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The efforts of Associate Professor Amanda Whitfort in the Faculty of Law have had a profound effect on animal welfare in Hong Kong: laws have been changed, protection programmes and training introduced, and public awareness raised about a problem that had been ignored in all but the most extreme cases of cruelty.

The impact of her work has earned Ms Whitfort the Knowledge Exchange (KE) Excellence Award 2016, which was presented to her in a ceremony earlier this year. The award recognises outstanding achievements in KE that have made significant impact on society.

The importance of Ms Whitfort’s work was noted by the former Secretary to the Hong Kong Law Reform Commission, Mr Stuart Stoker, who said it had done the “extremely difficult” thing of enabling legislative change. “The process of change is hugely helped if you have, supporting your arguments, the kind of empirical, comparative research that Ms Whitfort has produced.”

Her landmark contribution was the 2010 Review of Animal Welfare Legislation in Hong Kong undertaken with Dr Fiona Woodhouse of the Society for the Prevention of Cruelty to Animals (SPCA) (HK), which provided a comparative and detailed analysis of animal protection laws that had been drafted in the 1930s.

The Review exposed sketchy enforcement of animal protection laws, insufficient powers to assist animals in danger of suffering and abuse, serious failures in meeting international animal welfare standards, and lack of legislative control over the pet trade.
Its findings attracted media and government attention and led to specialised training for police and prosecutors in presenting animal cruelty cases at court, regular meetings between the Agriculture, Fisheries and Conservation Department (AFCD), the police and the SPCA (HK) to discuss cases, proactive reviews of sentences on animal cruelty convictions by the Department of Justice, and the trial of a “Trap-Neuter-Return” programme for feral dogs.

Key recommendations from the Review regarding new licensing conditions in the pet trade were passed into law in 2016 (Public Health (Animals and Birds) (Animal Traders) Regulations 2016) and Ms Whitfort said it was especially pleasing to see this change. “The recognition that breeders and shopkeepers should provide a reasonable duty of care towards the animals they sell is an important first step for Hong Kong,” she said. Her pioneering work to improve the legislative protection of animals is far from over – she would also like to see duty of care imposed on anyone handling animals, including pet owners, through the introduction of a new Animal Welfare Act for Hong Kong.

Further studies being undertaken by Ms Whitfort address the adequacy of Hong Kong’s laws to control illegal trade in wildlife, the third most lucrative black market in the world, and in June and September she appeared before LegCo to argue for an immediate ban on the local ivory trade and the re-classification of wildlife offences as organised and serious crime.

Ms Amanda Whitfort of the Department of Professional Legal Education received the University’s KE Excellence Award 2016 for the project ‘Review of Animal Welfare Legislation in Hong Kong’. 
Carmakers around the world are trying to reduce the weight of their vehicles to help offset environmental and fuel usage impacts. Work by Dr Mingxin Huang of the Department of Mechanical Engineering has helped to move them towards that goal.

Working with Baosteel Group, one of the largest steel providers in the world, and General Motors, he modified a known but previously-unworkable method for making strong thin steel into an application that was ready to use with existing production lines and reduced the weight of the steel by 20 per cent.

“It’s the same cost, same production line, but better performance,” he said. “Using existing production lines makes it easier for quicker application. Otherwise it costs billions of dollars in investment to change lines.”

Dr Huang got involved in this project after being approached by Baosteel. The firm had encountered difficulty in adopting a steel-making process invented in the US in 2003 that heats the steel to 900 degrees Celsius then quickly cools it to 180 degrees Celsius to create a single crystal structure. While the process worked well in the laboratory, it was not working in the steel plant where steel sheets are hundreds of metres long.

Parts in red can be made by high-strength lightweight steels.
Dr Huang pinpointed the problem to the cooling process and tried heating the steel to a lower temperature and cooling it more slowly. This produced two crystal structures, but the steel was still thinner and as strong as conventionally-produced steel – meaning it could withstand crashes and compressions (the steel in question is used to build the skeleton of the car body). The findings were published in 2013.

Baosteel began to produce steel using this method almost immediately and has seen output rise exponentially from 414 tonnes in 2014 to 10,000 - 15,000 tonnes this year. The steel is mostly used by carmakers in Mainland China and Japan.

