Sharing insights on hate crime: New methods and forms of data

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Executive summary

Understanding hate crime is a priority for police forces across England and Wales. Since the EU referendum in June 2016, there has been renewed emphasis on preventing hate crime and providing support for victims.

With this in mind, the Sharing insights on hate crime: new methods and forms of data project developed new relationships between academics at the Universities of Leeds and Liverpool, Lancashire Constabulary and the Safer Lancashire Partnership through which to drive improvements in policing and service provision for victims of religiously and racially motivated hate crime.

The research was based on the quantitative and spatial analysis of secondary data sources. The project exchanged learning between academic and policing partners in methods for examining Twitter data and routinely captured police data in novel ways, to develop a richer and more nuanced understanding of the dynamic and changing risks to communities.

The project has enabled Lancashire Constabulary and Safer Lancashire to develop new methods for analysing data in relation to hate crime. The sharing of learning about new methods and forms of data has deepened the police’s understanding of the changing profiles perpetrators and victims of hate crime.

The research team has been able to add value to the hate crime strategy, and have also provided a series of learning points and knowledge exchanges with analysts from Lancashire Constabulary.

This has included the development of an algorithm will be used by the Constabulary to monitor levels of online hate on an ongoing basis which has the potential to inform resource deployment and interventions aimed at ameliorating hate crime.

Key findings from the analysis of Twitter and routinely captured police data for hate crime in Lancashire include:

- It is possible to create an English language classifier to identify online hate speech on Twitter.
- 10% of the victims are university students and school pupils.
- Hate crime offenders and victims tend to live in separate neighbourhoods, with most of the hate incidents occurring in the town centre where the two populations meet.
- Hate crimes and incidents frequently occur at night (between 7pm and 6am); hate crime incidents frequently occur whilst victims are at work/in the workplace.

The research has provided Lancashire Constabulary with a clearer picture of the profile of victims and offenders of hate crime as well as the times and locations where the incidents happen. It has also emphasised the value of social media data when dealing with under-reported crimes.

Lancashire Constabulary has used this work to refocus a multi-agency response to tackling hate crime in Lancashire.

Acknowledgments

The project was funded by an Impact Acceleration Account (IAA) grant from the Leeds Social Science Institute and supported by a paid internship from the Leeds Institute of Data Analytics (University of Leeds).

It also received support from Professor Graham Farrell (School of Law) and the School of Computing at the University of Leeds respectively. The project was facilitated through the networks that have been fostered as a direct result of the work of the Data Analytics strand and wider N8 Policing Research Partnership.

The project team comprised analysts, academics, data scientists, officers, interns and community safety officers from the Schools of Geography and Law at the University of Leeds, University of Liverpool, Leeds Institute for Data Analytics (LIDA), Lancashire Constabulary and Safer Lancashire, including: Dr Carly Lightowlers, Dr Nicolas Malleson, Natacha Chenevoy, Scott Keay, Katharine Stone, Rebecca Eckersley, Denise Chapman, Ryan Bretherton, Faith Lucas and Fiona Blair.
Introduction

This project speaks directly to public and policing concerns regarding hate crime and community tensions in the wake of the EU referendum (June 2016) and managing the perceptions of and tensions between British and foreign nationals (from the EU and beyond) who are resident in the United Kingdom. It also links directly to the current work of Lancashire Constabulary aimed at understanding levels of hate crime.

The project was born out of co-investigators roles in the N8 Policing Research Partnership (N8PRP), and specifically the work of the Data Analytics activity strand thereof.

The N8PRP was founded in 2013 as a platform for collaborations between universities, Police and Crime Commissioners (PCCs), police forces and partners across the north of England. It was established to enable and foster research collaborations that will help address the problems of policing in the 21st century and achieve international excellence in policing research. More specifically, the overall objective of the Data Analytics strand is to support data sharing, analysis and use.

The N8PRP facilitated relationships and dialogue between the co-investigators — Lightowlers and Malleson — and representatives from Lancashire Constabulary and the Safer Lancashire Partnership from which this project developed.

Securing an Impact Acceleration Account grant from the Leeds Social Sciences Institute (LSSI), academics from the Schools of Law and Geography at the University of Leeds¹, worked together with Lancashire Constabulary and Safer Lancashire to tackle these concerns by exploring new sources of data and methods for interrogating these. These grants are specifically designed to support researchers in the social sciences to connect and engage with external organisations to maximise the impact and influence of their research on society and the economy.

Sharing insights on hate crime: new methods and forms of data shared learning about new forms of data and analytical techniques for gauging the ‘temperature’ of hate in local communities. This learning ensued based on the analysis of data on reported incidents of hate crime, area demographics and voting patterns (both in the EU referendum and the last general election in the United Kingdom) as well as geo-coded Twitter data.

