UCL

POLICY IMPACT UNIT:

OUR FIRST TWO YEARS

Forewards	**1**
PIU in numbers: the first two years	**2**
About the PIU	**3**
Our approach	**4**
Why engineers?	6
Why STEaPP?	7
The team	**8**
Summary of activity	**9**
Highlights	**10**
Gender and the Internet of Things	11
Future Targeted Healthcare Manufacturing Hub	14
Vax-Hub	16
Dawes Centre for Future Crime	18
Neuromorphic Computing	20
Other activities	**22**
Training	22
Pilot projects	22
Global Policy Fellows	22
Co-development	23
Working with Centres for Doctoral Training	23
Looking ahead: strategy and priorities	**24**
Acknowledgements	**25**
References	**26**

FOREWORDS

At UCL, generating positive societal impacts is central to our mission of being a world-leading research university. The value of our academic excellence lies in how we are able to inform and influence the world around us, from academic impact to impact on policy professionals and the global community. In transforming discovery into practice, we are able to fulfil our mission of being a force for good and enabling people to live healthier, more sustainable lives.

Our institutional Public Policy Strategy sets out our vision for embedding public policy engagement across UCL in order to bring cross-disciplinary expertise to bear on public policy challenges. The work of the Policy Impact Unit in the Faculty of Engineering Sciences is helping to build and foster relationships with policy professionals and supporting academic experts to form new partnerships with public policy stakeholders to inform their work, respond to challenges and support the development of evidence-informed policy. In turn, these collaborations enable our researchers to better understand and respond to these challenges, increasing our societal reach and impact.

The last two years have demonstrated both the importance of evidence and expertise in public policy, and the obstacles involved in ensuring that academic insight is accessible and useful to the wider public. Providing expert knowledge brokerage and support for public policy engagement, such as that delivered by the PIU, are increasingly critical activities for UCL in order to help us fulfil our role in supporting the development of evidence-informed policy for many years to come.

Prof David Price,
UCL Vice-Provost (Research)

Credit: Shaun Waldie

In 1827, UCL founded the first laboratory in the world devoted to engineering education. Over 190 years later, we are still at the cutting edge of the discipline, home to some of the most successful engineering departments in the UK. At its heart, engineering is about finding practical solutions to problems. Our aim is to change the world and our researchers are tackling some of the world's biggest problems – from improving medical treatments, to tackling climate change, to keeping people safe online. Of course, this year, the COVID-19 pandemic has been an important focus for many researchers across the faculty and the role of science and engineering advice to government has been brought into sharp relief.

Building relationships with decision makers and wider policy community is key to ensuring that our research has an impact in the real world. At the same time, we need to know how to speak their language and to identify the elements of our research that will have the greatest utility. The Policy Impact Unit has been instrumental not only in opening doors that had previously been closed to us, but the team also brings the ability to construct the conversations in a way that give us real longevity of exposure and, ultimately, impact.

I know from personal experience just how effective the PIU has been in establishing dialogues. As a Faculty, we have set ourselves the strategic objective of undertaking impactful and cross-cutting research, which informs policy setting and decision making bodies, and is recognized as being relevant to society and to our world. The Policy Impact Unit is playing an important role in helping us to achieve this goal.

Prof Nigel Titchener-Hooker,
Dean of the Faculty of Engineering Sciences

PIU IN NUMBERS THE FIRST TWO YEARS (2019-2020)

45+ policy organisations engaged

12 projects across 6 engineering departments

11 policy briefings

13 events

18 consultation and inquiry responses

100+ people trained

24 policy outcomes and impacts

ABOUT THE PIU

Good policy is informed by good evidence; the need to improve engagement between universities and policymakers is well documented. The Policy Impact Unit was established with the goal of increasing the use of the world-class research produced by UCL Engineering researchers in the policymaking process.

Based within UCL's Department of Science, Technology, Engineering and Public Policy (STEaPP), we are a team of professional intermediaries, who have experience of working in both policy and academic contexts. We provide the knowledge, skills and capacity to deliver high quality policy engagement activities.

We collaborate with researchers across the Faculty of Engineering Sciences (FES). Our aim is to improve both the *quality* and *quantity* of FES policy engagement activities in order to achieve robust policies that meet the needs of 21st Century society.

OUR APPROACH

The fields of policy studies and Science and Technology Studies (STS) have increased understanding of how change occurs within the policy system and the characteristics and strategies employed by successful "policy entrepreneurs".

However, studies have also shown that these insights are rarely drawn upon by funders and researchers seeking to influence change.[i] We believe that there are good reasons for this; policy engagement is a time-consuming activity that requires specialist knowledge and skills.[ii] Many academics are unable to take this on, either because they are already severely time-constrained through existing teaching and research commitments, or because they are new to policy engagement and have not yet had time to build up the necessary knowledge, skills and contacts.

Our approach aims to draw on what is known about effective policy engagement and to make this accessible to academics who are seeking to influence policy and/or inform, but who do not have the time or motivation to become fully fledged "policy entrepreneurs" themselves. We do this in the following key areas:

1.

Taking an active and strategic approach.

Passive dissemination (such as simply making a summary of findings available online) and "letting the evidence speak for itself" is unlikely to be an effective route to policy impact.[iii] Instead a much more *active* and *strategic* approach is required.[iv] We use a "theory of change" approach; identifying desired impact goals and developing a strategic package of engagement activities to deliver it.

2.

Building trusted relationships.

Trusted, ongoing relationships between researchers and policymakers are a major facilitator of evidence use.[v] PIU Policy Analysts proactively build and maintain networks and relationships with policymakers in their policy domain. They can then make these contacts accessible to researchers across multiple projects, meaning that researchers can immediately share research without first having to establish contacts. Policy Analysts also help to widen the pool of stakeholders that researchers engage with, for example bringing a social science lens to hard science projects.

3.

Developing "deep knowledge".

Successful policy entrepreneurs have a deep knowledge of the policy system they are trying to influence, including knowing who the key players are, how decisions are made, how policy problems are understood and framed and how to speak the language of the community.[vi] PIU Policy Analysts take on the task of acquiring this knowledge for the projects they work on, which can then be utilized directly in preparing project outputs as well as shared with researchers.

4.

Getting the timing right.

Research evidence has most impact when it is presented during a "window of opportunity".[vii] However, without a deep knowledge of the policy context, such opportunities might be hard to spot.[viii] They often also require the ability to respond rapidly. PIU Policy Analysts work on projects from beginning to end, are able to identify engagement opportunities and have the flexibility to respond to external opportunities whenever they may arise.

5.

Translation and mobilization.

Effective communication is necessary but not sufficient for impactful engagement.[ix] Effective engagement requires more than simply providing a concise summary of findings in plain English. Evidence needs to be relevant to the policy issues of the day; it needs to be presented (or "framed") in such a way that it grabs a policymaker's attention; it should provide a coherent "policy narrative"; and it should use language that is familiar to the audience.[x] In order to do this effectively, specialist skills – including social acuity, making arguments and negotiation – are required.[xi] PIU Policy Analysts possess the knowledge and skills to do this effectively. We lead on producing outputs intended for policymakers, whether that is writing policy briefings, drafting consultation responses, or designing and running workshops.

6.

Thinking about risk.