General Motors was also involved in the study and in 2015 rolled out the first car using the steel, the Chevrolet LOVA RV.

Dr Huang is continuing to work with Baosteel and has just started a major project looking at “Q&P” (for quenching and partitioning) steel, which has higher strength meaning thinner parts can be used. He has been investigating this steel for more than a decade, including doing projects with another major steel maker, Ansteel Group. “The goal is to develop steel that has much better properties and is easy to use in industrial production,” he said.

It’s the same cost, same production line, but better performance. The goal is to develop lightweight automotive steel that has much better properties and is easy to use in industrial production.

Dr Mingxin Huang of the Department of Mechanical Engineering received the Faculty Knowledge Exchange Award 2017 of the Faculty of Engineering for the project ‘High-strength Lightweight Steels for Low Emission Automobiles’. 

It’s the same cost, same production line, but better performance. The goal is to develop lightweight automotive steel that has much better properties and is easy to use in industrial production.
Biomarkers to detect diabetes, cardiovascular diseases, kidney diseases and autoimmune diseases at a very early stage have been identified by HKU scientists and are being made available for clinical use through the start-up ImmunoDiagnostics Ltd.

The start-up and research have been led by Professor Aimin Xu of the Li Ka Shing Faculty of Medicine who has been investigating biomarkers for these diseases, from discovery to development into diagnostic products, for nearly a decade.

“Major chronic diseases like diabetes and cardiovascular disease are a leading cause of death and disability in all developed countries and regions. But once they get to an advanced stage in a patient, they are irreversible,” he said.

“We have therefore been trying to develop markers that can detect disease at a very early, reversible stage, and also identify high-risk individuals so they can take preventive measures.”

This is possible because the biomarkers circulate in the blood before any clinical symptoms may appear.

In the case of diabetes, for example, the biomarker will flag the early stage of the disease well before it shows up in levels of glucose, which is the conventional marker to diagnose diabetes. Patients can then get advice from a doctor much earlier than previously and adopt lifestyle interventions such as changes in diet and exercise that could reverse or mitigate the diseases. (Professor Xu and his team have also done clinical studies showing that exercise intervention for pre-diabetic individuals can greatly improve their outcome. This was not the case with patients who already had developed the disease.)

The biomarker discoveries have been developed into diagnostic assays for testing patients, several of which have already undergone successful clinical trials in Hong Kong, Mainland China and Australia and been patented.
ImmunoDiagnostics Ltd was formed last year to facilitate the licensing and commercialisation of the discoveries, particularly in meeting the different requirements of different jurisdictions.

“We now have developed a wide range of immunoassay kits for early diagnosis of major chronic diseases, especially for cardio-metabolic disorders and autoimmune diseases, based on our biomarker discoveries. Some of them can be directly applied to automatic chemistry analyzer for high-throughput clinical diagnosis, which is very rapid and can provide results within one hour or less,” Professor Xu said. “We hope to develop clinical applications for the public sector, and private screening for high-risk patients in community.”

While no diagnostic tool can be 100 per cent accurate, he added that his biomarkers can be seen as part of a comprehensive approach to managing chronic diseases that includes early diagnosis, prevention and, if needed, personalised medicine.
An A comprehensive online archive of Hong Kong art and a 73-lecture online series on modern art from post-impressionism to the present day have been made available to the public thanks to the efforts of Professor David Clarke, who recently retired from the Department of Fine Arts.

The Hong Kong Art Archive (HKAA) was created 15 years ago and is regularly updated with new images, artist biographies and bibliographical information about writings on Hong Kong art.

“I became interested in Hong Kong art when it was going through a lot of exciting changes as a result of the pressures of the 1997 handover. There was no archive I could turn to so I decided to create one. This also created opportunities for my students to contribute,” he said.

“My bigger goal was to write Hong Kong art into a larger narrative. Most of what is written in art history is about Western art and although Chinese contemporary art has very much become a field of interest, a lot that is written leaves out Hong Kong.”

Through the HKAA, anyone in the world can learn about Hong Kong art, whether it is a graduate student in California, a scholar in Hong Kong, or an interested member of the public in Taiwan.
“You can’t go to a museum and see a comprehensive display of Hong Kong’s art history as you would elsewhere in the world. There is no display and no textbook, so it has to be online,” he said.