The project’s primary outcome was to promote and increase the analytical capacity and skills of community safety and police analysts within partner organisations by enhancing their knowledge and skills in using new forms of data and methods of analysis when conducting analyses of hate crime. A secondary aim was to explore the value of Twitter data for identifying incidents of hate.

This knowledge exchange project has equipped community safety and police analysts with additional skills to illicit insights into the dynamic and changing risks to communities and profiles of hate crime perpetrators and victims. It did so by developing new relationships between academics at the University of Leeds, University of Liverpool, Lancashire Constabulary and the Safer Lancashire Partnership. As a consequence, it introduced policing analysts to a rich and wider range of complimentary data sources and methods for developing a more nuanced understanding of hate crime.

In turn, this enriched and informed Lancashire Constabulary’s strategic and partnership intelligence assessments, which are ultimately aimed at:

- promoting of the issue of hate crime as important amongst policing partners;
- supporting the targeting of finite resources to areas and populations of greatest risk;
- improving local services and safeguarding of vulnerable communities;
- encouraging the public to report incidents of hate crime and encourage victims to come forward; and
- assisting Her Majesty’s Inspectorate of Constabulary (HMIC) in identifying barriers to reporting and how police can better respond to incidents of hate crime.

¹ Part way through the project the principal investigator (Lightowlers) left the School of Law to take up employment at the Department of Sociology, Social Policy and Criminology at the University of Liverpool.
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It is hoped this will make Lancashire a more tolerant and safer place in which to live and work. Sharing insights on hate crime: new methods and forms of data built on existing expertise shared by the project team in the analysis of secondary and administrative police and criminal justice data, including the ongoing work of the Data Analytics Strand of the N8 Policing Research Partnership which members of the project team are involved in.

However, it is noteworthy that all involved (including academic partners) were able to learn new skills in the quantitative and spatial analysis of a range of secondary data sources with which to further understand religiously and racially motivated hate crime and drive improvements in policing and service provision for victims.

Background and context

Since the recent European Union (EU) referendum in June 2016, there has been a renewed emphasis on the importance of preventing hate crime and providing support for victims.

In England and Wales hate crime is defined as ‘any criminal offence which is perceived, by the victim or any other person, to be motivated by hostility or prejudice towards someone based on a personal characteristic’.

This common definition was agreed in 2007 by agencies making up the criminal justice system including the Police Service, Crown Prosecution Service (CPS), Prison Service (now the National Offender Management Service) and has since been used by the police.

There are five formally recognised strands of hate crime as defined by the Home Office: race or ethnicity; religion or beliefs; sexual orientation; disability; and transgender identity. The number of hate crime offences in 2015/16 for each strand was as follows:

- 49,419 (79%) race hate crime
- 7,194 (12%) sexual orientation
- 4,400 (7%) religion/fairth
- 3,629 (6%) disability
- 858 (1%) transgender identity

These strands do not necessarily encompass all actions which might be described as hate crimes. The case of Sophie Lancaster, murdered in 2007, could not be prosecuted as a hate crime because Sophie – targeted because of her subcultural interests and identification as a Goth - did not fit the recognised legal definitions.

The Office for Democratic Institutions and Human Rights describes hate crimes as ‘criminal acts committed with a bias motive’, where a victim is targeted because of a particular ‘protected characteristic […] shared by a group’. Taking their lead from the Macpherson Inquiry (1998) into institutional racism within police culture, the College of Policing framework requires forces to record hate incidents as well as hate crimes, and the five strands (race; religion; sexual orientation; disability and transgender identity) are notably described as the minimum expected recorded categories. This project thus takes as its focus a broad conceptualisation of incidents of hate, rather than a focus only on those incidents deemed ‘crimes’.

The Home Office report Hate Crime, England and Wales, 2016/17 highlights a ‘clear spike in hate crime’ around the EU referendum result. This rise in hate crime began in April 2016 (campaigning began on 15 April) and rose to a peak in offences in July 2016, shortly after the result. Between 2015/16 and 2016/17, race hate crimes increased by 27% and religious hate crime increased by 35%.

Whilst there is a significant disparity between recorded hate crime and actual occurrence,

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research\(^8\) has shown that the impact of hate crime on victims is a lot more damaging with longer term consequences. It is important to better understand these types of crime to ensure that they are better recorded and understood in order to develop solutions for tackling hate-related harm within local communities.

