

Grand Challenges Symposium 2015

Demographic Change and Longevity

8-9 December 2015
Kyoto University





Welcome

Introduction

Meetings between the President of Kyoto University, Juichi Yamagiwa, and former UCL Vice-Provost (Health), Sir John Tooke, in October 2014, and with UCL Provost, Michael Arthur in February 2015, resulted in an agreement to facilitate collaboration between researchers at UCL and Kyoto University (also with Osaka and Tohoku Universities and the Tokyo Institute of Technology). On the basis of the agreement, Dame Nicola Brewer, UCL Vice-Provost (International) asked the UCL Grand Challenges programme to link up with Kyoto University, in order to plan and deliver a Grand Challenges Symposium focused on a specific Grand Challenges-appropriate research theme (rather than a series of bilateral collaborations), in line with UCL's strategic objectives of creating a collaborative network across a number of Japanese universities, and for UCL to act as linchpin for wider UK engagement with Japanese university researchers.

Dr Ian Scott (Principal Facilitator, Grand Challenges) and Professor Nick Tyler (Chair of the steering committee for the Grand Challenge of Human Wellbeing, GCHW) subsequently proposed and agreed with staff of Kyoto University and collaborating institutions the development of a Grand Challenges Symposium (GCS) at Kyoto University on Demographic Change and Longevity, as a specific research-focused topic of significant relevance to society in Japan and the UK.

Purpose

The objective of GCS 2015 is to identify novel research questions posed by the challenge of ageing societies. By combining the expertise of UCL and Japanese researchers from different scholarly fields the GCS presents a unique opportunity to discuss and agree priorities for joint research. Participating researchers have been invited in their interventions to propose possible topics for inclusion in a future research programme that bears upon major concerns relating to ageing and its impact on society. The main task for GCS participants will therefore be to define research questions for collaborative projects between UK and Japanese researchers which could be developed as funding proposals to agencies in the UK and Japan. The questions identified should hold strong potential to generate robust data and conclusions that will help policy makers reach well-informed decisions on the actions needed to sustain the health and wellbeing of people as they age, and to strengthen intergenerational equity.

GCS 2015 is the first major Grand Challenges symposium to be held outside the UK. It is a distinct honour for UCL that it is taking place in Japan, jointly with four renown Japanese universities. We hope that the outcome of the GCS will be of great value and merit to all concerned – to individual researchers, their universities, and to society in the UK and Japan and across the wider world.

Footnote

When UCL launched the Grand Challenges programme in 2008 it set down a marker for a new collegiate spirit within the university, emboldening scholars and researchers to raise their game in the face of major societal challenges. 'Grand Challenges' has become a programme recognised within and beyond UCL as a metaphor for a new academic freedom – positively encouraging experts in different fields to interact outside their domains of disciplinary excellence and peer-recognition, creating a new scholarly confidence and authority to find common cause through research, combined with the empowerment and language to engage productively with policy makers and politicians.

Ian Scott (Principal Facilitator, UCL Grand Challenges)

Nick Tyler CBE FREng (Chadwick Professor of Civil Engineering; Chair, GCHW Executive Group)



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Programme





Programme

《Day1》 Tuesday 8 December

8:30 Registration @ 5F, International Science Innovation Building

9:00 Plenary @ Symposium Hall

9:00-9:05 Opening remarks

9:05-9:10 Welcome
Prof Juichi Yamagiwa, President of Kyoto University

9:10-9:20 Purpose
Prof Nick Tyler, Faculty of Engineering Sciences, Department of Civil,
Environmental & Geomatic Engineering, UCL

9:20-9:50 Keynote lecture
"Social and economic risks of longevity, labor force participation, and lower fertility"
Prof Shuzo Nishimura, Director General of Institute for Health Economics and Policy

9:50-10:00 Photo

10:00 Coffee break @ Foyer

10:10 SESSION 1 @ Meeting Room 5a/5b

"Employment and economy in ageing society: Older adults as a societal resource"
Chair: Prof Eric French

10:10-10:15 Opening remarks
Eric French

10:15-10:35 *"Medical spending in Japan"*
Eric French
"TBD"
Hidehiko Ichimura

10:35-10:45 *"Japan's fiscal policy and social security"*
Takefumi Yamazaki and Daizo Kojima

10:45-10:55 *"Visualization and social joint venture: For quality, efficiency, and equity of
health care systems in the super-aged/super-aging society"*
Yuichi Imanaka

10:55-11:50 Discussion

11:50 Lunch @ Foyer

13:00 SESSION 2 @ Meeting Room 5a/5b

“Health & wellbeing of older adults”

Chair: Prof Eric Brunner

13:00-13:05 Opening remarks
Eric Brunner

13:05-13:15 *“Trends of healthy life expectancy in Japan”*
Ichiro Tsuji

13:15-13:35 *“Health, health inequalities and ageing well: Evidence and gaps in the evidence”*
Eric Brunner
“Impacts of leaving paid work on health, functions, and lifestyle behaviors in Japanese older people”
Hideki Hashimoto

13:35-13:45 *“Understanding the cultural difference in health and well-being: A research example from Great Britain and Japan”*
Noriko Cable

13:45-13:55 *“Social capital and health in older Japanese”*
Jun Aida

13:55-14:05 *“Public Health for an ageing society: Experiences and epidemiological evidence in Japan”*
Hiroyasu Iso

14:05-15:00 Discussion

15:00 Coffee break @ Foyer

15:20 SESSION 3 @ Meeting Room 5a/5b

“Youth and intergenerational equity in ageing societies: Future for ageing society”

Chair: Prof Nick Tyler

15:20-15:25 Opening remarks
Nick Tyler

15:25-15:35 *“Use of monitoring devices to quantitatively assess behavioral psychological symptoms of dementia”*
Kiyoko Makimoto



Programme

- 15:35-15:45 *“Measuring affective well-being and life stressors using wearable devices for the ageing communities in Japan”*
Junichiro Ishio and Naoya Abe
- 15:45-15:55 *“First step towards integrating translation studies into the 'Tokyo Tech Happiness Co-Creation Society through intelligent communications project'”*
Kayoko Nohara
- 15:55-16:05 Break
- 16:05-16:15 *“Demographic change, longevity and urban environment”*
Nick Tyler
- 16:15-16:25 *“Urban planning responses to the aged society: The Japanese challenge”*
Norihiko Nakai
- 16:25-16:35 *“Housing renovation and community management for the sustainable society: Action research experience from Kyoto”*
Masahiro Maeda
- 16:35-16:45 *“Co-creating health and well-being of older adults in Japan with professional care practitioners and engineers”*
Tom Hope
- 16:45-16:55 *“Introducing a 'Community-based integrated care system' and multifactor approach in health-promotion activities”*
Ken Osaka
- 16:55-17:05 *“Health development in Japan: Towards a super-ageing society”*
Hiroki Nakatani
- 17:05-18:10 Discussion

18:10 Conclusion of Day 1 @ Meeting Room 5a/5b

18:30 Transfer Campus to restaurant

19:00 Dinner @ Higashiyama SODOH

21:00 Transfer

《Day2》 Wednesday 9 December

- 8:45** **Coffee** @ Foyer
- 9:15** **Further discussion from the first day** @ Meeting Room 5a/5b
Chair: Prof Nick Tyler
- 10:15** **Discussing the symposium statement** @ Meeting Room 5a/5b
Chair: Prof Nick Tyler
- 12:00** **Lunch** @ Foyer
- 13:00** **Finalisation of agreed symposium statement** @ Meeting Room 5a/5b
Chair: Prof Ian Scott
- 14:30** **Objectives and next steps** @ Meeting Room 5a/5b
Prof Ian Scott, Principal Facilitator, UCL Grand Challenges
- 14:45** **Concluding remarks** @ Meeting Room 5a/5b
Prof Kayo Inaba, Executive Vice-President for Gender Equality, International Affairs, and Public Relations of Kyoto University
- 15:00** **Transfer**



University Profiles





Juichi Yamagiwa

President, Kyoto University

Juichi Yamagiwa (DSc, Kyoto University, 1987) is the president of Kyoto University.

