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Degree: Master of Arts

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Date Defended/Approved: May 27, 2014
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Abstract

Crowd disorder, which refers to a wide range of both non-violent and violent public gatherings, involves a complex interaction between the crowd and the police (Stott & Reicher, 1998a). Given that the police are on the frontlines dealing directly with the crowd, they are in the unique position to understand the initiation and development of these crowd situations. Thus, their insights have the potential to offer valuable information for dealing with, and even preventing crowd disturbances. Despite an increased interest in understanding the police perspective, however, the vast majority of research has focused on the behaviour and perceptions of the crowd (Stott, 2003; Drury, Stott & Farsides, 2003). Further, the studies that have concentrated on the police viewpoint have been narrow in scope and predominantly conducted in Britain (e.g., Stott & Reicher, 1998a; Drury, Stott & Farsides, 2003). In an attempt to extend this literature, this thesis aims to develop the police perspective in a new context. Specifically, based on the events of the recent 2011 Stanley Cup riot, a sample of 460 Vancouver police officers was surveyed concerning their perceptions of the crowd and methods of crowd management. The results reveal that the while the police perspective can be reduced to four distinct factors, it becomes more complicated when the officers’ characteristics are introduced into the equation. The implications of these findings for both police departments and future researchers will be discussed.

Keywords: Policing; police perspective; crowd disorder; riots
I dedicate this thesis to my incredibly loving, generous and supportive family: Mom, Dad, Jen and Lyss, I could not have done this without you. And to my Grams, Gramps, Gran and Papa, I hope this makes you so proud.
Acknowledgements

First and foremost, I would like to express my most sincere gratitude and appreciation to my senior supervisor, Dr. Garth Davies, who has been such an incredible mentor for the past four years. I have gained a tremendous amount of knowledge and experience working with you. You have presented me with new challenges, encouraged me to embrace my inner stats geek, and pushed me to become a better academic and researcher. This thesis could not have been completed without your insights, guidance and seemingly never-ending amount of patience. I very much look forward to continuing to learn from you and work with you over the years to come.

I would also like to thank the other members of my supervisory committee. Dr. Bill Glackman and Dr. Galib Bhayani, your enthusiasm, time and input was so appreciated. This thesis was improved because of your contributions. Thank you both.

I would like to extend a special thank you to the Vancouver Police Union and the members of the Vancouver Police Department. Your support for this project and participation in this study were invaluable. This thesis could not have been completed without you.

Thank you to my fellow graduate students and colleagues who have provided their support, advice and much needed motivation. I want to extend a special thank you to Rebecca, Edi and Cristina; you have been so incredibly helpful to me in so many different ways. This process would not have been nearly as interesting or enjoyable without you three.

To my friends, thank you so much for your encouragement, support and understanding. Christie, Jess and Genna, words cannot express how unbelievably amazing you have been. Thank you for your friendship, love and laughter. Ryan, thank you for the hot chocolate, venting sessions, and letting me steal Bear. You have been so thoughtful and wonderful during the most intense stage of this thesis.

Finally, to my incredibly wonderful family, there are no words that can describe how thankful I am to have you. Mom and Dad, you are the best parents anyone could ask for. Your love and support are what got me through. To my awesome sisters Jen and Lyss, thank you for always being there for me. I love you all so very much. STAR!
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1. Introduction

Crowd disturbance is an umbrella term capturing a vast array of events. At the lowest level, it involves minor and/or non-violent public gatherings (e.g., peaceful political protests). Conversely, on the opposite end of the spectrum, this term refers to violence among spectators during sporting events, and extreme forms of spontaneous rioting involving hundreds of supporters (Stott, Adang, Livingstone & Schrieber, 2008). The policing of these large crowds has always been an important element of police officers’ duties. However, in recent years it has become an increasingly pressing issue for Canadian urban police departments. For instance, the 2012 St. Patrick’s Day riot in London, Ontario, and the student protests in Montreal have challenged police departments’ methods and tactics of crowd control. Further, being no stranger to civil disobedience, Vancouver, British Columbia has dealt with a number of riot situations over the last several decades, including the Gastown riot in 1971, the Asia-Pacific Economic Cooperation (APEC) Summit Riot in 1997, the 'Riot at the Hyatt' in 1998, the Guns N’ Roses riot in 2002, the G8 protests in 2010, and the 1994 and 2011 NHL Stanley Cup riots. Although relatively infrequent, large scale events have an enormous potential for damaging property, causing serious injury to police and crowd members, and creating tension between the police and an entire community (Reicher, Stott, Cronin & Adang, 2004). Thus, not only are such events significant, they also require police departments to develop quick and effective approaches for crowd control. To enable police officers to deal with, and potentially prevent such incidents, it is critical to gain a better understanding of the nature and dynamics of these crowd situations.

According to the available literature, regardless of the type and severity of the disorder, all crowd events can generally be characterized by the same fundamental underlying process: a complex interaction between the crowd (i.e., the in-group) and the police (i.e., the out-group) (Reicher, 1996; Stott & Reicher, 1998a). Following this logic, it is reasonable to presume that a full comprehension of the nature and dynamics of
crowd disturbances requires an understanding of the behaviours and actions of all parties involved in the event. However, research on crowd events has, thus far, primarily focused on data collected from crowd participants (e.g., Reicher, 1996). Given that police officers are on the front lines dealing with the crowd directly, they are in the unique position to understand the dynamics of disorderly crowds, from how riots begin to how they unfold. Further, because the police have the power to act on their perceptions of the situation, their views have practical implications for policing methods and tactics (Stott & Reicher, 1998a). Their insights offer valuable information about what responses may be most successful in both preventing crowd violence, and in dealing with violence once it occurs. As such, it is critical to understand crowd conflict from the viewpoint of the police (Drury, Stott & Farsides, 2003).

Although there has been an increasing interest in studying the nature of crowd disorder from the perspective of law enforcement agents (e.g., Stott & Reicher, 1998a; Stott, 2003; Drury, Stott & Farsides, 2003; Prati & Pietrantoni, 2009), accounts of disturbances from the point of view of the police are still rare. Moreover, the small body of literature that does address the police perspective faces a number of methodological and theoretical limitations. For instance, focused largely on the phenomenon of ‘football hooliganism’, studies on the policing of crowd violence have overwhelmingly been conducted using small groups of police officers in Britain (Drury, Stott & Farsides, 2003; Stott & Pearson, 2007). As a result, there remain a number of significant gaps in the research in this area. In an attempt to expand upon this research and add to this literature, the aim of this thesis is to address the issue of crowd disorder from the perspective of the police in a new context. Specifically, using a sample of 460 Vancouver police officers who were surveyed following the 2011 Stanley Cup riot, this study will explore the nature and structure of the police perspective of the crowd and crowd management techniques in a Canadian context. This thesis, therefore, will provide valuable information to aid police in preparing for, responding to, and hopefully preventing future riot situations.

Prior to discussing the development of the police perspective of crowd dynamics, the relevant literature must be reviewed. Chapter 2 examines the theory guiding the work in this area, as well as the findings from the research completed thus far. Being the predominant theoretical approach for research on the police perspective, the
elaborated social identity model (ESIM) will be introduced and detailed. Guided by the notion that crowd events and any ensuing disorder are the result of a series of complicated and intricate interactions between the crowd and the police, researchers have examined how the police view the crowd itself, as well as their own actions in situations of crowd disorder (e.g., Stott & Reicher, 1998a; Drury, Stott & Farsides, 2003; Prati & Pietrantoni, 2009). The major findings and limitations of these studies will be addressed.

Utilizing these theoretical and empirical findings as a basis, the methodological framework for this thesis is developed. In addition to providing context by outlining the events of the 2011 Vancouver Stanley Cup riot, Chapter 3 details the data collection and sampling procedures. Furthermore, Chapter 3 is dedicated to the development and operationalization of an empirically testable and theoretically-grounded model of the police perspective. Specifically, utilizing a series of indicators to measure crowd composition and crowd management techniques, confirmatory factor analyses will reveal the dimensions comprising the police perspective on crowd dynamics. As well, Chapter 3 provides a set of hypotheses concerning the nature and structure of a police perspective for both the entire sample, as well as specific segments of this population of police officers.

The results, which are presented in Chapter 4, highlight the structure of the police officers’ views on the crowd and policing methods, as well as reveal the relationships between these concepts. The initial analysis confirms that the police perspective of crowd dynamics consists of four connected, yet distinct latent constructs referring to the composition of, and threat posed by the crowd, policing styles, and tactical responses. Subsequent analyses introducing group comparisons, however, reveal a more complicated dimensional reduction. While the model fit regardless of officer rank or duty status during the riot, the police perspective differed based on the officers’ gender. Specifically, female officers appear to have a unique perception of crowd events. Chapter 5 provides a discussion of the findings regarding the overall model and why this model appeared to fit for some groups of officers but not others. Finally, the implications of these results, as well as the limitations of this study are discussed in Chapter 6.
2. Developing the Police Perspective

2.1. Theoretical Framework: The Social Psychological Perspective

The literature pertaining to crowd disturbance is based on 25 years of research into crowd behaviour (Reicher, Stott, Cronin & Adang, 2004). However, it has only been within the last two decades that researchers have begun to incorporate police officers’ perspectives and insights into their studies of crowd dynamics (Reicher, Stott, Cronin & Adang, 2004). In addition to this relatively new interest in the viewpoint of the police, gaining access to police officers as research subjects has been a difficult endeavour. According to Drury & Stott (2001), there are a number of legal and ethical issues, including anonymity, sensitivity of information¹ and group vulnerability and solidarity² that restrict access to officers. As a result, it is not surprising that the available literature on police officers’ perceptions of crowds and crowd disorder is sparse (Stott & Reicher, 1998a).

In addition to being limited in number, the studies completed in this area thus far have been guided by one theoretical framework, the psychological perspective (Stott & Reicher, 1998a). More specifically, the overwhelming majority of this research is based on the elaborated social identity model (ESIM) of crowd behaviour (e.g., Stott & Reicher, 1998a; Stott & Drury, 2000; Prati & Pietrantoni, 2009). Given the significance of this theoretical approach to the current understanding of the police perspective of crowd

¹ Due to lengthy investigation periods following large-scale crowd events, many cases are subjudice at the time police are approached (Drury & Stott, 2001).
² Due to strong in-group solidarity, Drury & Stott (2001) suggest that police officers may be more eager and forthcoming when the research request originates from inside their own department.
events, it is necessary to provide a brief outline of its major tenets. Thus, prior to summarizing the research and related findings, the basic elements of the psychological perspective, particularly the elaborated social identity model, will be discussed.

2.2. Elaborated Social Identity Model

The classic theories of crowd psychology explain crowd behaviour almost exclusively in terms of the characteristics of the crowd itself (e.g., Le Bon 1896 and Allport, 1924). Specifically, they articulate that crowd conflict is derived from the inherent pathology of the crowd (Stott & Reicher, 1998a; Prati & Pietrantoni, 2009). For example, classic theories argue that, due to heightened levels of group cohesiveness and arousal, anonymity, diffusion of responsibility and lack of accountability, individuals in a crowd experience a loss of both private and public self-consciousness. As a result, crowd members lose control over their anti-social impulses and become disorderly or violent (Postme & Spears, 1998). Recently, however, these accounts have faced two major criticisms. First, they have been attacked for their tendency to over-emphasize the role of the actors involved in a crowd event, while ignoring the social context (Reicher, 1996; Stott & Reicher, 1998a). By failing to account for the social shape of crowd action, these theories reduce crowd events to a single set of generic behaviours (Reicher, 1996). In reality, when violence actually occurs, crowd actions tend to be highly selective and patterned based on the crowd members involved (Reicher, 1996). While one crowd may be destructive and violent, others may be peaceful. Second, by limiting the explanation of crowd conflict to the inherent pathology of the crowd, this framework diminishes the responsibility of social order agencies, such as the police (Stott & Reicher, 1998a; Stott & Adang, 2004). Based on the assumption that crowds are naturally conflict-oriented and prone to violence, this model effectively reduces the role of the police to that of crowd control. As a result, these classic theories tend to encourage and justify the use of repressive methods, such as physical restraints and impact weapons, as a means to deal with unruly crowds (Stott & Reicher, 1998a). Recognizing the bias and limitations associated with these traditional accounts, more recent developments in crowd psychology, namely the elaborated social identity model, attempt to provide a more holistic perspective (Reicher, 1996).
Based on the primary tenets of social identity theory and self-categorization theory, the ESIM suggests that crowd events are the outcome of intergroup encounters (Reicher, 1996; Stott & Reicher, 1998a; Prati & Pietrantoni, 2009). Incorporating dimensions of identity, normative structure, historical situatedness and intergroup context, the ESIM re-contextualizes crowd conflict as a function of the interactions between an in-group (i.e., the crowd) and an out-group (e.g., the police) (Stott, 2003; Drury, Stott & Farsides, 2003). More specifically, this model explains that members of a crowd operate in terms of a shared social identity (i.e., on the basis of shared norms, social influence and collective behaviour), while the out-group (e.g., police) interprets this group identity and reacts based on their perceptions of the crowd’s actions (Stott & Drury, 2000; Drury, Stott & Farsides, 2003; Stott & Adang, 2004; Prati & Pietrantoni, 2009). In turn, the out-group’s actions alter the social context, stimulating change in the crowd’s identity and behaviour. For example, even though individual crowd members may attend an event with an initial identity that specifies one set of normative behaviours, the internal dynamics of the crowd are subject to change based on the relationship between crowd members and the crowd’s interactions with an out-group (Stott & Reicher, 1998a; Adang, Cronin & Livingstone, 2007). Essentially, intergroup interaction serves to modify the crowd’s social identity and normative behaviours (Prati & Pietrantoni, 2009).

