



UCL Grand Challenges

**Developing
solutions**



Each year around 15 million people between the ages of 30 and 69 die from a noncommunicable disease (NCDs), and over 85% of these ‘premature’ deaths occur in low and middle income countries. What were once termed “diseases of affluence” now affect some of the poorest people in the world. Beneath the statistics are the human stories. For the past few years I have been heading a Wellcome Trust funded interdisciplinary research project which investigates the historical and social dimensions of the rise of NCDs in sub-Saharan Africa. We are a group of anthropologists, social epidemiologists and historians, working with our colleagues in Ghana, South Africa and Malawi and collaboratively with medical scientists. We look at how poor urban communities in Ghana manage the high incidence of stroke, and how that condition is understood in local terms. In South Africa we study the part played by “stress” in a range of NCDs, including diabetes. In Malawi we see the complex relationships between infectious disease and NCDs, and how this plays itself out in the lives of patients with multiple morbidities. Across the continent we find communities grappling with the spread of these ‘new diseases’ in young adults as well as older people and questioning whether they are really ‘noncommunicable’.

In my own work and as co- Chair of the Grand Challenge for Global Health I have seen how the kind of open, exploratory and interdisciplinary academic research encouraged by UCL can shift our perspective on pressing global issues and provide the critical insights we need in order to solve them.

Professor Megan Vaughan

Where can UCL Grand Challenges take you?

◆ Publishing new papers

Strong relationships fostered by the Grand Challenges allow inter or cross-disciplinary journal papers to be published, for example in Nature Sustainability and The Lancet.

◆ Policy impact

Grand Challenges work can contain recommendations or ideas for policymakers. The Lancet Commissions, kickstarted by the Grand Challenges, have put pressure on global governments in the fields of climate change, health and migration.

◆ Spreading the word

The results of Grand Challenges work can lead to media appearances, not least on our own podcast series, YouTube channel and blog.

Pilot study

Small grants often lead to pilot studies, like Pasco Fearon (UCL Brain Sciences) into the

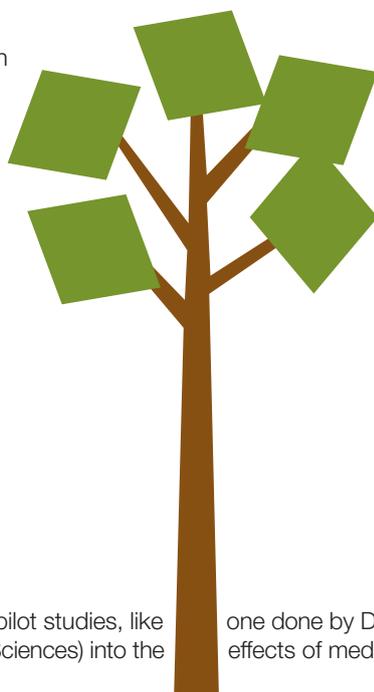
one done by Dr Gabriella Conti (Institute of Education) and Professor effects of meditation in schools, carried out in 2018

Small grants

The programme has made 95 awards through the past five annual rounds of the small grants scheme, to a total value of £368,640. This funding sows the seeds for larger projects to take root.

Building the network

The Grand Challenges brings academics, researchers and interested parties from across the UCL community together, meeting like minds at events, roundtables, workshops and discussions



◆ New institute or research centre

The Grand Challenges helped catalyse research centres including the UCL Centre for Behaviour Change and the UCL Africa Studies Research Centre to take shape in the last few years.

◆ Major funding

Some Grand Challenges projects have since gone on to secure major funding for further research. For example, the T-SUM project (see page 10) has now secured £800,000 worth of funding from the UK's Department for International Development.

◆ Public engagement event

Events can bring the work we support into the public eye, for example the India Voices and Africa Voices series, which included film screenings, music and dance displays, lectures and panel discussions.

UCL Grand Challenges

Our highlights

The UCL Grand Challenges programme has been active for ten years. In that time, we have brought researchers together from across traditional disciplinary boundaries. These connections have led to impactful reports, novel research initiatives, major institutes and centres, international collaborations and public engagement activities, united around a common resolve to tackle the urgent challenges facing our world today. The leadership shown by Grand Challenges has provided a vital stimulus for researchers to look at the bigger picture and apply their critical thinking to a broad palette of issues.

