	-.013**	(.005)			-.003	(.006)		
Hispanic x Wave	-.006	(.005)			.002	(.005)		
Other Race x Wave	.002	(.009)			-.003	(.009)		
Phoenix x Wave	-.000	(.004)			-.004	(.005)		
Age First Arrest x Wave	.002	(.001)			-.000	(.001)		
Prior Arrests x Wave	.000	(.001)			.001	(.001)		
PJ Police-Direct	.189***	(.031)	.054***	(.006)	-.070*	(.035)	-.010	(.007)
PJ Police-Others	.089**	(.034)	.048***	(.008)	.006	(.038)	-.051***	(.010)
PJ Courts-Direct	.080**	(.034)	.047***	(.006)	-.024	(.035)	-.013	(.007)
PJ Courts-Others	.284***	(.035)	.104***	(.008)	-.066	(.039)	-.019*	(.010)
Incarcerated	-.248***	(.037)	-.057***	(.013)	.031	(.041)	-.022	(.015)
Probation	.039	(.044)	.009	(.009)	-.050	(.050)	-.031**	(.011)
Impulse Control	.040**	(.015)	.027***	(.006)	-.177***	(.017)	-.075***	(.007)
Resist Peer Influence	-.094***	(.027)	.002	(.010)	-.161***	(.031)	-.046***	(.011)
Peer Delinquency	-.099***	(.022)	-.014*	(.006)	.200***	(.025)	.056***	(.007)
Picked up by Police	.071	(.114)	-.006	(.015)	-.248*	(.128)	.008	(.018)
Arrested	-.147	(.082)	-.041***	(.015)	.088	(.093)	-.011	(.014)
Summons	-.116	(.103)	.014	(.016)	-.014	(.115)	-.006	(.019)
Court Appearance	-.116	(.072)	-.047***	(.011)	-.061	(.081)	-.002	(.012)
Linear Slope	-.007	(.021)			-.000	(.020)		
Random Effect								
Intercept	.385***	(.011)			.426***	(.013)		
Linear Slope	.043***	(.002)			.039***	(.002)		
Level 1 Error	.351***	(.003)			.416***	(.003)		
Model Fit								
-2 Log Likelihood		-5734.38				-7350.46		
AIC		11560.75				14792.91		
BIC		11895.80				15127.95		

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Turning to Table 12, the fully conditional growth curve models of legitimacy and legal cynicism are presented. Perhaps of most interest in these models, the between- and within-individual effects of all measures of procedural justice measures are statistically significant in predicting legitimacy in Model 1. This indicates that those who are, on average, higher in procedural justice perceptions have more positive legitimacy beliefs; and, that a positive change in an individual's perception of procedural justice increases their belief in legitimacy. Model 2 shows that only two within-individual coefficients of procedural justice measures are statistically significantly related to legal cynicism (procedural justice of the police-others experience: $-.051, p < .001$; and procedural justice of the courts-others experience: $-.019, p < .05$). This suggests that perceptions of procedural justice based on vicarious experiences are negatively associated with legal cynicism, however, perceptions based on direct experience has no significant effect. Interestingly, while being incarcerated had negative effects on both between-individual differences ($-.248, p < .001$) and within-individual changes ($-.057, p < .057$) in legitimacy (Model 1; and was nonsignificant in Model 2), being on probation had a negative within-individual effect on legal cynicism ($-.031, p < .01$).

Summary of Findings

The models presented above provide many insights into the developmental processes of procedural justice and legal socialization perceptions. The unconditional growth curve models presented first confirm that perceptions of procedural justice can change over time and that these patterns of change vary depending on the measures of procedural justice that are used. The conditional models explain how changes in these perceptions can vary by different groups of individuals or based on other circumstances,

such as criminal justice contacts. Taken together, two main findings reveal themselves as noteworthy.

First, perceptions of procedural justice based on direct or vicarious experiences have different trajectories from one another. Additionally, the time-stable and time-varying covariates had differing effects on these measures as well. For example, peer delinquency was shown to influence perceptions of vicarious procedural justice, but not direct procedural justice. There were also gender differences in vicarious procedural justice, but not direct procedural justice measures.

Second, when the time-stable covariates are included in the model for legitimacy, the effect of time (i.e., linear slope) becomes non-significant. This suggests that, when controlling for group differences, such as race, gender, and location, the average patterns of legitimacy beliefs become stable over time. Legal cynicism likewise remained relatively stable across time. Considered collectively, these findings might signify that legal socialization—at least during adolescence—is a stable, trait-like characteristic of an individual, whereas perceptions of procedural justice appear more malleable over time. However, it should also be mentioned that the random-effects components of all models indicate that there remains significant variation among individuals that is not accounted for in these models and the magnitude of the random effects coefficients did not reduce substantially in the conditional models.

Mediation Models Predicting Offending

Analytic Strategy

There are several analytic choices available for assessing longitudinal mediation, each with their own strengths and limitations (for an overview of various methodologies see Preacher, 2015). This current study will use a multilevel negative binomial strategy (also known as a mixed-effects model) with time-varying measures decomposed into between-individual and within-individual components (Bryk & Raudenbush, 1992; Zhang et al., 2009). Negative binomial models will be used as the dependent variable is a variety scale that is a discrete count of the number of different delinquent acts that were committed during each wave. These multilevel negative binomial models will then be used to perform a series of mediation analyses using a reformulated method of Baron and Kenny's (1986) approach for multilevel, longitudinal mediation (Krull & MacKinnon, 2001; Mathieu & Taylor, 2007; Zhang et al., 2009).

To decompose the between- and within-individual coefficients, this study follows the technique introduced by Bryk and Raudenbush (1992) where the between-individual differences are calculated using mean centering across waves for each individual and the within-individual change at each wave is calculated as the deviation from the individual mean level. This decomposition is done for several reasons (Bryk & Raudenbush, 1992; MacKinnon, 2008; Singer & Willett, 2003; Zhang et al., 2009). In particular, combining both between-individual and within-individual levels into a single effect may lead to misrepresentations of mediation at either or both levels (Zhang et al., 2009).

Multilevel models of repeated measures have become increasingly common as longitudinal data has become more prevalent in behavioral research (Diggle et al., 2002;

Hox, 2010; Singer & Willett, 2003). These models assume that there are at least two levels within the data set, where an upper level (Level 2) represents the individual and the lower level (Level 1) is the observations or repeated measures nested within the individual. Unlike traditional models, multilevel models of repeated measures are able to manage missing data on the repeated measure (Kenny, Korchmaros, & Bolger, 2003) and can be used to simultaneously examine the effects of variables at both Level 2 (between-individuals) and at Level 1 (within-individual), thus taking into account any bias in standard errors that can result from the non-independence of the observations as is expected with this type of data (Krull & MacKinnon, 2001).

The longitudinal nature of the data offers the ability to test whether mediation effects are stable over time, can shed light on temporal or causal-ordering assumptions of the mediation relationship, and—most important for this study—tests whether mediation effects occur within the individual as opposed to explaining differences between individuals (Kenny et al., 2003; Preacher, 2015; Selig & Preacher, 2009). This last point is important as many mediation hypotheses—including that of the process-based model—often conceptualize this process as occurring within the individual; however, many tests of mediation are conducted using cross-sectional data or only examine inter-individual mediation (Maxwell & Cole, 2007; Nesselroade, 1991). Additionally, mediation may not occur instantaneously, particularly when concerning developmental processes such as legal socialization (Gollob & Reichardt, 2007; Selig & Preacher, 2009), and a longitudinal design may better capture this process.

Multilevel mediation testing. Traditionally, mediation models are used to describe how one variable (X) has an effect on a subsequent variable (Y) through some

intervening or intermediate variable (M). In the context of procedural justice, the most commonly proposed and tested mechanism of mediation is legitimacy or legal socialization (Tyler, 1990), where the relationship between procedural justice (X) and compliance (Y) is argued to be mediated by the intervening concept of legitimacy (M). Traditional single-level mediation analyses can be illustrated with the following conceptual model:

$$M = \beta_{0m} + \beta_{xm}X + \varepsilon_m \quad (1)$$

$$Y = \beta_{0y} + \beta_{xy}X + \beta_{my}M + \varepsilon_y \quad (2)$$

Where M is predicted by X, Y is predicted by X and M, and mediation is presented as the indirect effect of X on Y. The most common method used to test mediational hypotheses is the technique introduced by Baron and Kenny, which proposed several conditions that need to be met in order to demonstrate mediation (1986, p. 1176):

1. Variations in levels of the independent variable significantly account for variations in the presumed mediator (Path *a*);
2. Variations in the mediator significantly account for variations in the dependent variable (Path *b*); and,
3. When Paths *a* and *b* are controlled, a previously significant relationship between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path *c* is zero.

This approach has recently been reformulated for multilevel settings (Krull & MacKinnon, 2001; Mathieu & Taylor, 2007; Zhang et al., 2009) and can be used to test for multiple mediators and at various levels.

Multilevel mediation can typically take on one of three forms, depending on the level at which mediation is hypothesized to occur (Bauer, Preacher, & Gil, 2006; Krull & MacKinnon, 2001; Zhang et al., 2009). For example, if the antecedent variable (X) is measured at Level-2 and the mediator (M) and outcome (Y) variables are measured at Level-1, this is labeled a 2-1-1 form of mediation. For this study, all three variables are hypothesized to mediate across one level representing a 1-1-1, or lower level, mediation model (Kenny et al., 2003). Even with lower level mediation, however, it is important to account for the nested nature of the data (Zhang et al., 2009). Additionally, it may be important to differentiate whether mediation is occurring between individuals or within the individual as these can have very different coefficients (Bryk & Raudenbush, 1992; Davis, Spaeth, & Huson, 1961; Zhang et al., 2009). For example, the mean-centered level of procedural justice may strongly predict between-individual differences in offending whereas the within-individual relationship between procedural justice and offending may be weaker. Being able to differentiate between-individual differences and within-individual change is a key advantage of using a multilevel framework and allows for the testing of mediation in both contexts. The decomposition of Level-1 and Level-2 effects as described above has also been supported in testing mediation (W. L. Johnson, Giordano, Longmore, & Manning, 2014; Robitaille et al., 2013, 2014; Wager et al., 2009; Zhang et al., 2009).

The multilevel mediation model, following the adapted Baron and Kenny (1986) method, is presented in three steps. The first step in testing the mediation effect is to establish a relationship between procedural justice (Level-1 antecedent X_{ij}) and offending (Level-1 outcome Y_{ij}). Adapted from Zhang et al. (2009), equation (3) corresponds to the

Level-1 equation for offending (i.e., within-individual) and equation (4) represents the Level-2 equation (i.e., between-individuals):

Step 1:

$$\text{Level 1: } Y_{it} = \beta_{0i} + \beta_{1i}(X_{it} - \bar{X}_i) + r_{it} \quad (3)$$

$$\text{Level 2: } \beta_{0i} = \gamma_{00} + \gamma_{01}\bar{X}_i + u_{0i} \quad (4)$$

$$\beta_{1i} = \gamma_{10} \quad (5)$$

Where subscripts t refers to the observations at Level-1 and i represents the individual at Level-2; β_{0i} is the intercept for the individual i ; r_{it} and u_{0i} are the Level-1 and Level-2 residuals, respectively.

The second step in demonstrating mediation is to show a relationship between an individual's perceptions of procedural justice ($X_{it} - \bar{X}_i$) and the individual-level mediators (M_{it}) for the within-individual level and between-individual differences in procedural justice (\bar{X}_i) at Level-2 presented as the mean level across waves for each individual. The equations for this step are presented below:

Step 2:

$$\text{Level 1: } M_{it} = \beta_{0i} + \beta_{1i}(X_{it} - \bar{X}_i) + r_{it} \quad (6)$$

$$\text{Level 2: } \beta_{0i} = \gamma_{00} + \gamma_{01}\bar{X}_i + u_{0i} \quad (7)$$

$$\beta_{1i} = \gamma_{10} \quad (8)$$

The third step is to demonstrate whether the magnitude of the effect of procedural justice is reduced after adding the mediators to the model. Equations (7-10) present the final step in this process as shown below:

Step 3:

$$\text{Level 1: } Y_{it} = \beta_{0i} + \beta_{1i}(X_{it} - \bar{X}_i) + \beta_{2i}(M_{it} - \bar{M}_i) + r_{it} \quad (9)$$

$$\text{Level 2: } \beta_{1i} = \gamma_{00} + \gamma_{01}\bar{X}_i + \gamma_{02}\bar{M}_i + u_{0i} \quad (10)$$

$$\beta_{1i} = \gamma_{10} \quad (11)$$

$$\beta_{2i} = \gamma_{20} \quad (12)$$

Mediation effects: Level 1 effect $\gamma_{10}^{(8)} * \gamma_{20}^{(12)}$; Level 2 effect $\gamma_{01}^{(7)} * \gamma_{01}^{(10)}$

To test for the significance of mediation, this study will follow the recommendations of Zhang et al (2009) to adapt the Sobel test to a multilevel context. While some scholars consider the Sobel (1982) test to be a more sophisticated test of mediation than the Baron and Kenney method (see Holmbeck, 2002; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2004), the traditional Sobel test has been found to be problematic with multilevel mediation (see Zhang et al., 2009). According to Zhang and associates (2009), the traditional Sobel statistic, and the alternative Freedman and Schatzkin (1992) statistic, can lead to inaccurate estimates when used in multilevel mediation models because it conflates between-group and within-group effects. This study will follow the approach proposed by Zhang and colleagues (2009) that decomposes the Sobel statistic to test for mediation effects at both Level 1 and Level 2 (see Zhang et al., 2009 for more information).