Dr Pete Burnap from the University of Cardiff undertook a study in Los Angeles (USA) that he described as the first study in the United States to use social media data in predictive policing models of hate crime\(^9\). According to Burnap, predictive policing is a model that has become more common partially due to the advent of advanced analytics such as data mining and machine-learning methods. Previous research from the University of Cardiff’s Social Data Science Lab has already shown that Twitter data can be used to identify hot spots, such as certain states or cities, where hate speech has occurred but where hate crime has not been reported.

In light of this, a core aim of the project was to explore the value of Twitter data for identifying incidents of hate in a linked research project. The objective of this research was to identify local areas in which hate crime was under-reported in Lancashire. This was achieved by identifying areas where online hate speech was present and yet reported hate crime relatively absent. This involved working with two key data sets: Twitter data and police reported hate incidents.

A literature review undertaken by Faith Pascale, an intern based at Lancashire Constabulary, further identified a number of key themes in the context of hate crime and how they are reported.

According to Home Office data, there were statistically significant increases in offences recorded for all five of the monitored hate crime strands in the UK between 2013/14 and 2014/15\(^10\), and again between 2014/15 and 2015/16\(^11\). There has been an upward trend in all strands of hate crime since 2012/13\(^12\). However, it should be noted that improvements in recording crime, in line with the National Crime Recording Standard, are likely to be a factor in the increase in recorded hate crimes in 2015/16 compared with previous years\(^13\).

The Crime Survey for England and Wales (CSEW) indicates that up to six times as many hate crime incidents occur every year as are reported in police figures\(^14\). Combined with the fact that many typical victims of hate crime are in poverty, disenfranchised, or more generally subject to ‘discrimination, intolerance, subordination and stigma’\(^15\), and that 49% of hate crime incidents are violence (in comparison to only 19% of overall CSEW crime\(^16\)) this disparity between hate crime incidents and reported hate crime figures is particularly concerning.

There is also evidence that hate crime victims are significantly less likely to be satisfied with police handling of incidents; only 52% being fairly satisfied, compared with 73% for crime overall\(^17\).

The increased statistical likelihood of adults in non-White ethnic groups suffering race hate crime is sobering. From 2012/13 to 2014/15, 1% of Asian and 0.7% of Black adults in the UK were victims of race hate crime, compared with only 0.1% of White adults\(^18\), whereas similar proportions of adults from different ethnic groups were victims of crime overall (19% of Asian, 18% of Black and 17% of White adults\(^19\)). The 2012/13 to 2014/15 CSEW also showed that Muslim adults were the most at risk of religious hate crime\(^20\).

A trend is also apparent between certain high-profile attacks and political events, and rises in racially and religiously motivated hate crime. There were clear rises in recorded hate crime following the murder of Lee Rigby (2013), the EU Referendum (2016) and the Westminster attack (2017)\(^21\). In the week following the Westminster

\(^8\) Iganski, P. and Lagou, S. (2016). Understanding the needs of persons who experience homophobic or transphobic violence or harassment. In: The psychology of hate crimes as domestic terrorism. Iganski, P. (2016). Understanding the needs of persons who experience homophobic or transphobic violence or harassment.


\(^12\) Corcoran and Smith (2016). P. 4.

\(^13\) Corcoran and Smith (2016). P. 1.


\(^16\) Corcoran, Lader and Smith (2015). P. 15.


attack, anti-Muslim religious hate crimes accounted for nearly half the total hate crime offences recorded\textsuperscript{22}. It is reasonable to conclude that there was a rise in anti-Islamic sentiment as a direct result of the attack\textsuperscript{23}.

It should be noted that there is a perennial problem with under-reporting; many victims may not consider themselves to be victims of hate crime, or may assume that police forces will not respond to the incident, and so fail to report it\textsuperscript{24}.

There has been such growth in 'online hate'\textsuperscript{25} that in 2009 a compendium of web-hate sites, games, and chat rooms ran to over 160 pages\textsuperscript{26}. Although the far right may be responsible for only a relatively small percentage of hate crime itself, far right organisations in Britain are associated with a worryingly large majority of online hate\textsuperscript{27}.

Bharath Ganesh notes the difficulty of identifying and responding to online hate, since 'hate speech [...] must be intended to stir up hatred rather than only likely to stir up hatred'\textsuperscript{28}, and although many social media platforms define abusive language and/or harassment as behavioural breaches, such incidents do not necessarily qualify as 'hate speech' even when expressing racist views\textsuperscript{29}. Not only is online hate more difficult to define, but victims of online hate remain notably less 'visible'\textsuperscript{30}, and dangerously exposed to a type of hate particularly likely to be motivated by extremism\textsuperscript{31}.