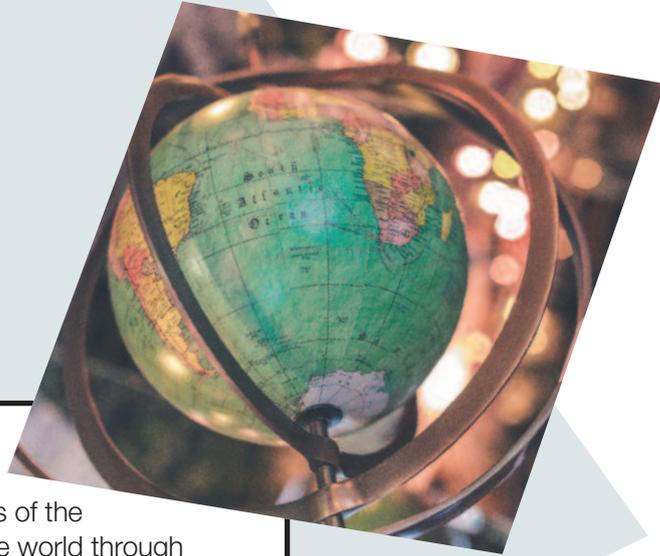


Grand Challenges and The Lancet

Grand Challenges has spearheaded several innovative partnerships with top medical journal The Lancet, on a range of health-related topics. There have been several UCL Lancet Commissions, bringing a wealth of UCL knowledge together to look at the health effects of climate change, stem cells and regenerative medicine, culture and health, healthy cities and more. The second Commission on health and climate directly led to the creation of The Lancet Countdown: Tracking Progress on Health and Climate Change, an international, multi-disciplinary research collaboration hosted at UCL.

The Lancet Lecture has become a prestigious annual global health event, hosted by UCL. Previous speakers include Christiana Figueres, former Head of UN Framework Convention on Climate Change, the Head of UNAIDS Michel Sidibé, and Indian author Arundhati Roy.





■ Our international links

We are spreading the message and ideas of the Grand Challenges programme around the world through partnerships in France, Japan and Hong Kong in partnership with UCL's Global Engagement Office.

The Grand Challenges has hosted the UCL-French Embassy Conférence-Débat series since 2010. The series has brought together eminent French academics with UCL's finest minds to discuss topics such as 'Engineering & Health', 'The State of Nature', 'Towards Decarbonised Economies' and 'Space'. We have also held an annual competition for Collaborative Science & Technology Workshops between research groups at UCL and their counterparts at universities and research institutions in France, establishing new and enduring partnerships.

New partnerships with Hong Kong University and four institutions in Japan are set to bear fruit with major collaborative conferences and impactful research projects over the next few years.

■ New study exploring structural inequalities in the UK

UCL's Grand Challenge of Justice & Equality, in partnership with UCL Public Policy and the Resolution Foundation, is leading a multi-disciplinary study exploring the nature of, and intersections between, structural inequalities in the UK. Exploring Inequalities seeks to cut across standard research and policy boundaries by bringing together a broad range of experts from academia, the charity sector, NGOs, government and business to review, synthesise, and deepen our understanding of inequality in the UK. Critically, the work will also identify gaps in our collective knowledge in order to facilitate more informed, joined-up policy making at all levels of government.



■ Looking at the world with cross-disciplinary eyes

Through our two major regional projects, Africa Voices and India Voices, the Grand Challenges has taken a fresh look at place, using a plethora of disciplines. Medicine, politics, archaeology, dance, literature and colonial impacts have all been put under the spotlight, bringing leading scholars and cultural icons from across Africa and India to UCL.

Both Voices series included events and co-produced research activity and were part of launching research centres at UCL. The UCL Centre for the Study of South Asia and the Indian Ocean World and the Africa Studies Research Centre will lead to more international collaborations and focus on the Grand Challenges facing these vast regions in the 21st century.

Our next 'Voices' regional focus will be Europe, to be developed and delivered in the academic year 2019/2020 through the Grand Challenge of Cultural Understanding.

UCL Grand Challenges Adolescent Lives

The initiative focused on the meaning of adolescence, youth prospects, and youth identities. Adolescent Lives amplified the voices of young people across a range of areas including environment, housing, ownership of culture, and issues of inclusion and exclusion; to understand how they articulate concerns, and to explore the changing nature of a sense of person, place and community.

AL

Thrown Away or Fresh Start? Film shows excluded young people's side of the story

Young people who had been excluded from school were afforded the opportunity to tell their stories in a fascinating short film. Dr Alison Macdonald (UCL Anthropology) worked with Lasse Johansson, a documentary filmmaker at UCL and Sally Dennehy a state school teacher in Somerset, to produce, 'People Like Us'. The project sought to understand adolescence in the context of permanent school exclusion in state schools and to challenge societal misconceptions about the 'excluded kid'. The project has identified significant implications for education policy and has advocated the voices of young people themselves should be influential in shaping policy.