Engaging with policy is an inherently political act, even for those seeking to act as "honest brokers" rather than "issue advocates".[xii] Engaging naively without acknowledging this brings numerous risks for researchers: credibility within policy circles, reputation within the academic community, the potential to be "used" to add legitimacy and the possibility of wasted time, effort and resources are all at stake.[xiii] Not to mention the impact that poor policy recommendations might have on wider society.[xiv] The PIU provides political wherewithal to help researchers navigate these risks effectively.

7.

Sustained Prolonged engagement.

It is clear that investment for the long-term is necessary to develop the necessary deep knowledge, to build networks and to take advantage of windows of opportunity when they arise.[xv] This is a significant commitment to make, especially as there can be no guarantee that policy engagement activity will lead to any impact (since so much depends on external factors beyond the control of any individual).[xvi] Our aspiration is to employ Policy Analysts on permanent contracts linked to specific policy domains (rather than individual research projects), allowing them to build specialist knowledge and networks within that domain that can be deployed across multiple projects. It also means that they can continue to deliver engagement activity/identify opportunities even after project funding has ended.

'The Policy Impact Unit's policy briefings are accessible and concise summaries of research developments by UCL researchers, highlighting important considerations for Parliament. They have been useful resources for POST's role in bridging research and policy'.

Dr Lorna Christie, Physical and Digital Sciences Adviser, Parliamentary Office of Science and Technology

"We really needed help connecting our great researchers to those in the policy community who would benefit from their work. People in HMG (Her Majesty's Government) seem to move so often that it's a fulltime job keeping on top of newly emerging teams or changes in leadership of those teams. The PIU takes all of that work off our plate. For a very modest investment, we've really accelerated the impact of our work. And having someone very experienced and professional take over that additional workload has been liberating."

Prof Madeline Carr, Professor of Global Politics and Cybersecurity and Director of RISCS

"Undertaking research 'for' policy, by working 'with' policy partners, can be a lot of work! It needs the same academic standard as any UCL work, but then often involves additional work for engaging partners across all stages of the research process. Within the day-to-day realities of a leading research and education institution, this involves a great deal of energy and commitment! And so, having the PIU part of the research team, with their thoughtful contributions to the structuring, coordination and support of these interactions, makes a world of difference to both the quality and experience of applied research!"

Dr Ine Steenmans, Lecturer in Futures, Analysis and Policy

WHY ENGINEERS?

Engineering Sciences is UCL's largest faculty, with 10 departments and 460 academic researchers. Researchers within the faculty are engaged on projects addressing some of the biggest challenges facing society today – including low-carbon energy, transport and buildings, manufacturing medicines and vaccines, cyber security, new medical diagnostics and devices, and reducing plastic waste to name but a few.

A distinction is sometimes made between scientists – who aim to study the world in order to better understand it – and engineers – whose goal is to *make* the world *better*.[xvii] UCL's Faculty of Engineering Sciences certainly subscribes to this idea:

"Engineers turn discoveries into solutions. Whether they are improving medical treatments, houses or transportation, the products, processes and students we produce change the world".[xviii]

Changing the world is also the goal of policymakers, whose work is always focused on improving some aspect of society. This suggests that the two have the potential to be highly complementary.[xix]

Yet, this distinction is often overlooked. The Engineering community have long called for the establishment of Chief Engineering Adviser roles in Government (that would be analogous to the existing Chief Scientific Advisers) but this has not yet come to pass.[xx]

The desire to change the world suggests that engineering researchers are likely to have a great deal to contribute to many contemporary policy issues, but their contributions have perhaps in the past been overlooked in favour of social and physical scientists. At the same time, engineers may themselves not be aware of the valuable contribution they could make to public policy, having perhaps focused more attention on building links with industry. The PIU aims to catalyse better engagement between the two communities in order to achieve robust policies that meet the needs of 21st Century society.

> Making full use of the in-depth understanding and excellent relationships that the PIU has built up, with both members of the Faculty of Engineering Sciences (FES) and the policy community, will be key to the successful delivery of future Public Policy Engagement, an integral part of FES 2030."
>
> **Rear Admiral Neil Morisetti**, Vice-Dean (Public Policy), Faculty of Engineering Sciences

WHY STEaPP?

Based within UCL's Faculty of Engineering Sciences, STEaPP is a natural home for the PIU. The department focuses both on understanding how science, technology and engineering influence public policy as well as applying knowledge to tackling complex challenges like climate change and the impacts that emerging digital technologies have on society.

The PIU is able to benefit from the wealth of knowledge and expertise within the department – to draw on the latest thinking in how research evidence influences policy and best practice for effective engagement. At the same time, the practical activities of the PIU provide first-hand experience and real-world examples that can be shared with researchers and students alike.

> "STEaPP's mission is to transform the relationship between research based evidence and public policy to change policy for the better. The PIU has helped STEaPP researchers as well as those outside the department to achieve impact with policymakers and those who make decisions and the unit is integral to our mission. We are very proud to host and support the PIU."
>
> **Prof Joanna Chataway**, Head of Department, STEaPP

THE WIDER UCL POLICY ENGAGEMENT LANDSCAPE

We work closely with other teams and individuals working as policy intermediaries across UCL. Most importantly, we provide a link for many researchers in the Faculty of Engineering Sciences with **UCL Public Policy**, UCL's central policy engagement team, and founder member of the Universities Policy Engagement Network (UPEN).

For example, we have facilitated access to funding opportunities offered by UCL PP: The workshops on neuromorphic computing (page 21), CAR T therapies (page 15) and the BEIS away day (page 9) were funded though UCL PP's Policy Dialogues funding programme. The Global Policy Fellow pilot described on page 22. was funded through the GCRF UCL Internal Small Grants scheme, managed by OVPR, with input from UCL PP.

We encourage the researchers that we work with to contribute to **Policy Postings** (UCL's PP's blog) We have also collaborated on providing training and helped to disseminate information about Fellowship opportunities across FES.

THE TEAM

Our team shares a passion for ensuring that policy is informed by evidence. We have experience of working in an academic context but also, importantly, of working in policy institutions. This enables us to act as effective intermediaries at the interface of research and policy.