According to this framework, conflict arises when two processes occur. First, there must be a difference in the perception of the crowd’s behaviour between the crowd members and members of the out-group (Prati & Pietrantoni, 2009). For instance, while police use of force could be perceived as legitimate by police, it may be viewed as illegitimate by crowd members. The second process involves the establishment of empowerment or confidence in one group’s ability to impose its interpretation of the situation on members of the other group. This occurs when the out-group defines the crowd’s behaviour as illegitimate and any/all of their own actions as legitimate, or when the crowd feels the power, as a collective unit, to resist police action (Drury, Stott & Farsides, 2003; Prati & Pietrantoni, 2009). Thus, the initial development of crowd conflict concerns issues of legitimacy and power between groups.

Once conflict has begun, these group dynamics have the potential to become amplified. Crowd action tends to escalate when the out-group’s actions cause the
crowd’s social identity to shift to one of violence (Drury, Stott & Farsides, 2003; Reicher, Stott, Drury & Adang, 2007). For example, when the out-group’s action toward the crowd is perceived as being indiscriminate, in-group members may come to view themselves as a single social unit (i.e., the crowd will become more homogeneous and unified). Similarly, if police actions are perceived as being illegitimate, the crowd tends to legitimize their actions taken against the police (e.g., when the crowd acts in a manner originally seen as being violent, they now perceive this behaviour as an acceptable and necessary form of self-defence against the coercive actions of police) (Drury, Stott & Farsides, 2003). Essentially, change in crowd action can be viewed as a cycle of tension and escalating conflict between the in-group and out-group (Stott, 2003; Prati & Pietrantoni, 2009). When police treat crowds as though they are a homogeneous group, this tends to lead crowd members to re-conceptualize themselves as members of a common unit. In turn, this change in identity often results in the expectation of mass support on the part of the crowd, which then creates a sense of crowd empowerment and police resistance (Stott & Reicher, 1998a). As the friction between the crowd and police increases, this fuels a vicious feedback loop of increasing crowd violence and police repression (Stott & Reicher, 1998a).

In sum, according to the ESIM, crowds are dynamic phenomena strongly influenced by social change (Reicher, 1996; Reicher, Stott, Drury & Adang, 2007). Members in a crowd have their perceptions transformed through their participation in crowd events, primarily through their interactions with out-group members (Stott & Drury, 2000). Thus, according to this framework, a complete understanding of crowd disorder requires analyzing both crowd behaviour, and police actions and reactions to the crowd (Stott & Reicher, 1998a; Stott, Adang, Livingstone & Schreiber, 2008). Given that studies are predominantly based on data collected from crowd participants (e.g., Reicher, 1996; Stott & Reicher, 1998b; Drury & Reicher, 1999), however, the weakness of this model concerns the role played by police in crowd situations (Stott & Reicher, 1998a; Stott & Drury, 2000). Therefore, to improve the current understanding of crowd dynamics, research has shifted to focus on obtaining the perspective of police officers who are involved in these crowd events. Despite being relatively scant, there is a growing body of literature dedicated to identifying the police officers’ side of the story (e.g., Stott & Reicher, 1998a; Prati & Pietrantoni, 2009).
2.3. The Police Perspective

The foundational research on the police perspective of crowd events is Stott and Reicher’s (1998a) interview study. Analyzing the events of the Poll Tax Riot that occurred on March 31, 1990 in London’s Trafalgar Square, Stott & Reicher (1998a) interviewed 26 public order-trained police officers regarding their perceptions of policing crowds. Looking specifically at the training provided for junior public order officers, their study revealed three main themes related to police theories of the crowd. The first theme concerned the composition of the crowd. Officers recognized that crowds are typically heterogeneous and generally representative of society as a whole (Stott & Reicher, 1998a). However, in the event of crowd conflict, they also argued that the crowd can be split into a dichotomy. On one hand, the majority represents a peaceful group comprised of ordinary citizens who are easily susceptible to outside influence. Conversely, there is an extreme minority that is powerful, manipulative and violent (Stott & Reicher, 1998a). Connected to this perceived dynamic between the majority and minority, the second theme relates to the homogeneous threat posed by crowds. In conflict situations, officers believed that, once people form a group, all crowd members are potentially dangerous (Stott & Reicher, 1998a). Based on this perception of danger, the final theme concerned the practicalities of policing crowds; public order policing is largely driven by the fear and danger experienced by police officers during crowd events.

According to Stott & Reicher (1998a), holding such views about the crowd has practical implications for police training, strategy and tactics. For instance, given that crowd members are all perceived to pose a potential threat, officers generally recommend strict control and quick intervention in cases of crowd conflict. Moreover, once the entire crowd is seen as being ‘dangerous,’ it is difficult for officers to determine who amongst the crowd did what (Stott & Reicher, 1998a). As a result, when police officers decide to act against the crowd, it is considered to be a tactical advantage to treat the crowd as a single unit (Stott & Reicher, 1998a).

In addition to these perceptions of the crowd itself, Stott and Reicher (1998a) discovered that police officers tend to deny responsibility for the conflict. Suggesting that the nature of the crowd provided a sufficient explanation, police officers were prone to attributing the initiation and continuance of the conflict to outside forces. Essentially,
while they believed the presence of a violent and irrational crowd explained the conflict, police generally minimized the role of police tactics (e.g., undifferentiated intervention) in crowd events (Stott & Reicher, 1998a).

Guided by this study, several researchers sought to validate and/or increase the generalizability of Stott & Reicher’s (1998a) findings. Utilizing different methodologies and analyzing a variety of crowd events, including environmental riots (Drury & Reicher, 2000), anti-tax riots (Drury & Reicher, 1999; Stott & Drury, 2000), anti-capitalist riots (Waddington, 2007; Cronin & Reicher, 2009), and European football “hooliganism” (Stott, 2003; Drury, Stott & Farsides, 2003; Stott & Adang, 2004; Stott, Adang, Livingstone & Schriber, 2008; Prati & Pietrantoni, 2009), a number of studies have provided support for the existence of Stott and Reicher’s (1998a) themes concerning police officers’ perceptions of the crowd. For example, Stott and Drury’s (2000) ethnographic\(^3\) study of the 1990 Poll Tax Riot highlighted the themes related to police perceptions of the crowd’s actions. With the exception of differing views pertaining to the homogeneity of the danger posed by the crowd\(^4\), Stott and Drury’s (2000) findings were consistent with those of Stott & Reicher’s (1998a). They both revealed that police view conflict as a threat to public order, and, tactically speaking, that it is necessary to treat the crowd as a single unit (Stott & Reicher, 1998a; Stott & Drury, 2000).

Attempting to quantify police endorsements of the general themes related to perceptions of crowd events, Drury, Stott and Farsides (2003) conducted a survey study of 80 riot-trained officers drawn from two United Kingdom police forces. The authors used a questionnaire containing measures related to the main themes identified by Stott and Reicher’s (1998a) qualitative analysis (i.e., crowd composition, threat posed by

\(^3\)Ethnography refers to an approach allowing for the observation of subjects and identification of their own conceptualizations as they occur naturally. Information can be gathered through direct observation, interviews, video recordings and comments made by participants (Stott & Drury, 2000).

\(^4\)Police officers who participated in Stott and Reicher’s (1998a) interview study saw the crowd as a uniform danger. Conversely, the officers in Stott and Drury’s (2000) observational study recognized that only a few crowd members are actually engaging in the conflict, and, thus, the crowd did not pose a homogeneous threat.
crowds, and tactical considerations in public order policing). Their results showed that police officers generally promote these themes. For instance, although police officers neither endorsed nor rejected the views that crowds pose a homogeneous threat and there are tactical reasons for treating crowd members as a single unit, as expected, police officers perceived the crowd as being both heterogeneous and dichotomous in composition (Drury, Stott & Farsides, 2003). Consequently, officers failed to see the impact of their own actions on the initiation and development of public disorder, and, thus, supported the utilization of strict and swift policing methods to prevent the escalation of crowd violence.

In addition to identifying these broad themes, the results revealed the relationship between police attitudes and practice. Drury, Stott and Farsides (2003) found a strong positive relationship between perceptions of dichotomous crowd composition, homogeneous threat, and the endorsement of coercive policing tactics. Specifically, through the minority’s ability to influence the majority, the perception that crowds are dichotomous served to promote the view that crowds pose a unified threat. Further, the identification of a dichotomous crowd composition led to the endorsement of coercive policing tactics. This relationship, however, is partially mediated by the perception of homogeneous threat, which is directly linked to coercive policing (Drury, Stott & Farsides, 2003).

Finally, in an attempt to extend this model, Drury, Stott and Farsides (2003) examined whether or not these general perceptions of the crowd differed based on police officers’ experience and/or rank. Their results showed a positive correlation between officers’ experience of policing football crowds and perceptions of crowd heterogeneity. Specifically, those with higher levels of experience were more likely to promote the view that crowds are comprised of different types of people (Drury, Stott & Farsides, 2003). Regarding rank, Drury, Stott and Farsides (2003) found a significant, negative correlation between officer rank and perceptions of crowd composition and attributing crowd conflict to policing methods. For example, while constables were more likely than those of higher rank (e.g., sergeants and inspectors) to view crowds as being heterogeneous, the higher ranking officers were more likely to acknowledge that police tactics may be implicated in the initiation or escalation of public disorder (Drury, Stott & Farsides, 2003). The authors surmised that these divergent views across ranks may be
due to perceived differences in workload, pay, job conditions and, most importantly, relations with the public (e.g., constables working on the front line in conflict situations are more likely than higher ranked officers to experience the threat from the crowd directly) (Drury, Stott & Farsides, 2003).

Overall, the results from Drury, Stott and Farsides’ (2003) study provided some support for earlier predictions that police view disorderly crowds as being heterogeneous, yet comprised of a dichotomy (i.e., minority and majority), and requiring quick, strict control-style intervention. Contrary to Stott and Reicher’s (1998a) findings, however, police responses to measures of crowd threat and tactical response were more neutral. Police did not clearly endorse the view that the crowd represents a unified danger, nor the perceptions that it is advantageous to treat the crowd as one (Drury, Stott & Farsides, 2003). In addition, by utilizing quantitative techniques on data from a different and larger sample of officers, this study was able to expand upon earlier work. Specifically, Drury, Stott and Farsides (2003) discovered that police perceptions may be more complex and nuanced than originally believed. Not only may these perceptions differ based on the officer’s experience with policing crowds, their results suggest the officer’s rank may significantly alter his/her view of crowd situations (Drury, Stott & Farsides, 2003).

Despite providing some evidence for the ideological viewpoint of police officers in relation to crowd events, these earlier studies were developed using only one population of police officers: British police officers. Aiming to provide a cross-cultural validation of research in this domain, Prati and Pietrantoni (2009) conducted a survey study of 353 Italian police officers. Utilizing a questionnaire containing 20 items measuring the main themes identified by Stott and Reicher (1998a) and later operationalized by Drury, Stott and Farsides (2003), Prati and Pietrantoni (2009) assessed the officers’ adherence to classical views of crowd behaviour, public order policing methods, and attributions of responsibility for crowd conflict. In addition, as previous research suggests that involvement in crowd conflict may be related to differences in officers’ perceptions (e.g., Drury, Stott & Farsides, 2003), Prati and Pietrantoni (2009) examined the role of experience in crowd conflict.
Regarding the general themes related to police perceptions of crowd behaviour, the results were consistent with previous findings (e.g., Drury, Stott & Farsides, 2003). Specifically, Prati and Pietrantoni (2009) found that police officers endorsed the views that the crowd composition was both heterogeneous and dichotomous, and that there were tactical reasons for treating the crowd as a single unit. Furthermore, while officers did not clearly support the homogeneous threat theme, they did agree with the statements pertaining to coercive policing methods (Prati & Pietrantoni, 2009).