The results of these models will be presented in three stages. First, linear mixed effects models will be used to test the effects of procedural justice on the four mediators: legitimacy, legal cynicism, anger, and motivation. Informed by the growth curve models of procedural justice of the police and courts (presented in the sections above)—illustrating divergent longitudinal paths for direct and vicarious experiences—two

measures of procedural justice will be included. The first measure will be a combined measure of direct experiences with both police and the courts and the second measure will be a combined measure of vicarious experiences with both. For the second stage of analyses, multilevel negative binomial models will test the relationship between the mediators and offending using decomposed measures for between- and within-individual effects. Finally, a series of multilevel negative binomial mediation models will be used to test for mediation on the relationship between procedural justice and offending at either the between-individual or within-individual levels.¹⁰

Predicting Effects of Procedural Justice on Mediators

The first stage of analyses will demonstrate the predictive capacity of procedural justice on the mediators of interest. Table 13 presents the linear mixed-effects models predicting the effects of procedural justice on legitimacy and legal cynicism. Controlling for a number of time-stable and time-varying covariates, Model 1 indicates that both measures of procedural justice are significantly predictive of legitimacy in the positive direction at both the between- and within-individual levels. The between-individual coefficients suggest that those who experience higher levels of procedural justice—either direct or vicarious—have higher legitimacy beliefs ($b = .267, p < .001$ and $b = .386, p < .001$, respectively). The coefficients for the within-individual coefficients further suggest an increase in legitimacy beliefs for direct procedural justice ($b = .104, p < .001$) and for vicarious procedural justice ($b = .153, p < .001$).

¹⁰ Multicollinearity between the procedural justice, mediating measures, and other covariates, was tested for using the Variance Inflation Factor (VIF). None of the VIFs were above 2, which is below the standard “conservative” cutoff of 4.0 (J. Fox, 1991).

Model 2 presents the effects of procedural justice on legal cynicism. In this model, the between-individual coefficient for vicarious procedural justice is not significantly different from zero; however, the between-individual coefficient of direct procedural justice and both within-individual procedural justice coefficients are significantly related to legal cynicism in the negative direction. The coefficients of the between-individual effect of direct procedural justice indicates that those who have an overall higher level of procedural justice perceptions have lower levels of legal cynicism beliefs than those who with lower direct procedural justice experiences ($b = -.118, p < .001$). While the within-individual changes in procedural justice measures are both statistically significant, the size of the coefficients suggest that these only produce marginal changes in legal cynicism beliefs. Changes in direct procedural justice is associated with an approximately 2 percent reduction in legal cynicism beliefs ($b = -.002, p < .01$) and vicarious procedural justice leads to a less than seven percent reduction ($b = -.071, p < .001$).

Table 14 presents the linear mixed-effects model testing the relationship between procedural justice and anger. Surprisingly, neither the between- or within-individual coefficients for direct procedural justice are significantly related to anger; however, vicarious procedural justice is statistically related to anger in the negative direction at both levels. Specifically, those who have higher perceptions of procedural justice based on vicarious experiences have levels of anger that are lower than those with more negative vicarious procedural justice perceptions ($b = -.224, p < .001$). Additionally, a within-individual change in vicarious procedural justice in the positive direction is associated with a marginal decrease in anger ($b = -.063, p < .001$).

Table 14
Multilevel Regression Model of Procedural Justice on Anger

Effect	Between-Individual		Within-Individual	
	<i>b</i>	(SE)	<i>b</i>	SE
Fixed Effect				
Direct Procedural Justice	-.056	(.041)	-.016	(.011)
Others Procedural Justice	-.224***	(.034)	-.063***	(.012)
Incarcerated	-.130*	(.055)	-.087***	(.019)
Probation	-.056	(.067)	-.001	(.014)
Impulse Control	-.538***	(.022)	-.469***	(.009)
Peer Delinquency	.375***	(.033)	.089**	(.009)
Picked up by Police	.215	(.173)	-.009	(.024)
Arrested	.069	(.125)	-.011	(.018)
Summons	-.068	(.156)	-.024	(.025)
Court Appearance	-.148	(.019)	-.001	(.016)
Female	.055	(.044)		
Black	.294***	(.045)		
Hispanic	.144***	(.041)		
Other Race	.104	(.073)		
Phoenix	-.140***	(.038)		
Age at First Arrest	-.014	(.010)		
Prior Arrests	-.003	(.008)		
Linear Slope	-.021***	(.003)		
Intercept	5.289***	(.268)		
Random Effect				
Intercept	.467***	(.017)		
Linear Slope	.063***	(.002)		
Level 1 Error	.535***	(.004)		
Model Fit				
-2 Log Likelihood			-10266.08	
AIC			20598.15	
BIC			20838.56	

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

The effects of procedural justice on motivation are presented in Table 15. According to this linear mixed-effects model, both the between- and within-individual coefficients for direct procedural justice is positively and significantly related to motivation; however, neither coefficient for vicarious procedural justice are statistically significant. The between-individual estimate of direct procedural justice suggests that individuals with overall higher perceptions of procedural have an approximately 13 percent higher level of motivation ($b = .127, p < .001$). And, finally a within-individual, positive change in direct experience of procedural justice is associated with an approximate four percent increase in motivation based on the within-individual coefficient ($b < .041, p < .001$).

Summary. Taken together, the models presented in Tables 13, 14, and 15 suggest that procedural justice is related to all four mediators at either one or both levels. In particular, both measures of procedural justice—direct and vicarious—appear to have the strongest and most consistent effects on legitimacy at both the between- and within-individual levels, whereas the effects on the other mediators are more mixed. The analyses from Tables 14 and 15 collectively reveal that direct procedural justice is not significantly related to anger at either level, but vicarious procedural justice is negatively associated with anger at both levels. Conversely, direct experience of procedural justice is significant in predicting motivation at both levels whereas vicarious procedural justice is not. These mirrored findings may suggest that vicarious or general perceptions are more closely associated with negative feelings and direct procedural justice may be better linked with prosocial attitudinal changes.

Table 15
Multilevel Regression Model of Procedural Justice on Motivation

Effect	Between-Individual		Within-Individual	
	<i>b</i>	(SE)	<i>b</i>	SE
Fixed Effect				
Direct Procedural Justice	.127***	(.028)	.041***	(.008)
Others Procedural Justice	-.038	(.023)	-.002	(.009)
Incarcerated	-.024	(.038)	.031*	(.014)
Probation	-.058	(.046)	-.008	(.010)
Impulse Control	.185***	(.015)	.050***	(.007)
Peer Delinquency	-.020	(.023)	-.032***	(.007)
Picked up by Police	-.049	(.118)	.009	(.017)
Arrested	.070	(.085)	-.027*	(.013)
Summons	-.086	(.106)	.002	(.018)
Court Appearance	-.154*	(.075)	.006	(.012)
Female	.001	(.020)		
Black	.013	(.031)		
Hispanic	-.028	(.028)		
Other Race	.043	(.050)		
Phoenix	-.095***	(.026)		
Age at First Arrest	-.001	(.007)		
Prior Arrests	.004	(.005)		
Linear Slope	.021***	(.002)		
Intercept	1.852***	(.183)		
Random Effect				
Intercept	.340***	(.012)		
Linear Slope	.042***	(.002)		
Level 1 Error	.396***	(.003)		
Model Fit				
-2 Log Likelihood			-6850.17	
AIC			13766.35	
BIC			14006.69	

Note. AIC = Akaike's information criterion; BIC = Bayesian information criterion; standard errors reported in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Analyses of Effects of Mediators on Offending

Now that the relationship between procedural justice and the mediator variables has been established, the next stage of models test whether the mediator variables are predictive of offending behavior. The second stage of analyses, presented in Table 16, test whether the four mediating variables—legitimacy, legal cynicism, anger, and motivation—are individually predictive of offending. For these analyses, multilevel negative binomial models with decomposed between- and within-individual effects are used.

Model 1 shows the effects of legitimacy on offending. The incident rate ratio of the between-individual coefficient suggests that individuals who are higher in legitimacy beliefs show an 18 percent lower rate of offending ($b = -.200, p < .001$). The within-individual coefficient similarly suggests that an individual engages in roughly 14 percent less offending as their level of legitimacy increases ($b = .153, p < .001$). As theoretically expected, Model 2 suggests that a within-individual increase in legal cynicism has a positive effect on offending ($b = .099, p < .001$).

Turning to Model 3, anger is shown to have a positive effect on offending at both levels. In fact, of the four mediating measures presented, anger appears to have the strongest effect on overall offending, with coefficients marginally higher than legitimacy. According to the between-individual coefficient, individuals with higher levels of anger engage in about 22 percent more offending ($b = .202, p < .001$) and a within-individual increase in anger over time is associated with a positive increase in offending ($b = .173, p < .001$). Finally, the incident rate ratio of the within-individual coefficient for motivation

Table 16
Negative Binomial Models of Mediators on Offending

Variable	Model 1		Model 2		Model 3		Model 4	
	Between-Individual	Within-Individual	Between-Individual	Within-Individual	Between-Individual	Within-Individual	Between-Individual	Within-Individual
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Legitimacy	-.200*** (.052)	-.153*** (.029)						
Legal Cynicism		-.043 (.061)	.099*** (.026)					
Aggression				.202*** (.042)	.173*** (.021)			
Motivation						.002 (.062)	-.097*** (.027)	
Impulse Control	-.156*** (.033)	-.205*** (.019)	-.155*** (.033)	-.202*** (.019)	-.077* (.036)	-.154*** (.043)	-.203*** (.019)	
Peer Delinquency	1.028*** (.046)	.448*** (.016)	1.039*** (.046)	.451*** (.016)	1.008*** (.046)	1.039*** (.046)	.454*** (.016)	
Moral Disengagement	.188* (.095)	.325*** (.043)	.205** (.109)	.307*** (.044)	.101 (.100)	.259** (.016)	.340*** (.043)	
Emotional Regulation	-.179*** (.043)	-.062** (.022)	-.201*** (.043)	-.063** (.022)	-.179*** (.043)	-.204*** (.047)	-.058** (.022)	
Costs of Punishment	.014 (.039)	-.010 (.016)	-.019 (.039)	-.018 (.016)	-.015 (.039)	-.016 (.039)	-.018 (.016)	
Punishment Certainty	-.048*** (.012)	-.029*** (.005)	-.054*** (.015)	-.030*** (.005)	-.051*** (.011)	-.057*** (.011)	-.032*** (.005)	
Rewards of Crime	.057*** (.015)	.044*** (.006)	.054*** (.015)	.042*** (.006)	.046** (.015)	.052*** (.015)	.044*** (.006)	
Female	-.229*** (.062)		-.232*** (.062)		-.251*** (.064)	-.228*** (.064)		
Black	-.229*** (.062)		-.200*** (.062)		-.240*** (.062)	-.209*** (.062)		
Hispanic	-.242*** (.053)		-.232*** (.054)		-.245*** (.053)	-.246*** (.053)		
Other Race	-.198* (.096)		-.182 (.096)		-.188* (.096)	-.194* (.096)		
Phoenix	.123* (.054)		.118* (.054)		.173*** (.055)	.122* (.054)		
Age at First Arrest	-.020 (.014)		-.013 (.014)		-.012 (.014)	-.012 (.014)		
Number of Priors	.017 (.010)		.021* (.010)		.020* (.010)	.021* (.010)		
Exposure	.044*** (.014)		.044*** (.014)		.046*** (.014)	.043** (.014)		
Exposure ²	-.004* (.002)		-.004* (.002)		-.004* (.002)	-.004* (.002)		
Prop. Time in Comm.	.202*** (.031)		.289*** (.031)		.269*** (.031)	.283*** (.032)		
Wave	-.066*** (.017)		-.064*** (.017)		-.064*** (.017)	-.058*** (.017)		
Wave ²	-.001 (.002)		-.001 (.002)		-.001 (.002)	-.002 (.002)		
Constant	.646 (.399)		.178 (.389)		-.537 (.407)	.131 (.389)		

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

in Model 4 indicates that an increase in an individual's level of motivation is associated with an approximately nine percent decrease in offending ($b = .097, p < .001$).

Summary. Overall, the findings of the within-individual effects of these models suggest that changes in all mediating variables are predictive of offending. The between-individual coefficients; however, demonstrate that only legitimacy and anger predict differences in offending between individuals. The analyses presented in the two sections above demonstrate that procedural justice is significantly related to the mediating variables of interest in this study and that the mediators are predictive of offending. These findings satisfy two conditions of the mediation process necessary to continue to the final set of models that will be presented in the section that follows.

Analyses Testing Mediation

Table 17 presents the results of the mediation analyses testing whether the four mediators, either independently or together, mediate the relationship between procedural justice and offending. As with the models in the previous section, multilevel negative binomial models were used to test the various mediation hypotheses.