AL

A Time of Change? Teen Views on Adolescence

The lived experience of teenagers on their journey from child to adulthood is often overlooked.

Dr Emily Emmott (UCL Anthropology) and Francesca Vaghi (Institute of Education/UCL Anthropology) invited teenagers aged 14 to 18 to UCL to share their views and opinions about what 'adolescence' means to them. They asked them to address if and how the scientific understanding of adolescence complements or conflicts with their own views and identities. Their findings are a fascinating glimpse into what adolescence is all about today.

Francesca Vaghi said, "One of the main lessons we learnt was that there is ample potential for researchers and young people to co-create data in academic enquiry. Conducting research with, rather than about, participants can help us refine questions and go in directions we might not have thought of exploring."

Following the project, Dr Emmott received a seed grant of £50,000 from ESRC-AHRC for her cross-national project examining adolescent sociality in Japan and England. In this expanded project, Dr Emmott will establish a long-term collaboration on adolescent sociality in Japan and the UK, with particular focus on adolescent social networks and communication.

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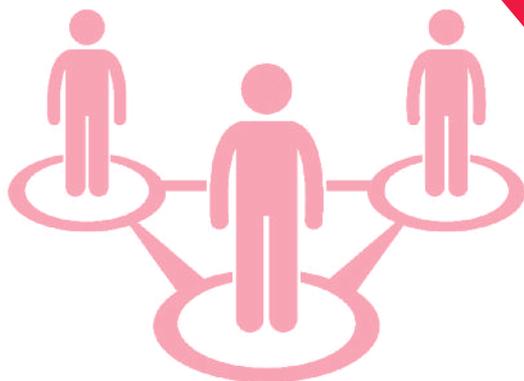
Adolescent sleep and insomnia

A collaboration between a neurologist and an English professor has led to a series of new works around the themes of sleep and insomnia. Professor Matthew Beaumont and Dr Kimberley Whitehead held a symposium on the topic, produced a paper in The Lancet, commissioned music and art and brought academics from across the country together.

At the same time the project wanted to explore how adolescents can influence and direct the development of sleep research to facilitate co-production of knowledge. Kimberley conducted a workshop involving young patients with cancer at the Teenage Cancer Unit, which highlighted the influence of all aspects of life on young people's sleep habits and experience.



Grand Challenge of Cultural Understanding



CU

Survey shows voters' preferences on Brexit

Amid the turmoil of Brexit, researchers from across UCL have undertaken a survey asking over 5,000 representative UK voters to rank four Brexit outcomes in order of preference. The survey (with fieldwork conducted by YouGov) was carried out in March 2019 by Professor Christina Pagel (UCL Mathematics) and data analyst Christabel Cooper in collaboration with Dr Uta Staiger of the UCL European Institute. The work looked at how Brexit attitudes have changed since the referendum in 2016, particularly among those who are struggling with their own finances. Analysis found that Leavers now prefer no-deal to all other Brexit outcomes and that Leave voters are also relatively untroubled by the economic impact of no-deal. The research has gained significant media coverage and Owen Smith, Labour MP for Pontypridd, used the results to make his case that Labour should support a second vote. Mr Smith cited the survey's findings in an opinion piece in *The Guardian* to argue that Labour is in danger of losing votes to parties that are more clearly pro-European at the next general election.



CU

New journal launched in year of Grand Challenges special focus on migration

Assisted by Grand Challenges funding, a new cross-disciplinary journal, *Migration & Society*, was launched in March 2019. One of its three founding editors is Professor Fiddian-Qasmiyeh (UCL Geography), who hosted a Grand Challenges small grant funded Space of Refuge installation and symposium in 2017, with Professor Murray Fraser (UCL Bartlett School of Architecture). Dr Fiddian-Qasmiyeh's emphasis on migration has also led to the UCL Refuge in a Moving World network and now this new journal, which will address the dynamics and drivers of migration as well as processes of settlement and integration.

She advised Grand Challenges on its 2018-19 Migration & Displacement special initiative, which is now funding activities addressing themes of Internal Displacement, Creativity in Crisis and Technology and Development.

Grand Challenge of Global Health



GH

HIV support for young people in South Africa, in just 160 Characters

As part of our Adolescent Lives initiative, Dr Geordan Shannon of UCL's Institute of Global Health partnered with The SHM Foundation to provide support for adolescents living with HIV in South Africa.

The team used data generated by Project Khuluma, which provides support groups to adolescents living with HIV via text message. Launched in 2013, Project Khuluma has supported 160 adolescents in Cape Town and Pretoria, generated more than 60,000 text messages, and recorded increased social support and decreased internalised stigma. However, the impact of the intervention had never been comprehensively evaluated. So the 160 Characters Project brought together the insights of service users, medical science, social science, literature, and technology in attempt to interpret the detailed Khuluma text message data.