Anti-Muslim hate crime illustrates well the ways in which 'neat' definitions of the different strands of hate crime necessarily become blurred in the 'real world'\textsuperscript{32}. Although most easily defined as a form of religious hate crime, anti-Muslim hate crime may be motivated by political fears about Muslims as a potential security threat\textsuperscript{33}, or more straightforwardly by racism which then manifests as religious hatred. Anti-Muslim hate crime can in this sense be considered a 'new' form of racism\textsuperscript{34}.

Hate crime is often dismissed as a term used 'tokenistically, politically or cynically [...] as a buzzword de jour or as a box to tick'\textsuperscript{35}, which is perhaps understandable when considering the worrying tendency of hate crime policy structures to 'marginalise the marginalized'\textsuperscript{36}. By constructing a system where some groups gain protection through representation by lobbying and advisory groups while the less-represented miss out, rather than liberating minorities from hate and oppression, hate crime policy can reinforce identity hierarchies\textsuperscript{37}.

Frameworks may also fail to allow for diversity within the broad specified strands. Ahn Lin usefully details the diverse national identities which may come under the umbrella term 'Asian American', for example (Asian Indians, Cambodians, Chinese, Filipinos, Hmong, Japanese, Koreans, Samoans, Thai and Vietnamese) and whose experiences should as such not be homogenized\textsuperscript{38}. When tackling hate and victimization, the deployment of 'generic labels' is almost certain to be counter-productive\textsuperscript{39}.

There is also a tendency – perhaps with the aforementioned exception of the Islamic community – to overlook the capacity of members of minority groups to be perpetrators of hate crime, as well as victims\textsuperscript{40}, as may particularly be the case in domestic or neighbourly disputes featuring hate

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\textsuperscript{22} Fletcher, Alistair, Stephen Wood and Sarah Caines (2017). ‘Initial Assessment of the Westminster Attack on Hate Crime in the UK’.

\textsuperscript{23} Fletcher, Alistair, Stephen Wood and Sarah Caines (2017). ‘Initial Assessment of the Westminster Attack on Hate Crime in the UK’.

\textsuperscript{24} Copsey, Nigel, Dr Janet Dack, Mark Littler, Dr Matthew Feldman. ‘Anti-Muslim Hate Crime and The Far Right’, Teesside University, p. 8.


\textsuperscript{27} Copsey, Dack, Littler and Feldman. P. 21.


\textsuperscript{29} Ganesh (2016). P. 52.

\textsuperscript{30} Awan, Imran and Irene Zempi (2015). ‘We Fear For Our Lives: Offline and Online Experiences of Anti-Muslim Hostility’, p. 4.


\textsuperscript{32} Copsey, Nigel, Dr Janet Dack, Mark Littler, Dr Matthew Feldman. P. 6.


\textsuperscript{34} Awan and Zempi (2015). P. 14.

\textsuperscript{35} Chakrabarti (2016), P. 584.


\textsuperscript{40} Chakrabarti and Garand (2012). P. 504.
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incidents\(^{41}\). Gail Mason has as such warned against a ‘one size fits all’ approach to hate crime policy, and suggests that perpetrators of hate crimes are very often familiar to their victims\(^{42}\).

Identifying potential victims of hate crime remains a difficult task. There is understandably resistance to the term ‘vulnerability’ in hate studies\(^{43}\), and yet those identity characteristics, along with physical circumstances, which may make an individual vulnerable, do need to be examined. Whilst being ‘different’ does not condemn a person to abuse or harassment, there is evidence that to be ‘different’ in certain, for example, rural and conservative environments may be dangerous for particular minorities\(^{44}\).

At a time when cuts to grants and funding, and the recall of crucial public services are putting increased pressure on law enforcement\(^{45}\), police and policy makers must find innovative and efficient ways to examine and tackle hate without ‘marginalis[ing] the marginalized’\(^{46}\). Efforts must be made to re-examine assumptions about, and narrow definitions of, hate crime, and to grant those less ‘visible’\(^{47}\) victims – for example victims of online hate – the visibility they need and deserve.

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### Knowledge exchange

The focus of this collaborative research project was on knowledge exchange, to allow partners to share expertise and learn from one another, facilitate new research, create new knowledge and maximise the impact and influence of the findings.

Relationship building began from the very start and the project had several successful knowledge exchange meetings between the academic and policing partners. A clear plan for visits to both Police Headquarters in Preston and the University of Leeds was established early on, to create opportunities for ongoing planning, discussion, and the sharing of practice and ideas. These regular meetings re-enforced the partnership and fostered a culture of openness, trust and creativity.