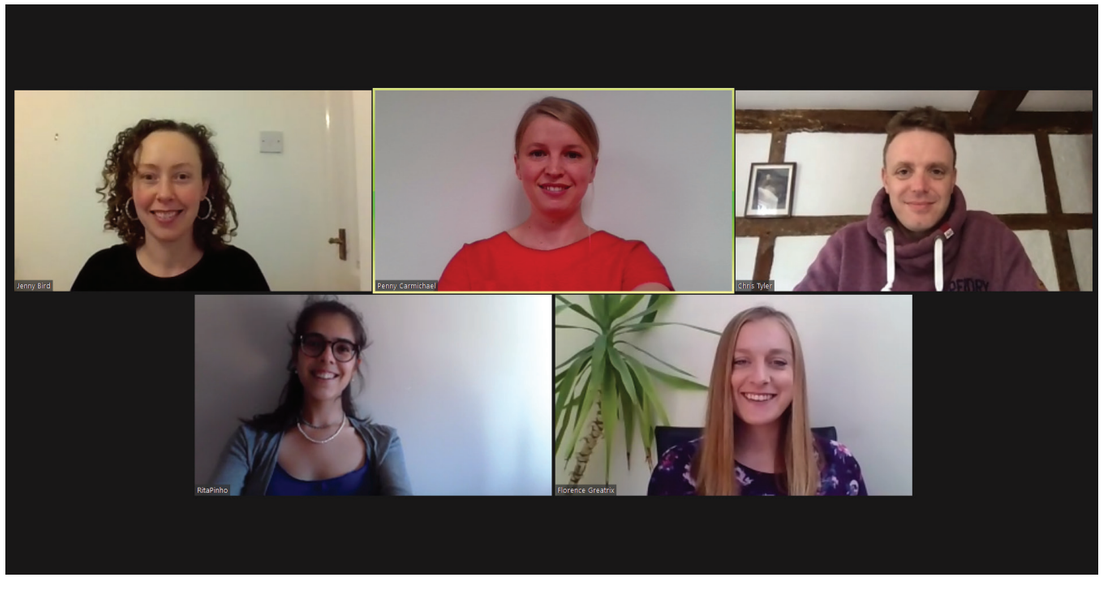
Dr Chris Tyler, Director of Research and Policy in UCL STEaPP. Chris spent five years as Director of the UK's Parliamentary Office of Science and Technology (POST) and before that was the first Executive Director of the Centre for Science and Policy (CSaP) at the University of Cambridge.

Jenny Bird, Public Policy Manager for UCL STEaPP. Jenny has worked as a Senior Specialist for the House of Commons Energy and Climate Change Committee as well as a Research Fellow for the think tank IPPR.

Dr Penny Carmichael, PIU Policy Analyst. Penny was Secretary to the Home Office-sponsored independent advisory committee the Biometrics and Forensics Ethics Group and was Senior Advisor to the Forensic Science Regulator's technical committees. She has also worked as a Policy Advisor within the Department of Environment, Food and Rural Affairs.

Florence Greatrix, PIU Policy Analyst. Florence has worked as a Policy Officer at the Institute of Physics and in the public affairs team at the Royal Society of Chemistry.

Ana Rita Pinho, PIU Policy Analyst. Rita has worked at the Scientific Advice Mechanism of the European Commission as a Bluebook Trainee and was a member of the Executive Committee of the Portugese Association of Researchers and Students in the United Kingdom (PARSUK).



SUMMARY OF ACTIVITY

Since the PIU was established in 2018, we have collaborated on 12 projects with researchers across 6 different Engineering departments.

As described above, our preferred approach is to embed Policy Analysts within research teams for extended periods of time. This allows us to develop policy impact objectives and strategies for achieving them as well as delivering the engagement activities themselves. Where we have been able to work in this way (collaborations marked with an asterisk in the table below) we have more detail about our activities in the following section.

PIU COLLABORATIONS

Research Centre/project	Research lead	Department
*Gender and the Internet of Things	Dr Leonie Tanczer	STEaPP
*Future Targeted Healthcare Manufacturing hub	Prof Nigel Titchener-Hooker	Biochemical Engineering
*The Future Vaccine Manufacturing Research Hub (Vax-Hub)	Prof Martina Micheletti	Biochemical Engineering
*Dawes Centre for Future Crime	Prof Shane Johnson	Security and Crime Science
*Neuromorphic Computing	Prof Tony Kenyon and Dr Adnan Mehonic	Electronic and Electrical Engineering
*Research Institute in Sociotechnical Cyber Security (RISCS)	Prof Madeline Carr	STEaPP
UCL Ventura CPAP initiative	Prof Rebecca Shipley	Institute of Healthcare Engineering (cross-departmental)
Global Disability Innovation Hub	Prof Catherine Holloway	Computer Science
Cyber Security of Critical National Infrastructure	Meha Shukla	Security and Crime Science
Plastic Waste Innovation Hub	Prof Mark Miodownik	Mechanical Engineering
Big Picnic	Dr Theano Moussouri	Institute of Archaeology (Faculty of Social and Historical Sciences)
BEIS energy away day	Dr Adam Cooper	STEaPP

"Perhaps one of the best things about working with the PIU has been seeing how effectively our research can be connected with stakeholders in the policy community. They've also been great at connecting us with people in government with whom we can collaboratively design projects.

It's closed the loop. Funding call… successful bid… research carried out… peer reviewed papers with findings published… policy impact. The last bit generally doesn't happen!"

Prof Madeline Carr, Director of RISCS

"Working with the Policy Impact Unit has massively increased the impact of our research on plastic waste. With the help of the PIU we are credible in the world of policy whereas before we just sent policy makers our research papers and wondered why they didn't reply."

Prof Mark Miodownik, PI of the Plastic Waste Innovation Hub

HIGHLIGHTS

Our work has delivered outcomes and policy impacts that would not have occurred without PIU input. Some highlights of our work to date include:

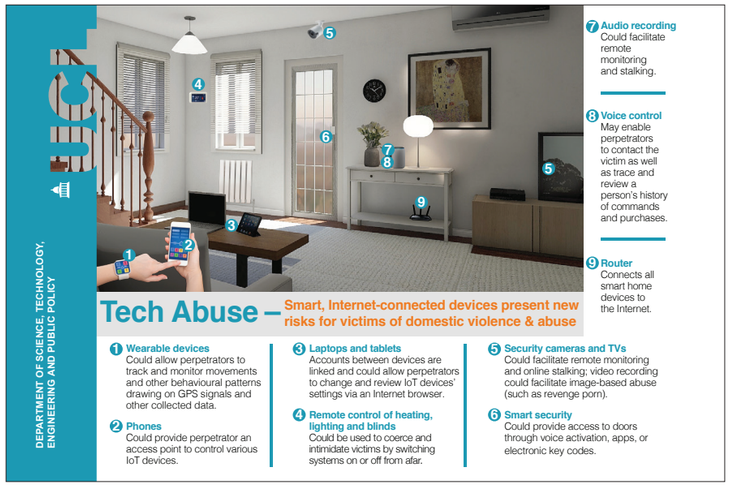
GENDER AND THE INTERNET OF THINGS

Our collaboration with Dr Leonie Tanczer aimed to put the issue of "tech abuse" – domestic abuse facilitated through new internet-connected devices such as smart heating, lighting and security systems – on to the policy agenda in order that new legislation is "future proofed" against this emerging threat. We have focused in particular on influencing the Domestic Abuse Bill and Online Harms legislation. Our engagement resulted in a number of significant outcomes and impacts, including:

- Citations in policy documents from both **Government** and **Parliament**.
- Parliamentary Questions asked by **Paul Sweeney MP** and **Chi Onwurah MP**.
- Invitation for Dr Tanczer to join the DCMS "Media Literacy Group".
- Invitations for Dr Tanczer to provide a written briefing to the Domestic Abuse Commissioner (DAC) ahead of the Prime Minister's "Hidden Harms Summit" and in person to the DAC's office.
- Government **announcement** accompanying the introduction of the Domestic Abuse Bill stated that "the bill has been designed to be future-proof from any new ways perpetrators try to control their victims. It will encompass worrying new trends such as 'tech abuse' – where abusers use personal and home devices and smart gadgets to control their victim".