Prior to his appointment as president in 2014, Yamagiwa served as a member of the university's Administrative Council from 2012–2013, and dean of its Graduate School and Faculty of Science from 2011–2013. He also served as president of the International Primatological Society from 2008–2012 and

president of the Primate Society of Japan from 2005–2009.

His major research interests are primatology and anthropology. He has spent considerable time engaged in field research on gorillas and chimpanzees in Africa, and is the author of several books. In 2006, he was awarded the Daido Life Foundation Encouragement Award for Area Studies.

Kyoto University

Since its foundation in 1897, Kyoto University has worked to cultivate academic freedom under a spirit of self-reliance and self-respect, and to open up new horizons in creative scholarly endeavor. The university has also sought to contribute to peaceful coexistence across the global community. As a comprehensive, research-oriented institution, Kyoto University must integrate its liberal arts and foundation education, specialized undergraduate education, and graduate education programs in ways that equip students with creativity and practical capability. To do so requires the development of educational pathways offering a hierarchical arrangement of diverse disciplinary knowledge and facilitating a wide variety of learning choices. It takes time for students to realize their abilities to the fullest extent. I hope that we can provide a supportive learning environment in which students are not rushed into making decisions regarding their future, and instead can follow a positive process of trial and error that will enable them to be more confident in the futures that they eventually choose.

In order to cultivate students with abundant inventive capabilities, all faculty and administrative staff members must be committed to pursuing research and social contribution initiatives that attract international attention. Kyoto University has 10 faculties, 18 graduate schools, 14 research institutes (more than any other university in Japan), and many other education and research facilities. I will be doing my utmost to ensure that our goals are advanced across all these different branches of the university community.





Michael Arthur

**Professor / President and Provost,
University College London**

Professor Michael Arthur is President and Provost of UCL, and the first clinical academic to hold this position in the history of the University. Previously he was Vice-Chancellor of the University of Leeds (2004-2013) where he is credited with guiding the university to academic excellence in research, innovation and student education, reaching a clear position

amongst the top 100 universities in the world (QS ranking).

He is formerly Professor of Medicine (1992 -2004), Head of the School of Medicine (1998-2001) and Dean of the Faculty of Medicine, Health and Life Sciences in Southampton (2003-04). During his tenure the Medical School achieved major growth in its research profile with excellent results in RAE 2001 and a maximum score (24/24 points) in the Quality Assurance Exercise of Medical Education.

Professor Arthur is a hepatologist, with research interests in liver cell biology and the cell and molecular pathogenesis of liver fibrosis, developed initially under the guidance of Monty Bissell at the Liver Center Laboratory, University of California, San Francisco (1986-1988). More recently Professor Arthur was as a Fulbright Distinguished Scholar at Mount Sinai School of Medicine in New York (2002) working in Scott Friedman's laboratory. He was awarded the Linacre medal of the Royal College of Physicians in 1994 and became a Fellow of the Academy of Medical Sciences in 1998.

University College London

UCL, London's Global University, was founded in 1826 to open up higher education in England to those who had been excluded from it. In 1878 it became the first university in England to admit women students on equal terms with men. UCL is proud to have hosted the Choshu Five as some of its earliest international students, including Ito Hirobumi, who became the first prime minister of Japan and, later, the Satsuma 14.

UCL is one of the UK's major research-intensive universities, with eleven academic faculties spanning arts and social sciences, engineering and physical sciences, to life and medical sciences. It has around 1,000 professors, 6,000 academic and research staff, and 5,000 graduate research students. UCL is ranked seventh in the world by QS World University Rankings (2015-16). It is the top-rated university in the UK for 'research strength' (Research Excellence Framework 2014), by a measure of average research score multiplied by staff numbers submitted. UCL has the largest number of students funded through the prestigious Centres for Doctoral Training. All of UCL's research, subject to permissions, is placed in Discovery – UCL's online repository, freely available to everyone.

As part of its institutional Research Strategy, in 2008 UCL launched its Grand Challenges programme, designed to stimulate cross-disciplinary collaboration on issues of societal complexity within and beyond UCL in four major thematic domains: Global Health, Sustainable Cities, Intercultural Interaction and Human Wellbeing. Academic excellence and research that addresses real-world problems inform UCL's ethos to this day and are central to the university's 20-year strategy, UCL 2034.





Shojiro Nishio

President, Osaka University

Dr. Shojiro NISHIO became the 18th President of Osaka University in August 2015. He received his B.E., M.E., and Ph.D. degrees, all in applied mathematics and physics, from Kyoto University. He has been a full professor at Osaka University since August 1992, and was bestowed the prestigious title "Distinguished Professor of Osaka University" in July 2013. He served as an Executive Vice President of Osaka University from August 2007 to August 2011. He also served in various national policy advisory boards and committees, such as acting as the Program Director in the Area of Information and Networking, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan from April 2001 to March 2008. His research interests include data engineering and multimedia systems. Dr. Nishio has received numerous awards during his research career, including the Medal with Purple Ribbon from the Emperor of Japan in 2011, which is awarded to individuals who have made outstanding and important contributions in academic fields, arts and sports.

Osaka University

Osaka University was founded in 1931 as Japan's 6th imperial university. Today, Osaka University, following the incorporation of the Osaka University of Foreign Studies, is comprised of 11 schools, 16 graduate schools, various research institutes and joint-use facilities. We have 3 campuses, in Suita, Toyonaka and Minoh, where more than 23,000 students study and 6,000 faculty and staff members devote themselves to education and research. Furthermore, we have Overseas Centers in San Francisco, Groningen, Bangkok and Shanghai.





Susumu Satomi

President, Tohoku University

Dr. Susumu SATOMI was appointed Tohoku University President on April 1st, 2012. Prior to being appointed as President, Dr. SATOMI served as Vice President at Tohoku University (2005-2012), and as the Director of Tohoku University Hospital (2004-2012).

Dr. SATOMI has held several distinguished positions in major academic societies in Japan, including President of the Japan Association of National Universities (2014-present), the President of the Japan Surgical Society (2008-2012), and the President of the General Incorporated Association National Clinical Database (2010-2014). He is also a member of many other renowned academic circles.