The meetings exchanged learning on police recording practices and information systems as well as what is known about hate crime from these data sources. They also allowed for the sustenance of feedback mechanisms, creating scope for change and enhancement to the research approaches and a forum to resolve any challenges arising as the project progressed.

In the initial stages of the project, Lancashire Constabulary hosted a series of knowledge exchange meetings that familiarised academics at the University of Leeds with the data inputting and recording procedures to ensure a thorough understanding of what the police records represent and the respective strengths and limitations thereof. This ranged from the basics of distinguishing between hate crimes and incidents of hate that would be represented in the data (see Figure 1), to more detailed intricacies of how these would be captured and represented in the systems used by the police.

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From this early stage in the project, it was identified that the research could inform Lancashire’s hate crime strategy. It was recognised that that work planned would be important for a number of other reasons; firstly, the Home Office have mandated that surveys on hate crime are to cease; secondly, it was acknowledged that Twitter data add value not only for understanding the prevalence of hate crime occurring (online and elsewhere) but also in the context of hate crime being known to be under-reported with the true extent and nature being unknown to the police.

Resulting from conversations at these meetings, Lancashire Constabulary prepared an extract (1 April 2014 to 31 March 2017) of crime and incident data classified as hate crime to inform further analyses as part of the project.

The knowledge exchange meetings also explored a range of other information held by the police beyond routinely recorded incident and crime data. This included market research Mosaic data and Anti-Social Behaviour Risk Assessment Conference (ASBRAC) data. The latter was deemed less useful for the core aim associated with this project.

The project also exchanged learning between academic partners and policing colleagues about methods for overlaying Twitter data with routinely captured police data in novel ways to develop a richer and more nuanced understanding of the dynamic and changing risks to communities. These objectives associated with the project have been advanced by two key strands of work, presented to the research team at knowledge exchange events in June 2017 and February 2018.

The first was an analysis of Twitter data with which to explore the potential for Twitter data to serve as a tool for monitoring hate crime and community tensions, with a subsequent focus on analysis of results pertaining to Lancashire. The second was analysis of local police data for Lancashire, based on an extract of operational crime and incident data from 1 April 2014 to 31 March 2017).

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48 Mosaic divides the UK population into 15 Groups and 66 more detailed types. It uses over 400 data variables and paints a unique picture of UK consumers based on their demographic characteristics, lifestyles and behaviour.

49 Anti-Social Behaviour Risk Assessment Conference (ASBRAC) data: data taken from “Harman” the police management system for those persons reported as at risk of harm and require a multi-agency approach to manage their needs and improve their situation.

50 “Understanding of complex anti-social behaviour cases including cases presented at partner risk assessment conference”; Rebecca Eckersley, Lancashire Constabulary, November 2016.
Generating insights into hate crime

Linked with the project aim of identifying new forms of data and analytical techniques for understanding hate crime, the project identified two key work packages to help further understand the profile of hate incidents and crimes in Lancashire. In the first, Chenevoy explored the potential of making use of Twitter data with which to identify incidents on hate online. In the second, Chenevoy examined the profile of recorded hate incidents and the characteristics of victims and offenders as well as the locations of the incidents.

Application of Natural Language Processing to identify online hate on Twitter

A core objective of this strand of the research was to investigate whether online hate on Twitter could be used as a proxy for ‘real life’ hate happening in Lancashire. The ambition of this part of the project was to enable Lancashire Constabulary to harness new forms of social media data (Twitter) for their own analysis of hate crime in the area by applying machine learning.

The research was based on the spatial analysis of tweets sent by people in Lancashire during the study period (December 2015 to February 2017). These tweets were identified based on both the home town displayed on the profile of Twitter users and the precise geo-tags of where the tweets were sent from. In total, 1,246,918 tweets with a home town location and 389,410 tweets with a geo-tag were collected within the boundaries of Lancashire.

Chenevoy used the open source software Python to develop a machine learning algorithm that was able to capture hate speech from Twitter data. This first involved training the machine learning algorithm with tweets that had been manually classified. The accuracy of the trained algorithm was then tested on new tweets for which the classification outcome was already known, using a 10-fold cross-validation method.

Spambots (autonomous program designed to publish tweets automatically) were also identified and tweets sent by these removed before analysis.

Once the classifier had shown a reliable level of accuracy, it was used to identify those Lancashire tweets containing hateful speech.

- A total of 98 geo-tagged tweets were found to contain hateful speech amongst the 194,574 geotagged tweets in Lancashire.
- A total of 3,903 tweets with home town location were found to contain hateful speech amongst the 1,189,066 tweets with home town location in Lancashire.