Examining the role of these police perceptions in relation to police exposure to crowd conflict and crowd policing strategy, Prati and Pietrantoni (2009) discovered a complicated series of direct and indirect relationships (see Figure A1 in Appendix A). Similar to Drury, Stott and Farsides (2003), Prati and Pietrantoni (2009) found significant relationships between perceptions of crowd composition and policing methods, as well as denial of responsibility. Specifically, they discovered that perceptions of a dichotomous crowd were directly related to perceptions of homogenous threat. The relationship between the view of homogenous threat and attributions of police responsibility for crowd conflict, on the other hand, was mediated by the support for coercive policing methods (Prati & Pietrantoni, 2009). Contrary to Drury, Stott and Farsides’ (2003) findings, Prati and Pietrantoni (2009) determined that viewing the crowd as posing a unified threat suppressed, rather than mediated, the relationship between perceptions of dichotomous composition and support for coercive policing methods. Moreover, the endorsement of the view that there are tactical reasons for treating crowd members as one fully explained the relationship between perceptions of homogeneous threat and denial of police responsibility for crowd disorder. Finally, this study revealed a relationship between exposure to crowd conflict and endorsing the view of a dichotomous composition, suggesting that exposure to dangerous situations might be related to a stronger opinion about the crowd itself (Prati & Pietrantoni, 2009).

Broadly, the Prati & Pietrantoni (2009) study both validates and extends the police perspective of crowd conflict. In addition, by highlighting the role of police perceptions concerning crowd dynamics and public order policing, Prati and Pietrantoni (2009) provided direction for future studies in this domain. Specifically, given that adherence to an ideological view of crowds may have a significant impact on police training, strategies and tactics, they underscore the importance for research to focus on
identifying good public order policing principles. Following this instruction, many researchers have attempted to move beyond the theory and examine the practical implications of the police perspective of crowd disorder.

Conducting a systematic analysis of crowd behaviour during the 2000 European football championships, Adang and Cuvelier (2001) examined the impact of policing strategies on crowd behaviour. Their results indicated that there were two main types of police deployment: high profile policing and low profile policing. High profile policing was associated with large numbers of police, partly in riot gear, acting in a repressive and reactive manner. Under this approach, policing methods generally involved the use of undifferentiated constraint (i.e., viewing the crowd as posing a homogeneous threat and treating the crowd as a single unit). Conversely, low profile policing involved an unprejudiced, preventive intervention strategy that is firm yet friendly, with discreet police presence (Adang & Cuvelier, 2001). Being more interactive, this strategy promotes contact and communication with the crowd, thus enabling police to identify different types of individuals amongst the crowd (i.e., those who are hostile versus those with legitimate intentions) (Adang & Cuvelier, 2001). Measuring actual police deployment and police behaviour, Adang and Cuvelier (2001) discovered that, compared to low profile policing methods, the use of high profile policing was more strongly correlated with riot behaviour. Given that policing behaviour is considered to be a key factor influencing the development and escalation of crowd disorder, they hypothesized that this result is likely due to the less intrusive nature of low profile policing. Specifically, they surmised that when police adopt an approach to maintain distance, avoid informal interactions and treat the crowd with wariness (i.e., high profile policing), hostility amongst crowd members will be greater than in cases where the police address the crowd in an open and friendly manner (i.e., low profile policing) (Adang & Cuvelier, 2001).

In an attempt to validate these results, several other studies have examined the relationship between policing styles and crowd behaviour. For example, based on a number of different crowd events, including anti-globalization protests (King & Waddington, 2005; Waddington, 2007), European football tournaments (Stott, 2003; Stott, Adang, Livingstone & Schreiber, 2008), and anti-capitalist riots (Cronin & Reicher, 2009), researchers have revealed associations between levels of crowd disorder and violence, and policing perceptions and tactics. Thus far, the results are consistent with
Adang and Cuvelier’s (2001) findings; lower levels of crowd disorder are associated with low profile policing styles (Adang & Cuvelier, 2001; Stott, 2003; Reicher, Stott, Cronin & Adang, 2004). Taken together, these studies provide further evidence that different types of police intervention may produce distinct reactions from the crowd.

Based on the current understanding of the police perspective of crowds and the implications this may have on police tactics, strategy and training, several researchers (e.g., Reicher, Stott, Cronin and Adang, 2004; Reicher, Stott, Drury & Adang, 2007) highlight the importance of developing guidelines for improving public order policing. Specifically, they suggest that public order policing should be based on four specific principles: (1) education about the social identities of various groups in a crowd (i.e., their values, goals, etc.); (2) facilitation of legitimate crowd aims; (3) communication with crowd members (i.e., increasing proper communication that promotes trust and respect); and (4) differentiation of crowd members (i.e., do not treat all crowd members the same) (Reicher, Stott, Cronin & Adang, 2004; Reicher, Stott, Drury & Adang, 2007). Although seemingly straightforward, putting theory into practice and actually applying these guidelines to real situations is quite complicated. Given the dynamic nature of crowd events, there is no one approach to policing crowds. As such, policing strategies need to be based on fluid and continual risk perception, coupled with a graded police approach that corresponds to this risk assessment (Reicher, Stott, Drury, Adang, Cronin & Livingstone, 2007). Essentially, policing strategies need to be tailored to fit the specific situation and circumstances associated with the event in question.

Collectively, studies have identified and highlighted important elements of police perceptions of crowds, and how this understanding is used to inform and legitimize types of police strategy and styles of intervention (Stott, Adang, Livingstone & Schreiber, 2008). Despite providing a basis for understanding crowd events from the perspective of the police, however, the research conducted in this area is plagued by a variety of methodological and theoretical limitations. For instance, aside from a few recent studies (e.g., Stott, 2003; Drury, Stott & Farsides, 2003; Prati & Pietrantoni, 2009), research thus far has been primarily qualitative in nature. This is problematic for two reasons. First, it prevents meaningful comparisons of the results from different studies, which limits the generalizability of findings (Prati & Pietrantoni, 2009). Second, such analytic techniques reduce researchers’ abilities to provide quantitative measurements of policing styles and
collective behaviour as they relate to specific crowd events (Stott, Adang, Livingstone & Schreiber, 2008).

In addition to these analytic concerns, many studies had a variety of data collection and/or sampling issues. For example, due to challenges associated with accessing populations of police officers, police accounts were largely derived from secondary sources such as public statements and written documents (e.g., Adang & Cuvelier, 2001; Waddington, 2007). Lacking firsthand accounts, the researcher’s ability to analyze participants’ true definitions of self and context were reduced (Stott & Drury, 2000). Further, of those few studies that were able to obtain direct information, data was generally not collected in the context of crowd action, but rather through post-hoc interviews (e.g., Stott & Reicher, 1998a; Stott, 2003; Drury, Stott & Farsides, 2003; Prati & Pietrantoni, 2009). This created the potential problem of telescoping, whereby details of the nature of interactions in actual crowd events are subject to participants’ memory limitations and distortions (Drury & Stott, 2001). Similarly, because studies have used cross-sectional designs, data has been limited to a single time period (Stott, 2003; Prati & Pietrantoni, 2009).

Regarding the composition of the samples, participants were often only male (Prati & Pietrantoni, 2009), drawn from a single rank (e.g., junior officers) (Stott & Reicher, 1998a), and/or limited in their level of experience (i.e., officers who were never actually involved in a crowd event) (Drury, Stott & Farsides, 2003). This may have inhibited the researchers’ ability to assess whether or not the police perspective varied based on the officers’ specific characteristics (Stott & Reicher, 1998a). Moreover, samples tended to be small and drawn from a single population: British police officers (e.g., Stott & Reicher, 1998a; Stott & Drury, 2000; Drury, Stott & Farsides, 2003). Provided that different countries tend to experience specific types of crowd events (e.g., football hooliganism in England versus anti-globalization riots in North America) and their police departments may have unique structures and mandates, it is possible that the

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5This refers to the above mentioned legal and ethical issues surrounding access, including anonymity, sensitivity of information and group vulnerability and solidarity (Drury & Stott, 2001).
social context surrounding crowd events may be highly variant based on the location of the event (Stott & Pearson, 2007). Thus, results from any one study are not necessarily generalizable to other police forces around the globe (Prati & Pietrantoni, 2009). Finally, given that the psychological perspective is the primary basis for the research conducted in this domain, the results from such studies are limited in scope. Specifically, by narrowly focusing on the intergroup dynamics of crowd events, researchers have reduced their ability to explore the organizational and departmental issues that may affect police perspectives on crowd events.

In sum, despite progress in this area of research, due to various methodological and theoretical limitations, there remain significant gaps in our current understanding of the police perspective concerning crowd disorder. Further, given the potentially serious consequences of holding a particular view of the crowd (e.g., escalating crowd hostility and violence toward police), developing a clear and comprehensive model of the police perspective is of primary importance. Although recent studies have included quantitative analytic techniques to validate features of the police perspective (Drury, Stott & Farsides, 2003; Prati & Pietrantoni, 2009), obtaining a more complete understanding of police officers’ perceptions of crowd disorder requires conducting studies on a broader range of crowd events, using a wider selection of officers who are actually involved in the event(s) in question (Stott & Reicher, 1998a).

2.4. Current Study

Building off of previous work, particularly that of Stott and Reicher (1998a), Drury, Stott and Farsides (2003), and Prati and Pietrantoni (2009), the aim of this thesis is to aid in the development of a more complete police perspective on crowd conflict. This will be accomplished in two steps. First, based on the responses of 460 Vancouver police officers concerning the events of the 2011 Vancouver Stanley Cup Riot, this study will explore the validity and generalizability of the main concepts comprising the police officers’ perceptions of crowd conflict within a Canadian context. Second, in an attempt to extend the police perspective, this study will examine whether or not this model of police perceptions of crowd dynamics is representative of all members of the Vancouver Police Department. As suggested by some researchers
(e.g., Drury, Stott & Farsides, 2003), differences in officers’ rank and experience may affect their perceptions of crowd events. Thus, the structure of the police perspective will be assessed for officers holding different ranks and those having different types of experience with crowd events. Moreover, given that many studies looked only at males (e.g., Prati & Pietrantoni, 2009), the police perspective will be examined for both male and female officers. Essentially, this study aims to test four hypotheses:

**Hypothesis 1:** Police officers’ perceptions of crowds and crowd management consist of four underlying themes: (a) crowd members pose a homogeneous threat, (b) the crowd is dichotomous in composition, (c) in cases of conflict, strict control and intervention are needed, and (d) there are tactical reasons for treating the crowd as one.

**Hypothesis 2:** The model of the police perspective will differ based on the officer’s gender.

**Hypothesis 3:** The model of the police perspective will differ based on the officer’s rank.

**Hypothesis 4:** The model of the police perspective will differ based on the officer’s experience in policing the riot.
3. Methods

3.1. The Event: The 2011 Vancouver Stanley Cup Riot

The Vancouver Stanley Cup Riot occurred on June 15, 2011. The event started following the conclusion of Game 7 of the National Hockey League’s (NHL) Stanley Cup Finals, and took place in the downtown core of Vancouver, British Columbia. From start to finish, the riot lasted for several hours. The key events and details were obtained from the Vancouver Police Department’s 2011 Stanley Cup Riot report, and are summarized below.

The final round of the NHL’s 2011 Stanley Cup Playoffs, wherein British Columbia’s NHL team, the Vancouver Canucks, played against the Boston Bruins, started on June 1, 2011. The seventh and final game was played on June 15, 2011. The seven game series was action-packed, drawing an immense amount of public attention; in addition to media coverage, thousands of fans traveled to Vancouver’s downtown core to watch the games. The Canadian Broadcasting Corporation (CBC) and the City of Vancouver had created outdoor “fan zones,” known as “Live Sites”, that provided viewing areas for fans to gather to watch the game on large screens. Throughout this series, there were large crowds occupying the viewing areas. These crowds were described as being well-behaved. On June 15, 2011, however, the police described there being a “different feeling to the crowd than had been present in [previous] games” (Vancouver Police Department, 2011, p. 14).

The viewing areas were located at CBC Plaza, Granville Street and on Georgia Street (i.e., the Live Site) (Vancouver Police Department, 2011).
For the final game, the crowd had grown exponentially from previous game days. There were approximately 55,000 people in the Live Site, with another 100,000 occupying Granville Street and other areas located near the Live Site (Vancouver Police Department, 2011). The crowds were much larger than anticipated, and the number of people in the viewing areas exceeded capacity. Given that there were only 606 officers deployed by the VPD, the Live Sites were overcrowded and understaffed (Vancouver Police Department, 2011).

According to the VPD’s report, it appeared as though many crowd members had come downtown with the intent and/or desire to cause problems. The early arrival of large numbers of fans prevented thorough security checks. As a result, it was relatively easy to smuggle alcohol into the Live Sites. As the game progressed, it was noted that there were high levels of intoxication and general belligerence amongst crowd members. In the final minutes of the game (approximately 1900 hours), conditions in the viewing areas rapidly deteriorated: numerous fights broke out, bottles were being thrown at the viewing screens, and cars were overturned and set on fire. At approximately 2000 hours, the Public Safety Unit (PSU) and additional uniformed squads were deployed to disperse the crowd. The crowd’s behaviour, though, continued to escalate; police officers and members of the public were being assaulted, and there was significant property damage and looting (Vancouver Police Department, 2011).

