A Need for Analysis

Evaluating a Continuing

Professional Development

Programme for Police

Data Analysts

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Key messages

Overview

In 2018, a team of academics and police practitioners led by Leeds and Lancaster universities developed a 6-month, 8-session Continuing Professional Development programme for police analysts. In the first cohort (in 2018), 34 data analysts from 11 partner force areas in the north of England undertook the course[1]. This report focuses on a qualitative evaluation of this cohort's experience, with interviews held at the completion of the programme and after one year. Twenty analysts were interviewed. Interviewees came from all 11 partner forces. They worked in a variety of analytical roles. The vast majority were experienced police analysts (4-17 years).

Analysts' routine work within forces

- Across all roles, analysts' workloads were heavy with processes and outputs clearly specified.
- Analysts felt pressured to produce brief, simplistic reports. Robust methodologies were not understood by reports' consumers; data visualisation and dashboards were essential.
- An '"it's gone up" or "it's gone down" mentality' amongst senior officers meant that statistical tests and analytical techniques were not valued.
- Some analysts had no autonomy within their role. They could not envision change.
- Others had limited creativity, often limited to cosmetic decisions (not analytical techniques).
- A handful of analysts described genuine analytical creativity in their role. This group were supported by organisational measures, including protected development time.

The CPD programme

- Nearly all analysts were excited about commencing the CPD programme. Training opportunities are rare.
- Interviewees widely praised the teaching team, but struggled to apply learning.
- Some found the teaching too difficult; others too easy; others could not relate it to their role.
- Analysts struggled with taught software. Installing software on police computers took months.
- Learning outcomes did not always fit with analysts' working priorities (e.g. simplicity, visualisation). This made it harder to 'sell' new practices or processes in force.
- Police data were rarely used, making it harder for analysts to see direct relevance to their work.
- On returning to work, analysts often struggled to find the time to apply new techniques.

Impact

- Specific examples of applied learning or actual (rather than planned) changes in practice were hard to find.
- More often, interviewees described expanded horizons and feeling better informed.
- Analysts in about half of all force areas had contacted one or two other analysts to share data, collaborate on specific issues, or seek information about software. Few contacts were ongoing.
- Engagement with the online forums is minimal.
- Very few analysts subsequently engaged with other N8 PRP information or events.

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[1] A second cohort undertook the CPD programme in 2019, with the programme adapted in response to lessons learnt in 2018.

Executive summary

Overview

The N8 Policing Research Partnership (PRP) is a collaboration between 8 research-intensive universities and 11 police forces (and their police and crime commissioners) in the North of England. Its work is organised into 9 activity strands. Each is led by an N8 university. The Continuing Professional Development (CPD) programme described here represents the work of two strands, Data Analytics (Leeds) and Training and Learning (Lancaster), in partnership with police data analysts and other university partners. It arose from concerns that analysts were facing a lack of opportunity and recognition among senior officers of the vital role analysts should be playing in shifting from reactive to proactive policing, especially under austerity. It was hoped that a CPD programme could increase the confidence and skills of analysts to make a substantive contribution to their forces; whilst also demonstrating to chief officers the (potential) value of their analytical workforce.

Within this context, strand leads from Leeds and Lancaster conducted a Training Needs Analysis in Autumn 2016. This led to the development of a working group (in Autumn 2017) with paired teams of academics and practitioners developing content for each of eight modules. An academic partner commented:

> 'The initial intention was for each session to be centred on police data with academics demonstrating methods, worked examples and solutions' (email).

In practice, this proved hard to operationalise. Strand leads identified that few forces could secure data for wider distribution, and few analysts (with the exception of partners from Humberside and Lancashire) were willing to present. The resulting pilot CPD course thus had less input from data analysts than had been envisioned.