Model 1 presents the direct effects of procedural justice on offending, without mediation. According to this model, direct procedural justice is negatively associated with offending at both levels and vicarious procedural justice is predictive of offending between-individuals, but the within-individual coefficient is not statistically significant. The between-individual effects suggest that those individuals who have higher procedural justice perceptions engage in fewer offending behaviors, whether that procedural justice.

experience is direct ($b = -.120, p < .05$) or vicarious ($b = -.195, p < .001$). A within-individual increase in direct procedural justice is also associated with an approximately 15 percent reduction in offending ($b = -.160, p < .001$).

Model 2 tests the mediation effect of legitimacy on the relationship between procedural justice and offending. According to this model, when legitimacy is included, the between-individual effect of direct procedural justice becomes non-significant—suggesting that legitimacy fully mediates this portion of the relationship between procedural justice and offending. The within-individual effect of direct procedural justice and the between-individual effect of vicarious procedural justice remain statistically significant, although the coefficients reduce slightly. Comparing the coefficients of the between-individual effects of vicarious procedural justice between Models 1 and 2 suggests that, when including legitimacy in the model, the direct effects of vicarious procedural justice is reduced from $-.195 (p < .001)$ in Model 1 to $-.155 (p < .001)$ in Model 2. According to the Sobel test, this mediation is confirmed ($z = -.2.03, p = .04$). Additionally, the within-individual effect of direct procedural justice is marginally reduced from $-.160 (p < .001)$ to $-.143 (p < .001)$ when legitimacy is included in the model. This mediation was also confirmed using the Sobel test ($z = -4.55, p < .001$).

The mediation effects of legal cynicism are presented in Model 3. According to this model, legal cynicism appears to have minimal to no mediation on either the between-individual or within-individual effects of procedural justice. When both legitimacy and legal cynicism are included together in Model 4, the effects of procedural justice remain statistically significant for the between-individual effects of vicarious

Table 17
Negative Binomial Mediation Models of Procedural Justice on Offending

Variable	Model 1			Model 2			Model 3			Model 4		
	Between-Individual	Within-Individual		Between-Individual	Within-Individual		Between-Individual	Within-Individual		Between-Individual	Within-Individual	
	B (SE)	B (SE)		B (SE)	B (SE)		B (SE)	B (SE)		B (SE)	B (SE)	
PJ Direct	-.120* (.057)	-.160*** (.023)		-.087 (.059)	-.143*** (.023)		-.124* (.057)	-.160*** (.023)		-.090 (.059)	-.144*** (.023)	
PJ Others	-.195*** (.048)	.020 (.026)		-.155** (.052)	.042 (.026)		-.191*** (.048)	.025 (.026)		-.148** (.053)	.046 (.026)	
Legitimacy				-.127* (.062)	-.153*** (.032)					-.132* (.063)	-.145*** (.032)	
Legal Cynicism							-.047 (.061)	.107*** (.026)		-.055 (.061)	.100*** (.026)	
Impulse Control	-.152*** (.033)	-.194*** (.020)		-.151*** (.032)	-.194*** (.019)		-.152*** (.033)	-.188*** (.020)		-.152*** (.033)	-.188*** (.019)	
Peer Delinquency	1.010*** (.046)	.433*** (.016)		1.006*** (.046)	.428*** (.016)		1.008*** (.046)	.430*** (.016)		1.004*** (.046)	.426*** (.016)	
Moral Disengagement	.178 (.095)	.317*** (.044)		.153 (.095)	.201*** (.044)		.225* (.110)	.275*** (.046)		.206 (.110)	.263*** (.045)	
Emotional Regulation	-.191*** (.044)	-.053* (.023)		-.183*** (.044)	-.047* (.023)		-.190*** (.044)	-.046* (.023)		-.181*** (.044)	-.041 (.023)	
Costs of Punishment	-.038 (.039)	-.015 (.017)		-.017 (.040)	-.006 (.017)		-.039 (.039)	-.011 (.017)		-.017 (.040)	-.003 (.017)	
Punishment Certainty	-.047*** (.011)	-.027*** (.006)		-.043*** (.012)	-.025*** (.005)		-.048*** (.011)	-.025*** (.006)		-.044*** (.012)	-.024*** (.006)	
Rewards of Crime	.043** (.015)	.044*** (.007)		.044** (.015)	.043*** (.007)		.045** (.015)	.042*** (.007)		.046** (.015)	.041*** (.007)	
Gender	-.211*** (.065)			-.212*** (.065)			-.214*** (.065)			-.215*** (.065)		
Black	-.205*** (.062)			-.223*** (.062)			-.202*** (.062)			-.219*** (.062)		
Hispanic	-.213*** (.054)			-.216*** (.054)			-.209*** (.054)			-.211*** (.054)		
Other Race	-.179 (.097)			-.182 (.097)			-.169 (.097)			-.172 (.097)		
Phoenix	.225*** (.054)			.224*** (.054)			.219*** (.054)			.218*** (.054)		
Age at First Arrest	-.012 (.014)			-.015 (.014)			-.011 (.014)			-.015 (.014)		
Number of Priors	.019 (.010)			.017 (.010)			.019 (.010)			.017 (.010)		
Exposure	.039** (.014)			.040** (.014)			.039** (.014)			.040** (.014)		
Exposure ²	-.005** (.002)			-.005** (.002)			-.005** (.002)			-.005** (.002)		
Prop. Time in Comm.	.262*** (.032)			.274*** (.032)			.262*** (.032)			.274*** (.017)		
Wave	-.047*** (.017)			-.050** (.017)			-.047** (.017)			-.050** (.017)		
Wave ²	-.002 (.002)			-.002 (.002)			-.002 (.002)			-.002 (.002)		
Constant	1.087*** (.435)			1.171** (.434)			1.125** (.441)			1.216** (.440)		

(continued)

Variable	Model 5			Model 6			Model 7					
	Between-Individual		Within-Individual	Between-Individual		Within-Individual	Between-Individual		Within-Individual			
	<i>B</i>	(SE)	<i>B</i>	(SE)	<i>B</i>	(SE)	<i>B</i>	(SE)	<i>B</i>	(SE)		
PJ Direct	-.115*	(.056)	-.157***	(.023)	-.117*	(.057)	-.157***	(.023)	-.092	(.058)	-.141***	(.023)
PJ Others	-.168***	(.048)	.027	(.026)	-.194***	(.048)	.019	(.026)	-.135**	(.053)	.049	(.026)
Legitimacy									-.097	(.063)	-.129***	(.032)
Legal Cynicism									-.074	(.061)	.079**	(.026)
Aggression	.188***	(.042)	.161***	(.022)					.188***	(.043)	.149***	(.022)
Motivation					-.020	(.062)	-.092***	(.028)	-.040	(.063)	-.077**	(.028)
Impulse Control	-.079*	(.037)	-.126***	(.021)	-.148***	(.024)	-.190***	(.020)	-.074*	(.038)	-.124***	(.021)
Peer Delinquency	.981***	(.046)	.422***	(.016)	1.008***	(.046)	.433***	(.046)	.975***	(.046)	.417***	(.016)
Moral Disengagement	.041	(.100)	.252***	(.045)	.176	(.095)	.313***	(.044)	.088	(.113)	.210***	(.046)
Emotional Regulation	-.171***	(.044)	-.044*	(.023)	-.187***	(.047)	-.043	(.023)	-.154***	(.048)	-.028	(.023)
Costs of Punishment	-.035	(.039)	-.013	(.017)	-.036	(.039)	-.012	(.017)	-.016	(.040)	-.001	(.017)
Punishment Certainty	-.043***	(.011)	-.026***	(.006)	-.048***	(.011)	-.028***	(.006)	-.041***	(.012)	-.024***	(.006)
Rewards of Crime	.036**	(.015)	.040***	(.007)	.042**	(.015)	.043***	(.007)	.038**	(.015)	.038***	(.007)
Female	-.235***	(.065)			-.214***	(.065)			-.241***	(.065)		
Black	-.240***	(.062)			-.028***	(.062)			-.251***	(.062)		
Hispanic	-.222***	(.054)			-.220***	(.054)			-.222***	(.054)		
Other Race	-.182	(.096)			-.181	(.097)			-.176	(.096)		
Phoenix	.269***	(.055)			.222***	(.054)			.259***	(.054)		
Age at First Arrest	-.010	(.014)			-.011	(.014)			-.012	(.014)		
Number of Priors	.019	(.010)			.019	(.010)			.018	(.010)		
Exposure	.041**	(.014)			.039**	(.014)			.041**	(.014)		
Exposure ²	-.005**	(.002)			-.005**	(.002)			-.005**	(.002)		
Prop. Time in Comm.	.242***	(.032)			.258***	(.032)			.249***	(.032)		
Wave	-.048**	(.017)			-.042*	(.017)			-.045**	(.017)		
Wave ²	-.002	(.002)			-.002	(.002)			-.002	(.002)		
Constant	.347	(.464)			1.096**	(.441)			.523	(.472)		

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

procedural justice ($b = -.148, p < .01$) and the within-individual effects of direct procedural justice ($b = -.144, p < .001$). These effects are similar to that of Model 2 with legitimacy, suggesting that the inclusion of legal cynicism produces no additional mediation effect on the relationship between procedural justice and offending.

In Model 5 the mediation effect of anger is tested. Anger is significantly related to offending and appears to have a significant mediation effect on the relationship between the procedural justice measure and offending at both levels. In particular, the between-individual effect of vicarious procedural justice underwent the most mediation, with a reduction from $-.195 (p < .001)$ to $-.168 (p < .001)$, which is confirmed with the Sobel test ($z = -3.70, p < .001$). The mediation effects of motivation are presented in Model 6. This model also demonstrated little to no reduction in procedural justice coefficients when motivation is included.

The final model (Model 7) on Table 17 demonstrates the multi-mediation effects when all four mediators are included in the model. According to this model, when all four mediation variables are included, the between-individual effect of vicarious procedural justice remains statistically significant ($b = -.135, p < .01$) as does the within-individual coefficient for direct procedural justice ($b = -.141, p < .001$). The between-individual effect of direct procedural justice becomes non-significant. As this measure was also non-significant in Model 2 with legitimacy as the only mediator (and no other model produced this level of mediation on this measure) it is possible to assume that legitimacy has the strongest mediation effect on the between-individual effect of direct procedural justice overall. The inclusion of legal cynicism and anger seem to have the strongest mediation effects on the between-individual effects of vicarious procedural justice—

reducing this coefficient from $-.195$ ($p < .001$) to $-.135$ ($p < .01$). The inclusion of all four mediators does not seem to produce any increased mediation effect on the within-individual effect of direct procedural justice compared to Model 2 with legitimacy as the sole mediator.

Summary of Findings

Overall, these models testing multiple mediation hypotheses offer some conclusions as to the relationship between procedural justice and offending. A summary of these results are presented in Table 18. Informed from several theoretical perspectives, these models tested the possible mediation of legitimacy, legal cynicism, anger, and motivation. According to the findings presented above, legitimacy seems to have the strongest mediation potential of the four mediators tested, although it only fully mediated the between-individual effect of direct procedural justice. This suggests that legitimacy beliefs may account for differences in offending among individuals, but direct procedural justice maintains a significant predictor of within-individual change in offending over time. Additionally, the between-individual effect of legitimacy becomes non-significant in the full mediation model.¹¹

The between-individual coefficient of vicarious procedural justice remains a robust predictor of differences in offending, suggesting that differences in vicarious or general perceptions of procedural justice can predict individual differences in offending

¹¹ Subsequent analyses that were not presented indicate that legitimacy becomes non-significant when anger is included in the model. Given that these two measures have significant opposite effects on offending (i.e., legitimacy is negatively related to offending, anger is positively related to offending) it is possible that the sum of the indirect effects of both mediators come close to zero or that the effect of anger cancels out the mediation effect of legitimacy (MacKinnon, Krull, & Lockwood, 2000; Preacher & Hayes, 2004).

levels. While the non-direct experience of procedural justice did not have a statistically significant, within-individual direct effect on offending, direct experience with procedural justice continued to have a significant within-individual effect, regardless of inclusion of the mediating variables.

Table 18
Mediation Results Summary

	Between-Individual		Within-Individual	
	PJ-Direct	PJ-Others	PJ-Direct	PJ-Others
Legitimacy	Full	Partial	Partial	-
Legal Cynicism	No	Minimal	No	-
Anger	Partial	Partial	Minimal	-
Prosocial Motivation	Minimal	Minimal	Minimal	-

CHAPTER 5

DISCUSSION

Modern thoughts on justice debate the relative importance of procedural or distributive justice in maintaining order and promoting fairness. Tom Tyler advanced the notion to criminologists that procedural—not distributive—justice perceptions were linked to favorable outcomes, such as improved legitimacy beliefs and compliance with legal authorities (Tyler, 1990). Tyler’s work was a response to the almost exclusive focus on distributive justice concerns by criminal justice researchers. During a time when theories of deterrence, rational choice, and issues of inequality in the criminal justice system dominated the field, Tyler brought scholarly attention back to the *process* of the criminal justice system.