It is generally accepted that the riot had two simultaneous flashpoints, one at the Live Site and the other at the intersection of Nelson and Granville Streets. As such, the VPD and its policing partners were forced to respond to the riot on two fronts, thus stretching resources. Given the size and noise created by the crowd, warnings and bullhorns proved ineffective. To gain control, therefore, officers deployed dispersal techniques, including smoke and gas, primarily targeting those members of the crowd presenting a threat to police officers’ safety (Vancouver Police Department, 2011). Despite the challenges, as midnight approached, the VPD, with the assistance of other Metro Vancouver agencies, had dispersed the majority of the crowd. By 0320 hours, the situation was under control and all officers stood down. The 2011 Stanley Cup Riot was resolved without serious injuries or loss of life to the police or the public (Vancouver Police Department, 2011).
3.2. Data Collection and Sample

Data were collected from Vancouver police officers via mail-based questionnaires. After obtaining both support and formal consent from the Vancouver Police Union (VPU), access was granted to members of the Vancouver Police Department (VPD) for the purpose of conducting this research. The questionnaires were mailed out and distributed within the department in January of 2012\(^7\). The surveys were completed and received by the end of March, 2012. A total of 1328 surveys were delivered, with 460 returned as completed\(^8\).

The survey was designed to assess a wide range of issues pertaining to crowd disorder and crowd management. Specifically, in addition to exploring domains of communication with supervisors, adequacy of training and equipment, issues concerning deployment, feelings of safety, and factors that may have hampered police response, the survey included items designed to measure police officers’ perceptions of crowds and the methods of responding to disorderly crowds, the causes of, and investigation into the 2011 Stanley Cup Riot, and riot prevention strategies. Enclosed with the surveys was a letter explaining the purpose of the research (i.e., to examine crowd dynamics, primarily as they related to the 2011 Stanley Cup Riot, from the perspective of police officers), as well as directions for completing and submitting the survey. Participation in the survey was completely voluntary, and it was guaranteed that all responses would be kept confidential. To ensure anonymity, no specific identifying information was collected, and demographic information was kept to a minimum\(^9\).

A total of 460 Vancouver police officers participated in the study. The demographic characteristics of this sample are summarized in Table 1. Similar to the breakdown within the Vancouver Police Department as a whole, the majority of

\(^7\)The surveys were delivered seven months following the 2011 Stanley Cup Riot.

\(^8\)This represents a 34.6% “return rate” of questionnaires, which is considered an excellent participation rate.

\(^9\)Specifically, information pertaining to officers’ age and ethnicity were not collected.
respondents are male (74.6%). The sample respondents have a wide range of experience, from 2 to 34 years of service, with an average of 14.67 years. This is slightly higher than the average years of service for the department, which is about 12 years. The majority of the sample (68.9%) held the rank of constable, which is also the largest held rank in the department (approximately 88%).

<table>
<thead>
<tr>
<th>Variables</th>
<th>N(%)</th>
<th>Mean(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>343(74.6)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>117(25.4)</td>
<td></td>
</tr>
<tr>
<td>Rank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constable</td>
<td>317(68.9)</td>
<td></td>
</tr>
<tr>
<td>Detective</td>
<td>51(11.1)</td>
<td></td>
</tr>
<tr>
<td>Sergeant</td>
<td>92(20.0)</td>
<td></td>
</tr>
<tr>
<td>Years of Service</td>
<td></td>
<td>14.67(7.39)</td>
</tr>
</tbody>
</table>

3.3. Measures

3.3.1. Crowd Variables

Adapted from the works of Stott and Reicher (1998a), Stott and Drury (2000) and Prati and Pietrantoni (2009), the crowd variables were designed to measure items related to officers’ perceptions of crowd composition, as well as the methods and techniques appropriate for managing disorderly crowds. There were a total of 15 items; all were measured via a six-point Likert-type scale, with responses ranging from (1) “Disagree Completely” to (6) “Agree Completely”\(^\text{10}\). The complete operationalization and description of these variables are presented in Table 2.

According to Table 2, for the majority of the items (11 out of 15), police officers were, on average, more likely to agree with the statements (i.e., provide a score of 4 or above on the rating scale). Two statements in particular, “People of all sorts can be

\(^{10}\) The full list of scale points are as follows: (1) “Disagree Completely”, (2) “Disagree”, (3) “Somewhat Disagree”, (4) “Somewhat Agree”, (5) “Agree”, and (6) “Agree Completely”. 
found among disorderly crowds” and “Once violence starts, the crowd tends to sustain it,” were strongly endorsed (means of 5.05 and 5.29, respectively). This suggests that police officers firmly believed that, although composed of a variety of individuals, the crowd tends to act as a cohesive unit. Three of the items, V7, V8 and V15 had a more neutral response; this suggests that police officers did not have a strong opinion one way or the other regarding who starts and who continues violence in a crowd. Finally, out of the 15 items, there was only one indicator (V13) that police officers, on average, disagreed with. These initial results indicate that Vancouver police officers did not believe that it is impossible to identify the perpetrators of violence during a riot situation. Overall, Vancouver police officers appear to endorse the majority of the statements pertaining to crowd composition and crowd management. These preliminary findings suggest that police tend to perceive the crowd as being composed of an influential and violent minority, and the means of responding to such a group require strict and firm policing methods.

Table 2. Operationalizations and descriptive statistics for observed measures.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1. Crowds must be strictly controlled to prevent widespread violence from erupting.</td>
<td>4.81(1.19)</td>
</tr>
<tr>
<td>V2. The police should suppress every potential threat to public order.</td>
<td>4.43(1.34)</td>
</tr>
<tr>
<td>V3. If there is the possibility of crowd conflict, then the police should use coercive force against the crowd.</td>
<td>4.16(1.21)</td>
</tr>
<tr>
<td>V4. Should crowd members deviate in any way from what had been agreed beforehand with the police that would constitute emerging disorder.</td>
<td>4.16(1.21)</td>
</tr>
<tr>
<td>V5. In a crowd, people tend to act irrationally.</td>
<td>4.90(1.18)</td>
</tr>
<tr>
<td>V6. Once violence starts, the crowd tends to sustain it.</td>
<td>5.05(1.07)</td>
</tr>
<tr>
<td>V7. Once disorder starts, even the most ordinary law-abiding citizens tend to become violent</td>
<td>3.80(1.42)</td>
</tr>
<tr>
<td>V8. It only takes one person to commit violence and then the rest of the crowd is doing it.</td>
<td>3.57(1.42)</td>
</tr>
<tr>
<td>V9. Disorderly crowds are divided into a violent minority and a suggestible majority.</td>
<td>4.86(1.02)</td>
</tr>
<tr>
<td>V10. Professional agitators are skilled at inciting violent behaviour among previously peaceful crowd members.</td>
<td>4.79(1.14)</td>
</tr>
<tr>
<td>V11. People of all sorts can be found among disorderly crowds.</td>
<td>5.29(0.98)</td>
</tr>
<tr>
<td>V12. Crowd conflict is due to a manipulative minority and a susceptible majority.</td>
<td>4.46(1.08)</td>
</tr>
<tr>
<td>V13. During a riot, it is impossible to identify the perpetrators of violence among crowd members.</td>
<td>3.00(1.49)</td>
</tr>
<tr>
<td>V14. It is inevitable that police intervention in crowd conflict involves innocent people.</td>
<td>4.45(1.32)</td>
</tr>
<tr>
<td>V15. In cases of crowd conflict, it is difficult to identify individual crowd members; this makes it impossible to treat crowd members differently.</td>
<td>3.91(1.48)</td>
</tr>
</tbody>
</table>

N = 460
3.3.2. **Contextual Variables**

Members of the VPD represent a diverse group in terms of their demographic characteristics, training and experience. As such, in order to ensure all members are accurately represented in the following analyses, in addition to assessing the sample as a whole, it was necessary to compare separate subgroups. In an attempt to remain consistent with analyses from previous research, which suggest that police officers’ perceptions may differ due to their gender, rank and experience with crowd situations (e.g., Stott & Reicher, 1998a; Drury, Stott & Farsides, 2003), the sample was broken down into groups based on officers’ sex, rank and duty status. These variables are summarized in Table 3.

Sex is a dichotomous variable, representing males and females, with the majority of the sample being male (74.6%). The original rank variable included three categories, constable, detective and sergeant. However, due to the limited number of detective-level officers, coupled with the fact that members identified the detective rank as “detective-constable”, this category was collapsed into the constable category. As a result, the rank variable is a dichotomous variable, identifying constable and sergeant ranks. The majority of the sample held the rank of constable (80.0%). Duty status\(^\text{11}\) is a dichotomous variable representing whether or not an officer was actively on duty during the 2011 Stanley Cup Riot. The sample was almost evenly split, with slightly more officers indicating they were actively on duty (53.5%).

\(^{11}\) With regard to participation in the riot, the survey originally asked respondents whether they were “on duty” the evening of the riot. However, due to the nature of the events during the riot, this question became more complex. First, there were some officers who, although not technically scheduled to work on June 15, 2011, came into work as the riot unfolded. Second, there were some officers who were on duty, but did not actually participate in the riot (e.g., they were assigned to work at the jail). As a result, a new variable (duty status) was created to capture active participation in the riot. Those who were actively on duty were directly involved in the riot.
Table 3. Descriptive statistics for the contextual variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>343(74.6)</td>
</tr>
<tr>
<td>Females</td>
<td>117(25.4)</td>
</tr>
<tr>
<td>Rank</td>
<td></td>
</tr>
<tr>
<td>Constable</td>
<td>368(80.0)</td>
</tr>
<tr>
<td>Sergeant</td>
<td>92(20.0)</td>
</tr>
<tr>
<td>Duty Status</td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>246(53.5)</td>
</tr>
<tr>
<td>Not Active</td>
<td>214(46.5)</td>
</tr>
</tbody>
</table>

N = 460

3.4. Statistical Analyses

3.4.1. Missing Data Analysis and Imputation

Regarding the variables of interest in this study, none had more than 5% missing values (see Table B1 in Appendix B). However, due to the fact that listwise deletion of cases would have resulted in a decrease in sample size, it was possible that eliminating such cases may have biased the results. To prevent the introduction of bias, values were imputed on all variables with missing values. In this case, because the values were missing at random (MAR), missing values were imputed using the Markov chain Monte Carlo (MCMC) multiple imputation method in SPSS v.18 software for Windows (Allen & Bennett, 2010). Utilizing all other variables in the dataset as predictors, regression analyses were used to fill in the missing values for each variable. In total, 40 imputations were completed. For each case, the final value represents the mean of the imputed values.

3.4.2. Preliminary Analysis: Exploratory Factor Analysis

As the dimensions of police perspectives on crowd dynamics have yet to be firmly established, it was necessary to conduct a preliminary exploratory factor analysis (EFA). This was accomplished using SPSS v.18 software for Windows. EFA is designed to determine the number of distinct unobserved constructs that account for the
pattern of correlations among a set of observed measures (Fabrigar & Wegner, 2012). This technique essentially reduces a set of highly related measures down to a smaller set of common factors (Fabrigar & Wegner, 2012). In the current study, this analysis was conducted to identify the key dimensions of police officers’ perspectives on crowd dynamics by examining the relationships between the 15 crowd-related measures (i.e., V1-V15). Specifically, a principal components analysis (PCA) with varimax (orthogonal) rotation was utilized. In interpreting the results, only factors comprised of three or more items were retained (Suhr, n.d.). In addition, to increase the strength of the factors, only items with factor loadings of 0.40 or above were selected for each factor (Suhr, n.d.).

Congruent with previous findings (e.g., Prati & Pietrantoni, 2009; Stott & Reicher, 1998a) the PCA produced four distinct factors (see Table C1 in Appendix C). All factors had eigenvalues greater than one, and the resulting solution accounted for 60.1% of the total variance among the data. According to the KMO measure of overall sampling adequacy (0.817), this factor analysis is appropriate (Pett, Lackey & Sullivan, 2003). In addition, the significant Bartlett’s test of sphericity ($\chi^2 (105) = 2099.365, p < .05$) is indicative of an adequate factor solution (Pett, Lackey & Sullivan, 2003).

To remain consistent with the naming conventions provided in the literature (e.g., Prati and Pietrantoni, 2009), where appropriate, factors were given existing titles. As a

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12 Initially, the results suggested a five factor solution. This fifth dimension, however, contained only two items: (1) V16. “By the time the police take any serious action against violent members of a crowd, most genuinely peaceful crowd members will have retreated to a place of safety”, and (2) V17. “When violence involving crowds occurs, the police are not responsible for either the initiation or escalation of such violence.” As such, it failed to meet the requirements for inclusion, and, thus, it was eliminated from further analyses. Furthermore, the two items that loaded onto this fifth factor did not significantly load onto any of the other four factors. As a result, these items were removed from further analyses. The final four-factor solution was derived from conducting a PCA with these two items being excluded.