The identified hateful tweets were displayed on density maps at county and street level. The density map in Figure 2 illustrates geo-tagged hateful tweets in Lancashire for the study period.

![Figure 2: Density map of geotagged hateful tweets in Lancashire for the study period](image)

Whilst, the limited number of tweets with geo-tags identified as hateful by the classifier does not allow for as meaningful a geographical interpretation when considered at individual town level, this work revealed that it is possible to create an English language classifier which accurately identifies online hate speech on Twitter.

As such, the learning from this project has emphasised the valuable information provided by social media data when dealing with under-reported crimes. Twitter produces real time data which can be helpful in generating a spatial and temporal ‘temperature check’ of different localities. The algorithm developed in this project offers the potential to be used by Lancashire Constabulary to monitor levels of hate, thus ensuring resources can be allocated effectively to respond to emerging community tensions.
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Analysis of police-recorded hate crime in Lancashire

The objective of this second strand of the research was to describe the nature as well as spatial density of reported hate incidents and crimes in Lancashire by making sense of the police-recorded data. This was based on the quantitative and spatial analysis of administrative data provided by Lancashire Constabulary.

The data comprised the 6,485 police-recorded hate crimes and incidents which took place in Lancashire during the study period (December 2015 to February 2017), which were shared with academic partners subject to secure data transfer and storage arrangements and appropriate data sharing agreements.

In addition to performing basic descriptive statistics to summarise the data, density maps were produced for various towns of Lancashire (see Figure 3). These maps highlight hotspots of hate incidents, as well as areas populated by a high proportion of victims or offenders.

Some of the key findings from the analysis of routinely-captured police data in Lancashire include:

- The majority of the employed victims work in public facing roles with most of these being taxi drivers (10%) and shop employees (9.5%). This suggests that hate incidents can frequently occur in the workplace/whilst on duty at work.
- 10% of the victims are university students and school pupils.
- 85% of hate crimes and incidents occur at night (between 7pm and 6am).
- Hate crime offenders and victims tend to live in separate neighbourhoods, with most of the hate incidents occurring in the town centre where the two populations meet.

Despite efforts deployed by the police to encourage the reporting of hate crime, under-reporting remains a significant problem. As such, it is crucial to make sense of the crimes that are indeed reported to the police. This research provided Lancashire Constabulary with a clearer picture of the profile of victims and offenders of hate crime as well as where and when the incidents happen (schools and town centre), thus ensuring resources can be allocated effectively.

The learning from this project can be used to re-focus a multi-agency response in tackling hate crime in Lancashire. It has also emphasised the importance of accurate crime recording and application of appropriate analytical techniques.
Outcomes

The project’s primary outcome was to promote and increase the analytical capacity and skills of community safety and police analysts within partner organisations in Lancashire by enhancing their knowledge and skills in using new forms of data when conducting analyses of hate crime. This was done to equip them to illicit insights into the dynamic and changing risks to communities and profiles of hate crime perpetrators and victims. The project introduced analysts to a rich and wider range of complimentary data sources and methods for developing a more nuanced understanding of hate crime, which will subsequently enrich and inform their strategic and partnership intelligence assessments. This programme of work was directly linked into Lancashire Constabulary’s ongoing work aimed at understanding levels of hate crime; a priority identified in their recent strategic assessment.

The project's key output was the development of an algorithm for identifying hateful incidents in textual social media data. This allows the Constabulary to monitor levels of hate in the locality, thus ensuring a response can be deployed effectively before there is an escalation of harm. The algorithm and its source code (https://github.com/mednche/Hate-Crime-Project) was accompanied by an internal methodological report for Lancashire Constabulary’s own ongoing use and further development.

The project developed the project team’s skills in using new data sets and methods which can later be transferred to other areas of strategic priority or other crime ‘problems’ both in Lancashire and beyond, as similar learning can be adopted and applied in other police services or potentially be scaled up and applied nationally. It can also be adapted and modified for use on other sources of textual and social media data.

The findings can thus help inform evidence-based policing on a wider scale and will therefore continue to be shared with other N8PRP institutions, disseminated via presentations at policing conferences. Learning is being disseminated across the N8PRP in training events associated with the Data Analytics Strand, which reaches 11 police services. Moreover, lessons learned in Lancashire will have transferability to other police services and assist HMIC in identifying barriers to reporting and how police can better respond to incidents of hate crime.

As well as working towards methodologically interesting and practically useful findings, the collaboration has provided an opportunity to better understand the infrastructure and analytical techniques used by Lancashire Constabulary, and the processes involved in data sharing. A key ingredient to sustained collaboration between academic institutions and policing partners.