Although it may have been neglected by empirical research in the time prior to Tyler, concerns about procedural justice have never truly left the U.S. criminal justice system. Ingrained in the United States Constitution are rights and protections of procedural due process (Fifth and Fourteenth Amendments), many of which—such as the right to an unbiased trial and the opportunity to present evidence, among others—represent ideals of procedural justice not unrelated to those articulated by Tyler and others. The Warren Court era of the Supreme Court (1953-1969) was well-known for its attention to procedural due process, ensuring procedural fairness for defendants and enhancing protections against unethical or biased processes in a series of landmark cases, most notable included preventing the use of evidence from illegal searches (*Mapp v. Ohio*, 1961), requiring legal representation for indigent defendants (*Gideon v. Wainwright*, 1963), and compelling police officers to clearly explain an individual’s

rights to them during interrogations (*Miranda v. Arizona*, 1966). It is within this historical backdrop that many contemporary forerunners of justice theory contemplated the notion of procedural justice (e.g., Leventhal, 1976; Rawls, 1971; Thibaut & Walker, 1975) and provided the major influences of Tyler's current conceptualization and development of his process-based model of regulation.

Tracing the lineage of Tyler's process-based model situates it within a broader social context. It offers an opportunity for the consideration of implications for criminal justice policy and sets a path moving forward for future thought and research on procedural justice. Although the notion of procedural justice is not new, the empirical effort to uncover its meaning and impact is just emerging. This current study contributes to what has become a growing field for empirical inquiry. The purpose of this study was to use a sample of criminal justice-involved adolescents to provide insights into two areas of procedural justice research that were underdeveloped. The first was to examine the longitudinal patterns of procedural justice and legal socialization and the second was to delve more deeply into the underlying mechanisms of the process-based model. The remaining sections of this final chapter will review the key findings of this study, discuss its limitations; and, thereafter, the implications for policy and avenues for future research are considered.

Focus 1: Longitudinal Patterns of Procedural Justice and Legal Socialization

The first focus of this study was to examine the longitudinal patterns of procedural justice and legal socialization. This study sought to assess whether these perceptions changed over time and what factors influenced changes in these beliefs.

Toward this end, the findings of this study provides a number of key insights, one of which deserve notable attention.

Recent developments in longitudinal research examining procedural justice and legal socialization have suggested that these perceptions and beliefs do not remain stable over time (Augustyn, 2016; Fine & Cauffman, 2015; Piquero et al., 2005). The findings of this current study supports these conclusions and provides insights into what factors influence these developmental processes. Based on the findings of this study, there is reason to assume that perceptions of procedural justice are malleable over time and that the patterns of change differ for direct and vicarious experiences of procedural justice. Specifically, the findings of this study suggest that, over time, perceptions of procedural justice based on direct experiences seem to improve, whereas perceptions based on vicarious or general perceptions tend to decrease. Additionally, these trends appear to be consistent whether examining procedural justice of the police or the courts. Subsequent analyses of the time-stable and time-varying effects also indicate similar patterns of effects for direct and vicarious experiences. Although there are limitations to these results that will be discussed below, it offers new avenues for future research to further examine the dynamics between direct and vicarious perceptions of procedural justice.

Focus 2: Mediating Mechanisms of Procedural Justice on Offending

The second focus of this study was to provide a more nuanced analysis of the underlying mechanisms of the procedural justice-criminal offending relationship. This study tested the effects of four possible mediating mechanisms, including legitimacy, legal cynicism, anger, and prosocial motivation. For this purpose, this study used a multilevel, longitudinal method of mediation testing to isolate both within- and between-

individual level mediation processes. This method of mediation testing has not yet been used to test the underlying mechanisms of the process-based model and presents a new approach to mediation testing for developmental processes. Beyond the introduction of this new approach, the findings of this study offers new considerations for Tyler's process-based model and for research on procedural justice effects more generally.

Perhaps the most significant key finding of this portion of the study relates to the role of legitimacy in the process-based model. Overall, this study found that legitimacy beliefs mediated the effects of procedural justice on offending between individuals, but did not provide a full mediation of the within-individual effect of procedural justice on offending. Given that the longitudinal models presented earlier in this study found that legitimacy remains relatively stable, with only minimal change over time, the finding that legitimacy only provides partial mediation of within-individual effects of procedural justice is not too surprising. The discrepancy of these mediation effects, shown by simultaneously modeling between- and within-individual mediation, offers important advancements in the understanding of these relationships. Additionally, these models demonstrate that legitimacy provides a mediation effect specifically for procedural justice based on direct experiences, yet does not fully mediate the between-individual effects of the vicarious procedural justice judgments. For vicarious procedural justice perceptions, anger provides a partial between-individual mediation effect. These related findings regarding the role of anger and legitimacy and their unique influences on the pathways of direct or vicarious procedural justice judgments on offending may provide unique insights into these relationships.

Study Limitations

As with all research, this study is not without its limitations. There are two areas in which the conclusions of this study are limited. First, issues of data and measurement need to be acknowledged. The Pathways to Desistance data is comprised of a sample that is more involved in the criminal justice system than the general population of adolescents. By using a sample of adolescents that were highly involved in the criminal justice system, this study was able to assess the long-term effects of criminal justice contacts. Although this sample was ideal for the purposes of this study, it does limit the generalizability of these findings. Unfortunately, longitudinal data of the general population that includes measures of procedural justice, legal socialization, and criminal justice involvement are not currently available.

All of the adolescents that participated came into this study with a background of prior criminal justice experiences. Not all adolescents will have the frequency of criminal justice contacts as those in this sample and many will have no direct contact with the criminal justice system at all. Therefore, it is not possible for the results of this study to draw inferences on the trends in procedural justice perceptions or legal socialization beliefs for those individuals who have no direct criminal justice experiences, or assess the effects of first time contact. It may well be that the first criminal justice contact that an individual experiences sets in motion a trajectory of perceptions that becomes more difficult to change with subsequent contacts. Alternatively, this sample may represent those individuals that could benefit the most from procedurally-just interactions with the criminal justice system. These individuals have more frequent contact with criminal justice officials and, therefore, their perceptions of procedural justice and legal

socialization beliefs related to these contacts may have more of an influence on their behavior. Also, by using this sample, it is possible to assess the potential rehabilitative effect of procedural justice encounters on the desistance process for those already engaged in criminal behaviors.

The Pathways to Desistance data offers a wealth of information regarding criminal justice contacts, procedural justice perceptions, and legal socialization beliefs as well as measures of offending, but it is not without limits. Although information is provided regarding the number and type of criminal justice interactions, the quality assessments and specific circumstances of those interactions are not available. Additionally, while the procedural justice and legal socialization measures are available in the data, the specific items that make up these scales are not provided, further limiting the ability of this study to provide more nuanced assessments.

The second issue that may challenge the results of this study lies in the analytic approach used for mediation testing. As noted in the analytic strategy, there are many methods for testing mediation, each with their own advantages and limitations (see MacKinnon & Fairchild, 2010; Preacher, 2015). The multi-level, longitudinal mediation approach used in this study provides an advanced approach over prior single-level or cross-sectional mediation research on the process-based model. Debate remains, however, as to the appropriate techniques to study multi-level or within-individual mediation (e.g., Judd, Kenny, & McClelland, 2001; MacKinnon & Fairchild, 2010; Malhotra & Singhal, 2014). Some scholars have argued that structural equation models (SEM) are better for testing within-individual mediation processes; however, research that has compared SEM with the multi-level, longitudinal approach used in this study

found there to be only marginal differences in the power estimates of the two approaches (see Blood, Cabral, Heeren, & Cheng, 2010; Blood & Cheng, 2011). Where multi-level SEM may prove beneficial is to simultaneously model both direct and indirect effects of the mediation process, offering an arguably more efficient modeling strategy.

The Path Forward: Policy and Research Implications

Policy Implications

The belief in the power of deterrence and instrumental perspectives over the past decades has resulted in harsher punishments and strapped resources of the criminal justice system. For years, scholars have demonstrated the ineffectiveness of deterrence-based approaches to reducing crime (see Pratt, Cullen, Blevins, Daigle, & Madensen, 2006). As focus begins to shift toward the influences of procedural justice and interactions with criminal justice officials, there may soon be an equal shift towards policies more in line with this perspective.

The findings of the present study offer support for a number of policies related to the practical application of procedural justice theory. The divergent longitudinal patterns of direct and vicarious procedural justice, along with the robust finding of the within-individual effect of direct procedural justice on offending, leads to hopeful conclusions regarding the potential impact of positive criminal justice interactions. Counter to prior studies which find that general perceptions of the criminal justice system may be more impactful than personal experiences (Brandl et al., 1994; Skogan, 2006), this study demonstrates that direct, personal experiences of procedural justice do influence reductions in offending, whereas general and vicarious procedural justice holds no significant within-individual effect. In fact, the final models of this study show that, while

general and vicarious procedural justice may explain between-individual differences in offending, it is the within-individual direct experiences of procedural justice that maintains an intrapersonal effect. As such, this finding suggests that positive personal interactions with criminal justice officials may influence within-individual change.

If direct experience with criminal justice officials are in fact influential in creating behavioral change within individuals, it leads to the implication that criminal justice officials may benefit from procedural justice training. There have been a few recent studies that examine the impact of police officer training in procedural justice. The first of these studies was a randomized control trial of an officer training program in Chicago (Schuck & Rosenbaum, 2011). This program was designed to train new police officers on “(1) knowledge about procedural justice and how to positively respond to victims; (2) interpersonal communication skills; (3) decision-making skills; (4) emotional regulation techniques; and (5) stress management” (p. 2). The study found that officers who participated in the program had improved attitudes relating to officer defensiveness, increased use of conflict resolution techniques and decreased belief in the reliance of physical force to solve problems. Although this study did not examine the impact of procedural justice training on citizen interactions directly, a series of publications on a randomized controlled field study found that officers using procedural justice scripts during citizen encounters improved citizen perceptions of the police (i.e., satisfaction with police, legitimacy attitudes, general procedural justice perceptions) compared to officers that did not employ these techniques (Mazerolle, Antrobus, et al., 2013; Mazerolle et al., 2012; Murphy et al., 2013).

Future Research

The findings of this study contribute to a growing body of literature on procedural justice and applied a relatively new method for mediation testing to the study of criminal offending. Future research can be informed both by the results and methodology employed by this study. Thus, the avenues toward future research are twofold. First, although the findings of this study provide a more nuanced understanding of the longitudinal patterns and effects of procedural justice and legal socialization, it also highlights several areas where additional research is needed. Second, the application of a multilevel mediation model to the study of offending offers many avenues for future research, both within the context of procedural justice and legal socialization and extended to broader criminological research. Multilevel mediation is an analytic tool that can be used to expand theoretical development, provide more nuanced assessments, and answer new questions regarding potential relationships and developmental processes related to criminal offending.

In moving the literature forward on procedural justice and legal socialization, scholars should continue to focus on the effects of these judgments and beliefs on changes in behaviors. In particular, theoretical and empirical work is still needed in the development of Tyler's process-based model and other theories related to the effects of procedural justice on offending. The results of this study found that although legitimacy was the strongest mediating factor of direct procedural justice—consistent with Tyler's model, anger also seemed to play an important role in this process, a finding that more closely supports Sherman's defiance model. There may be additional underlying mechanisms at play in the relationship between procedural justice and offending that has

yet to be examined. Informed by recent work outside of criminal justice, this study tested the possible mediation of prosocial motivation on criminal offending. Although the findings of this study were not supportive of this hypothesis, future research should consider exploring the integration of the process-based model with additional perspectives.

This study, along with prior research, demonstrates that legal socialization measures of legitimacy and legal cynicism tend to remain relatively stable across the life-course, although there is significant variation among individuals. This research, however, has only examined longitudinal patterns of legal socialization with a sample of individuals already actively involved in criminal offending. Future scholars may want to examine the development of legal socialization beliefs *before* individuals become actively involved in criminal offending. Doing so can answer questions as to where these beliefs come from, how they develop, and how they might impact decisions to become involved in deviant or criminal behaviors. It may be that these legal socialization beliefs are developed simultaneously to other, relatively stable attitudinal characteristics, such as self-control.

The fact that legal socialization has been shown to be relatively stable—in this study and in prior research—whereas procedural justice perceptions appear more malleable, may prove cause to revisit the underlying assumptions of Tyler’s theory regarding the process-based model. If legal socialization is a more stable attitudinal trait developed earlier in the life-course (i.e., prior to criminal justice involvement), the relationship between procedural justice and legal socialization may be more reciprocal than the traditional process-based model pathway implies. Furthermore, it may be that the

mediation pathway between procedural justice, legal socialization, and offending, is moderated by an individual's pre-existing legal socialization belief—something that has yet to be explored by extant research.

Theoretical development of procedural justice should continue to examine the interplay between general, vicarious, and direct experiences of procedural justice. The current body of literature on Tyler's process-based model tend to separate procedural justice perceptions for the police and courts, suggesting that the judgments of these two agencies may have different effects. Although it may be that procedural justice perceptions of police are more grounded in direct contacts—as the general public are more likely to have contact with the police than with the courts—Tyler does not provide a strong theoretical foundation for these contacts to have differing effects. The results of the current study, however, demonstrate similar longitudinal patterns for procedural justice perceptions of both the police and courts. Where procedural justice perceptions are shown to diverge are those based on direct experiences or vicarious/general perceptions. The few studies that have been conducted up to this point have found mixed results regarding the impact and relationships among these perceptions (e.g., Brandl et al., 1994; Skogan, 2006). More research is needed in this area that delves more deeply into the nuances of these perceptions.