"Without the PIU, the Gender-IoT project would have only spoken to an academic audience. It has evolved into something I never thought it could be. Alongside other UCL services, it has bolstered the capacity of the project to reach communities that I wouldn't have otherwise. Working with the PIU has made a difference simply by the fact that the PIU know how to reach people: they know the people and understand who to contact. Their experience in the field is invaluable."

Dr Leonie Tanczer, Lecturer in International Security and Emerging Technologies




TECH ABUSE

Gender and the Internet of Things (IoT')
Futureproofing Online Harms legislation

The number of internet-connected devices is growing rapidly. One estimate[1] suggests there will be 500 billion internet-connected devices by 2030. The IoT is the network of these connected devices.

The IoT provides benefits for modern life, but it also creates opportunities for new types of harm. Perpetrators of domestic abuse can misuse IoT devices' features to monitor and control their victims. For example, internet-connected video cameras (such as on 'smart' doorbells) or wearable watches with integrated GPS tracking technology can allow victims to be spied upon by perpetrators. **The IoT enables three new types of crime that should be within scope of new Online Harms Legislation:**

a) Cyber stalking
Harassment taking place on or via the internet.

b) Coercive and controlling behaviour using IoT
Acts of abuse to harm, threaten or frighten a victim. This could involve the denying access to controls for heating, lighting, locks and security systems.

c) Digital gaslighting
A form of psychological abuse designed to make someone doubt their version of reality, for example by remotely operating smart building controls.

The Online Harms White Paper recognises the increased potential for cyber stalking, but it does not take account of how coercive and controlling behaviour or gaslighting could be undertaken using the IoT.

Government policy should incorporate these new types of online harms associated with internet-connected devices. We suggest three ways in which such harms could be incorporated into new policy and contribute to achieving the Government's ambition to 'make the UK the safest place to be online.'

1. **Introduce a new statutory duty of care on tech companies.**
2. **Provide guidance on tech abuse as part of the media literacy strategy.**
3. **Report and publish tech abuse data.**

[1]Cisco, 2014. *Internet of Things*. Available at: https://www.cisco.com/c/dam/en/us/products/collateral/se/internet-of-things/at-a-glance-c45-731471.pdf.
[2] DCMS, 2019. Online Harms White Paper. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793360/Online_Harms_White_Paper.pdf.
[3]eSafety Commissioner, 2019. Helping Australian's to have safer, more positive experiences online. Available at: https://www.esafety.gov.au/.

1. Introduce a new statutory duty of care on tech companies

The regulatory framework of the Online Harms Bill should include a new statutory duty of care on technology companies to keep their users safe from digital gaslighting and coercive and controlling behaviour. These steps could include the following:

- **Dedicated services and means to report incidents** of harassment, including offline options (such as a phone number).
- Easy-to-use **tools that allow users to take control over the privacy** and offer visibility of their account settings (such as who can and has had access to it).
- **UK-wide recording practices** of technology-facilitated abuse forms, to keep abreast of the changing threat landscape.

2. Provide guidance on tech abuse

The media literacy strategy, part of the Government package to tackle online harms, should include a commitment to provide accessible up-to-date advice and guidance tailored to people at risk of tech abuse. This would be in scope of its aim to 'provide a coordinated and strategic approach to online media literacy education for children, young people and adults.'[2] The approach could be modelled on that of Australia, which has an 'eSafety Commissioner' to lead and coordinate online safety efforts.[3]

3. Report and publish tech abuse data

Nationwide data on tech abuse is not currently available. This makes it difficult for central and local Governments, the support sector and researchers to understand and monitor the scale and nature of the problem. We suggest that tech abuse data is collected and made available publicly in the **annual crime survey**. This could also allow the regulator to monitor companies whose systems are involved in domestic abuse cases.

For more information, contact:
Dr Leonie Tanczer, Principal Investigator
UCL Department of Science, Technology, Engineering and Public Policy (UCL STEaPP)
l.tanczer@ucl.ac.uk

Visit our website:
https://www.ucl.ac.uk/steapp/research/digital-technologies-policy-laboratory/gender-and-iot

February 2020

GENDER AND THE INTERNET OF THINGS

Goal 1: Raise the profile of the issue of 'tech abuse' among the policy community and ensure domestic abuse and online harms legislation is future proofed to take account of this emerging threat.

MAY 2018
Submission to Government consultation on 'Transforming the Response to Domestic Abuse'

AUGUST 2018
Meeting with DCMS and HO officials

OCTOBER 2018
Roundtable with DCMS Secretary of State and Minister

DECEMBER 2018
Meeting with MoJ Adviser

FEBRUARY 2019
Citation in POSTnote

APRIL 2019
Emailed MPs to suggest possible Parliamentary Questions to ask the Secretary of State for DCMS

9 APRIL 2019
PQs asked by Paul Sweeney MP and Chi Onwurah MP

SEPTEMBER 2019
Letter to new Domestic Abuse Commissioner

DECEMBER 2019
Meeting with Domestic Abuse Commissioner

JANUARY 2020
Government announce Domestic Abuse Bill will be 'futureproofed' against tech abuse

MARCH 2020
Dr Tanczer invited to attend Cabinet Office workshop on ethics and technology

23 JUNE 2020
Launched project video and disseminated to stakeholders

SEPTEMBER 2020
Invitation to give presentation

SEPTEMBER 2020
Dr Tanczer presentation to Domestic Abuse Commissioner's office away day

NOVEMBER 2020
Invitation to attend meeting

NOVEMBER 2020
Dr Tanczer attended meeting with the Law Commission on reform of communications offences with Commissioner Professor Penny Lewis

NOV 2020
Dr Tanczer invited to contribute to domestic abuse event for the British Embassy in Buenos Aires

NOV 2020
POST briefing on technology and domestic abuse cites Dr Tanczer's work

16 NOV 2020
Engaged with POST on behalf of Dr Tanczer

MAY 2019

NOV 2020

JULY 2018
Submission to Home Affairs Committee Domestic Abuse inquiry

JULY 2018
Email to Home Office and DCMS officials

NOVEMBER 2018
'cryptoparty' event, with policy panel discussion

NOVEMBER 2018
Published policy briefing, including a recommendation that "internet security legislation must be 'future-proofed' against the expected growth in the number of internet-connected home devices"

MARCH 2019
Submission to Joint Committee on Human rights pre-legislative scrutiny on the Domestic Abuse Bill

MAY 2019
Letter to Margot James MP re. Media Literacy Group

MAY 2019
Dr Tanczer invited to meet DCMS official to discuss

JULY 2019
Response to Online Harms White Paper consultation

JULY 2019
Request from Home Office press office for information on tech abuse

28 OCT 2019
Invitation to DCMS Media Literacy Group meeting

JANUARY 2020
Responded to request by suggesting three ideas for consideration

JANUARY 2020
Contacted by Darren Jones MP regarding proposed Private Members Bill on domestic abuse and the IoT

FEB 2020
Published and disseminated a briefing on suggestions for the Online Harms White Paper

FEB 2020
Briefing circulated to officials by Baroness Barren

MAY 2020
Wrote to Domestic Abuse Commissioner regarding key points for 'Hidden Harms Summit' chaired by the Prime Minister

MAY 2020
Key points were included in the Commissioner's brief

16 JULY 2020
Research cited in DCMS consultation documents

OCT 2020
Letter sent to Nimco Ali, new Tackling Violence Against Women and Girls Adviser

OCTOBER 2020
Liaising with POST

OCTOBER 2020
Contacted by POST regarding a Lords briefing on tech abuse

OCTOBER 2020
Meeting with Home Office officials regarding the Tackling Violence Against Women and Girls Strategy

project activities and outputs

project outcomes or impacts

Followed from

FUTURE TARGETED HEALTHCARE MANUFACTURING HUB

Our collaboration with the Hub has focused on three key areas to date: research relating to reducing the cost of manufacturing personalised medicine, research on reimbursement models for personalised medicine and research on how personalised medicine is regulated. Unlike the Gender-IoT project above, our impact objectives for this project have not been to advocate for particular policy outcomes, but rather to play more of an "honest broker" role, to ensure that research findings are available to policymakers to inform the development of policy in this area.