Professor Clarke and his team in the department use objective criteria to decide who to include in the archive, in particular whether an artist has been exhibited locally in a comprehensive way. The HKAA was updated most recently in April this year.

The lecture series is the flip side of that project because it focuses on the development of international art from the late 19th century to the present day. Professor Clarke conducted 73 lectures in 2015 and 2016 and recorded them in audio – copyright restrictions prevented the use of images but users can look them up online as they listen to the lectures.

“Putting the lectures online is part of my effort to break down the walls, so places in the world that don’t have access to academic art history can get a comprehensive university lecture from me on modern art,” he said.

Professor Clarke also has a third project in the works: he has taken photos of Hong Kong over the past 25 years to record the city in transition and hopes to create an accessible online archive of these, as well. Retirement from the University is by no means an end of his knowledge exchange work – he will continue to contribute to Hong Kong’s art history and art developments to benefit society.

Hong Kong Art Archive: http://finearts.hku.hk/hkaa/revamp2011/
Professor Clarke’s lecture series on the history of modern art: https://goo.gl/xCH3Me

Photos featured on Professor Clarke’s page in the Hong Kong Art Archive
01 David Clarke, Bananas (2007), digital print from Polaroid instant photo
02 David Clarke, Building adjoining the Tamar site, Harcourt Road, Admiralty, Hong Kong, October 29, 2004 (2004), digital photo

Examples of works of art discussed in Professor Clarke’s online lecture series
03 Umberto Boccioni, Unique forms of continuity in space (1913), bronze, Metropolitan Museum of Art, New York
04 Paul Gauguin, La Orana Maria (1891), oil on canvas, Metropolitan Museum of Art, New York
Swallowing problems are pervasive among the elderly and patients affected by such conditions as Parkinson’s disease, stroke, dementia, and head and neck cancer, yet few people and their carers are aware of the issue. A new app aims to raise awareness and address the problem.

Dr Karen Man Kei Chan of the Faculty of Education is spearheading the efforts and has shown that about 60 per cent of elderly in nursing homes and 40 per cent of elderly in day care centres suffer from swallowing difficulties, also called dysphagia.

“Our ability to swallow changes with age, and older people may need a longer time to process food and allow it to transit through their throat. They also have a weaker oesophageal function,” she said. “Swallowing difficulties may cause food, liquids or medicine to go down the trachea instead of the oesophagus, causing choking or respiratory complications.”

Patients suffering from conditions or diseases related to the head or brain may also experience these problems and are additionally at risk of communication difficulties.

Yet awareness is low among both sufferers and their carers, particularly in the Cantonese-speaking population. This has led Dr Chan and her team to produce the app, KOTE – ‘Keep on Talking and Eating’.

The app is a self-help platform for people at risk of developing swallowing difficulties as a result of neurological conditions or radiation treatment.

Screenshots of the app, KOTE – Keep on Talking and Eating
We hope that the KOTE app will help to enhance swallowing safety and communication between patients and their carers.

“For example, many nasopharyngeal cancer patients often report that they were unaware that radiotherapy could have the side effect of speech and swallowing difficulties. This means they are less likely to access precautionary methods to prevent or reduce these complications,” she said.

The app provides information about swallowing and speech disorders and also features video and audio clips on exercises to strengthen the mouth and throat muscles used to swallow and speak.

“We hope that the KOTE app will help to enhance swallowing safety and communication between patients and their carers,” Dr Chan said.

In addition to the app, Dr Chan provided training to carers in elderly centres and gives seminars to educate the public about swallowing safety.

She is also researching treatments to address swallowing difficulties. One treatment is repetitive transcranial magnetic stimulation to stimulate nerve cells in the brain, another is acupuncture, which has been reported in numerous instances to be helpful but has not been subjected to randomised and double-blind studies. Dr Chan and her team plan to conduct that research to see if the results hold up to objective evaluation. She hopes to share her research findings with the public through further knowledge exchange work in the future.
Warm congratulations are extended to the following colleagues who have won the Faculty Knowledge Exchange (KE) Awards 2017 of their respective Faculties:

**Faculty of Architecture**  
Professor Rebecca Lai Har CHIU, Department of Urban Planning and Design, and team members – Professor Bo Sin TANG, Department of Urban Planning and Design; Professor Terry Yat Sang LUM and Dr Ernest Wing Tak CHUI, Department of Social Work and Social Administration  
‘Improving Livability in Ageing Hong Kong’

**Faculty of Arts**  
Professor John Charles SCHENCKING, School of Humanities (History)  
‘The Great Kanto Earthquake and a new understanding of responses to natural disasters’

**Faculty of Business and Economics**  
Mr David Lorin BISHOP, School of Business  
‘Bringing Transparency to the Hong Kong Employment Agency Industry’

**Faculty of Dentistry**  
Dr Katherine Chiu Man LEUNG and team members – Professor Chun Hung CHU, Professor Edward Chin Man LO, Dr King Lun HO and Dr Duangthip DUANGPORN  
‘Empowering a Non-governmental Non-profit Organisation to Deliver Oral Home Care and Promote Awareness of Dementia in Elderly Care Centers’

**Faculty of Education**  
Dr Pui Sze YEUNG, Faculty of Education (Division of Learning, Development & Diversity), and team members – Miss Po Yin TSANG and Miss Yan Lee CHAN, Centre for Advancement in Inclusive and Special Education; and Miss Peggie CHAN, Faculty of Education (Division of Learning, Development and Diversity)  
‘Supporting Struggling Writers: From Theory to Practice’

**Faculty of Engineering**  
Dr Mingxin HUANG, Department of Mechanical Engineering  
‘High-strength Lightweight Steels for Low Emission Automobiles’

**Faculty of Law**  
Ms Puja Kapai PARYANI, Department of Law  
‘Plugging the Justice Gap for Minorities under the Law: Applied Intersectionality Research and Substantive Equality’

**Li Ka Shing Faculty of Medicine**  
Professor Danny CHAN, School of Biomedical Sciences, and team members – Dr Brian Hon Yin CHUNG, Department of Paediatrics and Adolescent Medicine; Dr Michael Kai Tsun TO, Department of Orthopaedics and Traumatology; Dr Wilson Cheuk Wing CHAN and Dr Vivian TAM, School of Biomedical Sciences  
‘Little People Care Alliance’

**Faculty of Science**  
Dr Chi Hang HAU, School of Biological Sciences, and team members – Dr Winnie Wai Yi LAW, Ms Joyce Wan Chi CHOW, Mr Ryan Siu Him LEUNG, Miss Vivian Hoi Shan LEUNG, Miss Sianna Si In YIU, Mr Kimchi Wing Fung LO and Miss Shirley Yuen Ling MAK, Faculty of Social Sciences  
‘Global Forest Observatory: Public Involvement and Training in Scientific Research in Hong Kong’

**Faculty of Social Sciences**  
Dr Qijin CHENG and team members – Professor Paul Siu Fai YIP, Miss Esther Sze Tsai LEE and Miss Christine Tsz Long YEUNG, The Hong Kong Jockey Club Centre for Suicide Research and Prevention  
‘Changing Suicide News Reporting in Hong Kong’
HKU DreamCatchers 100K 2017

HKU DreamCatchers 100K is an entrepreneurship seed fund for young entrepreneurs to kick start their businesses, and to experiment and realise their dreams. Each winning team will be awarded $100K seed fund. This programme also includes mentorship, workshops, and networking opportunities.

Final Pitch of the DreamCatchers 100K 2017 was held on April 2 where 20 teams pitched before a panel of judges and a full house to compete for ten $100,000 awards. The winning projects include ‘Project Raphael’, an automated and multi-sensory inspection software solution on drone for intelligent inspection in construction and buildings; ‘BioCap’, a portable and inexpensive chip that provides an easy and real-time diagnosis of influenza; and ‘Peacify’, a smart sock designed to keep track of a baby’s vital signs, alerting parents if there are any abnormalities; etc.

See the full list of winners and highlights at www.dreamcatchers.hku.hk/?p=1984

Global Youth Entrepreneurs Forum 2017

Global Youth Entrepreneurship Forum 2017 was jointly organised by the Hong Kong Federation of Youth Groups and HKU DreamCatchers, and co-organised by Shenzhen Youth Federation, Qianhai Shenzhen-Hong Kong Youth Innovation and Entrepreneur Hub (E Hub) and The Dragon Foundation. The theme was “WE THE FUTURE” and the programme included a full day forum in HKU on June 13 and a full day visit to the E Hub on June 14. A wide range of hot topics including IoT, e-commerce, FinTech, social media, and cultural entrepreneurship were covered for participants to share, learn and network together.