The development of procedural justice and legal socialization may also be impacted by broader social contexts that were not examined in this study. Areas where criminal justice contact is more likely, such as in urban, disadvantaged environments, may be more susceptible to changes in these perceptions over time. The effects of police contacts on changes in these trajectories may be different in neighborhoods or

communities where youths experience more frequent, possibly negative, police interactions. Neighborhood or community contexts should be more commonly incorporated in procedural justice research, especially given the wording of many measures of procedural justice. For example, questions such as “the police *in your neighborhood* are honest and ethical when dealing with you” [emphasis added], are a common way to ask about procedural justice judgments. Additionally, the limited research that has looked at community factors has found that concentrated disadvantage has some influence on procedural justice and police legitimacy beliefs (Gau, Corsaro, Stewart, & Brunson, 2012). Further research on the development of these characteristics should continue to consider the impact of broader social factors.

Conclusion

Research on procedural justice and legal socialization is a growing area of inquiry. The empirical findings of this study has demonstrated that perceptions of procedural justice and legal socialization are complex, both in their development and effects. The purpose of this study was not to present a final resolution to the understanding of these processes, but to provide new insights and offer steps forward for theoretical development. Toward this objective, this work speaks to the importance of understanding the dynamic and nuanced nature of procedural justice and legal socialization as well as their potential in reducing criminal offending.

REFERENCES

- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 2, pp. 267–299). New York: Academic Press, Inc.
- Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology*, 30(1), 47–88. doi:10.1111/j.1745-9125.1992.tb01093.x
- Agnew, R. (2001). Building the foundation of general strain theory: Specifying the types of strain most likley to lead to crime and delinquency. *Journal of Research in Crime and Delinquency*, 38(4), 319–361. doi:10.1177/0022427801038004001
- Agnew, R. (2006). *Pressured into crime*. Los Angeles: Roxbury.
- Agnew, R., & White, H. R. (1992). An empirical test of general strain theory. *Criminology*, 30(4), 475–500. doi:10.1111/j.1745-9125.1992.tb01113.x
- Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, 52, 317–332.
- Ambrose, M. L., & Schminke, M. (2003). Organization structure as a moderator of the relationship between procedural justice, interactional justice, perceived organizational support, and supervisory trust. *Journal of Applied Psychology*, 88(2), 295–305. doi:10.1037/0021-9010.88.2.295
- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84(3), 261–271. doi:10.1037/0022-0663.84.3.261
- Aristotle. (2005). *Nicomachean Ethics*. In S. M. Cohen, P. Curd, C. D. C. Reeve, & T. Irwin (trans.) (Eds.), *Readings in Ancient Greek Philosophy: From Thales to Aristotle* (3rd ed., pp. 832–891). Indianapolis, IN: Hackett Publishing Company.
- Aryee, S., Budhwar, P. S., & Chen, Z. X. (2002). Trust as a mediator of the relationship between organizational justice and work outcomes: test of a social exchange model. *Journal of Organizational Behavior*, 23(3), 267–285. doi:10.1002/job.138
- Augustyn, M. B. (2013). *Examining the Meaning of Procedural Justice Among Serious Adolescent Offenders (Doctoral dissertation)*. Retrieved from Digital Repository at the University of Maryland.
- Augustyn, M. B. (2015). The (ir)relevance of procedural justice in the pathways to crime. *Law and Human Behavior*, 39(4), 388–401. doi:10.1037/lhb0000122
- Augustyn, M. B. (2016). Updating Perceptions of (In)Justice. *Journal of Research in Crime and Delinquency*, 53(2), 255–286. doi:10.1177/0022427815616991

- Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Bandura, A. (1989). Regulation of cognitive processes through perceived self-efficacy. *Developmental Psychology*, *25*(5), 729–735. doi:10.1037//0012-1649.25.5.729
- Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, *38*(1), 9–44. doi:10.1177/0149206311410606
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology*, *71*(2), 364–374. doi:10.1037/0022-3514.71.2.364
- Barkworth, J. M., & Murphy, K. (2014). Procedural justice policing and citizen compliance behaviour: The importance of emotion. *Psychology, Crime & Law*, *21*(3), 254–273. doi:10.1080/1068316X.2014.951649
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. doi:10.1037/0022-3514.51.6.1173
- Bauer, D. J., Preacher, K. J., & Gil, K. M. (2006). Conceptualizing and testing random indirect effects and moderated mediation in multilevel models: New procedures and recommendations. *Psychological Methods*, *11*(2), 142–163. doi:10.1037/1082-989X.11.2.142
- Beckett, K., Nyrop, K., & Pflingst, L. (2006). Race, drugs, and policing: Understanding disparities in drug delivery arrests. *Criminology*, *44*(1), 105–137. doi:10.1111/j.1745-9125.2006.00044.x
- Beijersbergen, K. A., Dirkzwager, A. J. E., Eichelsheim, V. I., Van der Laan, P. H., & Nieuwbeerta, P. (2014). Procedural justice and prisoners' mental health problems: A longitudinal study. *Criminal Behaviour and Mental Health*, *24*(2), 100–112. doi:10.1002/cbm
- Beijersbergen, K. A., Dirkzwager, A. J. E., Eichelsheim, V. I., Van der Laan, P. H., & Nieuwbeerta, P. (2015). Procedural Justice, Anger, and Prisoners' Misconduct: A Longitudinal Study. *Criminal Justice and Behavior*, *42*(2), 196–218. doi:10.1177/0093854814550710
- Bell, B. S., Wiechmann, D., & Ryan, A. M. (2006). Consequences of organizational justice expectations in a selection system. *The Journal of Applied Psychology*, *91*(2), 455–466. doi:10.1037/0021-9010.91.2.455

- Benda, B. B. (2001). Factors That Discriminate between Recidivists, Parole Violators, and Nonrecidivists in a 3-Year Follow-Up of Boot Camp Graduates. *International Journal of Offender Therapy and Comparative Criminology*, 45(6), 711–729. doi:10.1177/0306624X01456006
- Bies, R., & Moag, J. (1986). Interactional justice: Communication criteria of fairness. In R. J. Lewicki, B. H. Sheppard, & M. H. Bazerman (Eds.), *Research on Negotiation in Organizations* (Vol. 1, pp. 43–55). Greenwich, CT: Jai Press.
- Blood, E. A., Cabral, H., Heeren, T., & Cheng, D. M. (2010). Performance of mixed effects models in the analysis of mediated longitudinal data. *BMC Medical Research Methodology*, 10(1), 16–26. doi:10.1186/1471-2288-10-16
- Blood, E. A., & Cheng, D. M. (2011). The Use of Mixed Models for the Analysis of Mediated Data with Time-Dependent Predictors. *Journal of Environmental and Public Health*, 2011, 1–12. doi:10.1155/2011/435078
- Blumenfeld, P. C. (1992). Classroom learning and motivation: Clarifying and expanding goal theory. *Journal of Educational Psychology*, 84(3), 272–281. doi:10.1037/0022-0663.84.3.272
- Bottoms, A., & Tankebe, J. (2012). Beyond Procedural Justice: a Dialogic Approach To Legitimacy in Criminal Justice. *Journal of Criminal Law & Criminology*, 102(1), 119–170.
- Bradford, B. (2014). Policing and social identity: Procedural justice, inclusion and cooperation between police and public. *Policing and Society: An International Journal of Research and Policy*, 24(1), 22–43. doi:10.1080/10439463.2012.724068
- Bradford, B., Hohl, K., Jackson, J., & MacQueen, S. (2014). Obeying the rules of the road: Procedural justice, social identity and normative compliance. *Oxford Legal Studies Research Paper No. 87/2014*, 1–18. doi:10.2139/ssrn.2530633
- Bradford, B., Jackson, J., & Stanko, E. A. (2009). Contact and confidence: revisiting the impact of public encounters with the police. *Policing and Society*, 19(1), 20–46. doi:10.1080/10439460802457594
- Braithwaite, J. (1989). *Crime, shame, and reintegration*. Cambridge, MA: Cambridge University Press.
- 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(1), 119–134. doi:10.1080/07418829400092161
- Brickman, S., Miller, R. B., & Roedel, T. D. (1997). Goal valuing and future consequences as predictors of cognitive engagement. In *Annual Meeting of the American Educational Research Association*. Chicago, Ill.

- Brunson, R. K. (2007). "Police don't like black people": African-American young men's accumulated police experiences. *Criminology & Public Policy*, 6(1), 71–101. doi:10.1111/j.1745-9133.2007.00423.x
- Bryk, A., & Raudenbush, S. (1992). *Hierarchical linear models: applications and data analysis methods*. Sage Publications, Inc.
- Butler, R. (1993). Effects of task- and ego-achievement goals on information seeking during task engagement. *Journal of Personality and Social Psychology*, 65(1), 18–31. doi:10.1037/0022-3514.65.1.18
- Canada, K. E., & Hiday, V. A. (2014). Procedural justice in mental health court: an investigation of the relation of perception of procedural justice to non-adherence and termination. *The Journal of Forensic Psychiatry & Psychology*, 25(3), 321–340. doi:10.1080/14789949.2014.915338
- Canada, K. E., & Watson, A. C. (2012). "Cause everybody likes to be treated good": Perceptions of procedural justice among mental health court participants. *American Behavioral Scientist*, 57(2), 209–230. doi:10.1177/0002764212465415
- Casper, J. D., Tyler, T. R., & Fisher, B. (1988). Procedural justice in felony courts. *Law & Society Review*, 22(3), 483–507. doi:10.2307/3053626
- Cerasoli, C. P., & Ford, M. T. (2014). Intrinsic motivation, performance, and the mediating role of mastery goal orientation: A test of self-determination theory. *The Journal of Psychology*, 148(3), 267–286. doi:10.1080/00223980.2013.783778
- Chebat, J.-C., & Slusarczyk, W. (2005). How emotions mediate the effects of perceived justice on loyalty in service recovery situations: an empirical study. *Journal of Business Research*, 58(5), 664–673. doi:10.1016/j.jbusres.2003.09.005
- Cohn, E. S., & White, S. O. (1990). *Legal socialization: A study of norms and rules*. New York: Springer.
- Colquitt, J. A., & Chertkoff, J. M. (2002). Explaining injustice: The interactive effect of explanation and outcome on fairness perceptions and task motivation. *Journal of Management*, 28(5), 591–610. doi:10.1016/S0149-2063(02)00157-5
- Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O. L. H., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology*, 86(3), 425–445. doi:10.1037/0021-9010.86.3.425
- Cropanzano, R., Stein, J., & Nadisic, T. (2011). *Social justice and the experience of emotion*. New York: Routledge.

- Curran, P. J., Obeidat, K., & Losardo, D. (2010). Twelve Frequently Asked Questions About Growth Curve Modeling. *Journal of Cognition and Development, 11*(2), 121–136. doi:10.1080/15248371003699969
- Davis, J., Spaeth, J., & Huson, C. (1961). A technique for analyzing the effects of group composition. *American Sociological Review, 26*(2), 215–225. doi:10.2307/2089857
- de Volder, M. L., & Lens, W. (1982). Academic achievement and future time perspective as a cognitive-motivational concept. *Journal of Personality and Social Psychology, 42*(3), 566–571. doi:10.1037/0022-3514.42.3.566
- Diggle, P. J., Heagerty, P., Liang, K.-Y. K., & Zeger, S. L. (2002). *Analysis of longitudinal data*. New York: Oxford University Press.
- Duncan, T. E., & Duncan, S. C. (2009). The ABCs of LGM: An Introductory Guide to Latent Variable Growth Curve Modeling. *Social and Personality Psychology Compass, 3*(6), 979–991. doi:10.1111/j.1751-9004.2009.00224.x
- Dweck, C. S., & Leggett, E. L. (1988). A social cognitive approach to motivation and personality. *Psychological Review, 95*(2), 256–273. doi:10.1037/0033-295X.95.2.256
- Easton, D., & Dennis, J. (1969). *Children in the political system: Origins of political legitimacy*. New York: McGraw-Hill.
- Elliot, A. J., & Harackiewicz, J. M. (1994). Goal setting, achievement orientation, and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 66*(5), 968–980. doi:10.1037/0022-3514.66.5.968
- Engel, R. S. (2005). Citizens' perceptions of distributive and procedural injustice during traffic stops with police. *Journal of Research in Crime and Delinquency, 42*(4), 445–481. doi:10.1177/0022427804272725
- Eyal, O., & Roth, G. (2011). Principals' leadership and teachers' motivation: Self-determination theory analysis. *Journal of Educational Administration, 49*(3), 256–275. doi:10.1108/09578231111129055
- Fagan, J., & Piquero, A. R. (2007). Rational choice and developmental influences on recidivism among adolescent felony offenders. *Journal of Empirical Legal Studies, 4*(4), 715. doi:10.1111/j.1740-1461.2007.00105.x
- Fagan, J., & Tyler, T. R. (2005). Legal socialization of children and adolescents. *Social Justice Research, 18*(3), 217–241. doi:10.1007/s11211-005-6823-3