Key outcomes to date include:

- A good relationship has been established with the Treasury's Health and Social Care team; hosted visits and meetings and research findings on the cost of manufacturing were supplied to inform their scoping activity on possible future costs in healthcare.
- Hub researcher Nishma Patel was invited to join the NHS Accelerated Access Collaborative's "Data and Infrastructure" advisory board as part of their Advanced Therapeutic Medicinal Products (ATMPs) workstream. Hub researchers have also been involved in steering a piece of work setting out the different stages of ATMP development.
- Dr Irina Brass was invited to take part in stakeholder engagement on point of care manufacturing with the Medicines and Healthcare Products Regulatory Agency (MHRA).

"Direct links to the NHS and industry stakeholders is central to our work. Penny has strengthened and promoted these relationships with regular group or one-to-one meetings, encouraging collaboration and information exchange. As a result, we have identified areas for improvement in targeted healthcare and a more joined-up, coordinated strategy with users for the reimbursement workstream."

Nishma Patel, Research Associate in Applied Health Research, Institute of Epidemiology and Health

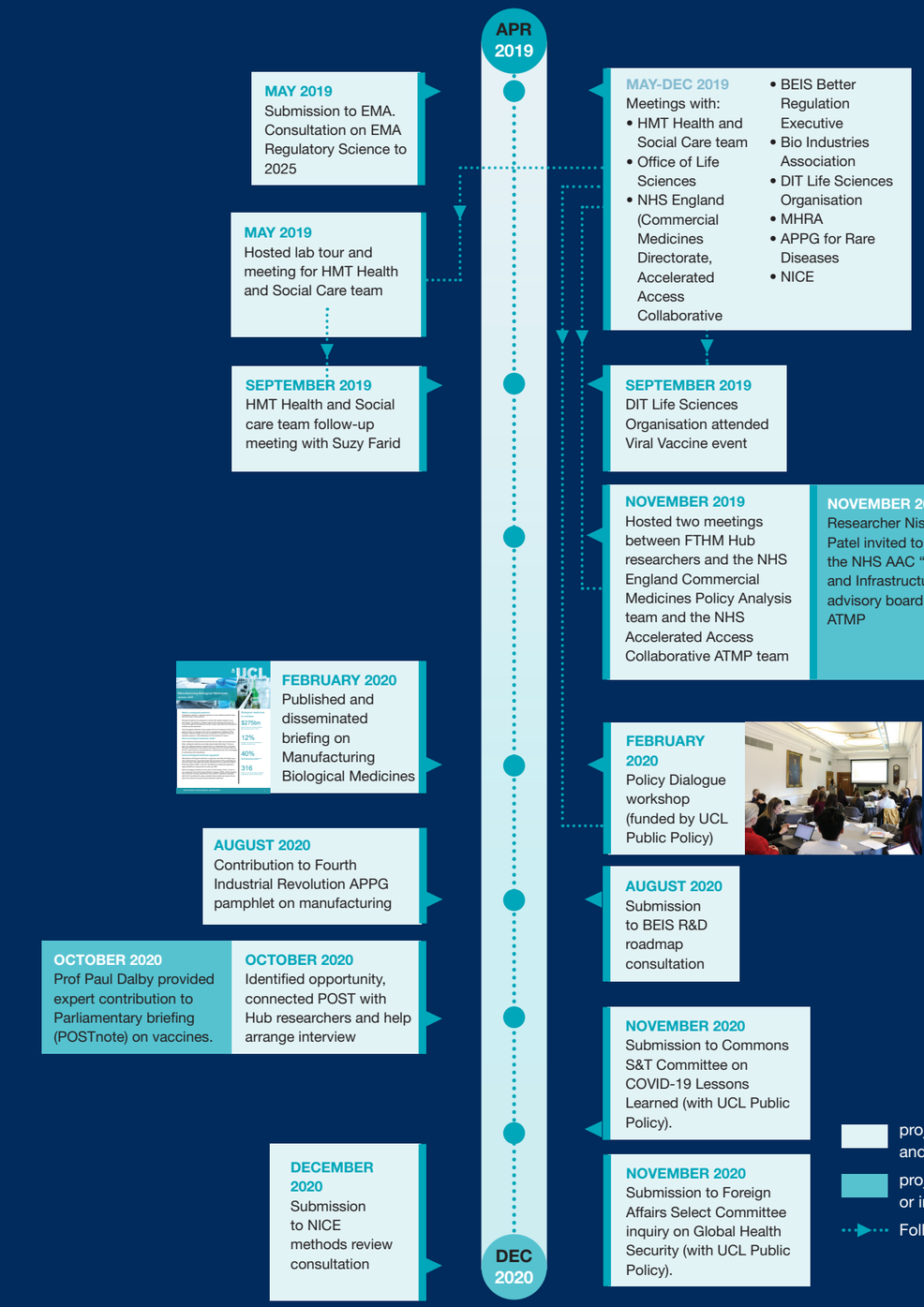
Prof Suzy Farid presenting at the CAR T Policy Dialogue

FUTURE TARGETED HEALTHCARE MANUFACTURING HUB

Goal 1: To raise awareness that the manufacturing process is an important component of the overall cost of personalised medicines and that optimisation, including by new approaches at the bedside, may help to reduce costs.

Goal 2: To engage in policy discussion and debate on reimbursement models for Advanced Therapeutic Medicinal Products (ATMPs).

Goal 3: To engage in policy discussion and debate about regulatory approaches to new manufacturing processes, such as point-of-care manufacturing.



FUTURE VACCINE MANUFACTURING RESEARCH HUB (VAX-HUB)

Our collaboration with Vax-Hub began in 2019, but the context changed dramatically with the arrival of the COVID-19 pandemic. The Hub has been at the forefront of the UK's vaccine research efforts, with Co-Director Prof Sarah Gilbert (University of Oxford) leading development of a vaccine for COVID-19 and the team at UCL developing characterisation technologies and formulating the vaccine to improve its stability and shelf-life.