The first CPD programme – the focus of this report – was delivered over 6 months in 2018[2]. Three free places were offered to each PRP force. Thirty-four analysts attended. Learning resources were kept on a dedicated service (called the Data Analytics and Digital Service - DADS) to support skills development. DADS also facilitated research applications and hosted online forums to support networking and shared problem solving between analysts.

Methodology

The University of York evaluates and monitors the work of the N8 PRP. We focused on the CPD programme for several reasons. It comprised an unusually wide partnership: two N8 universities, several new universities, and all 11 partner forces. It was inherently co-productive, addressing a police concern with a collaborative response. The CPD programme also engaged analysts able to offer critical insights into the application and development of evidence-based policing, and into organisations' engagement with the PRP.

We approached half of the 2018 CPD cohort for interview at the end of the programme, and half one year later. Twenty responded, and participated in 15-26 minute semi-structured interviews. Interviewees came from all 11 PRP partner forces. Nearly all interviewees had worked as police analysts for many years.

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[2] Subsequent iterations have taken lessons from the 2018 programme, for example placing greater emphasis on skills workshops and data visualisation whilst reducing the use of hard-to-access statistical software.

Analysts' routine work within police forces

Analysts worked in a variety of roles. Most produced statutory reports, analysed internal data for performance and business reasons, or worked on specific investigations. When they were used, statistics were descriptive: summarising data with counts, percentages, averages, etc using Excel. Some also used business-oriented tools. Statistical Process Control (SPC), for example, allows analysts to identify when figures fall outside of pre-specified levels. One analyst commented:

'[W]e do use SPC and statistical limits and significance and things like that depending on just what the product is.'

Patterns were mostly identified visually or manually, not through statistical tests. Very few analysts sought to identify the significance of reported findings; and the probability that they might have arisen by chance. This was partly because senior officers valued simplicity and brevity, disliking nuance or statistical terms. Many analysts reflected along these lines:

'They only really want the bullet points… One side of A4 at most… They don't want to know what the p-value was, they just want the "yes or no, did it work and what can we improve"?'

Because statistical techniques were not understood by senior officers they could not be referenced in reports. Because they could not be used in reports, they were not highly valued by analysts' institutions.

These analytical limitations were compounded by restricted, heavy workloads. A handful of analysts had genuine creativity within their role. They were supported by organisational measures such as protected development time. A much larger group had a small amount of creativity – often limited to appearance:

'…the way you lay out dashboards and how you design graphs and charts to be clear and informative and … visually appealing.'

A final group had such heavy and defined workloads that they had no creativity at all. They could not envision new ways of working, or room to apply new methods. The limitations placed on analysts suggests a need for organisational reform, with training focused on three key areas: maintaining and developing analysts' skills; empowering analysts to be more confident in deploying their skills; and supporting greater managerial understanding of analysts' skills and potential. Insofar as such change requires a cultural shift, this may be a generational project.

The CPD programme

Nearly all interviewees were excited about engaging with the CPD programme. Training opportunities are rare; this one was seen as high value. The teaching team was praised for their ability to engage practitioners.

However, analysts found it hard to apply learning from the course to their work environments. Variations within the cohort created challenges. Some found the teaching too difficult:

'There was a lot of "just copy and paste this code in and press enter and that's what you'll get." I didn't understand why I was typing what I was typing.'

Others found it too basic. Still others could not relate it to their workload:

'[The CPD course] was interesting, and I learnt a lot, but it does make you realise that I, perhaps, don't have the opportunity to use it in my current role.'

Applicability was further limited by software. Three early sessions used R, a statistical programme:

'We spent the time training to do a bar chart on R that took longer than Excel, didn't look as good as it did on Excel, and we're not going to get R anyway, so what was the point.'