13 The eigenvalues for the factors are 4.456, 1.990, 1.426 and 1.141.

14 The factors were titled based on the items that comprised them. More specifically, in addition to the conceptualization of the items themselves, their factor loadings were also taken into consideration (see Table C1 in Appendix C). Given that higher factor loadings suggest that an item is more representative of a construct, items with the highest loadings on each factor were given more weight during the naming process (Thompson, 2004).
result, the emerging four factors are strict policing (F1), homogeneous threat (F2), dichotomous crowd (F3), and tactical response (F4). Strict policing is comprised of four items (V1, V2, V3 and V4) measuring levels of support for proactive policing styles. Based on strong support for the idea that “The police should suppress every potential threat to public order”, this factor represents police officers’ focus on using effective and efficient means to control defiant, or potentially unruly crowds.

Containing indicators V5 to V8, the homogenous threat factor represents measures of police officers’ views regarding the crowd’s level of, and participation in violence. With the highest factor loadings coming from V5 (“In a crowd, people tend to act irrationally”) and V6 (“Once violence starts, the crowd tends to sustain it”), this construct represents two connected ideas. First is the notion that once individuals become part of a crowd, they act as a single unit. Following the formation of this cohesive group, the crowd can take on negative and destructive qualities, including violence.

The dichotomous crowd factor is composed of four indicators (V9, V10, V11, and V12) that represent police officers’ perspectives on the composition of the crowd. Deriving its meaning from V10 (“Professional agitators are skilled at inciting violent behaviour among previously peaceful crowd members”) and V12 (“Crowd conflict is due to a manipulative minority and a susceptible majority”), this factor is indicative of how police officers view the individual members of a crowd. More specifically, the dichotomous crowd construct represents the view that, in conflict situations, the crowd consists of two distinct groups: a violent minority and a peaceful, yet susceptible majority.

Finally, the tactical response factor, which consists of three items (V13, V14 and V15), assesses types of police intervention in situations concerning disorderly crowds.

\[ {\text{In Prati and Pietrantoni's (2009) study, “strict policing” was referred to as “coercive policing” (p. 994). Given the current study’s aim of identifying the police perspective and the negative connotation associated with the word “coercive”, the authors decided to replace this term with the less pejorative descriptor, “strict”.}} \]
This construct primarily derived its name and meaning from V15 ("In cases of crowd conflict, it is difficult to identify individual crowd members; this makes it impossible to treat crowd members differently"). As a result, tactical response refers to the police officers’ view that, while policing crowd events, it is advantageous to treat the crowd as a single entity.

To ensure that these latent constructs are reliable, the items loading on each factor were subjected to an internal consistency reliability analysis using Cronbach’s alpha (α). The coefficients of reliability for strict policing, homogeneous threat, dichotomous crowd, and tactical response are 0.79, 0.81, 0.65 and 0.66, respectively. All Cronbach’s alpha values are greater than 0.60, indicating good internal consistency of the items in each factor (George & Mallery, 2003).

3.4.3. Confirmatory Factor Analysis and Procedure

The results of the EFA indicated that the underlying factor structure of the police perspective on crowd dynamics consists of four constructs. Given that these factors are consistent with those identified in the literature, these initial results provide further evidence suggesting that a police perspective is represented by the dimensions of strict policing, homogeneous threat, dichotomous crowd and tactical response. Having confirmed the factor structure, the next step was to verify the relationship between the observed variables and their respective underlying latent constructs (Suhr, n.d.). This is accomplished by employing confirmatory factor analysis using MPlus 3.0 (Muthen & Muthen, 2010).

Confirmatory factor analysis tests the validity of a measurement model, which consists of a priori specified relationships between latent factors and their observed indicator variables (Hatcher, 1994; Mueller, 1996; Thompson, 2004). Utilizing a series of fit indices and parameter estimates, CFA provides an assessment of both the overall fit of the measurement model, as well as the internal validity of the factors (Hatcher, 1994). In other words, this technique allows for a test of both the structure and meaning of latent constructs (Dimitrov, 2010).

The measurement model for the police perspective on crowd dynamics is presented in Figure 1. To assess the adequacy of this four factor structure, a series of
confirmatory factor analyses were conducted. First, a CFA on the entire sample of 460 Vancouver police officers was performed. This provided a means to analyze the general validity of the measurement model. Given that results from previous research suggest that the police perspective may vary based on officers’ characteristics and levels of experience (e.g., Stott & Reicher, 1998a; Drury, Stott & Farsides, 2003), it was necessary to assess whether or not the factor structure held for all segments of the sample. The second set of analyses, therefore, involved testing the measurement model across specific subsets of the current sample. This was accomplished using multiple group CFAs to test for measurement invariance (van de Schoot, Lugtig & Hox, 2012). More specifically, due to the relatively exploratory nature of this study and the limited focus on the structure and meaning of the latent constructs, assessing measurement invariance referred only to testing for factorial invariance. Presuming that the same model fits in different groups and only the factor loadings are estimated independently in each group, this is the least restrictive test for invariance (Thompson, 2004). To determine whether or not the factor structure remained the same for all respondents, three multiple group analyses were conducted: (1) Model 2: sex; males (N = 343) and females (N = 117); (2) Model 3: rank; constable (N = 368) versus sergeant (N = 92); and (3) Model 4: duty status; active (N = 246) versus not active (N = 214).

¹⁶Factorial invariance refers to equivalent relationships between a latent factor and its indicators (i.e., manifest variables) and is achieved when factor loadings are equal across groups. This is also known as metric invariance or weak measurement invariance (Dimitrov, 2010; Thompson, 2004).
Figure 1. Model of Police Perspective on Crowd Dynamics.
4. Results

4.1. Confirmatory Factor Analyses

4.1.1. Model 1: Full Sample Measurement Model

The first goal of this study was to test the adequacy of the four-factor solution for police perspectives on crowd dynamics and management. Following general CFA guidelines regarding determinations of model fit, the model was evaluated based on a combination of global, descriptive and alternative fit indices: the chi-square goodness of fit test, the chi-square/degrees of freedom ratio (χ²/df), the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standardized root-mean-square residual (SRMR) (Dimitrov, 2010; Muthen & Muthen, 2010). A model providing a good fit to the data will have chi-square values that are low and insignificant (i.e., p > 0.05) (Hatcher, 1994; Ross, Polaschek & Wilson, 2010). However, because the chi-square statistic is heavily influenced by sample size, with larger samples frequently producing a significant statistic, a significant chi-square value does not necessarily mean poor model fit (Hatcher, 1994). Given the issue with sample size, it is recommended that the chi-square value be no more than twice the degrees of freedom (Ross, Polaschek & Wilson, 2010). As such, a χ²/df ratio less than 2 is preferred. The CFI compares the proposed model with a null model assuming no relationships between the observed measures; a value greater than 0.90 indicates an adequate model fit (Bentler, 1990; Hatcher, 1994; Ross, Polaschek & Wilson, 2010). Finally, RMSEA and SRMR act as parsimony indices, adjusting for model complexity and the number of parameters being tested (Hatcher, 1994). They measure the size of the residuals in the model and discrepancy between observed and estimated covariance; results should be lower than 0.08 (best if lower than 0.05) and lower than 0.08, respectively (Chen, Curran, Bollen, Kirby & Paxton, 2008; Dimitrov, 2010; Ross, Polaschek & Wilson, 2010).
The results for the model fit of the CFA for the full sample of Vancouver police officers are presented in Table 4. With the exception of the significant chi-square test and high χ²/df ratio, the values for the model fit indices met their respective thresholds. Overall, the fit indices indicate that this model provided a good fit for the data [χ² (84) = 277.27, p < .05; χ²/df = 3.30; CFI = 0.91; RMSEA = 0.07; SRMR = 0.05].

Given that the minimum requirements for adequate model fit were just barely met, the analysis examined modification indices to determine whether model fit could be improved. The LaGrange multiplier test revealed significant covariation between the error terms for V5 (“In a crowd, people tend to act irrationally”) and V6 (“Once violence starts, the crowd tends to sustain it”)\(^\text{17}\). According to Byrne (2001), this is likely due to (1) an overlap in content between the two items, or (2) the fact that the items represent an omitted factor. An examination of the relationship between these indicators revealed a significant moderate and positive correlation (r = 0.64) between V5 and V6. Moreover, on average, officers responses on each measure were similar (M = 4.90 and 5.05 for V5 and V6 respectively). Taken together, it is possible that these indicators are capturing similar information. On this basis, a covariance pathway was added between the error terms for V5 and V6 (i.e., between e5 and e6)\(^\text{18}\).

\(^{17}\) The modification indices also revealed that V5 cross-loaded into F3 and V8 onto F1. While V5 typically loads onto the homogeneous threat factor (F2), it also demonstrates a relationship with the dichotomous crowd factor (F3). Similarly, as V8 represents the homogeneous threat factor (F2), it also appears to load onto the policing style factor (F1). However, despite these cross-loadings, these modifications were not included in the model. Due to the fact that modification indices are data-driven (Hatcher, 1994), alternations to any model require theoretical and substantive bases (Jones, Cauffman, Miller & Mulvey, 2006). Thus, due to the lack of a priori reasons to accommodate these changes, there were no further modifications made to the model.

\(^{18}\) Despite the moderate correlation between these indicators, these variables appear to be uniquely and meaningfully contributing to the homogeneous threat factor. Theoretically, these variables are used to measure different elements of homogeneous threat. Furthermore, because they are the strongest indicators for the homogeneous threat factor, eliminating either measure may substantively change the meaning of the latent construct. Moreover, the removal of either one of these indicators did not improve the fit of the model enough to justify losing the unique information provided by each measure. The greatest improvement in model fit was obtained by adding the covariance pathway between the error terms. Thus, to maintain a strong factor and improve model fit, V5 and V6 were retained and a covariance pathway was added between their error terms.
After the addition of this pathway, the overall fit of the model improved (see Table 4). The results showed that the modified model (model 1b) provides a good fit to the data [$\chi^2 (83) = 205.840, p < .05; \chi^2/df = 2.48; CFI = 0.94; RMSEA = 0.06; SRMR = 0.05$]. Given that model 1b represented a more adequate solution, it was the model retained and utilized for all further analyses.

Table 4. Model fit results of the confirmatory factor analysis for models of police perspectives on crowd dynamics and management

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>Model 1</th>
<th>Model 1b</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$</td>
<td>277.27</td>
<td>205.84</td>
</tr>
<tr>
<td>$df$</td>
<td>84</td>
<td>83</td>
</tr>
<tr>
<td>$p$</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>$\chi^2/df$</td>
<td>3.30</td>
<td>2.48</td>
</tr>
<tr>
<td>CFI</td>
<td>0.91</td>
<td>0.94</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.07</td>
<td>0.06</td>
</tr>
<tr>
<td>SRMR</td>
<td>0.05</td>
<td>0.05</td>
</tr>
</tbody>
</table>

N = 460

Once the best-fitting model was obtained, the components of the model, including the correlations among factors and factor loadings (see Table 5), were analyzed for factor reliability. The results showed that there are statistically significant relationships among all four factors (F1, F2, F3 and F4). The majority of the correlations are relatively low (below 0.40), which indicates weak to moderate relationships between these factors. This means that, although related, these factors represent different dimensions of police perspectives on crowd dynamics. Strict policing and tactical response, for example, have unique content and, therefore, different substantive meaning. The relationship between the homogeneous threat and dichotomous crowd factors, however, is much stronger ($r = 0.74$). This suggests that these factors represent more similar items. As a result, although homogeneous threat and dichotomous crowd
are different constructs, they may be less distinct than the strict policing and tactical response factors\textsuperscript{19}.

Analyses of the factor loadings indicate that the observed measures are accurate representations the four latent constructs. Ranging from 0.43 to 0.85, all of the measurements showed moderate to high loadings on their respective factors. Further, all factor loadings are statistically significant. These paths are indicative of an adequate solution with four different dimensions of police perspectives on crowd dynamics and management. Taken together, these findings support the first hypothesis; there are four latent constructs that represent different dimensions of police perspectives on crowd dynamics.

\textsuperscript{19} It is important to note that these constructs do not represent a higher-order theoretical construct, but merely represent a set of indicators that capture related pieces of information.
Table 5. Correlations and loadings for the model of police perspectives on crowd disturbance and management

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Model 1b&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Correlations between dimensions of perspectives on crowd disturbance</strong></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>0.37</td>
</tr>
<tr>
<td>C2</td>
<td>0.32</td>
</tr>
<tr>
<td>C3</td>
<td>0.39</td>
</tr>
<tr>
<td>C4</td>
<td>0.42</td>
</tr>
<tr>
<td>C5</td>
<td>0.74</td>
</tr>
<tr>
<td>C6</td>
<td>0.28</td>
</tr>
</tbody>
</table>

**Loadings on the dimension of strict policing (F1)**
- PV1F1<sup>a</sup> 0.69
- PV2F1 0.71
- PV3F1 0.74
- PV4F1 0.64

**Loadings on the dimension of homogenous threat (F2)**
- PV5F2 0.62
- PV6F2 0.59
- PV7F2 0.78
- PV8F2 0.80

**Loadings on the dimension of dichotomous crowd (F3)**
- PV9F3 0.52
- PV10F3 0.60
- PV11F3 0.46
- PV12F3 0.71

**Loadings on the dimension of tactical response (F4)**
- PV13F4 0.64
- PV14F4 0.43
- PV15F4 0.85

**Correlations for the added path following the LaGrange multiplier test**
- e5 - e6 0.27

N = 460

All correlations and factor loadings are significant at p < 0.05.