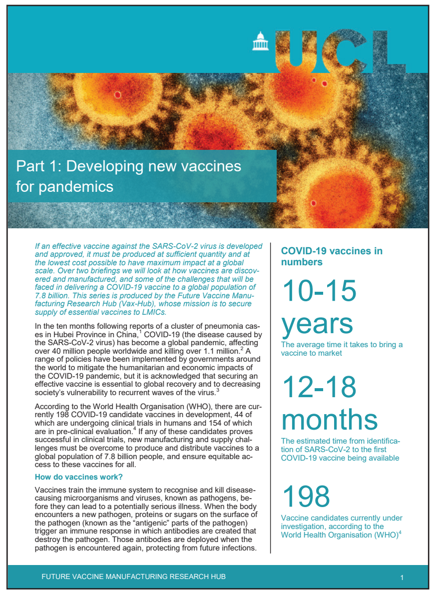
Following the arrival of COVID-19 in the UK, we switched our attention to improving awareness among the policy community of the processes involved in developing new vaccines and the importance of innovation and new technologies in bringing down the cost of manufacturing vaccines and improving access, particularly to people in Low and Middle Income Countries.

Key outputs and outcomes include:

- Prof Martina Micheletti invited to provide an expert contribution to the Parliamentary Office of Science and Technology for a forthcoming "POSTnote" on vaccines.
- Production of two 'explainer' briefings for policymakers looking at some of the challenges of vaccine development and manufacture during a global pandemic.
- A webinar on vaccine manufacturing, attended by over 60 people, including participants from BEIS.
- Written evidence submitted to House of Commons Select Committee inquiries.
- Requests from media outlets for interviews with Hub researchers.

"As primarily a bench researcher the COVID-19 pandemic has presented many challenges to research activities. It has also presented me with several new opportunities to become involved with activities promoting our work within the VaxHub, which I might not have considered before. Penny Carmichael and the PIU has been a major influence in helping me take full advantage of these. From providing input to policy documents, contributions to written submissions to Parliamentary reports to media interactions such as interviews and Podcasts. "

Dr Steven Morris, Research Fellow in Vaccine Process Analytics



FUTURE VACCINE MANUFACTURING RESEARCH HUB (VAX-HUB)

Goal 1: To shape the policy agenda by raising awareness of the role that manufacturing processes play in the overall cost and availability of vaccines and the role that innovations in the manufacturing process could play in helping to increase access to vaccines in LMICs.

APR 2019

APRIL 2019-APRIL 2020
Meetings with:
- Coalition for Epidemic Preparedness Innovations (CEPI)
- Clinton Health Access Initiative (CHAI)
- Save the Children
- Health and Social Care Select Committee
- APPG on Malaria and Neglected Tropical Diseases
- Office of Life Sciences
- DHSC UK (Vaccine network)
- Wellcome Trust
- UN Office for the Coordination of Humanitarian Affairs

FEBRUARY 2020
Biomanufacturing policy briefing published and disseminated

JUNE 2020
Facilitated membership process

JUNE 2020
CHAI join Hub as an affiliate

AUGUST 2020
Submission to Commons S&T inquiry on UK Science, Research and Technology Capacity and Influence in Global Disease outbreaks

AUGUST 2020
Shared information with POST in response to their work on vaccines for COVID-19

SEPTEMBER 2020
Professor Micheletti invited to provide expert contribution to Parliamentary briefing (POSTnote) on vaccines

OCTOBER 2020
Briefings on vaccine development and vaccine manufacturing

OCT-DEC 2020
Meetings with Innovate UK to provide insights on vaccine manufacturing for Vaccine Taskforce COVID-19 legacy paper

12 NOVEMBER 2020
Webinar: 'Understanding vaccine manufacturing: the role of global partnerships'

NOVEMBER 2020
Contribution to UCL submission to HoC S&T Committee inquiry 'Coronavirus: lessons learnt' (with UCL Public Policy).

JANUARY 2021
Professor Dan Bracewell interviewed for Politico article on vaccine manufacturing

NOVEMBER 2020
Contribution to UCL submission to Foreign Affairs Committee inquiry into Global Health Security (with UCL Public Policy).'

JAN 2021

project activities and outputs
project outcomes or impacts
Followed from

DAWES CENTRE FOR FUTURE CRIME

Our work with the Dawes Centre has focused on disseminating the findings of a series of scoping projects that aimed to identify emerging new areas of criminal activity. Our goal was to raise awareness among the policy community of these new threats in order that steps can be taken to mitigate them.

Key outcomes include:

- Working with UCL's central media team, our **policy briefing** on AI and crime was sent along with a press release to journalists, resulting in significant media coverage of the project findings (including ***The Telegraph***, ***Daily Mail***, ***The Independent***, ***Daily Star***, ***Daily Mirror*** and ***Daily Record***).
- Researchers on the AI and crime project have been invited to speak to Home Office staff on their findings.
- The briefing has prompted both POST and a Parliamentary scrutiny committee to consider undertaking work on this topic in future.


DAWES CENTRE FOR FUTURE CRIME AT UCL

How secure is consumer IoT?

Exploring crime associated with IoT, security features of devices and consumers' willingness to pay for security.

Key facts

15%

The number of IoT devices in the average UK household in 2020.[1]

10%

The proportion of IoT device manuals or associated online materials that advise consumers on how to secure a device from cyber risks.[2]

90%

The proportion of consumers worried about how their data is kept secure and the associated crime risks that may arise from this insecurity.[3]


DAWES CENTRE FOR FUTURE CRIME AT UCL

AI-enabled future crime

Artificial Intelligence (AI) technologies have applications for crime prevention and detection, but they could be exploited for criminal purposes in many different ways. This briefing identifies 20 different potential AI-enabled future crimes.


DAWES CENTRE FOR FUTURE CRIME AT UCL

Challenges of preventing counterfeit goods:

Pharmaceuticals, food and drink, agrochemicals and toiletries are all highly susceptible to counterfeiting. Imports of counterfeit and pirated goods to the UK accounted for as much as £13.8 bn in 2016.

> "Working with the PIU, we created a plan of how best to approach policy engagement for our specific research topics, involving mapping out stakeholders, and then condensing our research into short, user-friendly policy briefings. We discussed release schedules for these briefings to maximise impact and PIU also advised us on how to tie in with UCL's press and wider media. The result has been outstanding engagement with those briefings. For instance, our briefing on 'AI-enabled future crime' generated widespread media coverage (including national newspapers) and almost 1000 hits in a single initial send. "
>
> **Vaseem Khan**, Business Development Director, UCL Jill Dando Institute of Security and Crime Science

DAWES CENTRE FOR FUTURE CRIME

Goal 1: To stimulate policy debate on Dawes Centre research projects around how technological or social change might create new opportunities for offending, and the potential methods for addressing these problems before they become established.

Goal 2: To highlight issues of concern to policy makers and contribute to new analysis of existing issues, and highlight the relevance of ongoing research at UCL.

