The Construction of DNA Profiling Evidence Within Public and Private Models of Forensic Science Provision
Richmond, Karen

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Introduction

The United Kingdom forensic science sector has undergone significant development in recent years. Following the closure of the Forensic Science Service, provision in England and Wales is now delivered by way of a commercial market. Similar provision in Scotland and Northern Ireland remains within the public sector. Meanwhile, many police forces choose to operate additional ‘in-house’ laboratories.

In all parts of the UK, forensic science provision has become productised, and police forces have re-oriented themselves as consumers. As such, they have become increasingly concerned with economic value. Meanwhile forensic science providers have been tasked with maintaining a high-quality service that conforms to a body of overarching regulations. Studies suggest that these commercial developments have had a particular impact within the field of forensic DNA analysis, and may affect the way in which DNA evidence is constructed.

This research project explores the impact that these changes in policy and governance have had on the routine practices of forensic DNA experts in different parts of the UK, with a particular focus on the construction of analytical reports. The purpose of this comparative study is thus to gain a clearer understanding of the ways in which providers have responded to changes in governance and policy, and to assess the practical effects of resulting adaptations. It attempts to identify examples of best practice, whilst highlighting significant trends, problems and opportunities.

Aims, methodology and theoretical perspectives

The construction of DNA profiling evidence begins at the earliest stage of a criminal investigation. Police officers collect particular items of evidence in accordance with both investigative protocols and their own experience. Crime scene technicians begin the process of turning the physical, material scene experience.

The researcher also made use of the ‘shadow report writing’ technique developed by Halliday, et al. (2008).

The study draws on autoethnographic theory, Science and Technology Studies, Foucauldian theories of governmentalities, and the comparative sociology of forensic science. It is an attempt to allow for a deeper understanding of the extent, if any, to which commercial imperatives may alter the nature of forensic analysis; identification of examples of best practice in forensic DNA analysis and evaluation; and greater appreciation of the respective strengths and weaknesses of public and private models of forensic science provision; and a richer understanding of the ways in which innovative and customer-focused business models may benefit, or disbenefit, the criminal justice system.

The Hierarchy of Propositions

The construction of DNA profiling evidence within public and private models of forensic science provision.

Forensic Science Provision in the UK and Northern Ireland

1. Forensic Science Northern Ireland (FSNI), a public sector agency within the NI Department of Justice.
2. Scottish Police Authority (SPA) Forensics, a public sector police police force.
3. A private sector market in forensic services, comprising:
   a) A primary market of four large ‘Tier 1’ providers who regularly bid for work from individual police forces and regional consortia (LGQ, Key Forensic Services, Cellmark and ESG).
   b) A secondary market of a dozen ‘Tier 2’ providers. These specialise in ‘defence’ work. They also support and review the work of Tier 1 providers.
   c) ‘In-house’ police laboratories in almost all of the 43 police force regions in England and Wales.

The construction of DNA profiling evidence

The Bayesian approach. This typical explanations. Attribution level attributions may be completely disbenefit.

Activity Level: Miss X is the person who stabbed Mr Y.

Source Level: The Blood on Miss X jacket is Mr. Y's.

Sub-source Level: DNA in sample Z comes from Mr. Y.

The theorems which the scientists may derive from a DNA analysis depend on the questions that (s)he asks. These questions – or Bayesian propositions - fall into four major categories, which together form a 'hierarchy of propositions'. Sub-source (Level III), Source (Level II), Activity (Level I) and Offence (Level III). Level 0 and I propositions are made from observations, measurements and analyses. The prosecution proposition will be determined from a comparison between two samples, and the defence proposition will be determined by considering one of these samples in reference to an external population (such as the allele proportions in a reference database).

Level II propositions relate to activities. They too are based on observations, measurements and analyses. However, in order to construct an activity proposition the scientist must take account of the circumstantial framework. The scientist will need to exercise judgement in relation to the construction of Level II propositions and will require as much information as possible regarding the circumstances of the case. This will entail some degree of interaction between the forensic scientist and the investigator or prosecutor. Level III propositions relate to the ultimate probandum. The scientist may address this question but must not attempt to answer it. In order to address higher level propositions, the scientist requires additional skill, thinking time and contextual information. Communication with the investigative authorities is therefore key.

The reconstruction of forensic expertise

The study shows a strong link between the introduction of measures of economic rationalisation and a reduction in the thinking time and investigation on the part of scientists, leading to a marked tendency to triage cases and to avoid activity-level analyses. The study also shows significant differences in roles and working practices between the public and private sector (the latter marked by de-skilling and regulatory objectivity). The study supports the view that the ultimate goal of economic rationalisation of forensic expertise has not been commoditisation. Rather, it has been based around the reformation of attitudes and behaviours in conformance with ‘economic rationality’.

Within the forensic science sector, such processes have led to a disruptive crisis of governmentality, brought about by a confrontation between the relational needs of forensic experts, and the realities of legal fact finding. Thus, marketisation and commoditisation have served to disrupt ‘expert’ forensic networks, but the ultimate purpose of such disruptive interventions has been to render techno-social networks open to economic reforms aimed at reconstructing the roles and identities of individual forensic scientists themselves.

Selected Publications


Contact

Karen Richmond LLB(Hons), LLM, DFMS, ACSFS
karen.richmond@strath.ac.uk
Faculty of Humanities & Social Sciences
Loraine Hope Building
141 St. James’s Road
Glasgow G4 0LT