Three problems are set out here. Firstly, learning R was arduous. Some training involved considerable work to learn functions that felt redundant. Secondly, R's outputs were not beautiful. Senior officers (and so their institutions) value visualisation. This made R harder to 'sell' institutionally. Finally, R was inaccessible. Whilst the programme is cost-free and open source, police computers are highly protected and IT departments busy. The swiftest forces took several months to install R. Citing security concerns, some would not install it at all. Teaching consequently felt abstract and theoretical. Indeed, R highlights a cultural divide. It fits the needs of autonomous, time-rich, flexible and expert-led academics prioritising robust knowledge-driven analyses. It proved a poorer fit for managed analysts in an inflexible, high-pressured, hierarchical environment where the priority is 'visually appealing' simplicity.

Two final points confounded applied learning. Firstly, security concerns prevented analysts from bringing sanitised datasets to sessions. This was a real disappointment for both police partners and academic leads. Analyses were thus taught using example datasets that rarely reflected analysts' work, increasing the gap between teaching and practice. Secondly, when analysts returned to work they lacked the time to test out or implement new techniques.

Impact and legacy

After a year, we found it hard to identify examples of specific, applied learning. Analysts were not using new techniques. Nor were they using new software (though some intended to adopt R). There were some more diffuse benefits. Several interviewees felt better informed about the analytical landscape:

> 'I think we're a lot more mindful of the right way to do things and the principles and the skills that we need to employ. I think it's expanded our knowledge across systems and open sources.'

This was useful when commissioning new work, or engaging with outside organisations. There were also some individual changes. One analyst reported using descriptive statistics more frequently.

Interviewees in about half of all forces had contacted peers. These were usually one-off contacts with one other force, centred on: sharing data; discussing shared problems (particularly knife crime); or seeking support with software:

> 'There have been an occasional couple of emails… We've contacted other analysts that were on the course, just for their input or vice-versa, they've contacted us.'

A contacts list facilitated such discussions. Those analysts who had not made contact with their peers fell into two groups. Some saw value in networking, but had not yet had the time or inclination to do so. Others could imagine little or no benefit in speaking to other analysts.

We found limited evidence of the online service (DADS) supporting impact. During initial interviews, one analyst was accessing learning resources using DADS. After one year, none were logging on. The forums are largely unused. As of November 2019, of six questions that have been posted none has received a reply. DADS can also process research applications, and analysts felt that any submissions would be seen in force. Finally, analysts were not engaging with PRP information or events. A couple received the PRP newsletter. Very few had been to PRP events. Some confused the N8 PRP with other research partnerships.

Conclusions

This report details an evaluation of an initial experimental CPD programme for police data analysts. Analysts and academics worked together to develop the programme. Many of the academics had previously worked for the police; many analysts had academic backgrounds. Despite this wealth of shared experience and positive feedback on teaching, we were able to identify very little impact on practice after one year. Difficulties appeared to be cultural. Teaching used cutting-edge open-source software to demonstrate advanced techniques, premised on the assumption that robust methods were institutionally valued by police partners, and analysts had some flexibility within their workload. Contrastingly, analysts were unable to secure software. Some could not understand the techniques taught, and others could not see how it applied to their role. Few had the space or time to trial new techniques. Additionally, robust methods were not valued by their senior officers who required simplicity, brevity and visual appeal as the cornerstones of reports. Isolated analysts thus returned to work environments lacking the software, support, or influence to deliver improved reports (and so enhanced decision-making) in their home contexts. The College of Policing have commended the approach taken by the CPD programme and are taking forward more proactive work informed by their interest in the CPD programme; yet this evaluation suggests that practice realities often remain at some distance from ideals. Targeting cultural change with sustained momentum appears essential, if academic ideals are to be applied within a policing world.

About this report

Professor Charlie Lloyd and Dr Geoff Page are joint leads of the Evaluation and Monitoring activity strand of the N8 Policing Research Partnership. This four-page summary has been written by Dr Geoff Page, who conducted fieldwork, interviews and analysis for the CPD programme evaluation. More information can be found at https://n8prp.org.uk, including the full-length version of this report and information about the development of the CPD programme.