The analysis showed that adolescents could speak about the issues associated with HIV without speaking about it directly, allowing them to have a new attitude toward the virus.

GH

New podcast series talks to former WHO director

The Grand Challenges has launched a series of podcasts, Voices from Grand Challenges, beginning by hearing from former WHO director Professor Anthony Costello. An expert in mother, child and adolescent health, Professor Costello spoke to the Grand Challenges team about his new book, *The Social Edge: The Power of Sympathy Groups for our Health, Wealth and Sustainable Future*. He suggests a new science of cooperation through 'sympathy groups', drawing on his experience in India, Nepal, Bangladesh, and Malawi. In a fascinating discussion, Professor Costello suggests this approach could tackle 21st century problems such as loneliness in old age, long term medical conditions, stress in motherhood, hospital service delivery, business performance, or climate resilience.

The podcast series has continued, hearing from academics about how the Grand Challenges has supported their research on migration, health and education. This new way of explaining our work goes alongside our blog, videos, newsletter and website.



Grand Challenge of Human Wellbeing



HW

UCL museum spaces could help adolescent mental health

A unique partnership between psychologists and UCL's cultural spaces sought to bring young people into museums to see how it might improve their wellbeing.

Dr Humera Iqbal and Dr Katie Quy (Lecturers in Psychology from the Institute of Education), worked with Dean Veall from UCL's Grant Museum of Zoology and groups of young people who were psychiatric inpatients. The project wanted to find out if museum-based practices can facilitate discussions with adolescents experiencing mental health difficulties with issues relating to identity, memory, belonging and wellbeing.

The team used a range of museum-based activities with the young people including object handling, art appreciation and curation. For example, the team took a 700 million year old dinosaur bone from the Grant Museum into hospital, encouraging the adolescent patients to handle the object and interact with one another. They then facilitated conversations which emerged from the object handling. The project demonstrated that such workshops connected young people to the outside world and wider society by allowing them an opportunity to handle the rare and valued objects, and that this made the young people feel valued and important. In addition, the workshops created a space to make friends, to talk, and to forge connections during a time of boredom and often isolation for inpatients.



HW

Supporting autistic people's access to justice

Academics from a legal and an education background came together to reveal the challenges that autistic adults, and legal professionals who work with them, encounter in the family courts.

Dr Rob George (UCL Laws) and Dr Anna Remington (Institute of Education) conducted a study among legal professionals working in the family justice system, asking about their knowledge of autism, their perceived self-efficacy when working with autistic clients, and their experience of cases involving autistic litigants. The study reported high levels of knowledge, but low levels of confidence among legal professionals and set out a series of recommendations that could assist autistic people to fully take part in legal proceedings.

Their work has since led to academic publications, presentations at conferences, a podcast and training seminars. The team have secured additional funding from the UCL Impact Growing Fund to help them to develop short factsheets arising from the research to help people working in the family justice system gain better understanding of working with autistic individuals.



Grand Challenge of Justice & Equality

JE

Award winning film shows reality of life in migration hotspot

A Justice and Equality small grant allowed researchers to examine the impact of migration and attitudes towards migrants on the small Italian island of Lampedusa. Dr Michela Franceschelli, Lecturer in Sociology at the Thomas Coram Research Unit, UCL Institute of Education produced a 30 minute film documentary about her work entitled, *CCÀ SEMU. Here we are, lives on hold in Lampedusa.*

The island is Italy's most southerly territory and the first port of arrival for millions of migrants attempting to cross the Mediterranean. Based on interviews with local residents and ethnographic fieldwork, the project explored what life is like for the local people of Lampedusa on the island today. So the project's focus shifted away from the rescues of migrants at sea and towards the experiences of the local community.

The film was launched at a sold-out event at the Bloomsbury Theatre in March 2018. Since then, the film has enjoyed tremendous success. In July 2018, the film won the Best Documentary prize at the 2018 Taormina Film Festival and was then screened at other festivals and events around Europe. The project has now been awarded funding by the ESRC Festival of Social Science and included as part of an event on 'Art and Migration in the Mediterranean Sea' at the Horniman Museum in London.



JE

Former Labour leader leads expert panel on the future of the welfare state

The Right Hon Ed Miliband MP hosted an evening of discussion on the future of the UK's welfare state. A packed lecture theatre heard from experts in global health, psychiatry and social science, asking whether the welfare state is fit for the challenges of the twenty first century.