- Fine, A., & Cauffman, E. (2015). Race and justice system attitude formation during the transition to adulthood. *Journal of Developmental and Life-Course Criminology*, *1*(4), 325–349. doi:10.1007/s40865-015-0021-2
- Ford, J. K., Smith, E. M., Weissbein, D. A., Gully, S. M., & Salas, E. (1998). Relationships of goal orientation, metacognitive activity, and practice strategies with learning outcomes and transfer. *Journal of Applied Psychology*, *83*(2), 218–233. doi:10.1037/0021-9010.83.2.218
- Fox, D. R. (1993). Psychological jurisprudence and radical social change. *American Psychologist*, *48*(3), 234–241. doi:10.1037/0003-066X.48.3.234
- Fox, J. (Ed.). (1991). *Regression Diagnostics: An Introduction* (Vol. 79). Newbury Park, CA: Sage.
- Franke, D., Bierie, D., & Mackenzie, D. L. (2010). Legitimacy in corrections: A randomized experiment comparing a boot camp with a prison. *Criminology & Public Policy*, *9*(1), 89–117. doi:10.1111/j.1745-9133.2010.00613.x
- Frazer, M. S. (2006). *The impact of the community court model on defendant perceptions of fairness: A case study at the Red Hook Community Justice Center*. Center for Court Innovation. New York.
- Freedman, L., & Schatzkin, A. (1992). Sample size for studying intermediate endpoints within intervention trials or observational studies. *American Journal of Epidemiology*, *136*(9), 1148–1159.
- French, J. R. J., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), *Studies in Social Power* (pp. 150–167). Oxford, England: University of Michigan.
- 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*(6), 489–498. doi:10.1016/j.jcrimjus.2011.09.004
- 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*(2), 255–279. doi:10.1080/07418820902763889
- 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*(4), 333–343. doi:10.1016/j.jcrimjus.2012.05.002
- Gibson, J. L. (1991). Institutional legitimacy, procedural justice, and compliance with Supreme Court decisions. *Law & Society Review*, *25*(3), 631–636.
- Gollob, H. F., & Reichardt, C. S. (2007). Taking Account of Time Lags in Causal Models. *Child Development*, *58*(1), 80–92.

- Gordijn, E. H., Yzerbyt, V., Wigboldus, D., & Dumont, M. (2006). Emotional reactions to harmful intergroup behavior. *European Journal of Social Psychology, 36*(1), 15–30. doi:10.1002/ejsp.296
- Gottfredson, D. C., Kearley, B. W., Najaka, S. S., & Rocha, C. M. (2007). How drug treatment courts work: An analysis of mediators. *Journal of Research in Crime and Delinquency, 44*(1), 3–35. doi:10.1177/0022427806291271
- Gottfredson, M. R., & Gottfredson, D. C. (1988). *Decision making in criminal justice: Toward the rational exercise of discretion*. New York: Plenum.
- Gover, A. R., Brank, E. M., & MacDonald, J. M. (2007). A specialized domestic violence court in South Carolina: An example of procedural justice for victims and defendants. *Violence Against Women, 13*(6), 603–26. doi:10.1177/1077801207301553
- Harackiewicz, J. M., & Elliot, A. J. (1993). Achievement goals and intrinsic motivation. *Journal of Personality and Social Psychology, 65*(5), 904–915. doi:10.1037/0022-3514.65.5.904
- Heinz, A. (1985). *Procedure versus consequence: Experimental evidence of preferences for procedural and distributive justice*. *Courts and Criminal Justice: Emerging Justice*. Washington DC: National Institute of Justice.
- Henderson, H., Wells, W., Maguire, E. R., & Gray, J. (2010). Evaluating the measurement properties of procedural justice in a correctional setting. *Criminal Justice and Behavior, 37*(4), 384–399. doi:10.1177/0093854809360193
- Herbert, S. (2006). Tangled up in blue: Conflicting paths to police legitimacy. *Theoretical Criminology, 10*(4), 481–504. doi:10.1177/1362480606068875
- Hinds, L., & Murphy, K. (2007). Public satisfaction with police: Using procedural justice to improve police legitimacy. *Australian & New Zealand Journal of Criminology, 40*(1), 27–42. doi:10.1375/acri.40.1.27
- Hipple, N. K., Gruenewald, J., & McGarrell, E. F. (2011). Restorativeness, procedural justice, and defiance as predictors of reoffending of participants in family group conference. *Crime & Delinquency, 60*(8), 1131–1157. doi:10.1177/0011128711428556
- Hohl, K., Bradford, B., & Stanko, E. A. (2010). Influencing Trust and Confidence in the London Metropolitan Police: Results from an Experiment Testing the Effect of Leaflet Drops on Public Opinion. *British Journal of Criminology, 50*(3), 491–513. doi:10.1093/bjc/azq005

- Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology, 27*(1), 87–96. doi:10.1093/jpepsy/27.1.87
- Hox, J. J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). New York: Routledge.
- Huizinga, D., Esbensen, F.-A., & Weiher, A. W. (1991). Are there multiple paths to delinquency? *The Journal of Criminal Law and Criminology, 82*(1), 83–118. doi:10.2307/1143790
- Hulleman, C. S., Schragger, S. M., Bodmann, S. M., & Harackiewicz, J. M. (2010). A meta-analytic review of achievement goal measures: Different labels for the same constructs or different constructs with similar labels? *Psychological Bulletin, 136*(3), 422–449. doi:10.1037/a0018947
- 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*(4), 728–761. doi:10.1111/j.1740-1461.2011.01239.x
- Husman, J. (1998). *The effect of perceptions of the future on intrinsic motivation* (Unpublished doctoral dissertation). University of Texas.
- Husman, J., & Lens, W. (1999). The role of the future in student motivation. *Educational Psychologist, 34*(2), 113–125. doi:10.1207/s15326985ep3402_4
- Jackson, J. (2015). On the dual motivational force of legitimate authority. In B. H. Bornstein & A. J. Tomkins (Eds.), *Cooperation and Compliance with Authority: The Role of Institutional Trust*. New York: Springer.
- 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*(6), 1051–1071. doi:10.1093/bjc/azs032
- Jackson, J., Bradford, B., Stanko, B., & Hohl, K. (2012). *Just authority?: trust in the police in England and Wales*. New York: Routledge.
- Johnson, R. E., Chang, C. H., & Rosen, C. C. (2010). “Who I am depends on how fairly I’m treated”: Effects of justice on self-identity and regulatory focus. *Journal of Applied Social Psychology, 40*(12), 3020–3058. doi:10.1111/j.1559-1816.2010.00691.x
- Johnson, W. L., Giordano, P. C., Longmore, M. A., & Manning, W. D. (2014). Intimate partner violence and depressive symptoms during adolescence and young adulthood. *Journal of Health and Social Behavior, 55*, 39–55. doi:10.1177/0022146513520430

- Judd, C., Kenny, D. A., & McClelland, G. H. (2001). Estimating and testing mediation and moderation in within-subject designs. *Psychological Methods*, *6*(2), 115–134. doi:10.1037/1082-989X.6.2.115
- Kanfer, R. (1990). Motivation theory and industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (2nd ed., pp. 75–130). Palo Alto, CA: Consulting Psychologists Press.
- Kark, R., & Van Dijk, D. (2007). Motivation to lead, motivation to follow: The role of the self-regulatory focus in leadership processes. *Academy of Management Review*, *32*(2), 500–528. doi:10.5465/AMR.2007.24351846
- Kenny, D. A., Korchmaros, J. D., & Bolger, N. (2003). Lower level mediation in multilevel models. *Psychological Methods*, *8*(2), 115–128. doi:10.1037/1082-989X.8.2.115
- Kochel, T. R., Wilson, D. B., & Mastrofski, S. D. (2011). Effect of suspect race on officers' arrest decisions. *Criminology*, *49*(2), 473–512. doi:10.1111/j.1745-9125.2011.00230.x
- Konovsky, M. A., & Cropanzano, R. (1991). Perceived fairness of employee drug testing as a predictor of employee attitudes and job performance. *The Journal of Applied Psychology*, *76*(5), 698–707. doi:10.1037/0021-9010.76.5.698
- Krehbiel, P. J., & Cropanzano, R. (2000). Procedural justice, outcome favorability and emotion. *Social Justice Research*, *13*(4), 339–360. doi:10.1023/A:1007670909889
- Krull, J. L., & MacKinnon, D. P. (2001). Multilevel Modeling of Individual and Group Level Mediated Effects. *Multivariate Behavioral Research*, *36*(2), 249–277. doi:10.1207/S15327906MBR3602_06
- Landls, J. M., & Goodstein, L. (2014). When is justice fair? An integrated approach to the outcome versus procedure debate. *Law & Social Inquiry*, *11*(4), 675–707. doi:10.1111/j.1747-4469.1986.tb00262.x
- Larson, M. (2013). *Romantic dissolution and offending during emerging adulthood (Doctoral dissertation)*. Retrieved from Arizona State University Digital Repository.
- Lasane, T., & Jones, J. (1999). Temporal orientation and academic goal-setting: The mediating properties of a motivational self. *Journal of Social Behavior and Personality*, *14*(1), 31–44.
- Latham, G. P., & Pinder, C. C. (2005). Work motivation theory and research at the dawn of the twenty-first century. *Annual Review of Psychology*, *56*, 485–516. doi:10.1146/annurev.psych.55.090902.142105

- 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(4), 781–789. doi:10.1016/j.jcrimjus.2010.05.005
- Lee, J. M., Steinberg, L., Piquero, A. R., & Knight, G. P. (2011). Identity-linked perceptions of the police among African American juvenile offenders: a developmental perspective. *Journal of Youth and Adolescence*, 40(1), 23–37. doi:10.1007/s10964-010-9553-2
- Lens, W., & Decruyenaere, M. (1991). Motivation and de-motivation in secondary education: Student characteristics. *Learning and Instruction*, 1(2), 145–159. doi:10.1016/0959-4752(91)90024-3
- Leventhal, G. S. (1976). Fairness in social psychology. In J. Thibaut, J. Spence, & R. Carson (Eds.), *Contemporary topics on social psychology*. Morristown, NJ: General Learning Press.
- Leventhal, G. S. (1980). What should be done with equity theory? In K. J. Gergen, M. S. Greenberg, & R. H. Willis (Eds.), *Social Exchange: Advances in Theory and Research* (pp. 27–55). New York: Springer. doi:10.1007/978-1-4613-3087-5
- Levi, M., Tyler, T. R., & Sacks, A. (2012). *The reasons for compliance with the law. Understanding Social Action, Promoting Human Rights*. Australia: The United States Studies Centre at the University of Sydney.
- Li, A., & Bagger, J. (2008). Role ambiguity and self-efficacy: The moderating effects of goal orientation and procedural justice. *Journal of Vocational Behavior*, 73(3), 368–375. doi:10.1016/j.jvb.2008.07.008
- Lind, E. A., & Tyler, T. R. (1988). *The social psychology of procedural justice*. New York: Plenum.
- Linnenbrink-Garcia, L., Tyson, D. F., & Patall, E. A. (2008). When are achievement goal orientations beneficial for academic achievement? A closer look at main effects and moderating factors. *Revue Internationale de Psychologie Sociale*, 21(1), 19–70.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting & task performance*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Loi, R., Hang-Yue, N., & Foley, S. (2006). Linking employees' justice perceptions to organizational commitment and intention to leave: The mediating role of perceived organizational support. *Journal of Occupational and Organizational Psychology*, 79(1), 101–120. doi:10.1348/096317905x39657
- MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*.

- MacKinnon, D. P., & Fairchild, A. J. (2010). Current Directions in Mediation Analysis. *Current Directions in Psychological Science*, 18(1), 16–20. doi:10.1111/j.1467-8721.2009.01598.x.Current
- MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science : The Official Journal of the Society for Prevention Research*, 1(4), 173–181. doi:10.1023/A1026595011371
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7(1), 83–104. doi:10.1037/1082-989X.7.1.83
- Malhotra, M. K., Singhal, C., Shang, G., & Ployhart, R. E. (2014). A critical evaluation of alternative methods and paradigms for conducting mediation analysis in operations management research. *Journal of Operations Management*, 32(4), 127–137. doi:10.1016/j.jom.2014.01.003
- Maruna, S. (2001). *Making good: How ex-convicts reform and reclaim their lives*. Washington DC: American Psychological Association.
- Mathieu, J. E., & Taylor, S. R. (2007). A framework for testing meso-mediational relationships in Organizational Behavior. *Journal of Organizational Behavior*, 28(2), 141–172. doi:10.1002/job.436
- Maxwell, S. E., & Cole, D. A. (2007). Bias in Cross-Sectional Analyses of Longitudinal Mediation. *Psychological Methods*, 12(1), 23–44. doi:10.1037/1082-989X.12.1.23
- 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(1), 33–63. doi:10.1111/j.1745-9125.2012.00289.x
- 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(4), 343–367. doi:10.1007/s11292-012-9160-1
- 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(3), 245–274. doi:10.1007/s11292-013-9175-2
- Mazerolle, L., Sargeant, E., Cherney, A., Bennett, S., Murphy, K., Antrobus, E., & Martin, P. (2014). *Procedural justice and legitimacy in policing*. New York: Springer.