He has authored or co-authored over 200 scientific articles, and has been recognized for his exceptional work in the fields of organ preservation and transplantation medicine. From 1984 to 1986, he was a research fellow at the Harvard University Institute of Transplantation. Dr. SATOMI is an alumni of Tohoku University School of Medicine, and earned both a Master's Degree and Ph.D. (Dr. of Medicine Science) from Tohoku University.

Tohoku University

Tohoku University was founded in 1907; since then it has been committed to the “Research First” principle, “Open-Door” policy and “Practice-Oriented Research and Education”. In August, 2013, President Susumu Satomi announced his “Satomi Vision” which conceives of Tohoku University as a fellowship of knowledge, open to the world, where people can gather, learn, and create. President Satomi intends to pursue the two goals of Achieving World-Class Status and Leaping Ahead, as well as Leading the Post-earthquake Restoration and Regeneration.

As new initiatives in response to the Great East Japan Earthquake in 2011, the Institute for Disaster Reconstruction and Regeneration Research, the International Institute for Disaster Sciences (IRIDeS), the Tohoku Medical Megabank Organization (ToMMO) have been established. In 2014, Tohoku University’s “Global Vision” led to our selection as part of MEXT’s Top Global University program. Tohoku University is actively pursuing partner universities for its International Joint Graduate Programs, as they aim to enter the world’s Top Ten in four fields, while challenging three new academic disciplines.





Yoshinao Mishima

**President and Doctor,
Tokyo Institute of Technology**

Dr. Mishima assumed the presidency of Tokyo Institute of Technology (hereafter Tokyo Tech) in October 2012. A graduate of Tokyo Tech with bachelor's and master's degrees from Tokyo Tech's Department of Metallurgical Engineering, he earned a Ph.D. from the Department of Materials Science and Engineering at the University of California, Berkeley.

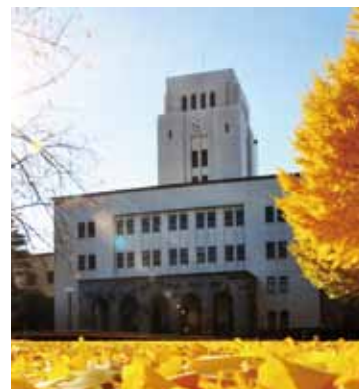
Having started his career in Japan in 1981 as an Assistant Professor at the Precision and Intelligence Laboratory of Tokyo Tech, Dr.

Mishima was promoted to Associate Professor in 1989. He became a full professor of the Department of Materials Science and Engineering in the Interdisciplinary Graduate School of Science and Engineering of Tokyo Tech in 1997.

Dr. Mishima's major research field has been the design of high temperature structural materials such as heat resistant steels, nickel-base superalloys and high temperature structural intermetallic alloys. He has received many awards for his outstanding research achievements from academic societies including the Japan Institute of Metals, the Iron and Steel Institute of Japan, the Japan Society for Heat Treatment, and ASM International.

He was a member of the Educational and Research Council in the 2005 academic year and Dean of the Interdisciplinary Graduate School of Science and Engineering from 2006 to 2009. He was Director of the Frontier Research Center in 2010 and Director of the Solution Research Laboratory in 2011. Prior to becoming President of Tokyo Tech, he was Executive Vice President for Education and International Affairs.

Dr. Mishima was President of the International Federation for Heat Treatment and Surface Engineering in 2007 and 2008, President of the Japan Institute of Metals in 2010, and he is currently President of the Japan Society for Heat Treatment.



Tokyo Institute of Technology

Tokyo Tech is the top national university for science and technology in Japan, with a history spanning more than 130 years. Of the approximately 10,000 students, half are graduate students. International students comprise approximately 12% of the student body.

The Institute currently has three undergraduate schools with 23 departments, six graduate schools with 45 departments, and several research institutes spread over its Ookayama, Suzukakedai, and Tamachi Campuses. From April 2016, Tokyo Tech's undergraduate and graduate schools will be combined into six schools with 19 departments, providing seamless transitions between the bachelor's and master's and the master's and doctoral programs.

As a participating university in the Top Global University Project, the Institute is implementing administrative reforms that will strengthen the outstanding education and research for which Tokyo Tech is known and position the Institute as a global hub for the development of knowledge and talent in science and technology. Key reforms under the project include aggressive investment in personnel for target fields, academic tuning for easier credit transfer, and further promotion of international collaborative research.

Keynote Speaker



Keynote Speaker

Institute for Health Economics and Policy

Shuzo Nishimura

**Director General of Institute for Health Economics and Policy
/ Professor Emeritus / Former Executive Vice-President for
International Affairs of Kyoto University / Former Director-
General of the National Institute of Population and Social Security
Research**

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Academic Career

- 1969 Bachelor of Economics, Kyoto University, Japan
- 1971 Master of Economics, Kyoto University, Japan
- 1972 Assistant at the Institute of Economic Research, Kyoto University
- 1975 Associate Professor of the Department of Economics, Yokohama National University
- 1981 Associate Professor of the Graduate School of Economics, Kyoto University
- 1987 Professor of the Graduate School of Economics, Kyoto University
- 1999–2000 Dean of the Graduate School of Economics and Faculty of Economics, Kyoto University
- 2004–2006 Dean of the Graduate School of Economics and Faculty of Economics, Kyoto University

Research fields : Health Economics, Population Studies

Title of Presentation :

Social and Economic Risks of Longevity, Labor Force Participation, and Lower Fertility

Viewing Japanese society over the past thirty years, I will show how society changed, allowing people to enjoy longevity, health, and a higher standard of living. People, however, have difficulties to realize this kind of prosperity.

Lower fertility rates, unequal distribution of wealth and income, and changes in family structures make people feel anxious about the future.

I will give several ideas and several examples to avoid past prejudice with knowledge acquired in the past.

- (1) Elderly people live significantly longer than did those in the past.
- (2) Elderly people are on average much healthier than were those in the past.
- (3) Elderly people can work much more, if society can only accept them. However, changes in industrial structure should be kept in mind.
- (4) On average, elderly people are much wealthier, in spite of the existence of severe inequality of wealth among the elderly.
- (5) The role of families as a mutual aid system has gradually weakened.
- (6) Instead, mutual aid among people in neighborhoods has become important.
- (7) This kind of mutual help makes elderly people much healthier with respect to physical and mental health.
- (8) In Japan, the numbers of elderly people are drastically different in urban and rural areas. In the coming ten years, many super-elderly people will live in urban areas.
- (9) Several experiments in changing peoples' lifestyles will contribute to intergenerational mutual aid and moderate the effects of lower fertility.

Participants





Kyoto University **Kayo Inaba**

**Professor / Executive Vice-President for Gender Equality,
International Affairs, and Public Relations**

Prof. Inaba served as Dean of the Graduate School of Biostudies from April 2003 to March 2005, and Director of the Center for Women Researchers from October 2007 to March 2014. Prof. Inaba received her doctorate in science from Kyoto University in 1978, and became the first female associate professor at

Kyoto University Faculty of Science. She received the L'Oréal-UNESCO Women in Science Award in 2014 and the Takeda Medical Prize in 2015. Prof. Inaba is known for her work on demonstrating the importance of dendritic cells, which act as “sentinels” of the immune system. She has also shown that these cells can be treated outside the body, and then reinfused into the body to stimulate immune responses. In addition, she developed a method to generate dendritic cells from bone marrow precursor cells—a key advance that could lead to a new type of anticancer treatment or open a new path for cellular therapy.