<sup>a</sup>See Figure 1 for legend.

<sup>b</sup>The factor loading for the first item in each factor is fixed to 1. This default setting is used to set the metric of the factors and ensure the model is over-identified (Muthen & Muthen, 2010; Thompson, 2004).
4.1.2. **Multiple Group Comparisons**

The above analysis indicates that the four factor structure is an adequate representation of police perspectives on crowd dynamics and management. To this point, however, the model has only been tested in relation to the entire sample. According to the literature, it is commonplace for police officers’ opinions to vary based on the officer’s demographic characteristics (e.g., gender) and/or experience, including his/her training, rank, etcetera (e.g., Stott & Reicher, 1998; Drury, Stott & Farsides, 2003). Thus, to address this issue, the second purpose of this study was to establish whether or not the overall model fit, namely the structure of the factors, was equivalent across different groups of police officers. For each of the group comparisons (i.e., sex, rank and duty status), testing for factorial invariance involved the completion of two steps. First, it was necessary to explore the model fit for each group separately (Jones, Cauffman, Miller & Mulvey, 2006; van de Schoot, Lugtig & Hox, 2012). For sex, for example, the model fit was examined separately for the male and female officers. Second, the model fit and factor structure must be examined for the groups simultaneously. For instance, the model is assessed for both male and female officers at the same time. This is accomplished by comparing a baseline model (i.e., a model that has eliminated equality constraints, thereby imposing the same factor structure on all groups) with a constrained factor loadings model (i.e., a model with factor loadings that are constrained to be equal across groups) (Muthen & Muthen, 2010). Differences in chi-square values between the baseline and constrained models are used to indicate whether or not factorial invariance has been established (Dimitrov, 2010; Thompson, 2004).

4.1.2.1. **Model 2: Sex**

The results for the model fit for males are presented in Table 6. Consistent with the findings for the entire sample, with the exception of the chi-square test and $\chi^2/df$, the model fit indices met their respective threshold values [$\chi^2 (83) = 170.992, p < .05; \chi^2/df = 2.06; CFI = 0.95; RMSEA = 0.06; SRMR = 0.05$]. As such, the model provides a good fit for the male police officers.

The results for the female sample, on the other hand, indicate a less adequate model fit [$\chi^2 (83) = 150.339, p < .05; \chi^2/df = 1.81; CFI = 0.85; RMSEA = 0.08; SRMR =$
0.08] (see Table 6). Given the moderate fit of the model to this data, modification indices were consulted. In addition to adding error covariation, the modification indices suggested various changes to the factor structure of the model. For instance, in addition to adding pathways between F1 (strict policing) and V5 (“In a crowd, people tend to act irrationally”), V9 (“Disorderly crowds are divided into a violent minority and a suggestible majority”), V10 (“Professional agitators are skilled at inciting violent behaviour among previously peaceful crowd members”) and V13 (“During a riot, it is impossible to identify the perpetrators of violence among crowd members”), the LaGrange multiplier test suggested adding pathways between F2 (homogeneous threat) and V9, V12 (“Crowd conflict is due to a manipulative minority and a susceptible majority”), V1 (“Crowds must be strictly controlled to prevent widespread violence from erupting”) and V2 (“The police should suppress every potential threat to public order”). Essentially, the indices indicated that improving the factor structure meant creating an almost entirely new model. Lacking theoretical grounds for altering the model, however, a new factor structure for females could not be developed at this time. Therefore, despite its just adequate fit, the original model was maintained for the female police officers for comparative purposes.

Following the assessment of the model fit for each sex independently, the next step was to evaluate the model for both males and females simultaneously. A baseline model was created; this was accomplished by imposing no equality constraints on the model, and using the summed chi-square values for males and females to provide one set of fit indices (Muthen & Muthen, 2010). The fit indices for the baseline model show a good fit to the data \(\chi^2 (166) = 321.331, p < .05; \chi^2/df = 1.94; CFI = 0.93; RMSEA = 0.06; SRMR = 0.06\] (see Table 6).

The next step was to develop a constrained model with equality constraints imposed on all factors loadings (Dimitrov, 2010). Factorial invariance is evidenced if these equality constraints do not significantly reduce the model fit (Dimitrov, 2010; Thompson, 2004). The results of the constrained model show a good fit to the data \(\chi^2 (177) = 344.004, p < .05; \chi^2/df = 1.94; CFI = 0.92; RMSEA = 0.06; SRMR = 0.06\].

The difference in chi-square values between the baseline and constrained models was significant \(\Delta \chi^2 (11) = 22.67, p = .02\) (see Table 6). These results, which
lend support to the second hypothesis, indicate that at least one of the parameters is not invariant across sex (i.e., the factor structure of the model varies across sex). To determine which parameters are contributing to the invariance, the correlations among factors and factor loadings were examined. The correlation coefficients and factor loadings are presented in Table 7.

The results for the correlations between factors show low to moderate, but statistically significant, correlations\(^{20}\) among all factors for male police officers. This is consistent with the results for model 1b (i.e., the final model examined for the entire sample). Conversely, for female officers, two of the correlation coefficients (C4 and C6) are not significant. Most notable is the correlation between strict policing (F1) and homogeneous threat (F2) (i.e., C4). Not only is the correlation coefficient insignificant, it is almost zero ($r = 0.06$). From these results it appears as though the differences between males and females lie within the dimensions of strict policing (F1) and homogeneous threat (F2).

The discrepancies in the factor structure between male and female police officers are further highlighted by the factor loadings (see Table 7). For both male and female officers, the loadings on the dichotomous crowd and tactical response dimensions are all significant, and moderate to strong\(^{21}\). However, the pattern changes for the strict policing and homogeneous threat factors. For the male officers, the loadings are all moderate to high and significant on both factors. For the female officers, though, these factors appear to have less internal consistency; on both dimensions, the factor loadings are dichotomized. Specifically, while two indicators appear to be highly representative of the factor (i.e., V1 and V2 on F1, and V7 and V8 on F2), the other two indicators contribute much less (i.e., V3 and V4 on F1, and V5 and V6 on F2). These findings

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\(^{20}\)The only exception is the relatively strong correlation (0.74) between homogeneous threat (F2) and dichotomous crowd (F3). Adding to the results from the initial CFA, it appears that perhaps these two dimensions are representative of an unknown higher-order factor.

\(^{21}\)On the tactical response dimension, V14 has a moderate loading for males and a low loading for females. Although it is the indicator with the smallest loading for both sexes, it appears to be more representative of tactical response for male as compared to female officers.
suggest that perhaps the dimensions of policing style and homogeneous threat have
different meanings for male and female officers.

Given the discrepancy between model fit indices when the model was examined
for male and female officers independently, failure to obtain factorial invariance across
sex is not surprising. Taken together, the model fit indices and factor loadings suggest
that male police officers’ perceptions are adequately represented by the dimensions of
strict policing, homogeneous threat, dichotomous crowd and tactical response. Female
police officers’ perceptions of crowd dynamics and management, however, may have a
slightly different underlying structure (i.e., they may be better represented by different
factors).
Table 6. Multiple group comparisons model

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>Model 2 (Sex)</th>
<th>Model 3 (Rank)</th>
<th>Model 4 (Duty Status)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males (N=343)</td>
<td>Females (N=117)</td>
<td>Baseline</td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>170.99</td>
<td>150.34</td>
<td>321.33</td>
</tr>
<tr>
<td>df</td>
<td>83</td>
<td>83</td>
<td>166</td>
</tr>
<tr>
<td>$p$</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>$\chi^2$/df</td>
<td>2.06</td>
<td>1.81</td>
<td>1.94</td>
</tr>
<tr>
<td>$\Delta \chi^2$</td>
<td>22.67*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta$df</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFI</td>
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<td>0.85</td>
<td>0.93</td>
</tr>
<tr>
<td>RMSEA</td>
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<td>0.08</td>
<td>0.06</td>
</tr>
<tr>
<td>SRMR</td>
<td>0.05</td>
<td>0.08</td>
<td>0.06</td>
</tr>
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</table>

*p < .05
Table 7. Correlations and loadings for multigroup comparisons of the model for police perspectives on crowd disturbance and management

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Males (N=343)</th>
<th>Females (N=117)</th>
<th>Constable (N=368)</th>
<th>Sergeant (N=92)</th>
<th>Active (N=246)</th>
<th>Not Active (N=214)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlations between dimensions of perspectives on crowd disturbance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>C1</td>
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<td>0.32</td>
<td>0.36</td>
<td>0.38</td>
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<tr>
<td>C2</td>
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<td>0.36</td>
<td>0.31</td>
<td>0.19</td>
<td>0.49</td>
</tr>
<tr>
<td>C3</td>
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<td>0.32</td>
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<td>0.40</td>
<td>0.38</td>
</tr>
<tr>
<td>C4</td>
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<td>0.06</td>
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<td>0.43</td>
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<td>0.39</td>
</tr>
<tr>
<td>C5</td>
<td>0.74</td>
<td>0.72</td>
<td>0.76</td>
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<td>0.71</td>
<td>0.80</td>
</tr>
<tr>
<td>C6</td>
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</tr>
<tr>
<td>Loadings on the dimension of strict policing (F1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PV1F1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.69</td>
<td>0.74</td>
<td>0.73</td>
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<td>0.67</td>
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<tr>
<td>PV2F1</td>
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<tr>
<td>PV3F1</td>
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<td>0.78</td>
<td>0.72</td>
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<tr>
<td>PV4F1</td>
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<td>0.59</td>
<td>0.76</td>
<td>0.69</td>
<td>0.58</td>
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<td>Loadings on the dimension of homogenous threat (F2)</td>
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<td>PV5F2</td>
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<td>0.61</td>
</tr>
<tr>
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<td>0.66</td>
<td>0.59</td>
<td>0.57</td>
</tr>
<tr>
<td>PV7F2</td>
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<td>0.83</td>
<td>0.80</td>
<td>0.77</td>
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<td>0.77</td>
</tr>
<tr>
<td>PV8F2</td>
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<td>0.78</td>
<td>0.83</td>
<td>0.78</td>
<td>0.81</td>
</tr>
<tr>
<td>Loadings on the dimension of dichotomous crowd (F3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PV9F3</td>
<td>0.50</td>
<td>0.55</td>
<td>0.52</td>
<td>0.50</td>
<td>0.50</td>
<td>0.52</td>
</tr>
<tr>
<td>PV10F3</td>
<td>0.63</td>
<td>0.58</td>
<td>0.57</td>
<td>0.75</td>
<td>0.59</td>
<td>0.67</td>
</tr>
<tr>
<td>PV11F3</td>
<td>0.46</td>
<td>0.44</td>
<td>0.44</td>
<td>0.59</td>
<td>0.48</td>
<td>0.45</td>
</tr>
<tr>
<td>PV12F3</td>
<td>0.71</td>
<td>0.68</td>
<td>0.71</td>
<td>0.65</td>
<td>0.71</td>
<td>0.67</td>
</tr>
<tr>
<td>Loadings on the dimension of tactical response (F4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PV13F4</td>
<td>0.64</td>
<td>0.65</td>
<td>0.62</td>
<td>0.69</td>
<td>0.64</td>
<td>0.66</td>
</tr>
<tr>
<td>PV14F4</td>
<td>0.46</td>
<td>0.34</td>
<td>0.47</td>
<td>0.27</td>
<td>0.39</td>
<td>0.47</td>
</tr>
<tr>
<td>PV15F4</td>
<td>0.88</td>
<td>0.81</td>
<td>0.87</td>
<td>0.86</td>
<td>0.77</td>
<td>0.92</td>
</tr>
<tr>
<td>Correlations for the added path following the LaGrange multiplier test</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>e5 - e6</td>
<td>0.29</td>
<td>0.21</td>
<td>0.25</td>
<td>0.33</td>
<td>0.28</td>
<td>0.27</td>
</tr>
</tbody>
</table>

All correlations and factor loadings are significant at 0.05 except for the underlined coefficients.