4 AUGUST 2020
AI and Crime briefing published

4 AUGUST 2020
Media coverage in national news outlets: *Telegraph*, *Daily Mail*, *Mirror, Independent*, *Daily Star*, *The IET*

10 AUGUST 2020
Researchers invited to present to Home Office

19 AUGUST 2020
Publication and dissemination of briefing on Security of Consumer IoT

9 SEPTEMBER 2020
Blog on AI enabled future crime published by Police Foundation

SEPTEMBER 2020
POST and Parlimentary Committee now considering work on deep fakes

NOVEMBER 2020
Publication and dissemination of briefing on Challenges of Preventing Counterfeit Goods

NOVEMBER 2020
Media coverage from Policing insight

AUG 2020 / **NOV 2020**

project activities and outputs

project outcomes or impacts

Followed from

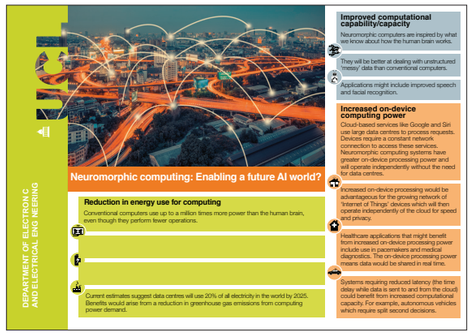
NEUROMORPHIC COMPUTING

Researchers in the Department of Electronic and Electrical Engineering have been developing a new type of computing hardware ('neuromorphic' computing). We worked with them to help raise awareness among the policy community of this innovative new technology and the potential benefits it could bring to society. Neuromorphic hardware offers the potential to dramatically reduce the energy used in computing (with resulting benefits for the climate). It could also bring increased processing power and speed, which could facilitate the development of smart and autonomous technologies. Finally, its ability to handle unstructured data could revolutionise the use of big data and machine learning. Key outcomes to date include:

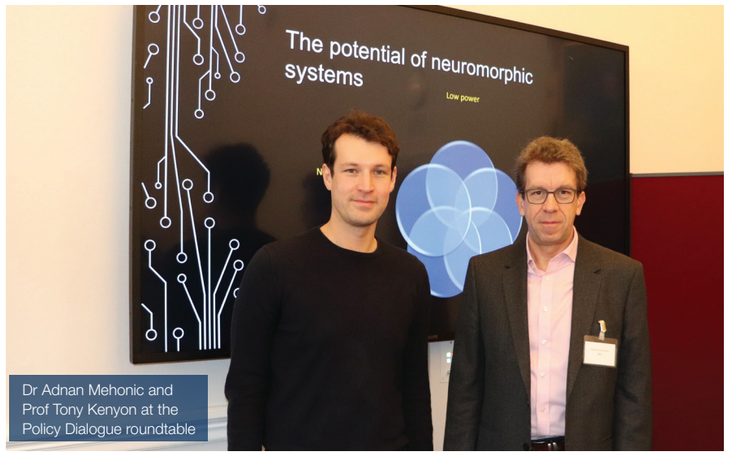
- We have delivered a programme of engagement activities (including a day-long conference in partnership with the Knowledge Transfer Network, a **Policy Dialogue roundtable event** and publication of a '**microbriefing**', as well as arranging meetings with key stakeholders).
- As a result of these activities, the researchers have been invited to attend meetings with the Clerk of the House of Lords Science and Technology Committee, the Royal Society and Nesta.

"Working with the PIU has been an overwhelmingly positive experience."

Prof Tony Kenyon, Vice Dean (Research), Faculty of Engineering Sciences



Neuromorphic computing microbriefing



Dr Adnan Mehonic and Prof Tony Kenyon at the Policy Dialogue roundtable

Prof Tony Kenyon speaking at the KTN & UCL conference on 'The Future of Computing'

NEUROMORPHIC COMPUTING

Goal 1: Raise awareness among the policy community of this emerging technology and potential benefits it could offer to society.

JAN 2019

JANUARY 2019
Pitched neuromorphic computing as a topic of consideration for a POSTnote

MARCH-MAY 2019
Meetings with key stakeholders:
- POST
- Office for AI
- Business Growth Team, BEIS
- GO-Science
- Knowledge Transfer Network

JUNE 2019
Published and disseminated 'microbriefing'

NOVEMBER 2019
Meeting with Clerk of the House of Lords Digital and Communications Committee

NOVEMBER 2019
UCL/KTN joint event on 'The Future of Computing'

DECEMBER 2019
Policy Dialogue roundtable event (funded by UCL PP)

8 JANUARY 2020
Meeting wih the Clerk of Lords S&T Committee

JANUARY 2020
Workshop report published

JANUARY 2020
Meeting with Alok Jha (*The Economist*)

FEBRUARY 2020
Meeting with the Royal Society

FEBRUARY 2020
Published blog "Neuromorphic computing: a hardware for a greener computing sector?"

MARCH 2020
Letter to Commons S&T Committee Chair, suggesting inquiry on future computing hardware

MAY 2020
Submission to My BEIS inquiry, suggesting neuromorphic computing as a topic

OCTOBER 2020
Meeting with Nesta regarding their 'Next Generation Internet' programme with the European Commission

OCT 2019

OCTOBER 2020
Shared research briefing with Nesta and Green Alliance

project activities and outputs

Followed from

OTHER ACTIVITIES

TRAINING

In collaboration with Dr Ine Steenmans (STEaPP), we have developed a one-day training module that provides an introduction to policy engagement. It is primarily intended for researchers who have little or no experience in policy engagement and focuses on the importance of relationship building as the foundation of effective policy engagement. We aim to provide insights into the working lives of "policymakers" and consider how engagement can be made more effective, based on research evidence from policy studies. We have developed both face-to-face and online versions of the course and have run both types. To date, we have run the training with 7 different research groups. We are now in the process of developing a training offer focusing on writing, disseminating and evaluating policy briefs. We have run 2 pilots of the training and hope to make this more widely available in 2021.

"It is very important for STEaPP's students to make a strong connection between theory and practice. Expertise within the PIU is a great resource and allows students to meet and learn from policy making practitioners across a wide spectrum. The PIU is a unique and unmissable part of both STEaPP and our MPA programme."

Alan Seatwo, Lecturer (Teaching) and MPA Co-ordinator, STEaPP

PILOT PROJECTS

The PIU is innovative and draws on the latest thinking to develop novel approaches to delivering policy impact. We have undertaken a number of pilot activities which we hope will lead to new activities in the future.

Global Policy Fellows

The Global Policy Fellows programme was developed to create an international network connecting policy professionals who are making 'on-the-ground' decisions with academics whose knowledge is essential to making good decisions. The week-long knowledge exchange programme brings together international policy professionals with UK-based academics and policymakers to explore solutions to 'live' policy challenges.

In 2019 we ran a pilot Global Policy Fellows programme, funded through the GCRF UCL Internal Small Grants scheme. The programme was on the theme of 'Future Cities' and we hosted 11 Fellows from a variety of countries, including Malaysia, South Africa and Pakistan. We developed a programme of activities based on questions the Fellows themselves had provided. This included one-to-one meetings with selected academics, site visits around London, a day hosted by the Greater London Authority (GLA) and Transport for London (TfL), a half-day workshop with UK-based policy practitioners and academics and an evening networking reception.

We had hoped to run a second programme in 2020 but unfortunately have had to put the programme on hold owing to the COVID-19 pandemic.

"The GPF is a great platform for policy makers, urban planners and academics to interact, share knowledge and ideas."

Global Policy Fellow 2019

"It was a very well organized program with lots of meticulous planning by the organisers in providing both theoretical as well as practice outlook to urban planning."

