

A translational forensic approach to justice challenges

The Egas Moniz Forensic and Psychological Sciences Laboratory (LCFPPEM) is developing a translational approach to deal with 21st century justice challenges. The team aims to promote a stronger link between scientific achievements and judicial system that better suits contemporary European citizens



Science has been supporting contemporary society in most of its contexts, such as health, economy, industry and justice, among many others. When focusing on justice systems this has been a critical pillar of modern societies, allowing the emergence of complex civilizational networks and the current globalisation. In the 21st century, science has supported justice systems via the development of guidelines, technics and methods to help judicial decision making. However, the density of present civilizational trends brings additional challenges to justice systems. This new paradigm demands a stronger link between justice and science that allows for the development of specific strategies and solutions which take into consideration the values and dynamics of present societies. In this context, specific scientific routes have been promoted by some higher education institutions, which, in a direct link to justice institutions, are permitting to find better solutions for new and existing issues.

The contributions of the different scientific areas

Forensic sciences belong to the vast field of applied sciences and are characterised by the convergence of different areas of knowledge which support criminal investigation and judicial decision making. Amongst the exact sciences which contribute to the forensic field, chemistry, biochemistry, and biology have been playing a major role in analysing crime scene physical evidence and turning this into admissible evidence in court.

The principal scientific areas that are supporting the justice system include toxicology, genetics, questioned documents, handwriting, palynology, entomology, anthropology, and criminalistics. However, times are changing and new scientific areas are joining the forensic field as new challenges emerge. Here, the environmental

sciences and digital and computational sciences are growing, coming to occupy, presently, a significant position amid the expert reports requested by the justice system.

Indeed, there is a vast amount of research and development in forensic sciences at higher education institutions that aims to help the justice system in new ways. This new paradigm is bringing together, even more, R&D institutions with justice system.

Forensic psychology

Forensic psychology is an applied area of psychology that deal with aspects of human behaviour related to the law or justice system and aims to answer several issues related with expert witness and credibility of testimony, violence risk assessment, and victim and offender interventions and treatment. In its own right, forensic psychology is a pillar to contemporary justice decision making, and this particular scientific area has proved decisive in contemporary justice systems by providing expert witness reports which support decision making in court and by developing solutions to treat and integrate offenders, prevent violence, and support victims of crimes.

In addition, forensic psychology plays an important role in the training of professionals in the justice system in specific competences, such as victim and offender interview techniques, communication strategies, the identification of violence risk, protective factors associated to specific typologies of crimes, and victims vulnerability factors. As a justice supportive science, forensic psychology relies on R&D to find novel solutions within its scope of intervention.

Egas Moniz Higher Education School

The teaching and research of forensic sciences and forensic psychology in Egas Moniz Higher

Education School has been strongly linked with the Portuguese justice system since the very beginning. During the first years, the focus of the school's forensic staff was to learn the daily issues of the principal actors of the justice system. This step was critical and has also involved the creation of a European network, later a worldwide network, of forensic scientists and experts in order to have a broader perspective of the issues and solutions found in the different justice systems.

The European Commission has supported these efforts through its Education, Audio-visual and Culture Executive Agency, allowing the development of a true European Forensic Science Master under the umbrella of the Erasmus Mundus program (see: https://eacea.ec.europa.eu/erasmus-plus/emjmd-catalogue/master-in-forensic-science_en) which brought a wide variety of specialists in the main areas of forensic sciences – including analytical chemistry, legal medicine, botany, pharmacy, entomology, anthropology and molecular biology – and professional organisations and practitioners to train students in good forensic practice from the laboratory to court. This experience enables the gathering of information about the use of forensic sciences by different justice systems and the major issues forensic scientists, prosecution, defence and courts face in each system.

Developing solutions

The next step was to develop solutions for the issues reported by the actors directly involved in the justice system. The search for solutions was promoted by research carried out in a European forensic science context where PhD and Master's students work to develop investigations aimed at shedding light on particular forensic problems put forward by the justice system. The scientific projects here covered a wide range of fields of knowledge, from psychology to analytical chemistry, passing through forensic microbiology



and novel psychoactive substances (NPS), amongst many other areas. It is worth mentioning here that the European Commission lent their support by funding the project 'Identification and assessment of new psychoactive substances: An European Network' (see: Home/2014/JDRU/AG/DRUG/7086) with the purpose of identifying and assessing NPSs, promoting awareness in consumers, and contributing to the implementation of EU law instruments and policies.

Implementing the solutions

The last step was to implement the solutions developed by our research staff into the justice system. The first direct link established between academia, the justice system, and law enforcement was the creation of an office of forensic psychologists with skills in violence risk assessment to deal with victims of domestic violence and sexual assault. The 'Gabinete de Informação e Atendimento à Vítima' (Victims Information and Assistance Office) is a pioneering project of the Egas Moniz Higher Education School, implemented in 2011, where forensic psychologists work within the prosecution attorney's office and has answered to several hundreds of cases, thereby supporting decision making. This unique example fills a gap in the application of the Portuguese law 112/2009 of 16 September, which aims to create the aforementioned support for victims in the prosecution offices and/or police stations.

Extending our experience

The proficiency gained by this partnership in the forensic psychology area has leveraged the Egas Moniz Higher Education School to extend this experience to other areas of the forensic sciences. With this in mind, in 2014 the Egas Moniz Forensic and Psychological Sciences

Laboratory (LCFPem) was created to apply all the knowledge acquired by forensic research in the Egas Moniz Higher Education School to the justice system.

This has started a paradigm shift within the Portuguese system where a non-governmental partner was officially recognised by the judicial institutions to perform forensic expert reports in psychology, analytical chemistry and toxicology, genetics, microbiology, questioned documents, and handwriting analysis. These non-governmental forensic services complement the well-established existing governmental forensic services and also provide an answer to the challenge imposed by the changes in Portuguese law allowing counter-expertise outside the governmental and police laboratories.

Projects

There are several on-going projects that have seen the light after this translational approach that bring real-life forensic problems to the bench and then on to casework. For example, the 'Assessment Guidelines for Elder Domestic Violence' (AGED) project, along with non-governmental and governmental institutions, provides a systematic approach to risk and protective factors of neglect and violence in elderly people. The public prosecutors service has stated that the assessments made in the context of this project were key in defining restraining measures and also mentioned that the LCFPEM is a showcase of a good and balanced co-operation between academia and justice.

In the field of forensic toxicology, a high throughput methodology to screen the impact of novel psychoactive substances toxicological was developed to answer the NPS issue. This solution

was presented to the European Monitoring Centre for Drug and Drug Addiction. Furthermore, a gunshot residues project in the context of criminal investigation is being developed alongside the metropolitan police in order to solve gun crimes more swiftly.

The Egas Moniz Higher Education School has also created original forensic degrees and is now a well-established institution in the fields of forensic sciences and forensic psychology. Besides the BSc and Master's courses, it has also developed advanced training for justice system professionals.

The pragmatic approach to understanding the real life problems of both society and justice professionals has allowed us to develop a problem-focused research programme for current and emergent issues in contemporary society.



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