<sup>a</sup>See Figure 1 for legend.
4.1.2.2. **Model 3: Rank**

Proceeding in the same manner as the previous analysis, factorial invariance was examined across officer ranks. For constables, the model fit indices indicate that the model provides a good fit to the data \( [\chi^2 (83) = 208.69, p < .05; \chi^2/df = 2.51; CFI = 0.92; RMSEA = 0.06; SRMR = 0.05] \) (see Table 6). Although slightly less adequate, the model still showed a moderate fit to the data for the sergeant group \( [\chi^2 (83) = 129.01, p < .05; \chi^2/df = 1.55; CFI = 0.90; RMSEA = 0.08; SRMR = 0.08] \). Given that CFA is a large sample technique, generally requiring that N be at least 100, the relatively small sample of sergeants (N = 92) may be hampering the technique’s ability to obtain accurate model fit estimates (MacCallum, Widaman, Zhang & Hong, 1999). This may partially account for the discrepancy between model fit indices between the groups of constables and sergeants.

After fitting the model for each rank independently, it is clear that there may be differences between constables and sergeants. To test whether or not these discrepancies are evidence of a differential factor structure, a multiple group analysis was conducted. Table 6 shows the results for the baseline and constrained models. The baseline model shows a good fit to the data \( [\chi^2 (166) = 337.69, p < .05; \chi^2/df = 2.03; CFI = 0.92; RMSEA = 0.07; SRMR = 0.06] \). Similarly, the constrained model provided a good fit to the data \( [\chi^2 (177) = 353.14, p < .05; \chi^2/df = 2.00; CFI = 0.92; RMSEA = 0.07; SRMR = 0.06] \). According to the difference in chi-square values test, there was no significant decline in model fit after equality constraints were imposed \( (\Delta \chi^2 (11) = 15.45, p = .16) \). Thus, contrary to our third hypothesis, the results provide evidence of factorial invariance across ranks.

Despite this indication of factorial invariance, due to the slight discrepancy between model fit indices for constables and sergeants, it was necessary to examine the correlations between factors and factor loadings. As seen in Table 7, the pattern of correlations and the basic structure of the factors are the same for both constables and sergeants. The inadequacy of the model for the sergeants appears to stem primarily
from the tactical response dimension (F4). Not only does the tactical response factor have an insignificant correlation coefficient with dichotomous threat\(^{22}\), the composition of the factor appears to be unstable. This dimension is represented by only three manifest variables, which is the minimum required for a factor to be deemed as such (Suhr, n.d.). Furthermore, one of these indicators, V14, has a weak factor loading (0.27). This suggests that, for the rank of sergeant, tactical response may have a slightly different meaning, and model fit may be improved by finding a different variable that better represents this dimension of police perspectives on crowd dynamics and management.

4.1.2.3. Model 4: Duty Status

The final group comparison examined whether or not the model for police perspectives on crowd dynamics and management differed based on the officer’s involvement in the riot. Following the same procedures outlined for the above multiple group analyses, factorial invariance was assessed for officer duty status. Fitting the model for the actively on-duty officers and not actively on-duty officers independently, the results indicate that the model provided a moderate fit to the data in both cases [\(\chi^2(83) = 195.99, p < .05; \chi^2/df = 2.36; \text{CFI} = 0.90; \text{RMSEA} = 0.07; \text{SRMR} = 0.06\); and \(\chi^2(83) = 175.46, p < .05; \chi^2/df = 2.11; \text{CFI} = 0.91; \text{RMSEA} = 0.07; \text{SRMR} = 0.06\), respectively] (see Table 6).

After combining these groups into a single analysis, the baseline and constrained models were examined. As indicated in Table 6, the baseline and constrained models demonstrate a moderate fit to the data [\(\chi^2(166) = 371.45, p < .05; \chi^2/df = 2.24; \text{CFI} = 0.90; \text{RMSEA} = 0.07; \text{SRMR} = 0.06\); and \(\chi^2(177) = 378.80, p < .05; \chi^2/df = 2.14; \text{CFI} = 0.90; \text{RMSEA} = 0.07; \text{SRMR} = 0.06\), respectively]. By comparing the baseline and constrained models’ chi-square values, it was determined that there was no significant decline in model fit after the equality constraints were imposed (\(\Delta \chi^2 (11) = 7.35, p = 0.77\)). As a result, there is evidence of factorial invariance across duty status groups.
Further supporting the similarities among the duty status groups are the factor loadings and correlations. According to the results presented in Table 7, despite minor differences, the actively on-duty and not actively on-duty police officers’ perceptions of crowd dynamics and management have the same underlying structure. Not only do the indicators appear to load with similar strength on their respective factors, the correlations among factors are consistent\textsuperscript{23}. Taken together, the model fit indices, factor correlation coefficients and loadings suggest that the model is representative of both actively on-duty and not actively on-duty police officers. This result provides evidence contrary to the fourth hypothesis.

\textsuperscript{23}The only exception is the correlation between the policing style and dichotomous crowd factors (C2). Although both significant, while the correlation is low for the active on-duty officers ($r = 0.19$), it is moderate for the not active on-duty officers ($r = 0.49$). This suggests that perhaps the indicators used to develop these two dimensions share a more similar meaning for the not actively on-duty officers.
5. Discussion

The results from this study highlight the multidimensional nature of police officers’ perceptions of crowd dynamics and management. Findings from the initial CFA indicate that the police perspective is adequately represented by a four factor structure. Regarding the composition of the crowd itself, police perceptions can be classified into two dimensions, “dichotomous crowd” and “homogeneous threat”. These constructs represent police officers’ beliefs that the crowd is divided into a powerful, violent minority and easily influenced majority, and, once violence starts, the crowd acts as a cohesive and dangerous unit. Referring to crowd management, the police perspective is represented by two constructs, “strict policing” and “tactical response”. These dimensions encompass police officers’ general sentiment that, due to the potential threat to officer safety, crowd members must be treated as one and policing methods to control the crowd must be both swift and firm. Broadly, these initial results are consistent with previous research findings (e.g., Stott & Reicher, 1998a; Prati & Pietrantoni, 2009), and provide further cross-cultural validation of an identifiable police perspective.

Despite providing insight into the nature of the police perspective of crowd dynamics within a Canadian context, though, there were concerns regarding the generality of this model. Specifically, there were three primary issues requiring consideration. First, although the model is theoretically and empirically derived, it is still relatively novel. Research aimed at exploring the nature of the police perspective on crowd dynamics and management is still in its early stages (e.g., Prati & Pietrantoni, 2009) and lacks strong and consistent empirical results. Thus, the model of the police perspective has not yet been sufficiently validated. Second, the results from the CFA suggested there may still be ways to improve the model. For example, although considered a good model, the factor solution met only the minimum requirements for adequate model fit. Further, despite being purely data-driven, the modification indices did provide a number of alternative pathways that, if added, could improve the overall model. Taken together, this suggests that there may be additional indicators and/or
concepts that are currently missing from our analysis of police perspectives on crowd dynamics. Finally, according to the available literature, there is evidence to suggest that the factor structure of police perspectives on crowd dynamics and management may vary by officer demographics and experience (e.g., Stott & Reicher, 1998a; Drury, Stott & Farsides, 2003; Prati & Pietrantoni, 2009). To address these issues, the model was re-examined across three subsets of the sample of Vancouver police officers (i.e., subsamples based on sex, rank and duty status).

Regarding the generalizability of the model, the multiple group comparisons revealed mixed results. As predicted, the model of police perspectives on crowd dynamics differed for male and female officers. Male police officers’ perceptions of the crowd and styles of management were represented by the four dimensions of strict policing, homogeneous threat, dichotomous crowd and tactical response. Essentially, male officers endorsed the views that crowds are composed of a violent minority and labile majority, and, because members of the crowd pose a homogeneous threat in conflict situations, police responses must be firm and aimed at the entire crowd. Female officers’ perspectives, on the other hand, did not appear to highlight these same constructs. Although female officers appeared to agree that the crowd is comprised of a dichotomy and it is advantageous to treat the crowd as a whole, they did not fully endorse the views defining the strict policing and homogeneous threat domains. For example, while female officers believed that crowds must be strictly controlled and police need to suppress all potential threats, this did not coincide with the view that police need to use coercive force. This suggests that, compared to males, female officers may prefer less severe and more peaceful styles of police intervention in situations involving crowd conflict. Moreover, regarding the perceived threat posed by the crowd, female officers were less likely than their male counterparts to view crowd conflict as the result of the crowd’s pathological nature. While they agreed that it only takes one person to initiate violence and once violence starts even ordinary citizens can become violent, female officers did not view crowd members as irrational or fully responsible for sustaining the conflict. Thus, perhaps female officers perceive the crowd’s behaviour as more dynamic, with the level of danger determined by a mix of crowd characteristics and situational factors.
This finding, although interesting, is not surprising; it parallels a wider body of research highlighting job-related differences between male and female police officers. For instance, several studies have found differences in forms of occupational stress and burnout rates between male and female officers (e.g., Ellison & Genz, 1983; He, Zhao & Archbold, 2002; Morash & Haarr, 1995; McCarty, Zhao & Garland, 2007). According to He, Zhao and Archbold (2002), female officers express slightly higher overall levels of both psychological and physical stress than male officers. Furthermore, studies suggest that female officers tend to experience different kinds of stress on the job. For example, while male officers experience more work-related negative exposures (e.g., making violent arrests, shooting someone, etc.) and levels of unfairness, female officers reported lower levels of camaraderie (He, Zhao & Archbold, 2002; McCarty, Zhao & Garland, 2007). In addition, research indicates that male and female officers use different types of coping mechanisms, with female officers relying on constructive coping techniques (i.e., positive and active responses to stress) more so than males (He, Zhao & Archbold, 2002; Haarr & Morash, 1999; McCarty, Zhao & Garland, 2007). Similarly, although male and female officers experience comparable degrees of burnout, they tend to express it differently (Johnson, 1991; McCarty, Zhao & Garland, 2007). According to Johnson (1991), compared to males, females show higher levels of emotional burnout. Furthermore, although not as strong, there is some evidence indicating gender differences related to the officer’s feelings of job satisfaction and attitudes toward the community and neighborhood (Poteyeva & Sun, 2009). Specifically, despite having lower levels of job satisfaction, female officers were found to be more optimistic about the public (Poteyeva & Sun, 2009). Taken together, this suggests that there may be inherent differences in the way male and female police officers view and react to their jobs, which leads to divergent perceptions of, and approaches to situations such as crowd events. Female officers, in particular, may experience crowd events in a distinct manner.

Contrary to previous findings (e.g., Drury, Stott & Farsides, 2003) and predictions for this study, there were no significant differences in the nature of police perceptions for officers of different ranks, nor for those who did versus those who did not participate in the riot. On the surface, this suggests that, regardless of potential differences in officers’ workload, pay, job conditions, relations with the public, and/or experience with policing
disorderly crowds (Drury, Stott & Farsides, 2003), police officers hold the same views concerning the crowd and what constitutes appropriate forms of police intervention in conflict situations. Prior to drawing such a conclusion, though, it is important to consider the ways in which these groups were developed.

Regarding officer rank, there were originally three categories: constable, detective and sergeant. Due to issues with sample size, however, the detective category was collapsed into the rank of constable. Although the resulting two categories of constable and sergeant were consistent with the structuring of ranks within the Vancouver Police Department itself, the department also recognizes different levels within these broad categories. For example, although technically part of the constable rank, detective is considered to be the highest class. In addition to representing more years of service, this designation comes with a higher salary (The Vancouver Police Department, n.d.). As a result, officers holding the constable rank generally differentiate themselves further based on their level or class (The Vancouver Police Department, n.d.). Thus, within this rank there may be variations in officers’ perceptions of crowd events. By merging the detective and constable categories, therefore, it is possible that potential differences in officers’ perceptions of the crowd and styles of policing based on rank were hidden in this study.

Furthermore, as Drury, Stott and Farsides (2003) explain, although sergeants are technically a grade of management in a police department, oftentimes sergeants and constables are equally likely to be at the frontline in public disorder situations. In the current study, the actual roles played by each officer while policing the riot were not obtained. As such, it is possible that the constables and sergeants in this sample had similar levels of contact with crowd members, which may, at least in part, account for the lack of difference observed between ranks in this particular instance. Finally, police officers holding higher ranks (e.g., inspectors and chiefs) were not represented in this study. Due to the fact that these ranks are more likely to be behind the scenes, making decisions and providing direction to frontline officers (Drury, Stott & Farsides, 2003), including such ranks in the present study may have revealed some different results.