Global Policy Fellow 2019

The summer reception provided an opportunity for discussion and networking

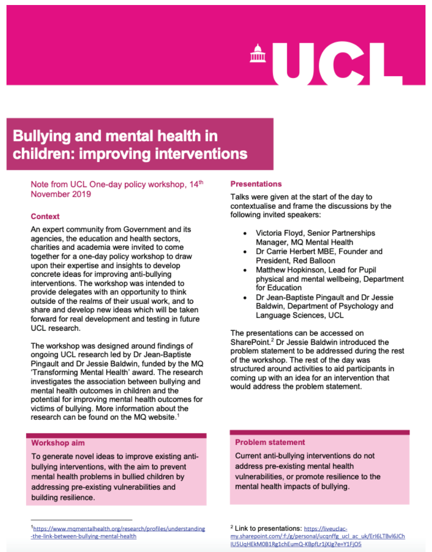
Global Policy Fellows, policy stakeholders and academics taking part in a workshop on partnership working.

Co-development

One of the primary reasons that research evidence is not used by policy makers is because it is not relevant to their work. Findings ways to align research questions with real-world problems is therefore an important step to increasing policy impact. The gold standard in this respect is to co-create research projects; working in collaboration with the research users from the start to finish of a project. However, this is a huge undertaking and may not be possible for every research project. As a result, we have been exploring ideas for the next best thing.

We are developing a structured approach to stakeholder engagement to feed user insights into research project development, which we have given the working title: "co-development".

Co-development workshops involve inviting a carefully selected group of stakeholders (who represent the policy community in its broadest sense, including government, parliament, campaigners, lobbyists, think tanks and so on), to spend a day with researchers sharing knowledge and working through a series of activities designed to produce one or two ideas that could be taken forward in a research proposal.



UCL

Bullying and mental health in children: improving interventions

Note from UCL One-day policy workshop, 14th November 2019

Context

An expert community from Government and its agencies, the education and health sectors, charities and academia were invited to come together for a one-day policy workshop to draw upon their expertise and insights to develop concrete ideas for improving anti-bullying interventions. The workshop was intended to provide delegates with an opportunity to think outside of the realms of their usual work, and to share and develop new ideas which will be taken forward for real development and testing in future UCL research.

The workshop was designed around findings of ongoing UCL research led by Dr Jean-Baptiste Pingault and Dr Jessie Baldwin, funded by the MQ 'Transforming Mental Health' award. The research investigates the association between bullying and mental health outcomes in children and the potential for improving mental health outcomes for victims of bullying. More information about the research can be found on the MQ website.[1]

Presentations

Talks were given at the start of the day to contextualise and frame the discussions by the following invited speakers:

- Victoria Floyd, Senior Partnerships Manager, MQ Mental Health
- Dr Carrie Herbert MBE, Founder and President, Red Balloon
- Matthew Hopkinson, Lead for Pupil physical and mental wellbeing, Department for Education
- Dr Jean-Baptiste Pingault and Dr Jessie Baldwin, Department of Psychology and Language Sciences, UCL

The presentations can be accessed on SharePoint.[2] Dr Jessie Baldwin introduced the problem statement to be addressed during the rest of the workshop. The rest of the day was structured around activities to aid participants in coming up with an idea for an intervention that would address the problem statement.

Workshop aim

To generate novel ideas to improve existing anti-bullying interventions, with the aim to prevent mental health problems in bullied children by addressing pre-existing vulnerabilities and building resilience.

Problem statement

Current anti-bullying interventions do not address pre-existing mental health vulnerabilities, or promote resilience to the mental health impacts of bullying.

[1] https://www.mqmentalhealth.org/research/profiles/understanding-the-link-between-bullying-mental-health

[2] Link to presentations: https://liveuclac-my.sharepoint.com/:f:/g/personal/ucqnffg_ucl_ac_uk/Erl6LTBvl6JChlU5UqHEkM0B1Rg1chEumQ-KBpfLr1jXJg?e=Y1FjO5

We ran our first co-development workshop last year with researchers Dr Jean-Baptiste Pingault and Dr Jessie Baldwin, who are developing the next phase of research looking at how mental health can be improved for victims of bullying. The **report from the workshop** has been published online.

We are currently in the process of developing two further workshops: one with the Institute of Healthcare Engineering and another with the Research Institute in Sociotechnical Cyber Security (RISCS).

Following this, we hope to formalise the methodology and develop a 'toolkit' for others who are interested in taking this approach.

Working with Centres for Doctoral Training

We are piloting a new initiative with the Cyber Security Centre for Doctoral Training, which is run jointly by UCL's departments of Security and Crime Science, Computer Science and STEaPP.

The project involves the students conducting evidence synthesis on topics that have been suggested by policymakers and then working with the PIU to produce and disseminate policy briefings to communicate the findings to a policy audience.

Our hope is that the programme will help to increase the skills and understanding of the doctoral students. At the same time, we hope the outputs will be a useful resource for policymakers; according to the UK's current and former Government Chief Scientific Adviser "an accurate, concise and unbiased synthesis of the available evidence is arguably one of the most valuable contributions a research community can offer decisions makers".[xxi] If this project is successful, we will seek to explore opportunities with other CDTs.

LOOKING AHEAD, STRATEGY AND PRIORITIES

We are really proud of what we have achieved in our first two years of operation. Our long-term vision is to grow the team so that we can provide Policy Analysts across all major areas of policy that are relevant to the engineering community (including health, digital, security & defence, environment, climate change & low carbon technologies, transport, cities and manufacturing).

OUR STRATEGIC OBJECTIVES ARE:

1.

To increase the quality of academic policy engagement activities and outputs.

2.

To increase the quantity of academic policy engagement activities and outputs.

3.

To experiment with and assess the effectiveness of novel approaches to policy engagement.

4.

To facilitate dialogue between practitioners and scholars on best practice in policy engagement for impact.

OUR PLANS FOR 2021

We will be continuing our current collaborations with the Future Targeted Healthcare Manufacturing Hub, Vax-Hub, RISCS, the Dawes Centre, the Global Disability Innovation Hub and the Institute of Healthcare Engineering.

We are delighted that we will also be starting three new collaborations in 2021:

- the **International Public Policy Observatory** will bring research and policy together to mitigate the impacts of COVID-19 and accelerate the UK's recovery.
- **Compostable plastics: unlocking existing barriers to systems change** will investigate how compostable plastics are currently being used and seek to map out how these plastics can be introduced and integrated into existing waste management infrastructure.
- The **Interdisciplinary circular Economy Centre for Mineral-based Construction Materials** will develop systems for more efficient use and recovery of mineral resources.

We anticipate that the ongoing COVID-19 crisis and Brexit will both remain high on policymakers' agendas, and we will therefore prioritise activities that feed in to these two important areas.

We plan to continue to build our training offer and to explore and improve our approaches to policy engagement to maximise the scope for achieving policy impact across FES. We will continue to seek opportunities to expand our collaborations across all departments within the faculty to help to develop enduring partnerships with policy makers across the cycle of knowledge generation and dissemination.

We will continue to collaborate closely with UCL PP and other policy intermediaries across the institution in order to work towards delivering UCL's vision to embed public policy engagement across UCL.

ACKNOWLEDGEMENTS

We would like to acknowledge the following organisations, who have contributed funding towards the work of the PIU:

- UCL Faculty of Engineering Sciences
- EPSRC
- NCSC
- Dawes Foundation
- Department of Health and Social Care's UK Vaccine Network
- GCRF UCL Internal Small Grants scheme
- UCL Public Policy EPSRC Impact Accelerator Account
- UCL Research Impact Curation and Support

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