

Guest editorial

Matt Tonkin and Amy Burrell

What's new with Behavioural Crime Linkage?

Welcome to this special edition of the *Journal of Criminological Research, Policy and Practice (JCRPP)*. This issue of *JCRPP* focuses on recent developments in the field of Behavioural Crime Linkage (BCL, also referred to as case linkage by authors within this issue). BCL uses the crime scene behaviour of offenders, such as *modus operandi*, temporal and geographical preference, to identify whether a series of offences can be linked to a common offender (or group of offenders).

Although BCL does not provide a list of suspects for the police, it does allow officers to pool resources and evidence, thereby maximising the chances of identifying and apprehending the offender/s in a timely and efficient way (Grubin *et al.*, 2001; Woodhams *et al.*, 2007). Given the potential investigative value of BCL, it is perhaps unsurprising that law enforcement units have been created to facilitate BCL during ongoing police investigations, including units in Japan, Australia, New Zealand, Canada, the USA, South Africa and across Europe. BCL is, therefore, a regular part of policing activities around the world.

The academic literature on BCL has also grown considerably over the past two decades. Much of this research has focused on testing the underlying assumptions of BCL. That is, whether offenders repeat elements of their crime scene behaviour from one offence to the next (behavioural consistency) and whether there are identifiable differences in crime scene behaviour from one offender to the next (behavioural distinctiveness). There now exists a wealth of support for these assumptions across a range of crime types, including sex offences, homicide and property crime, with studies conducted in five out of the seven continents (for an overview, see Bennell *et al.*, 2014; Woodhams and Bennell, 2014).

With support for the underlying assumptions of BCL growing, an important next question is how those findings can be used to support BCL *practise*. With notable exceptions, this is, however, an underexplored area. As such, understanding of how BCL is conducted in the “real world” and how existing findings might be used by the police during ongoing investigations is somewhat lacking (at least, compared to our understanding of offender behavioural consistency and distinctiveness). It is the aim of this special issue to begin addressing this gap in the literature.

This special issue contains six articles that demonstrate the growing breadth of BCL research, both in terms of methodological variation (the special issue contains qualitative, quantitative and literature review research) and the geographical spread of the literature (the special issue contains five empirical papers using data from five different countries).

The first paper – by Davidson and Petherick – continues to build the evidence base for the underlying assumptions for BCL with a sample of stranger sex offences from Australia. Using a sample of serial and non-serial sexual offences, this study provided the first published evidence to support the use of BCL in Australia. It is particularly useful from a practical point of view that this research included both serial and non-serial sexual offences, which provides a more realistic approximation of the data that crime analysts would use when conducting BCL in practise. Often, previous research has not included non-serial offences, which has led to the

Matt Tonkin is based at the Department of Criminology, University of Leicester, Leicester, UK. Amy Burrell is based at Coventry University, Coventry, UK.

criticism that the research findings are not applicable to practise [see, for example, [Bennell et al.'s \(2014\)](#) discussion on ecological validity].

The second paper – by Pakkenen *et al.* – also focuses on developing techniques that are more reflective of real-world decision-making, this time with homicide offences from Italy. The research analysed how the linking accuracy of a Bayesian-based statistical approach is impacted by the addition of hard-to-solve one-off homicides. It was found that the addition of one-off crimes increased the number of false positive errors when linking crimes, where crimes are identified as being linked (i.e. committed by the same person) but in reality they were committed by different offenders. Despite this, a high level of accuracy was still achieved using the statistical approach, and the increase in certain linkage errors was deemed manageable by Pakkanen and colleagues. The findings, therefore, support the police use of BCL with homicide offences, and the implications of this for BCL practise are discussed.

The third paper – by Winter *et al.* – tests a new technique for conducting BCL with serial sex offences. Sequence analysis does not just consider whether a behaviour is present or absent during the offence but *when* it took place in the offence chronology. This is important information that is used by individuals conducting BCL in the real world but has not been incorporated into much previous BCL research. Winter and colleagues conclude that although sequence analysis does not perform as well as traditionally used binary approaches to linkage, there is scope for sequence analysis to be implemented in real-world settings to assist with the triaging of cases.

The fourth paper – by Haginoya, Hanayama and Koike – compares three different distance measures (Euclidean, Manhattan and shortest route) in terms of their ability to accurately link residential burglary offences committed in Japan. Historically, BCL research has used the Euclidean (straight-line) distance between crimes as a way of predicting whether crimes are linked or not. But, such measures do not take into account environmental features (e.g. roads, buildings and natural features such as lakes), which *would* be taken into account when police analysts consider the geographical behaviour of offenders during BCL. Haginoya and colleagues found that all three distance measures achieved high levels of linking accuracy, thereby underscoring the value of geographical behaviour when police are conducting BCL. Although the authors call for more research, they suggest that measures such as Manhattan and shortest route distances (which do take into account environmental features) might contribute to improving linking accuracy when BCL is used during ongoing police investigations.

The fifth paper – by Tonkin and Weeks – explores how BCL is conducted in practise by law enforcement staff in New Zealand. Through focus groups, semi-structured interviews and an analysis of written BCL reports, this study examines how BCL is currently performed with residential burglaries in New Zealand, the factors that promote and hinder effective BCL and whether computerised BCL decision-support tools might assist the police in practise. This study highlighted wide variation in BCL process, methods and products and identified a number of factors that either support or hinder BCL. There was also evidence to suggest that computerised BCL support tools have the potential to assist analysts in overcoming some of the challenges they face when linking burglaries in practise.

The sixth and final paper – by Davies, Imre and Woodhams – focuses on the utility of the Violent Crime Analysis System (ViCLAS) for linking stranger sex offences. This database is a real-world programme used by many law enforcement agencies across the world to support decision-making around BCL. Building on and extending [Bennell et al.'s \(2012\)](#) review, this paper outlines the strengths and areas for development of ViCLAS and identifies key areas for future research including recommendations for how to effectively evaluate ViCLAS.

We are excited to have brought together such a wide range of up-to-date and practical research and hope that you enjoy reading this special issue as much as we have editing it.

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