Kyoto University Graduate School of Medicine **Fumihiko Matsuda**

**Professor / Assistant to the Executive Vice-President
for International Affairs**

Professor Fumihiko Matsuda obtained his PhD in Molecular Biology from Kyoto University Graduate School of Medicine in 1990. After working at Kyoto University Graduate School of Medicine as an assistant professor, he moved to France in

1998 to join the Centre National de Genotypage in Evry as the head of gene identification. In 2003, he obtained a double appointment as a professor at Kyoto University Graduate School of Medicine. From 2007 to 2010, he served as a research director of INSERM (U. 852) and since 2008 he has been Director of the Center for Genomic Medicine at the Kyoto University Graduate School of Medicine. Throughout his various appointments, he has consistently devoted himself to research into human disease genomics using a genome-wide approach. His major research interests include integrated omics analysis of human multigenetic disorders and large-scale genome cohort study.

Kyoto University

Department of Healthcare Economics and Quality Management,
School of Public Health, Graduate School of Medicine

Yuichi Imanaka

Professor

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Title of Presentation :

Visualization and Social Joint Venture: for quality, efficiency, and equity of health care systems in the super-aged / super-aging society

Background and Aims

Japan is experiencing a super-aged & super-aging society, which has never before been seen. In addition, government debt is also massively increasing with increasing social security demands. The cost containment pressure is evidently rising, and can widen supply–demand gaps and performance disparity across subpopulations or regions.

Since the disparity seems to have been widened in the population and the economy across regions in Japan, we focus on the regional variation in the performance of health care and long-term care. Our aim is to measure the quality, access, and cost of care among regions in Japan, investigate the mechanism of their variation, and discuss how to tackle this urgent social problem.

Methods & Results

To analyze the quality, access, and cost of care at regional levels, we used the National Database of Health Insurance Claims, the DPC databases of over one thousand hospitals, the nationwide database of four hundred hospitals, and prefecture-level healthcare and long-term care insurance claims databases. Multi-variable and multi-level regression models were used for risk adjustment in the performance measures. We measured and compared performance measures for acute myocardial infarction, stroke, and dementia care, including process quality and risk-adjusted outcome indicators, and analyzed the determinants or correlates of their variation. The performance varied in each aspect across regions and the variation tended to be associated with resource concentration and networking.

Discussion

Substantial variation in quality of and access to care was observed across regions. This fact sounded the alarm on universal health coverage because it not only collects insurance premiums from all people but should assure equity in quality and access to care.

In the analysis output, quality variation was in some ways positively associated with cost and resource and, in particular, the lowest-resourced subgroup tended to show the lowest performance. However, even with limited resources, resource concentration with good networking could work better. These findings may contribute to resource allocation policies and system design in regional health care systems.

From another perspective, to realize the best efforts from potential social resources and assets, positive commitments from all stakeholders need to be coordinated and input into healthcare system reconstruction. What we call "social joint venture" (SJV) is expected to be a promising concept. Not only national/local governments, but also citizens, healthcare providers, insurers, related industries, academia, and social entrepreneurs should share and discuss the current real situations, and positively carry out their own unique role toward the common goal of sustaining the healthcare system.

Conclusions

In the era of super-aging and financial constraints, we should have stronger plans to fight against regional disparity in quality in and access to health and long-term care. Based on visualizing care and promoting evidence-informed policy-making processes, we should re-design the systems and plan realistic pathways. In addition, we should launch social joint ventures (SJV), with all stakeholders carrying out their active roles to reconstruct and realize a sustainable healthcare system of high quality, efficiency, and equity.

Kyoto University

Faculty of Engineering, Department of Architecture and Architectural Engineering

Masahiro Maeda

Assistant Professor

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Title of Presentation :

Housing Renovation and Community Management for a Sustainable Society: Action Research Experience from Kyoto

“Renovation” is being seen as important as a method of realizing a transition from a “flow-based society” to a “stock-based society” in housing and urban policy in Japan. “Renovation” is not merely the technology for the regeneration of housing stocks but a methodology for community creation or reorganization through attracting creative persons from the outside and fostering community leaders in the area.

Kyoto has a unique urban lifestyle culture in its long history, fostering a community management system based on multi-level community structure composed of “Cho” (street-based communities) and “Gakku” (school-based communities). Recently, we have seen collaborative decision-making and management systems of community resources by people, called “Machi-zukuri” in Japan, and it represents an important idea for sustainable societies. However, “Machi-zukuri” is facing various challenges with change and diversification of lifestyle and decline of ownership for the communities.

We have been engaged in some action research about housing renovation and community management in Kyoto. This presentation introduces the case of the regeneration of the Horikawa housing complex (old RC-structured apartments with shops) and the case of the regeneration of “Kyo-machiya” (traditional wooden structured townhouses in Kyoto) in community management. Through the experiences of two communities, we consider the role of “renovation” in “Machi-zukuri” (community management).

Ministry of Finance

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Kyoto University

The Research Center for Advanced Policy Studies (CAPS),
Institute of Economic Research, Kyoto University

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Title of Presentation :

Japan's Fiscal Policy and Social Security

Japan continues to run budget deficits where expenditures exceed tax revenues, and a huge debt has been accumulated.

The main factor causing the deficit is social security expenditure due to population aging. Although the total cost for social security benefits has been rising, the revenues from social security contributions have remained flat. In comparison with other developed countries, those features are clearly identified.

Based on demographic projections, Japan's population continues to age much more and much faster than other developed countries. Naturally, social security expenditure will rise.

We check the required fiscal adjustment amount for calculating the S2 indicator (the primary balance adjustment needed to stabilize the debt-to-GDP ratio on and after 2060) following EU commission methods.



University College London
Office of the Vice-Provost (Research)

Ian Scott

Doctor / Principal Facilitator, UCL Grand Challenges programme

Ian Scott is Principal Facilitator of UCL Grand Challenges, a central feature of UCL's Research Strategy, which aims to: cultivate leadership founded in excellence; foster cross-disciplinarity grounded in expertise; and realise the impact of a global university. Grand Challenges is a university-wide initiative designed to enhance the value and impact of research within and beyond UCL through innovative cross-disciplinary activity linked to four major societally-directed themes: Global Health, Sustainable Cities, Intercultural Interaction and Human Wellbeing.

Dr Scott joined UCL in 2009 from the Wellcome Trust, where he held responsibility for grants programmes relating to Neuroscience and Mental Health, Population and Reproductive Health, and UK-former Soviet bloc collaboration. Before joining the Wellcome Trust in 1987 he pursued postdoctoral research on calcium in neuronal and lymphocyte cell activation in Dundee, Helsinki and London. He is a graduate of the Universities of Liverpool (BSc Biochemistry) and Bristol (PhD Skeletal muscle mitochondrial metabolism).