At the forum held in HKU, leading figures from various fields and start-ups formed a speaker line-up at the plenary and breakout sessions, including Dov Moran from Israel who is the inventor of USB memory stick. Altogether there were 74 speakers from around the world.

The event attracted over 1,000 young entrepreneurs, industry experts, angel investors, corporate and government representatives and stakeholders from 33 countries and regions around the world to engage in discussions.
Gerontech and Innovation Expo cum Summit (GIES)

HKU participated in the Gerontech and Innovation Expo cum Summit (GIES), which took place from June 16 to 18 at the Hong Kong Convention and Exhibition Centre.

Jointly organised by the Chief Secretary for Administration’s Office of the HKSAR Government, Hong Kong Council of Social Service and Hong Kong Science and Technology Parks Corporation, GIES was the first large-scale expo and summit in Hong Kong to showcase the latest Gerontechnology products and solutions. GIES aimed to support the Government’s policy of promoting healthy and active ageing. It was also one of the events of the Government to celebrate the 20th anniversary of the establishment of the HKSAR.

According to the event organisers, this 3-day event attracted more than 43,000 visitors. Through exhibition, demonstrations, thematic forums and workshops, GIES provided a platform drawing together stakeholders not only to showcase the latest innovative products and inclusive designs from around the world, but also to engage in dialogue to identify the driving forces for encouraging innovation for the ageing population in Hong Kong and the hurdles to overcome.
HKU showcased the following 7 projects from the Faculties of Education, Engineering and Medicine at the GIES:

- **New Cartilage Regeneration Technology**  
  Professor Barbara Pui Chan, Department of Mechanical Engineering

- **Next Generation Bone Implant for the Elderly**  
  Mr Sloan Kulper and faculty members, Department of Orthopaedics and Traumatology

- **The Magic of Chinese Yam for Treatment of Menopausal Syndrome**  
  Dr Stephen Cho Wing Sze, School of Chinese Medicine

- **Prevention of Aging-associated Neurodegeneration in Alzheimer’s Disease and Glaucoma with a Wolfberry Extract**  
  Dr Raymond Chuen Chung Chang, School of Biomedical Sciences

- **A Soft Robot Hand for Neural Rehabilitation of Degenerative Neurological Diseases and Strokes**  
  Dr Yong Hu, Department of Orthopaedics and Traumatology

- **Technology-based Management of Swallowing Difficulties**  
  Dr Karen Man Kei Chan, Faculty of Education (Division of Speech and Hearing Sciences)

- **A Wearable Transcranial DC-Stimulator to Help Prevent Degenerative Brain Diseases**  
  Dr Yong Hu, Department of Orthopaedics and Traumatology

The project posters can be viewed on our website: https://www.ke.hku.hk/event/GIES2017

The following talks delivered by HKU colleagues at the Summit were well-received:

- ‘**SeniorCLIC – free legal information website for seniors**’  
  Mr Michael Man-kit Cheung, Law and Technology Centre

- ‘**Prevention of Ageing-associated Neurodegeneration in Alzheimer’s Disease and Glaucoma by Anti-ageing Chinese Medicine Wolfberry**’  
  Dr Raymond Chuen Chung Chang, School of Biomedical Sciences

The HKU pavilion was supported by the HKU Knowledge Exchange (KE) Fund granted by the University Grants Committee and the Innovation and Technology Commission’s funding to the Technology Transfer Office.
Finding Experts

The **HKU Scholars Hub** is the University's online expertise directory, which makes HKU researchers and their research visible. It provides an expert finder for businesses, industries, social enterprises, the public sector, and interested student applicants to find HKU experts for contract research, consultancies, and postgraduate student supervision etc. Please visit the HKU Scholars Hub at [https://hub.hku.hk/](https://hub.hku.hk/).

Tech Ready

For a complete list of HKU technologies that are currently available, please visit: [http://www.tto.hku.hk](http://www.tto.hku.hk)

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