The outcome of this unique project has been used to re-focus a multi-agency response in tackling hate crime in Lancashire. And, it has been used to emphasise the importance of accurate crime recording and application of appropriate analytical techniques that is often missing from crime analysis.

Our achievements have been evidenced by ongoing feedback from policing partners on the project as well as at a joint presentation of its findings at an international conference in California (US) and notably an associated International Association for Law Enforcement Intelligence Analysts (IALEIA) award to Natacha Chenevoy for outstanding contributions to the analytical profession. This further indicates the international relevance and interest in the project.

As well as up to 23 further analysts employed by the Constabulary and Safer Lancashire.

Figure 5 Keay (left) and Chenevoy (centre) collecting their awards at the IALEIA conference 2018
Chief Inspector Ian Mills from Lancashire Constabulary remarked that "developing a clear evidence base [...] has allowed us to be more scientific with our targeting of education / media response". He also suggested learning from the project would be shared country wide community safety colleagues, whilst locally lessons regarding data sharing and data quality have resulted in some further developmental work. One of the Partnership Intelligence Analysts involved in the project suggested findings were of value in promoting awareness campaigns and services in "not only those [areas] brought to the attention of the police, but also those where social media highlights activity". The Victims and Vulnerable People Officer from the Office of the Police and Crime Commissioner for Lancashire remarked on the rigour of the method: "While any system will never be 100% perfect, I was impressed by the process used to develop the ability to identify hateful tweets." He also made suggestions for how the research could be developed further and interesting avenues for further research; such as further analysis on the terminology victims use to describe their experiences of hate crime.

The success of the project is further indicated by mentions in Strategic Intelligence Assessments and other internal reports. Lancashire Constabulary also showcased this work at a conference and workshop in early 2018 (the latter was run as part of a regional event raising awareness of hate crime). Both dissemination activities were aimed at galvanising partnership activity in tackling hate crime. At these events, the background to the project, an introduction to the methodology and findings from the research was presented by the research team to a wider community safety partnership audience and those providing support services. The learning from this project will assist crime prevention and community safety partners to target finite resources more effectively to prevent hate crime and provide suitable services for victims by targeting communities of greatest risk of hate crime.

52 The analysis and research undertaken for these assessments are important elements of the evidence base used by partnerships when determining priorities, formulating policies and commissioning services. Such assessments impact on the practical delivery on the ground and promote end user support (in this case victims of hate crime). Such assessments also inform the nature of policing strategies employed with which to detect and prevent hate crime and how services are commissioned.
The project team and partners

Dr Carly Lightowlers
Principal Investigator, Department of Sociology, Social Policy and Criminology, University of Liverpool

Carly is a Senior Lecturer in Sociology, Social Policy and Criminology at the University of Liverpool. She completed her degree in Criminology at the University of Lancaster and MSc in Research Methods and Statistics at the University of Manchester. Carly has held research positions in local government and worked as an Alcohol Researcher for the Centre for Public Health at Liverpool John Moores University. During her ESRC-funded PhD studies at the University of Manchester, she also held an internship in the Home Office’s Research and Analysis Unit. Carly has held academic posts at Liverpool John Moores University and the University of Leeds before joining the University of Liverpool in 2017. Whilst at the University of Leeds she contributed to delivery of the N8 Policing Research Partnership’s Data Analytics strand and developed this project.

Dr Nicolas Malleson
Co-Investigator, School of Geography, University of Leeds

Nicolas is an Associate Professor in Geographical Information Science and a member of the Centre for Spatial Analysis and Policy (CSAP). His primary research interest is in developing spatial computer models of social phenomena with a particular focus on crime simulation.

Natacha Chenevoy
Leeds Institute for Data Analytics (LIDA) Intern, University of Leeds

Natacha has an Engineer’s Degree in Biotechnology from AgroParisTech - Institut des sciences et industries du vivant et de l'environnement, in addition to an MSc in Bioinformatics and Biostatistics from the Université of Paris-Saclay. Her previous roles include working as a Data Scientist for Visualwind, developing the back-end features of the WindSync™ asset supervision software. A previous internship with the Leeds institute for Data Analytics (LIDA) focused on a genomic approach to understanding the cause of mass mortality events in Saiga antelope (bioinformatics). Natacha is currently undertaking an ESRC-funded PhD exploring the use of machine learning and agent-based modelling in applied social simulations.