In addition to using these traditional measures of rank, it may have been beneficial to consider the number of years police officers have served on the force. An
officer’s experience on the job is often associated with a higher rank or status within the department (Stott & Reicher, 1998a). For example, being promoted from constable to sergeant usually requires a minimum of 15 years of service (The Vancouver Police Department, n.d.). However, years of service does not always coincide with rank level. In the present sample, for instance, officers holding lower ranks often had the same, or sometimes an even greater, number of years on the job as those in higher rank positions. As seen in Table 8, a large proportion of officers at the constable level (28.3%) had more than 15 years on the job, while a similar percentage of sergeants (20.7%) had less than 15 years of experience. Given that promotions are neither mandatory nor guaranteed (The Vancouver Police Department, n.d.), discrepancies in years of service and rank may highlight differences in officers’ attitudes toward various aspects of their job, such as their role within the department, workload, time demands and level of responsibility. Thus, combining rank with years of service may have revealed some subtle differences in officers’ perceptions of the crowd and policing tactics that could not be elucidated by looking at rank categories alone²⁴.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Years of Service</th>
<th>N(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constable (N=368)</td>
<td>0-5</td>
<td>35(9.5)</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>134(36.4)</td>
</tr>
<tr>
<td></td>
<td>7-15</td>
<td>95(25.8)</td>
</tr>
<tr>
<td></td>
<td>16-20</td>
<td>37(10.1)</td>
</tr>
<tr>
<td></td>
<td>20 +</td>
<td>67(18.2)</td>
</tr>
<tr>
<td>Sergeant (N=92)</td>
<td>0-5</td>
<td>0(0.0)</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
<td>6(6.5)</td>
</tr>
<tr>
<td></td>
<td>7-15</td>
<td>13(14.1)</td>
</tr>
<tr>
<td></td>
<td>16-20</td>
<td>20(21.7)</td>
</tr>
<tr>
<td></td>
<td>20 +</td>
<td>53(57.6)</td>
</tr>
</tbody>
</table>

N = 460

²⁴ Many of the years of service crossed with rank categories had very small sample sizes. For example, there were zero officers holding the sergeant rank who also had 0-5 years of service. Given the small Ns, it was not possible to create meaningful categories for comparison purposes. Thus, the group comparison based on a years of service and rank interaction could not be completed in the current study.
Similar to the issues concerning the rank group, the operationalization of the duty status group may have limited the ability of the multiple group analyses to identify differences among officers. As previously mentioned, the survey originally asked respondents whether or not they were “on duty” the evening of the riot. Based on the nature of the events as the riot unfolded, however, this question became more complex. For example, some officers, while not technically on-duty, did come into work as the riot escalated. On the other hand, some of the on-duty officers did not actually work the riot (e.g., they were assigned to work the jail or were positioned at the department). Although some officers specified their station and role during the riot, many others did not. Therefore, it is possible that different respondents interpreted and responded to this question differently (i.e., some answering as though the question referred to technical duty status, while others responded based on whether or not they actually participated in policing the crowd). Despite best efforts to create a variable (duty status) to capture active versus not active participation in the riot, the line between these groups may be blurred. As such, there may be overlap in actual participation levels between those deemed to be actively on-duty and those not actively on-duty. This may, at least in part, explain the lack of differences observed across officers of different duty statuses in their perceptions of the crowd and responses by police.

In addition to the potential problem associated with the groups not being mutually exclusive, the general conceptualization of this variable may have been limiting. By narrowly phrasing the question pertaining to duty status to include only the night of the riot, the assessment of police officers’ experience with policing crowd events was confined to their participation in one event: the 2011 Stanley Cup Riot. Conversely, other studies have examined the effect of officers’ total amount of experience in policing crowd situations on their perceptions of crowd events. For example, Drury, Stott and Farsides (2003) measured officers’ experience of policing and participating in football and demonstrating crowds on a scale from 1 (very little) to 6 (considerable), and found differences among officers with varying levels of experience (e.g., officers with more experience had more positive views of the crowd). This suggests that using a measure of police officers’ complete past and present experience of policing crowd events may have revealed differences in their perceptions of crowd dynamics.
Altogether, the results revealed that the police perspective of crowd disorder and management is generally comprised of four distinct latent constructs. The exact nature and composition of these dimensions, however, remains unclear. Although male officers generally endorse these perceptions, female officers appear to have a distinct viewpoint. Furthermore, there may be additional differences in how police officers perceive the crowd, as well as the types of crowd management techniques they prefer based on their unique qualities or characteristics (e.g., combined years of experience and rank, experience in policing crowd events over the course of their career, training, job conditions, etc.). Thus, despite providing valuable insight into a police perspective on crowd dynamics and management, this study highlights a number of questions and areas of further consideration for both police departments and researchers.
6. Conclusion

Expanding on the themes and findings identified in previous research, the aim of the present study was to further explore the dynamics of crowd events from the perspective of the police. This was accomplished by assessing the dimensionality of police officers’ perceptions of crowd disturbance and management. Utilizing a sample of 460 Vancouver police officers, the findings indicate that police perceptions of crowd dynamics are generally represented by four distinct factors: (1) strict policing, (2) heterogeneous threat, (3) dichotomous crowd, and (4) tactical response. In a broad sense, the results support earlier findings and provide validation for the police perspective in a Canadian context. At the same time, however, the results also revealed the complex and intricate nature of this perspective. The imperfections in the fit of the model, coupled with the large discrepancy between male and female officers’ perceptions suggest there is still room for improvement regarding the police perspective of crowd dynamics. This study highlights the importance of moving beyond the theoretical constraints of the ESIM, and incorporating additional individual-level and departmental/organizational concepts to enable the development of a more holistic and complete police perspective on crowd disorder and management.

Although incomplete, the results from this study do have important implications for police training and strategic planning in relation to policing crowd events. Consistent with the generic principles suggested to improve public order policing, this study highlights the importance of educating officers about crowd identities, enabling the facilitation of legitimate crowd goals, increasing communication between the police and crowd members, and teaching officers how to differentiate between violent and peaceful individuals within a crowd (Reicher, Stott, Cronin & Adang, 2004; Reicher, Stott, Drury & Adang, 2007). However, in addition to these general principles, it is recommended that departments consider developing specific guidelines aimed at targeting different segments of the police population. For example, given the different perceptions of male and female police officers regarding both the crowd’s perceived level of threat and style
of policing required to respond to this danger, it may be necessary for the department to implement gender-specific training, briefing and protocol for policing crowd events. Essentially, departmental preparation for policing crowds must be sensitive enough to address potential differences among their officers. A standard one-size-fits-all approach to policing crowds may hinder the efforts of certain officers, thus reducing the ability of the police as a whole to effectively manage the crowd and prevent the escalation of violence.

6.1. Limitations and Future Directions

Despite providing a quantitative, cross-cultural validation of the police perspective of crowds, this study suffered from a number of limitations. Although the sample was large (N = 460) and inclusive of a wide selection of police officers (i.e., both males and females, and different ranks with various levels of service and experience), the sample was drawn from only one police department, the VPD. Moreover, because of the cross-sectional design, the sample was drawn from a single time period and event. The ability to generalize the results beyond this sample is, therefore, limited.

In addition to concerns with the sample, given that data was collected after the event occurred, telescoping\textsuperscript{25} may have been an issue. Similar to other studies (e.g., Drury, Stott & Farsides, 2003; Prati & Pietrantoni, 2009), it was possible that the officers’ recall of the events was somewhat distorted. More specifically, due to the de-briefing process, the investigation into the events of the 2011 Stanley Cup Riot, as well as the extensive media coverage, officers’ perceptions may have been altered in the period following the completion of the actual riot.

Considering both the results and limitations of the current study, several recommendations for future research are proposed. Although the current understanding

\textsuperscript{25}As previously stated, telescoping refers to participants’ recall of events being subject to memory limitations such as distortion (Drury & Stott, 2001).
of the police perspective highlights the importance of certain elements, such as crowd composition and policing styles and tactics, at the same time, it ignores other potentially significant domains. For instance, police perceptions of crowd dynamics may be shaped by the officers’ personal qualities (e.g., coping mechanisms and type of support system, level of fear in crowd situations, etc.) and departmental or organizational factors (e.g., communication with supervisors, training, equipment, etc.). To gain a more complete understanding of the police perspective, therefore, it is important to move beyond the confines of the ESIM and incorporate measures derived from additional theoretical perspectives.

In addition to extending the model theoretically, it is necessary to consider developing models for different types of police officers. For instance, given the unique nature of the female police officers’ perspective, as compared to the male officers’, studies should look into examining the specific qualities associated with the female officer perspective on crowd dynamics. Using studies on gender differences among police officers (e.g., He, Zhao & Archbold, 2002) as a guide, researchers may wish to incorporate factors such as communication with supervisors, level of camaraderie and training into their examination of a female police perspective on crowd events and management.

Furthermore, although the differences across officer rank and duty status were insignificant, it is recommended that researchers examine the police perspective using additional officer characteristics. As previously alluded to, in addition to analyzing officer rank, assessing officers’ years of service may highlight differences in police officers’ perspectives that traditional rank categories, on their own, cannot elucidate. According to Parent (personal communication, February 7, 2013), after five years on the job, a police officer is considered to have advanced passed the ‘rookie’ stage of his or her career. In the current sample, there were too few officers with five years of service or less (N = 35), and, as such, a comparison based on years of experience could not be completed at this time. Using this departmental breakdown as a benchmark to examine level of experience, future studies may discover additional nuances in the police perspective on crowd dynamics.
In addition to rank and years of service, it is recommended that researchers consider the actual roles played by each officer while policing crowd events. As suggested by previous researchers (e.g., Stott & Reicher, 1998a; Drury, Stott & Farsides, 2003), an officer’s position may indicate his/her level of contact with the public, which may be an important factor underscoring differences between different police officers’ perceptions of crowd composition and their ideas regarding what constitutes appropriate policing tactics. Moreover, although the current study served to highlight the potential differences or similarities between Vancouver police officers with different duty statuses during the 2011 Stanley Cup Riot, it could not differentiate among those officers who have experience in policing crowds more generally. Thus, in addition to analyzing a specific event, it is important for studies to look at officers’ total experience with policing crowds.

Finally, in order to increase the generalizability of findings, information needs to be obtained from more than one police force and over a longer period of time (i.e., longitudinal design). This enables researchers to compare results and obtain police officers’ perceptions of crowd dynamics before, during and after an event (Stott, 2003). Altogether, to develop a more complete picture of police perceptions on crowd dynamics and management, it is necessary to examine this perspective over different time periods, across a wider selection of police officers, and using a variety of psychological and departmental measures, including communication with supervisors, training, position and role within the department, and level of camaraderie among officers.
References


Appendix A

Figure A1. Path model (Prati & Pietratoni, 2009, p. 994).
Appendix B

Table B1. Variables with missing data

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>%</th>
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<tr>
<td>Years of service</td>
<td>16</td>
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</tr>
<tr>
<td>Crowd43</td>
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<td>2.8</td>
</tr>
<tr>
<td>Sex</td>
<td>12</td>
<td>2.6</td>
</tr>
<tr>
<td>Crowd45</td>
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<td>0.9</td>
</tr>
<tr>
<td>Crowd44</td>
<td>4</td>
<td>0.9</td>
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</table>

N = 460
## Appendix C

### Table C1. Principal Components Analysis: Rotated factor structure

<table>
<thead>
<tr>
<th>Factors</th>
<th>Factor Loadings</th>
<th>Eigenvalues</th>
<th>%Variance Explained</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor 1: Policing Style</strong></td>
<td></td>
<td>4.46</td>
<td>29.71</td>
</tr>
<tr>
<td>V1. Crowds must be strictly controlled to prevent widespread violence from erupting.</td>
<td>0.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V2. The police should suppress every potential threat to public order.</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V3. If there is the possibility of crowd conflict, then the police should use coercive force against the crowd.</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V4. Should crowd members deviate in any way from what had been agreed beforehand with the police that would constitute emerging disorder.</td>
<td>0.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Factor 2: Homogeneous Threat</strong></td>
<td>1.99</td>
<td>1.99</td>
<td>13.27</td>
</tr>
<tr>
<td>V5. In a crowd, people tend to act irrationally.</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V6. Once violence starts, the crowd tends to sustain it.</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V7. Once disorder starts, even the most ordinary law-abiding citizens tend to become violent.</td>
<td>0.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V8. It only takes one person to commit violence and then the rest of the crowd is doing it.</td>
<td>0.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Factor 3: Dichotomous Crowd</strong></td>
<td></td>
<td>1.43</td>
<td>9.50</td>
</tr>
<tr>
<td>V9. Disorderly crowds are divided into a violent minority and a suggestible majority.</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V10. Professional agitators are skilled at inciting violent behaviour among previously peaceful crowd members.</td>
<td>0.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V11. People of all sorts can be found among disorderly crowds.</td>
<td>0.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V12. Crowd conflict is due to a manipulative minority and a susceptible majority.</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Factor 4: Tactical Response</strong></td>
<td>1.14</td>
<td>1.14</td>
<td>7.61</td>
</tr>
<tr>
<td>V13. During a riot, it is impossible to identify the perpetrators of violence among crowd members.</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V14. It is inevitable that police intervention in crowd conflict involves innocent people.</td>
<td>0.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V15. In cases of crowd conflict, it is difficult to identify individual crowd members; this makes it impossible to treat crowd members differently.</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

KMO measure of sampling adequacy = 0.817  
Bartlett's test of sphericity: $\chi^2 = 2099.365$, df = 105, $p = 0.000$