University College London

**Faculty of Engineering Sciences, Department of Civil,
Environmental & Geomatic Engineering**

Nick Tyler

**Chadwick Professor of Civil Engineering / Director Grand
Challenge of Human Wellbeing**

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Title of Presentation :

Demographic change, longevity and the urban environment

How we design cities for the next generations, when demographic change and longevity mean that priorities and desires change, needs to be addressed now because of the relationship between present actions and future constraints. This paper sets out a paradigm for decision-making in this context.

Professor Nick Tyler CBE FREng is the Chadwick Professor of Civil Engineering at UCL. Nick was the Head of Department of Civil, Environmental & Geomatic Engineering at UCL from 2003 to 2013. Now he researches the environment's interactions with people. He is working extensively with bodies such as Transport for London in the UK, Latin America, Japan and China on creating an urban realm which is responsive to people and their needs. He is a keen advocate of transdisciplinary research and teaching and works with people from a wide range of arts, humanities and sciences to create a better world. He was the architect of a revolutionary change to civil engineering teaching in UCL to bring the education of engineers into the 21st century and is currently developing a Masters of Arts and Sciences programme.

University College London

**Institute of Epidemiology and Health Care, UCL Faculty of
Population Health Sciences**

Eric Brunner

**Professor / Co-director Whitehall II study / Co-director
UCL Masters in health and society: social epidemiology**

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Title of Presentation :

**Health, health inequalities and ageing well - evidence and gaps
in the evidence**

My brief presentation will summarize recent work using Whitehall II, English Longitudinal Study of Ageing and the Japanese Comprehensive Survey of Living Conditions series. I will argue that translational research, which integrates current epidemiological evidence with population context, is vital in improving our understanding of what can be done to reduce age-related functional decline. Preventing or delaying dementia is an important strategic objective. To understand the implications of the vascular hypothesis for future dementia trends, we have built a Markov state transition model for England and Wales that takes a competing risks approach. IMPACT-BAM (Better Ageing Model) integrates the impacts of trends in CVD morbidity and mortality with the trend in dementia incidence. The model predicts life expectancy (LE), disability-free LE, morbidity-free LE, prevalence of abovementioned conditions, and mortality to 2040. Evidence from existing studies can be incorporated to estimate and compare the impact of change in level of risk factors in the population on future health-state occupancy. All estimates are accompanied by uncertainty analysis. An added 'economic layer' would enable societal costs and benefits to be assessed. An IMPACT-BAM model for Japan could be a valuable tool for policy makers. Comparisons between Japan and UK would provide new insights into ageing dynamics.

the University of Tokyo

School of Public Health, Health and Social Behavior Program

Hideki Hashimoto

Professor

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Title of Presentation :

Impacts of leaving paid work on health, functions, and lifestyle behaviors in Japanese older people

Despite of extensive research published in economic, psychological, and public health literatures, a consensual view on the causal influence of leaving paid work onto health, functions, life style behaviors, and social participation has not been reached. Recent review studies indicated that heterogeneous characteristics of the pre-retired should be accounted for to reveal the impact of leaving paid work. Related evidence is scarce in Japan where effective retirement age is highest among developed countries. We used panel data from the Japanese Study of Aging and Retirement (JSTAR) to fill this knowledge gap. Using propensity-matching difference-in-difference estimation stratified by age strata (under 65 vs. 65 and over), gender, and job characteristics, we found that transitioning from paid work status to retirement exerted limited impact on cognitive function, mobility, smoking behavior, body mass index, psychological distress, hypertension prevalence, fruit intake, and social participation to voluntary services. However, some segments of older people seemed more vulnerable to specific impacts, e.g. men formerly engaged in white-collar job and secured job, or older women with unsecured jobs showed a negative impact on cognitive function, while men with stressful job showed reduced prevalence of hypertension after retirement. We argue that the heterogeneity of the population at retirement age should be considered to better specify causal pathways and policy implications of health impacts after leaving paid work.

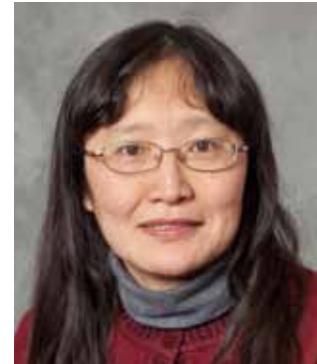
University College London

Institute of Epidemiology and Health Care, UCL Faculty of
Population Health Sciences

Noriko Cable

Senior Research Fellow, International Centre for Life
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Title of Presentation :

Understanding cultural differences in health and well-being: A research example from Great Britain and Japan

In my talk, I briefly address the current work of International Centre for Life course Studies in Society and Health (ICLS), UCL that addresses cultural differences in well-being using the Whitehall II Study (WII), Japanese Civil Servant Study (JACS), English Longitudinal Study of Ageing (ELSA), Japan Aging Evaluation Study (JAGES) and Japanese Aging and Retirement Study (JSTAR).

My talk will give insights to a scientific approach to health and well-being by addressing (1) contextual differences in perception of health and well-being and (2) differences in determinants of health and well-being between Great Britain and Japan.

Established in 2008, ICLS has been working to uncover complex pathways between social determinants and health across the life course. For that ICLS takes advantages of rich contextual data that are collected repeatedly. We use British Birth Cohort Studies, started in 1946, 1958, 1970, and 2000/1, British Household Panel Study started in 1991, and English Longitudinal Study of Ageing started in 2002.

Given my health care background, I am interested in incorporating biological pathways into the model of social determinants of health across life course by using biomedical data (i.e. inflammatory marker).

Given the alarming speed of growth in older adult population, healthy and active ageing have been the focus of area in ageing studies. In collaboration with my colleagues in Sweden, my next study will look into biomarkers that are predictive of frailty that are applicable to various countries. It will generate interests of health care researchers and practitioners across countries.

University College London
Department of Economics

Eric French

Professor

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Title of Presentation :

Medical Spending in Japan

The goal of our proposal is to forecast future medical spending in Japan and other countries.

Healthcare spending growth in Japan has accelerated in recent years, in contrast to the majority of OECD countries. As such, it is important to characterise the structure of recent medical spending using individual-level data. We thus use a medical claim bill data of from a citizen's health insurance plan in Japan to examine the concentration and persistence of medical spending. We find that medical spending is disproportionately distributed across the individuals with in the top 10 per cent of spending responsible for over 60 per cent of total expenditures. We also find a high persistency in spending across time: the top 20 per cent of spenders remain in the same rank in the following year with over 60 per cent probability. Medical spending is more concentrated within those aged 0 to 64 years than among the older age group, whereas the degree of persistency is lower for those in the youngest and oldest age groups than others. The results also show a striking contrast in the relationship between income and medical spending across age groups. Specifically, young individuals in low-income families spend more on medical care than those in high-income families; among those aged 65 years or above, high-income men spend more than low-income men. Finally, consistent with previous studies, we find increased medical expenses one year before death, accounting for 12 per cent of total expenditures among those aged 65 years or older.

We propose using these data to help us forecast future medical spending in Japan.