Fiona Blair
Project Officer, School of Law, University of Leeds

Fiona has worked at the University of Leeds in various research, project management and communications roles since 2008. Prior to the University, she worked in the voluntary sector as a Children's Rights and Advocacy Worker for 10 years, in addition to diverse roles covering film making, administration, community work and research. Fiona graduated with a BA (Hons) Geography from the University of Leeds in 1988 and has since obtained qualifications in photography and advocacy. In addition to supporting the Sharing insights on hate crime project in the School of Law, Fiona is the Communications Administrator for the School of fine Art, History of Art and Cultural Studies.
Sharing insights on hate crime:
New methods and forms of data

Scott Keay
Data Analytics and Insight Manager, Lancashire Constabulary
Scott is employed by Lancashire Constabulary where he has worked for 19 years. His previous roles include criminal intelligence and community safety partnerships. He is currently a PhD candidate researching how the police identify, define and respond to vulnerability.

Rebecca Eckersley
Partnership Intelligence Analyst, Lancashire Constabulary
Rebecca is a Partnership Intelligence Analyst at Lancashire Constabulary. She competed her degree in Criminology at the University of Central Lancashire. Recently she completed an Assessment Report on Anti-social Behaviour in Lancashire highlighting the harm it has on vulnerable people and its relation to hate crime. For this work and the impact it had on services and the community, she was awarded a Professional Service Award from the International Association of Law Enforcement Intelligence Analysts and won the Best use of community safety or police research award from the Local Area Research and Intelligence Association.

Ryan Bretherton
Senior Business Intelligence Analyst, Yorkshire Ambulance Service
Ryan is currently employed at Yorkshire Ambulance Service as a Senior Business Intelligence Analyst. Previously he was employed at Lancashire Police for 15 years with his most recent role there being Satisfaction & Analysis manager. He has a background in data analysis, research & survey analysis and data audit & compliance.

Katharine Stone
Performance Analyst, Lancashire Constabulary
Katharine prepares and delivers products and reports in support of managerial, operational and organisational decision making, applying statistical techniques where applicable to draw inferences. She is a data specialist engaged in end to end support including providing advice about existing database structures, extraction, transformation, modelling and presentation of data. She has worked with both internal and external partners to develop insights into crime and disorder.

Ian Mills
Chief Inspector / Corporate Development, Lancashire Constabulary
Ian is a Chief Inspector with Lancashire Police with 28 year’s service. He has thematic responsibility for the Constabulary’s operational and partnership response to hate crime, equality and diversity and work force representation. Ian’s work includes the chairing of the Lancashire Strategic Hate Crime and Cohesion Board developing and implementing a Lancashire wide Strategy for hate crime, the introduction of public led hate crime scrutiny panels as well as the introduction of victims groups such as the Transgender Critical Friend Advisory Group in order to better improve the policing service.

Faith Pascale
Intern, Lancashire Constabulary
Faith Lucas is a Masters student with Edinburgh University and a volunteer with Lancashire Constabulary who undertook a literature review on hate crime.
Further Information

N8 is a partnership of the eight most research-intensive universities in the North of England: Durham, Lancaster, Leeds, Liverpool, Manchester, Newcastle, Sheffield and York.

The N8 Policing Research Partnership (N8PRP) enables research collaborations that help address the problems of policing in the 21st century. As a regional hub for research and innovation in policing it provides a platform for collaborations between universities, Police and Crime Commissioners (PCCs), Government, police forces, and other partners working in policing policy, governance and practice. Read more at [www.n8prp.org.uk](http://www.n8prp.org.uk)

Founded in 1839, Lancashire Constabulary covers some 2,000 square miles. The county has a population of nearly 1.5 million with a rich diversity of communities, all with specific policing needs.

Safer Lancashire supports and coordinates the work of all Community Safety Partnerships across Lancashire.

LIDA brings together over 200 researchers and data scientists within the University, from various disciplines including medicine, biological sciences, geography, transport studies, mathematics and many more. [www.lida.leeds.ac.uk](http://www.lida.leeds.ac.uk)

The LSSI is a large, vibrant research Institute that works to support and enhance the Social Sciences at Leeds. It fosters interdisciplinary and international research collaborations, promotes relations with external partners in the public, private and third sectors and builds capacity through the provision of training and skills development for the next generation of research leaders. [www.lssi.leeds.ac.uk](http://www.lssi.leeds.ac.uk)

The project brings together academics from the School of Law and School of Geography at the University of Leeds. [www.law.leeds.ac.uk](http://www.law.leeds.ac.uk) [www.geog.leeds.ac.uk](http://www.geog.leeds.ac.uk)

The project was led by Dr Carly Lightowlers, now based in the Department of Sociology, Social Policy and Criminology at the University of Liverpool. [https://www.liverpool.ac.uk/sociology-social-policy-and-criminology/](https://www.liverpool.ac.uk/sociology-social-policy-and-criminology/)