- McCluskey, J. D., Mastrofski, S. D., & Parks, R. B. (1999). To acquiesce or rebel: Predicting citizen compliance with police requests. *Police Quarterly*, 2(4), 389–416. doi:10.1177/109861119900200401
- McIvor, G. (2009). Therapeutic jurisprudence and procedural justice in Scottish Drug Courts. *Criminology and Criminal Justice*, 9(1), 29–49. doi:10.1177/1748895808099179
- McMurrin, M., Tyler, P., Hogue, T., Cooper, K., Dunseath, W., & McDaid, D. (1998). Measuring motivation to change in offenders. *Psychology, Crime & Law*, 4(1), 43–50. doi:10.1080/10683169808401746
- Mikula, G., Scherer, K. R., & Athenstaedt, U. (1998). The role of injustice in the elicitation of differential emotional reactions. *Personality and Social Psychology Bulletin*, 24(7), 769–783. doi:10.1177/0146167298247009
- Miller, R. B., DeBacker, T. K., & Greene, B. A. (1999). Perceived instrumentality and academics: The link to task valuing. *Journal of Instructional Psychology*, 26(4), 250–260.
- Moorman, R. H., Blakely, G. L., & Niehoff, B. P. (1998). Does perceived organizational support mediate the relationship between procedural justice and organizational citizenship behavior? *Academy of Management Journal*, 41(3), 351–357. doi:10.2307/256913
- Mulvey, E. P. (2013). Research on Pathways to Desistance [Maricopa County, AZ and Philadelphia County, PA]: Subject Measures, 2000-2010. ICPSR29961-v2. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [distributor]. doi:http://doi.org/10.3886/ICPSR29961.v2
- Murphy, K. (2009). Public satisfaction with police: The importance of procedural justice and police performance in police-citizen encounters. *Australian and New Zealand Journal of Criminology*, 42(2), 159–178. doi:10.1375/acri.42.2.159
- 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(2), 235–257. doi:10.1177/0004865811405260
- Murphy, K., Hinds, L., & Fleming, J. (2008). Encouraging public cooperation and support for police. *Policing and Society*, 18(2), 136–155. doi:10.1080/10439460802008660
- Murphy, K., Mazerolle, L., & Bennett, S. (2013). Promoting trust in police: findings from a randomised experimental field trial of procedural justice policing. *Policing and Society*, 24(4), 405–424. doi:10.1080/10439463.2013.862246

- Murphy, K., & Tyler, T. R. (2008). Procedural justice and compliance behaviour: The mediating role of emotions. *European Journal of Social Psychology*, 38(4), 652–668. doi:10.1002/ejsp.502
- Murphy, K., Tyler, T. R., & Curtis, A. (2009). Nurturing regulatory compliance: Is procedural justice effective when people question the legitimacy of the law? *Regulation & Governance*, 3(1), 1–26. doi:10.1111/j.1748-5991.2009.01043.x
- Nesselroade, J. R. (1991). Interindividual differences in intraindividual change. In *Best methods for the analysis of change: Recent advances, unanswered questions, future directions*. (pp. 92–105). Washington: American Psychological Association. doi:10.1037/10099-006
- Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, 91(3), 328–346. doi:10.1037/0033-295X.91.3.328
- Nuttin, J. (1980). *Théorie de la motivation humaine: du besoin au projet d'action [Human motivation theory: From need to action]*. Paris: Presses Universitaires de France.
- Paarlberg, L. E., & Lavigna, B. (2010). Transformational leadership and public service motivation: Driving individual and organizational performance. *Public Administration Review*, 70(5), 710–718. doi:10.1111/j.1540-6210.2010.02199.x
- 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(2), 397–440.
- Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, 36(4), 827–856. doi:10.1177/0149206310363732
- Paternoster, R., Brame, R., Bachman, R., & Sherman, L. W. (1997). Do fair procedures matter? The effect of procedural justice on spouse assault. *Law & Society Review*, 31(2), 163–204. doi:10.2307/3054098
- Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *The Journal of Applied Psychology*, 92(1), 128–150. doi:10.1037/0021-9010.92.1.128
- Peetsma, T., & van der Veen, I. (2011). Relations between the development of future time perspective in three life domains, investment in learning, and academic achievement. *Learning and Instruction*, 21(3), 481–494. doi:10.1016/j.learninstruc.2010.08.001

- Peffley, M., & Hurwitz, J. (2010). *Justice in America: The separate realities of Blacks and Whites*. Cambridge, MA: Cambridge University Press.
- Penner, E. K., Viljoen, J. L., Douglas, K. S., & Roesch, R. (2014). Procedural justice versus risk factors for offending: Predicting recidivism in youth. *Law and Human Behavior, 38*(3), 225–37. doi:10.1037/lhb0000055
- Pennington, L. (2015). A Case Study Approach to Procedural Justice: Parents' Views in Two Juvenile Delinquency Courts in the United States. *British Journal of Criminology, 55*(5), 901–920. doi:10.1093/bjc/azu109
- Piquero, A. R., Blumstein, A., Brame, R., Haapanen, R., Mulvey, E. P., & Nagin, D. S. (2001). Assessing the Impact of Exposure Time and Incapacitation on Longitudinal Trajectories of Criminal Offending. *Journal of Adolescent Research, 16*(1), 54–74. doi:10.1177/0743558401161005
- Piquero, A. R., Fagan, J., Mulvey, E. P., Steinberg, L., & Odgers, C. (2005). Developmental trajectories of legal socialization among serious adolescent offenders. *Journal of Criminal Law and Criminology, 96*(1), 267–298.
- Plato. (2005). Republic. In S. M. Cohen, P. Curd, C. D. C. Reeve, & G. M. A. Grube (Trans.) (Eds.), *Readings in Ancient Greek Philosophy: From Thales to Aristotle* (3rd ed., pp. 331–603). Indianapolis, IN: Hackett Publishing Company.
- Poythress, N. G., Petrila, J., McGaha, A., & Boothroyd, R. (2002). Perceived coercion and procedural justice in the Broward mental health court. *International Journal of Law and Psychiatry, 25*(5), 517–533. doi:10.1016/S0160-2527(01)00110-8
- Pratt, T. C., Cullen, F. T., Blevins, K. R., Daigle, L. E., & Madensen, T. D. (2006). The empirical status of deterrence theory: A meta-analysis. In F. T. Cullen, J. P. Wright, & K. R. Blevins (Eds.), *Taking stock: The status of criminological theory- Advances in criminological theory*.
- Preacher, K. J. (2015). Advances in Mediation Analysis: A Survey and Synthesis of New Developments. *Annual Review of Psychology, 66*(1), 825–852. doi:10.1146/annurev-psych-010814-015258
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717–731. doi:10.3758/BF03206553
- Raaijmakers, E., de Keijser, J. W., Nieuwbeerta, P., & Dirkzwager, A. J. E. (2014). Criminal defendants' satisfaction with lawyers: Perceptions of procedural fairness and effort of the lawyer. *Psychology, Crime & Law, 21*(2), 186–201. doi:10.1080/1068316X.2014.951646

- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Rawls, J. (1971). *A theory of justice*. Cambridge, MA: Belknap Press of Harvard University.
- Rawsthorne, L. J., & Elliot, A. J. (1999). Achievement goals and intrinsic motivation: A meta-analytic review. *Personality and Social Psychology Review*, 3(4), 326–344. doi:10.1207/s15327957pspr0304_3
- Redlich, A. D., & Han, W. (2014). Examining the links between therapeutic jurisprudence and mental health court completion. *Law and Human Behavior*, 38(2), 109–18. doi:10.1037/lhb0000041
- Reisig, M. D., Bratton, J., & Gertz, M. G. (2007). The construct validity and refinement of process-based policing measures. *Criminal Justice and Behavior*, 34(8), 1005–1028. doi:10.1177/0093854807301275
- Reisig, M. D., & Lloyd, C. (2008). Procedural justice, police legitimacy, and helping the police fight crime: Results from a survey of Jamaican adolescents. *Police Quarterly*, 12(1), 42–62. doi:10.1177/1098611108327311
- Reisig, M. D., & Meško, G. (2009). Procedural justice, legitimacy, and prisoner misconduct. *Psychology, Crime & Law*, 15(1), 41–59. doi:10.1080/10683160802089768
- Reisig, M. D., & Parks, R. B. (2003). Neighborhood Context, Police Behavior and Satisfaction With Police. *Justice Research and Policy*, 5(1), 37–66. doi:10.3818/JRP.5.1.2003.37
- Reisig, M. D., Tankebe, J., & Meško, G. (2014a). Compliance with the law in Slovenia: The role of procedural justice and police legitimacy. *European Journal on Criminal Policy and Research*, 20(2), 259–276. doi:10.1007/s10610-013-9211-9
- Reisig, M. D., Tankebe, J., & Meško, G. (2014b). Procedural Justice , Police Legitimacy , and Public Cooperation with the Police Among Young Slovene Adults. *Journal of Criminal Justice and Security*, 14(2), 147–164.
- Reisig, M. D., Wolfe, S. E., & Holtfreter, K. (2011). Legal Cynicism, Legitimacy, and Criminal Offending: The Nonconfounding Effect of Low Self-Control. *Criminal Justice and Behavior*, 38(12), 1265–1279. doi:10.1177/0093854811424707
- Robinson, P. (1995). Moral credibility and crime. *Atlantic Monthly*, 272, 72–78.

- Robitaille, A., Muniz, G., Lindwall, M., Piccinin, A. M., Hoffman, L., Johansson, B., & Hofer, S. M. (2014). Physical activity and cognitive functioning in the oldest old: within- and between-person cognitive activity and psychosocial mediators. *European Journal of Ageing, 11*(4), 333–347. doi:10.1007/s10433-014-0314-z
- Robitaille, A., Piccinin, A. M., Muniz-Terrera, G., Hoffman, L., Johansson, B., Deeg, D. J. H., ... Hofer, S. M. (2013). Longitudinal mediation of processing speed on age-related change in memory and fluid intelligence. *Psychology and Aging, 28*(4), 887–901. doi:10.1037/a0033316
- Rosenbaum, D. P., Schuck, A., Costello, S. K., Hawkins, D. F., & Ring, M. K. (2005). Attitudes Toward the Police: The Effects of Direct and Vicarious Experience. *Police Quarterly, 8*(3), 343–365. doi:10.1177/1098611104271085
- Rottman, D. B. (2005). *Trust and Confidence in the California Courts A Survey of the Public and Attorneys Part I: Findings and Recommendations—Also, Part II: Executive*. San Francisco, CA: Judicial Council of California, Administrative Office of the Courts.
- Sampson, R. J., & Bartusch, D. J. (1998). Legal Cynicism and (Subcultural?) Tolerance of Deviance: The Neighborhood Context of Racial Differences. *Law & Society Review, 32*(4), 777. doi:10.2307/827739
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology, 4*(3), 219–247. doi:10.1037//0278-6133.4.3.219
- Scheuerman, H. L. (2013). The relationship between injustice and crime: A general strain theory approach. *Journal of Criminal Justice, 41*(6), 375–385. doi:10.1016/j.jcrimjus.2013.06.019
- Scheuerman, H. L., & Matthews, S. K. (2014). The importance of perceptions in restorative justice conferences: The influence of offender personality traits on procedural justice and shaming. *Justice Quarterly, 31*(5), 852–881. doi:10.1080/07418825.2012.690442
- Schubert, C. A., Mulvey, E. P., & Pitzer, L. (2016). Differentiating serious adolescent offenders who exit the justice system from those who do not. *Criminology, 54*(1), 56–85. doi:10.1111/1745-9125.12098
- Schubert, C. A., Mulvey, E. P., Steinberg, L., Cauffman, E., Losoya, S. H., Hecker, T., ... Knight, G. P. (2004). Operational lessons from the pathways to desistance project. *Youth Violence and Juvenile Justice, 2*(3), 237. doi:10.1177/1541204004265875
- Schuck, A. M., & Rosenbaum, D. P. (2011). *The Chicago quality interaction training program: A randomized control trial of police innovation. National Police Research Platform*.

- Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist*, 25(1), 71–86. doi:10.1207/s15326985ep2501_6
- Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26(3), 207–231. doi:10.1207/s15326985ep2603&4_2
- Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics*, 6(2), 461–464. doi:10.1214/08-AOS620
- Selig, J. P., & Preacher, K. J. (2009). Mediation Models for Longitudinal Data in Developmental Research. *Research in Human Development*, 6(2-3), 144–164. doi:10.1080/15427600902911247
- Shamir, B., House, R. J., & Arthur, M. B. (1993). The motivational effects of charismatic leadership: A self-concept based theory. *Organization Science*, 4(4), 577–594. doi:10.1287/orsc.4.4.577
- Sherman, L. W. (1993). Defiance, deterrence, and irrelevance: A theory of the criminal sanction. *Journal of Research in Crime and Delinquency*, 30(4), 445–473. doi:10.1177/0022427893030004006
- Simons, J., Vansteenkiste, M., Lens, W., & Lacante, M. (2004). Placing motivation and future time perspective theory in a temporal perspective. *Educational Psychology Review*, 16(2), 121–139. doi:10.1023/B:EDPR.0000026609.94841.2f
- Singer, J., & Willett, J. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York: Oxford University Press.
- Skeem, J. L., Louden, J. E., Polaschek, D., & Camp, J. (2007). Assessing relationship quality in mandated community treatment: Blending care with control. *Psychological Assessment*, 19(4), 397–410. doi:10.1037/1040-3590.19.4.397
- Skogan, W. G. (2006). Asymmetry in the Impact of Encounters with Police. *Policing and Society*, 16(2), 99–126. doi:10.1080/10439460600662098
- Sobel, M. E. (1982). Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models. *Sociological Methodology*, 13, 290–312. doi:10.2307/270723
- Sparks, J. R., & Bottoms, A. (1995). Legitimacy and order in prisons. *The British Journal of Sociology*, 46(1), 45. doi:10.2307/591622
- Spohn, C. (2000). Thirty years of sentencing reform: The quest for a racially neutral sentencing process. *Criminal Justice*, 3, 427–501.
- Spratt, M., Carpenter, J., Sterne, J. A. C., Carlin, J. B., Heron, J., Henderson, J., & Tilling, K. (2010). Strategies for multiple imputation in longitudinal studies. *American Journal of Epidemiology*, 172(4), 478–487. doi:10.1093/aje/kwq137

- Sprott, J. B., & Greene, C. (2010). Trust and confidence in the courts: Does the quality of treatment young offenders receive affect their views of the courts? *Crime & Delinquency*, *56*(2), 269–289. doi:10.1177/0011128707308176
- Strathman, A., Gleicher, F., Boninger, D. S., & Edwards, C. S. (1994). The consideration of future consequences: Weighing immediate and distant outcomes of behavior. *Journal of Personality and Social Psychology*, *66*(4), 742–752. doi:10.1037//0022-3514.66.4.742
- Sunshine, J., & Tyler, T. R. (2003a). 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*(2), 153–165.
- Sunshine, J., & Tyler, T. R. (2003b). The role of procedural justice and legitimacy in shaping public support for policing. *Law & Society Review*, *37*(3), 513–548. doi:10.1111/1540-5893.3703002
- Sweeten, G. (2012). Scaling criminal offending. *Journal of Quantitative Criminology*, *28*(3), 533–557. doi:10.1007/s10940-011-9160-8
- Sweeten, G., Bushway, S. D., & Paternoster, R. (2009). Does dropping out of school mean dropping into delinquency? *Criminology*, *47*(1), 47–91. doi:10.1111/j.1745-9125.2009.00139.x
- Sweeten, G., Piquero, A. R., & Steinberg, L. (2013). Age and the explanation of crime, revisited. *Journal of Youth and Adolescence*, *42*(6), 921–38. doi:10.1007/s10964-013-9926-4
- Tankebe, J. (2010). Public Confidence in the Police: Testing the Effects of Public Experiences of Police Corruption in Ghana. *British Journal of Criminology*, *50*(2), 296–319. doi:10.1093/bjc/azq001
- Tankebe, J. (2013). Viewing things differently: The dimensions of public perceptions of police legitimacy. *Criminology*, *51*(1), 103–135. doi:10.1111/j.1745-9125.2012.00291.x
- Tankebe, J., Reisig, M. D., & Wang, X. (2016). A Multidimensional Model of Police Legitimacy: A Cross-Cultural Assessment. *Law & Human Behavior*, *40*(1), 11–22. doi:10.1037/lhb0000153
- Tatar, J. R., Kaasa, S. O., & Cauffman, E. (2012). Perceptions of procedural justice among female offenders: Time does not heal all wounds. *Psychology, Public Policy, and Law*, *18*(2), 268–296. doi:10.1037/a0025118
- Thibaut, J. W., & Walker, L. (1975). *Procedural justice: A psychological analysis*. Hillsdale, NJ: Lawrence Erlbaum Associates.

- Thornberry, T. P., Lizotte, A. J., Krohn, M. D., Farnworth, M., & Jang, S. J. (1994). Delinquent peers, beliefs, and delinquent behavior: A longitudinal test of interactional theory. *Criminology*, *32*(1), 47–83. doi:10.1111/j.1745-9125.1994.tb01146.x
- Trinkner, R., & Cohn, E. S. (2014). Putting the “social” back in legal socialization: Procedural justice, legitimacy, and cynicism in legal and nonlegal authorities. *Law and Human Behavior*, *38*(6), 602–617. doi:10.1037/lhb0000107
- Trommsdorff, G. (1983). Future orientation and socialization. *International Journal of Psychology*, *18*(1-4), 381–406. doi:10.1080/00207598308247489
- Tyler, T. R. (1984). The role of perceived injustice in defendants’ evaluations of their courtroom experience. *Law & Society Review*, *18*(1), 51–74. doi:10.2307/3053480
- Tyler, T. R. (1988). What is procedural justice?: Criteria used by citizens to assess the fairness of legal procedures. *Law & Society Review*, *22*(1), 103. doi:10.2307/3053563
- Tyler, T. R. (1989). The psychology of procedural justice: A test of the group-value model. *Journal of Personality and Social Psychology*, *57*(5), 830–838. doi:10.1037/0022-3514.57.5.830
- Tyler, T. R. (1990). *Why people obey the law*. Princeton, NJ: Princeton University Press.
- Tyler, T. R. (1997). Procedural fairness and compliance with the law. *Swiss Journal of Economics and Statistics*, *133*(2), 219–240.
- Tyler, T. R. (2001). Public trust and confidence in legal authorities: What do majority and minority group members want from the law and legal institutions? *Behavioral Sciences and the Law*, *19*(2), 215–235. doi:10.1002/bsl.438
- Tyler, T. R. (2003). Procedural justice, legitimacy, and the effective rule of law. *Crime and Justice*, *30*(2003), 283–357.
- Tyler, T. R. (2004). Enhancing police legitimacy. *The Annals of the American Academy of Political and Social Science*, *593*(1), 84–99. doi:10.1177/0002716203262627
- Tyler, T. R. (2005). Policing in black and white: Ethnic group differences in trust and confidence in the police. *Police Quarterly*, *8*(3), 322–342. doi:10.1177/1098611104271105
- Tyler, T. R. (2006). Psychological perspectives on legitimacy and legitimation. *Annual Review of Psychology*, *57*, 375–400. doi:10.1146/annurev.psych.57.102904.190038
- Tyler, T. R. (2009). Legitimacy and criminal justice: The benefits of self-regulation. *Ohio State Journal of Criminal Law*, *7*, 307–360.

- Tyler, T. R. (2010). "Legitimacy in corrections" Policy implications. *Criminology & Public Policy*, 9(1), 127–134. doi:10.1111/j.1745-9133.2010.00615.x
- Tyler, T. R., & Blader, S. L. (2003). The group engagement model: Procedural justice, social identity, and cooperative behavior. *Personality and Social Psychology Review*, 7(4), 349–361. doi:10.1207/S15327957PSPR0704_07
- Tyler, T. R., & Fagan, J. (2006). Legitimacy and cooperation: Why do people help the police fight crime in their communities. *Ohio State Journal of Criminal Law*, 6, 231–275. doi:10.2139/ssrn.887737
- Tyler, T. R., & Huo, Y. J. (2002). *Trust in the Law: Encouraging Public Cooperation with the Police and Courts*. New York: Russell Sage Foundation.
- Tyler, T. R., & Jackson, J. (2013). Future challenges in the study of legitimacy and criminal justice. In J. Tankebe & A. Lieblich (Eds.), *Legitimacy and criminal justice: An international exploration* (pp. 1–27). Oxford: Oxford University Press. doi:10.2139/ssrn.2141322
- Tyler, T. R., & Jackson, J. (2014). Popular legitimacy and the exercise of legal authority: Motivating compliance, cooperation, and engagement. *Psychology, Public Policy, and Law*, 20(1), 78–95. doi:10.1037/a0034514
- Tyler, T. R., & Lind, E. A. (1992). A relational model of authority in groups. *Advances in Experimental Social Psychology*, 25, 115–191. doi:10.1016/S0065-2601(08)60283-X
- Tyler, T. R., Rasinski, K. A., & Spodick, N. (1985). Influence of voice on satisfaction with leaders: Exploring the meaning of process control. *Journal of Personality and Social Psychology*, 48(1), 72–81. doi:10.1037/0022-3514.48.1.72
- Tyler, T. R., Schulhofer, S., & Huq, A. Z. (2010). Legitimacy and deterrence effects in counterterrorism policing: A study of Muslim Americans. *Law and Society Review*, 44(2), 365–402. doi:10.1111/j.1540-5893.2010.00405.x
- Tyler, T. R., Sherman, L., Strang, H., Barnes, G. C., & Woods, D. (2007). Reintegrative shaming, procedural justice, and recidivism: The engagement of offenders' psychological mechanisms in the Canberra RISE drinking-and-driving experiment. *Law and Society Review*, 41(3), 553–586. doi:10.1111/j.1540-5893.2007.00314.x
- Tyler, T. R., & Wakslak, C. J. (2004). Profiling and police legitimacy: Procedural justice, attributions of motive, and acceptance of police authority. *Criminology*, 42(2), 253–281. doi:10.1111/j.1745-9125.2004.tb00520.x
- Ulmer, J. T. (2012). Recent developments and new directions in sentencing research. *Justice Quarterly*, 29(1), 1–40. doi:10.1080/07418825.2011.624115

- Utman, C. H. (1997). Performance effects of motivational state: A meta-analysis. *Personality and Social Psychology Review, 1*(2), 170–182. doi:10.1207/s15327957pspr0102_4
- Vanyperen, N. W., Hagedoorn, M., Zweers, M., & Postma, S. (2000). Injustice and employees' destructive responses: The mediating role of state negative affect. *Social Justice Research, 13*(3), 291–312.
- Verbeke, G., & Molenberghs, G. (2000). *Linear mixed models for longitudinal data*. New York: Springer-Verlag.
- Wager, T. D., Waugh, C. E., Lindquist, M., Noll, D. C., Fredrickson, B. L., & Taylor, S. F. (2009). Brain mediators of cardiovascular responses to social threat. *NeuroImage, 47*(3), 821–835. doi:10.1016/j.neuroimage.2009.05.043
- Walden, T. A., Harris, V. S., & Catron, T. F. (2003). How I feel: A self-report measure of emotional arousal and regulation for children. *Psychological Assessment, 15*(3), 399–412. doi:10.1037/1040-3590.15.3.399
- Wales, H. W., Hiday, V. A., & Ray, B. (2010). Procedural justice and the mental health court judge's role in reducing recidivism. *International Journal of Law and Psychiatry, 33*(4), 265–71. doi:10.1016/j.ijlp.2010.06.009
- Warren, P. Y. (2011). Perceptions of Police Disrespect During Vehicle Stops: A Race-Based Analysis. *Crime & Delinquency, 57*(3), 356–376. doi:10.1177/0011128708316177
- Watson, A. C., & Angell, B. (2012). The role of stigma and uncertainty in moderating the effect of procedural justice on cooperation and resistance in police encounters with persons with mental illness. *Psychology, Public Policy, and Law, 19*(1), 30–39. doi:10.1037/a0027931
- Weber, M. (1947). *The theory of social and economic organization*. New York: The Free Press.
- Weinberger, D. A., & Schwartz, G. E. (1990). Distress and restraint as superordinate dimensions of self-reported adjustment: A typological perspective. *Journal of Personality, 58*(2), 381–417. doi:10.1111/j.1467-6494.1990.tb00235.x
- Weiss, H. M., Suckow, K., & Cropanzano, R. (1999). Effects of justice conditions on discrete emotions. *Journal of Applied Psychology, 84*(5), 786–794. doi:10.1037/0021-9010.84.5.786
- 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*(6), 612–621. doi:10.1016/j.jcrimjus.2007.09.006

- Wexler, D. B. (2001). Robes and Rehabilitation : How Judges Can Help Offenders “ Make Good .” *Court Review*, 38(1), 18–23.
- Yang, J., Mossholder, K. W., & Peng, T. K. (2009). Supervisory procedural justice effects: The mediating roles of cognitive and affective trust. *The Leadership Quarterly*, 20(2), 143–154. doi:10.1016/j.leaqua.2009.01.009
- Zapata-Phelan, C. P., Colquitt, J. A., Scott, B. A., & Livingston, B. (2009). Procedural justice, interactional justice, and task performance: The mediating role of intrinsic motivation. *Organizational Behavior and Human Decision Processes*, 108(1), 93–105. doi:10.1016/j.obhdp.2008.08.001
- Zatz, M. S. (2000). The convergence of race, ethnicity, gender, and class on court decision making. *Criminal Justice*, 3, 503–552.
- Zhang, Z., Zyphur, M. J., & Preacher, K. J. (2009). Testing Multilevel Mediation Using Hierarchical Linear Models: Problems and Solutions. *Organizational Research Methods*, 12(4), 695–719. doi:10.5465/AMBPP.2008.33716518
- Zimbardo, P. G. (1990). *The Stratford Time Perspective Inventory*. Stratford, CA: Stratford University.