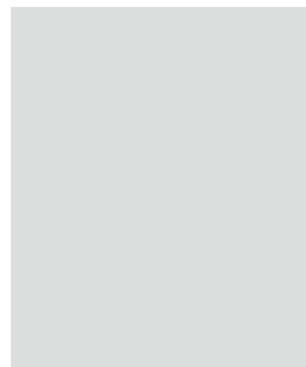
the University of Tokyo
Graduate School of Economics

Hidehiko Ichimura

Professor

E-mail:

Title of Presentation :





Osaka University

Office of the Vice-Provost (Research)

Toshiya Hoshino

Executive Vice President of International Engagement

Dr. Toshiya Hoshino is an Executive Vice President of Osaka University. Previously, he was the Dean at the Osaka School of International Public Policy (OSIPP), Osaka University.

He graduated from Sophia University, Tokyo, completed a Master's at the University of Tokyo, and Doctorate (Ph.D.)

from Osaka University.

His previous positions include: Minister-Counsellor, Permanent Mission of Japan to the United Nations, Senior Research Fellow at the Japan Institute of International Affairs (JIIA); Guest Scholar at the School of International and Public Affairs, Columbia University; Fellow at Stanford Japan Center, Stanford University; Visiting Fellow, Woodrow Wilson School, Princeton University; Visiting Fellow, the United States Institute for Peace (USIP); Visiting Fellow, The University of Wollongong, Australia; Consultant to the United Nations University; and a Special Assistant (Political Affairs) at the Embassy of Japan to the United States.

He is a specialist in International Politics and Security, particularly the United Nations system studies.

Osaka University
Graduate School of Medicine

Hiroyasu Iso

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Title of Presentation :

Public health for an ageing society : Experiences and epidemiological evidence in Japan

The substantial decline in stroke-related mortality since the 1970s among middle-aged and elderly Japanese contributed to the prolongation of life expectancy, which led to the highest longevity in the world. The decline in stroke-related mortality was attributable to the early identification of hypertensive patients through cardiovascular screening examinations; referrals to local physicians for antihypertensive treatment; lifestyle modification (salt reduction and increased intake of fresh vegetables, fish, and meat) under the guidance of public health nurses, nutritionists, and physicians; and improved access to fresh foods, as well as socioeconomic development. However, an attenuated decline in systolic blood pressure level and a slight increase in diastolic blood pressure level, along with the increased prevalence of overweight in recent years, have led to the attenuated decline in stroke mortality. Moreover, the incidence of coronary heart disease among middle-aged men has increased, probably owing to the long-term exposure to active smoking and hypercholesterolemia. On the other hand, hypertension without overweight contributes to the increase in the risk of cardiovascular diseases as much as metabolic syndrome does. In addition, the proportion of the incidence of cardiovascular disease that is attributable to hypertension is larger than that attributable to metabolic syndrome because of its higher prevalence.

Lifestyles largely differ, including nutrition and diet; cardiovascular risk factors including hypertension; and profiles of cardiovascular diseases between urban and rural populations, sexes, and generations, as well as are their time trends. Urban middle-aged men may likely develop atherosclerosis (large vascular pathology) due to dyslipidemia, glucose abnormality, and smoking, but other populations may likely develop arteriosclerosis (small vascular pathology) primarily due to hypertension. Epidemiological evidence supports that modern Japanese diets merit the prevention of both coronary heart disease and stroke. Japanese diets are highly recognized as healthy diets. The strengths are 1) low meat (saturated fat) intake that attenuates increase in blood total cholesterol (low-density lipoprotein cholesterol) level, 2) high fish intake that attenuates the risk of coronary heart disease, and 3) rice/cereals as staple food combined with fresh meat, fish, soy, and vegetables available during the four seasons, which contribute to appropriate energy intake and balanced diet. The weakness includes high sodium and low dairy calcium intakes, especially among the middle-aged and elderly, leading to the accelerated risk of hypertension and stroke. In addition, beneficial psychosocial factors such as high social support, low perceived mental stress, and positive psychological conditions, which characterize traditional Japanese societies, were found to be associated with the risk of cardiovascular diseases.

However, a threat of increasing obesity, metabolic syndrome, and diabetes mellitus exists because of excessive energy intake and physical inactivity among the younger ages. To battle against numerous issues on worldwide aging, the research collaboration between England and Japan that includes the prevention of lifestyle-related diseases is highly warranted.

Osaka University
Graduate School of Medicine

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Professor

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Title of Presentation :

Use of monitoring devices to quantitatively assess behavioral psychological symptoms of dementia

Dementia is becoming a global concern due to the increase in average lifespan in developed and developing countries. Over 80% of people with dementia develop behavioral psychological symptoms of dementia (BPSD), which lead to severe care burdens. Some of the well-known BPSD are aggression, hallucinations, and wandering. Several scales, which caregivers administer, have been developed to assess BPSD. We quantitatively assessed wandering in terms of spatial and temporal movement with the use of the integrated circuit tag monitoring system in the first phase of the study. In the dementia care unit of a general hospital in Osaka, Japan, over 100 dementia patients were monitored for wandering. Weekly feedback of the monitored data was given to the staff, and interviews were conducted to evaluate the effect of monitoring. When objective measurement data were compared with nursing records during the night shift, there was a discrepancy between our data and the staff's documentation, suggesting the difficulty in assessing the patients' movements at night. In terms of predictors of wandering, patients' age and cognitive functions were major predictors of the median distance moved per day in Alzheimer's patients; younger age and lower cognitive function were associated with longer distance moved per day.

In the second phase of the study, tailored interventions were carried out to reduce wandering by identifying triggers. Two cases will be presented to document highly unusual patterns of wandering. One is a young-onset Alzheimer's disease patient whose maximum distance moved per day exceeded 30 km. Careful observation by the staff led to the identification of the wandering trigger, and subsequent care plans were successful in reducing the distance moved per day. The other case is a patient with semantic dementia, a type of frontotemporal dementia, who displayed excessive clock-watching behavior. His movements detected by the monitoring device and staff's observation suggests that he could only recognize the long hand of the clock. He moved around 40 minutes into every hour, and this persisted during the night shift, suggesting poor quality of sleep. One of the benefits of our monitoring project was that the unit staff's assessment skills and knowledge improved substantially.

Currently, the research focus has shifted to monitor and improve sleep disturbances in dementia patients. The other project is a cross-cultural comparison of the type and prevalence of BPSD in long-term care facilities. Three sites in Japan and four overseas sites (China, Korea, Taiwan, and Thailand) are participating in this project, and factors associated with the type and prevalence of BPSD in terms of environmental and human resource factors will be explored.

Osaka University
Graduate School of Medicine

Hiroki Nakatani

Specially Appointed Professor

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Title of Presentation :

Health development in Japan: towards a super-ageing society

Worldwide mean life expectancy recently reached 70 years, but the same life expectancy was achieved in Japan in 1970. Intensive health policies in response to the ageing society were launched then, which provide both positive and negative lessons for other ageing societies. Health policy development in Japan and its outlook will be discussed.

Hiroki Nakatani is also Professor for Global Initiatives at Keio University, and Advisor on International Affairs, Ministry of Health, Labour and Welfare. Before returning to Japan in May 2015, he served as Assistant Director-General at the World Health Organization (WHO) from March 2007. Before that, he worked in various public health and welfare positions within the Ministry of Health, Labour and Welfare in Japan.