Professors Anthony Costello (UCL Global Health) and Helen Killaspy (UCL Psychiatry) were among the experts describing the difficulties that the welfare state faces today. Discussion focused on the importance of facilitating social groups in communities to tackle major policy challenges.

The panel's contributions suggested that an innovative, radical approach which values and prioritises people, kindness, relationships, and support groups needs to be placed at the heart of policies governing the welfare state in Britain.

Grand Challenge of Sustainable Cities



sc

Occupational Health, Safety and Wellbeing in Construction

A partnership between academics at UCL and Hong Kong University has led to a report on occupational health, safety and wellbeing in construction. Workshops were held and interviews conducted with management, contractors and operatives in the construction industry.

The report shows the importance of wellbeing to the construction agenda and provides a series of recommendations to the industry.

This project was part of the second annual Grand Challenges call for joint projects between UCL and HKU. The partnership encourages cross-disciplinary collaboration in support of research that addresses global challenges, particularly issues affecting Hong Kong and the wider region of Asia.

sc

T-SUM: Transitions to Sustainable Urban Mobility in Sub-Saharan Africa

Planning cities includes making decisions about transport that are very difficult to change. The legacy of car-oriented development includes pollution, congestion, urban sprawl and accidents. The T-SUM project at UCL is working with partners in Maputo in Mozambique and Freetown in Sierra Leone to explore the ways in which growing urban economies in the developing world can 'leapfrog' car-oriented mobility and go straight to more sustainable and liveable solutions.

A workshop hosted at UCL brought together project partners and government officials from Maputo and Freetown to consider how rapidly growing cities in the Global South can make the transition to sustainable urban mobility.

T-SUM began with a small grant from the Grand Challenge of Sustainable Cities and has since secured over £800,000 from the UK Government's Global Challenges Research Fund.



Grand Challenge of Transformative Technology

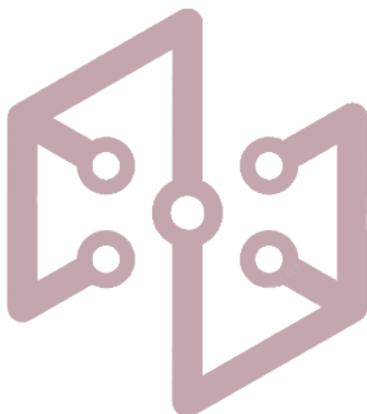


TT

Artificial Intelligence under the spotlight

Following a UCL Town Hall meeting organised by the eResearch Domain, the Grand Challenges decided to stimulate work on Artificial Intelligence at UCL. A funding call was established for work on the 'Social & Ethical Aspects of Artificial Intelligence' and awarded over £13,000 to three cross-disciplinary projects. One will investigate teachers' and doctors' understanding of AI tools and services while another will support a workshop bringing together UCL teams with expertise in digital ethics.

This work will put UCL front and centre in the rapidly growing field of Artificial Intelligence study: we have researchers from a wide range of disciplines exploring the issues around the growing use of AI as the field is being established.



TT

Showcasing UCL's digital impact

The Grand Challenges are the content partner for the DigitalAgenda Impact Awards, celebrating technological innovations that improve people's lives and the world around us. Professor Sofia Olhede (UCL Statistical Science) was on the judging panel for the awards held in March 2019. The ceremony was treated to a showcase of the latest work from Andrew Huddart (UCL Innovation and Enterprise), Dr Catherine Holloway (UCL Computer Science) and Prof Kate Jones (UCL Genetics, Evolution and Environment).

Prof Jones spoke about the importance of cross-disciplinary collaboration when developing technological solutions to monitor biodiversity. Dr Holloway, the Academic Director of the Global Disability Innovation Hub, described how Grand Challenges funding had allowed her to capitalise on the Paralympic legacy from the 2012 games. The GDI hub is based at our new campus on the site of the 2012 Olympic park, UCL East.



About us

The UCL Grand Challenges programme is a key part of UCL's Research Strategy. The Grand Challenges convene and cultivate cross-disciplinary collaborations that explore joined-up solutions in six areas related to matters of pressing societal concern: Global Health, Cultural Understanding, Sustainable Cities, Human Wellbeing, Justice and Equality and Transformative Technology.

UCL Grand Challenges aims to bring researchers together at our university and set the agenda for future research, while building bridges with many external partners.

We do this by awarding small grants to UCL researchers, funding major projects and supporting events led by our academics.

Contact us

This booklet was published in April 2019. On the Grand Challenges website you'll find the latest examples of how the programme works, what we have done and how researchers at UCL can propose and get involved in cross-disciplinary initiatives.

ucl.ac.uk/grand-challenges
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