Tohoku University

School of Dentistry, Department of Global and Community Health /
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Title of Presentation :

Introducing a Community-Based Integrated Care System and multifactor approach in health-promotion activities

Currently, less than 20% of all health service funds are designated for longevity care; environmental, socioeconomic, and social capital factors are critical for the implementation of appropriate care services. Conventional health promotion activities based on the “health belief model” including the use of health education, and media campaigns have been shown to be less effective in the long-term.

We suggest a paradigm shift from etiological medicine or micro-level disease analysis to a comprehensive, multi-factor approach in which we pursue various measures for well-being, active aging, and health maintenance. Existing activities known to improve social capital, such as joining sports clubs, sightseeing, using a hot spa, or enjoying a delicious meal with friends could be re-evaluated in terms of active aging.

The Japanese government launched the “Community-Based Integrated Care System” to improve the coordination of medical services and elderly care at the community level. The system should be developed in collaboration with social science, behavioral science, and community development professionals. The integrated care system will provide communities with higher social capital, connected neighbors, and robust social support. This new care system may provide the resiliency necessary to survive unexpected natural, and man-made disasters likely to occur in Japan in the near future.

Tohoku University

Graduate School of Dentistry,

Department of International and Community Oral Health

Jun Aida

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Title of Presentation :

Social capital and health in older Japanese

A population's health is determined not only by biomedical or lifestyle factors but also by various social factors. The World Health Organization defines social determinants of health as “the conditions in which people are born, grow, live, work, and age.” Additionally, social determinants are considered to be the most important causes of health inequalities—unfair and avoidable health differences, both within and between countries. Even though the universal health care insurance system has been adopted in Japan, health inequalities related to geographical location, income, education, and occupation are observed. In order to reduce health inequalities, approaches to a wider range of social determinants are required. Social capital is considered to be a modifiable social determinant, and is defined as “resources that are accessed by individuals as a result of their membership of a network or a group” (Kawachi and Berkman (2014)). This presentation will describe health inequalities in Japan and the association between health and social capital. Additionally, the results of the intervention study that aims to change social capital in a community will be reported.

Tohoku University

**School of Medicine, Department of Public Health and
Forensic Medicine**

Ichiro Tsuji

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Title of Presentation :

Trends of Healthy Life Expectancy in Japan

Health Japan 21 (the second term), the national health promotion movement, set its objective to extend healthy life expectancy (HLE) to higher than the increase in life expectancy (LE), thus achieving suppression of morbidity.

The Ministry of Health, Labour and Welfare of Japan has been measuring HLE, which is defined as life expectancy without limitation in social and daily life, since 2001. From 2001 to 2013, the LE of males at birth increased by 2.14 years, from 78.07 years in 2001 to 80.21 years in 2013. HLE increased by 1.79 years from 69.40 to 71.19 years. This trend was similar for females, where LE increased by 1.68 years and HLE increased by 1.56 years. HLE was increasing more slowly than LE, thus causing extension of morbidity.

HLE widely varied between the 47 prefectures of Japan. The difference between the shortest and the longest HLE in all the prefectures was 2.79 years for males and 2.95 years for females. Factors of the geographical difference are discussed.



Tokyo Institute of Technology

Toshio Maruyama

Executive Vice-President for Education and International Affairs

Dr. Maruyama received his doctorate in engineering from Tokyo Tech in 1977. After serving as a postdoctoral fellow in the Department of Materials Science and Engineering at Massachusetts Institute of Technology, he launched his career in Japan at Tokyo Tech and was promoted to full professor in the Department of Metallurgical Engineering in 1996. Prior to his appointment as Executive Vice-President for Education and International Affairs in 2012, Maruyama served as Dean of the Graduate School of Engineering.

Specializing in materials science with an emphasis on material processing, functional material, and physical properties, Maruyama was five times awarded the Best Paper Award of the Japan Institute of Metals and Materials, received the Nishiyama Memorial Award from the Iron and Steel Institute of Japan, and was named Go Okamoto Memorial Lecturer by the Japan Society of Corrosion Engineering.

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Title of Presentation :

Measuring Affective Well-being and Life Stressors Using Wearable Devices for Ageing Communities in Japan

Japan's local communities are facing rapid ageing and depopulation. This can affect society's well-being by causing various undesirable effects such as shrinkage of social capital and insufficient public services. In this situation, measuring and monitoring well-being are important starting points for seeking the way to maintain society's well-being.

However, measuring well-being properly has been contentious because of the intangibility of the concept. Many researchers have tried to give a definition to "well-being" but it remains an unresolvable challenge. Recently, it has been clarified that well-being is a multi-dimensional concept constructed from five dimensions: 1. preference satisfaction, 2. objective lists, 3. cognitive well-being, 4. eudaimonia, and 5. affective well-being.

Researchers are expected to use affective well-being as an indicator that enables us to assess personal mental conditions, understand societal psychological well-being, and depict individuals' life stressors. Affective well-being accounts for the predominance of positive and negative emotions held by individuals every moment of the day. Therefore, it can more sensitively reflect how daily life situations are affecting a person's well-being.

However, the methods for measuring affective well-being still have much room for improvement. In order to measure affective well-being, the day reconstruction method (DRM) has been introduced and is often used by scholars. In DRM, participants are asked to answer questions about their mood at various points in the day, using affect descriptors and scales. DRM still has some weak points, such as recall bias and respondent burden in answering questions.

In order to improve the weak points, we proposed adoption of a wearable device that can monitor heart rate variability (HRV) to replace the conventional DRM. HRV is widely used to indicate personal physiological stress levels, and the wearable device enables us to monitor wearers' daily HRV in an easy, non-invasive way.

In this research, surveys with the wearable device were conducted in a local community in Japan, an aging and depopulating hilly area in Niigata Prefecture. To evaluate the interpretability of HRV as an indicator of affective well-being, we compared the scores of the affect scales with the scores of the psychological stress levels calculated from HRV data. In addition to this, we looked into the method of utilizing HRV and time use data for depicting life stressors that may be impairing the respondents' well-being.

We found that there is a negative correlation between HRV and the negative affects, and positive correlation between HRV and the positive affects. Furthermore, we described the unique features of the life of our aging community sample, and then identified the stressful daily life situations that negatively affect residents. Finally, we discussed how to improve well-being by addressing life stressors in aging communities in Japan. The application of our method is particularly relevant because the general public often think that people in those areas may have many issues but the people in those areas do not think that way. This improvement could be made not only by the government but also by collaboration among the local residents.

Tokyo Institute of Technology
International Student Center

Tom Hope

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Title of Presentation :

Co-creating Health and Wellbeing of Older Adults in Japan with Professional Care Practitioners and Engineers

The well-known issue of an ageing society in Japan brings with it an impending crisis in the number of caregivers for older adults. While efforts are made to offset some of the work to informal care, professional care practitioners are still necessary, but face increased pressure from the number of patients and dwindling time to tend to their health and wellbeing. The transformation of medical and health records from paper to digital is a contributing factor in the changing nature of care work by these professionals, and recent trends in personalized health data through mobile or wearable devices must be balanced by an understanding of the actual work of “caring” and how this can be affected by technology.

This presentation will explore some of these issues and provide an overview of some efforts being made by engineers to address concerns of professional care practitioners in Japan through transdisciplinary “co-creation” of caring technology and practices. The presentation reports on an ongoing case study in a Japanese hospital and raises some challenges in this approach.

Tokyo Institute of Technology

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Norihiro Nakai

**Professor / Dean of the Graduate School of Decision Science
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Title of Presentation :

Urban Planning Responses to the Aged Society: the Japanese Challenge

Japanese society faces an extremely rapid population decrease as well as a rapidly ageing population. Planning professionals over the last decade have been discussing how we respond to this issue, and “compact city” has become the most important keyword.

The presentation will begin with a general description of population trends in Japan, followed by an outline of recent changes in the planning system to promote compact cities. Last year, the Japanese government introduced a new planning scheme named “Ricchi Tekiseika Keikaku” (Location Rationalizing Plan) and no fewer than 150 cities have started to examine spatial reorganization within their own built-up areas. A few examples will be referred to in the presentation.

In achieving the goal of compact cities, it is important to redevelop, or renovate, the existing centers in order for people to use them in a more functional way, as well as to maintain necessary services for and the environment of residential areas with decreasing density. The presentation will also introduce a few practical and experimental attempts for the respective cases.

Tokyo Institute of Technology

International Student Center / Department of Human
System Science, Graduate School of Decision Science and
Technology, Tokyo Institute of Technology

Kayoko Nohara

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Title of Presentation :

First Step towards integrating Translation Studies into the "Tokyo Tech Happiness Co-creation Society through Intelligent Communications Project"

The possibilities for using telecommunications technology and artificial intelligence to meet the communication needs of an aging society are broad. Digital innovations can drastically change how people behave and interact with each other. The development of wearable communication devices that serve adults who are in need of some kind of communication assistance is progressing rapidly, both in related industries and in academic research communities.

A research project group at Tokyo Institute of Technology is developing devices including sensors that acquire individual biological and behavioral information, along with atmospheric and environmental data, and translation- and communication-assisting devices that automatically use experiential databases to “read between the lines.” The research project aims to provide technological assistance to people by identifying or forecasting their problems and making up for their recognition insufficiencies. The translation device may remind you of someone’s name you cannot recall, or the way to the nearest station to get to the meeting point with someone. It can also indicate that the implication of your remark is not praise but irony, so you had better apologize to ease the tension.

The effect of using such devices on one’s psychology and human relationships are unidentified; thus, while the development has great potential in the market, the impact on real life and society is ambivalent. What needs to be clarified is what information needs to be provided and, particularly, what kind of transfer of information should be provided to smoothen communication and in what circumstances, to avoid misleading people or overwhelming them with information.

This interdisciplinary research aims to give a fundamental overview of required information and translation assistance for healthy, active communication for an ageing society through linguistic and cultural analysis of various communication data using using, for example, translation theories. □Desirable communication assistance will be indicated in the form of a structured map as a reference for the technical development of wearable digital communication devices. Conclusions as to what technical aid may or may not lead to more wellbeing in an aging society will be drawn with scientific data from unique collaborative research among related academic disciplines.

Appendix

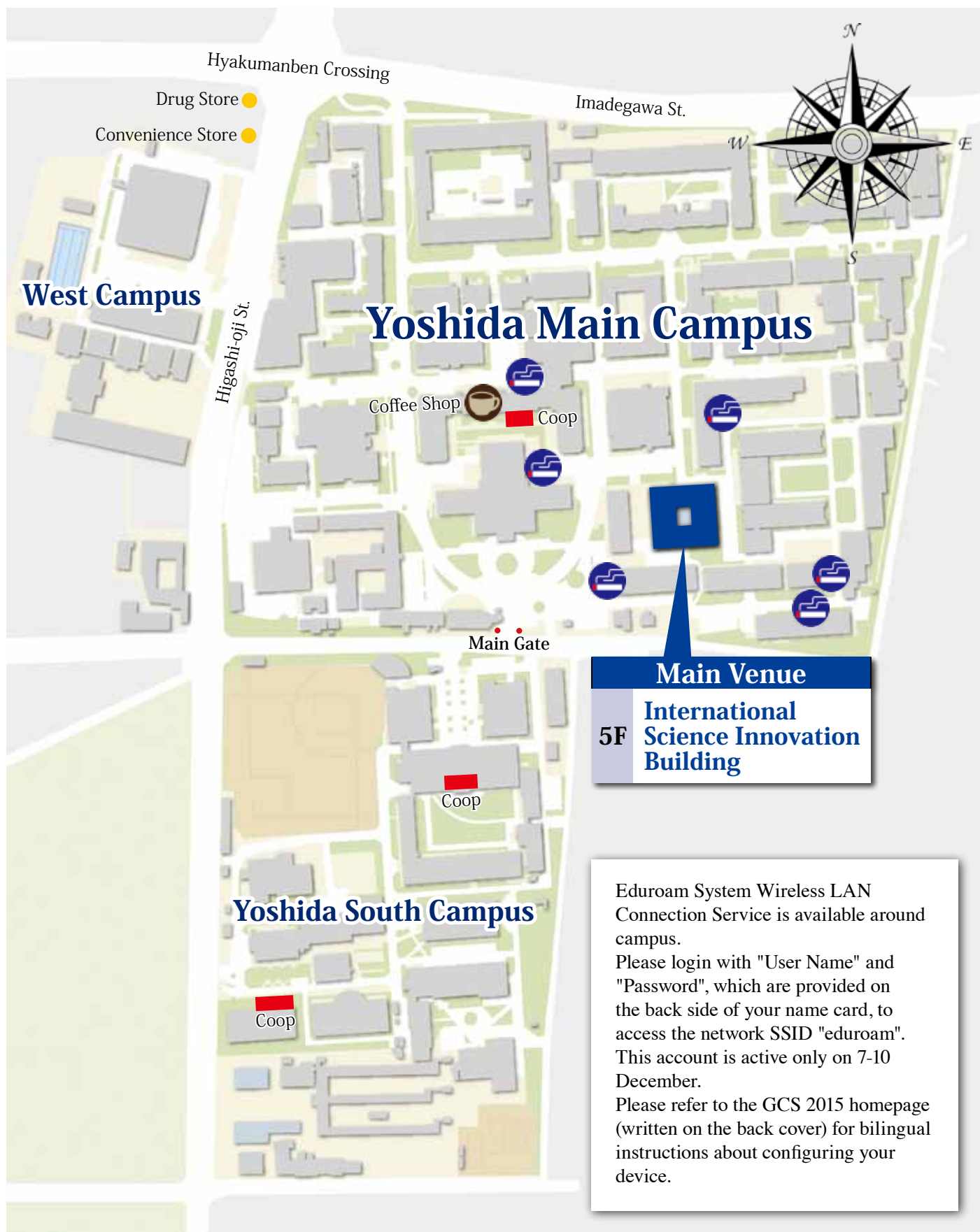




Kyoto City Map



Kyoto University Campus Map





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Demographic Change and Longevity

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