

The Hong Kong Polytechnic University Centre for Gerontological Nursing

NEWSLETTER

JAN – MAR 2021 Issue 1

DIRECTOR'S MESSAGE

Geron-technology refers to the use of technology in the care of older adults and the support to caregivers of older adults. It is not limited to the use of existing technology but also involves the invention of new devices or systems to improve older adults' functional capacity and enhance caregiving to older adults.

Our Centre has been involved in the geron-technology research since 2017. In this issue, we have highlighted some of our latest innovations: virtual reality (VR) system for training motor and cognitive functions of older adults, VR games allowing students to experience difficulties and disorders caused by ageing or cognitive problems, and the Sensor-based Stress Monitoring and Alleviation System (SbSMA) for monitoring caregivers' stress. Our research is to bring betterment to older adults and caregivers, and we look forward to working with practitioners and researchers in different disciplines, such as engineers, to use technologies to support our senior citizens and lead to better lives in old age.



▲ Framework directing our work in the Centre.



▲ Our participation in Gerontechnology and Innovation Expo cum Summit.

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RESEARCH and EDUCATIONAL ACTIVITIES

Patent granted for the system monitoring caregivers' stress

Driven by passion to support and help stressful caregivers, **Dr Angela Leung and her team*** worked closely with the engineers and biomarker specialist in the past two years to develop the Sensor-based Stress Monitoring and Alleviation System (SbSMA/壓力監測與緩解系統). A patent has recently been granted at the China Patent Office (patent number: 202010589058.X).

This system comprises hardware, software and algorithms in which real time emotional status can be detected through various sensors (including temperature sensors, a motion sensor, galvanic skin response (GSR) sensor and pulse oximetry sensor) and categorised into four distinct levels of stress.

One of the unique features is the self-report function (caregivers self-report he/she is under stress by pressing the event button to record the subjective feelings). With this subjective measure, the objective measures of biophysiological changes due to stress can be verified. This system not simply monitors caregivers' stress level, it can also alert caregivers' family members or supporters that the caregiver is experiencing stress and feeling burdened due to caregiving.

Some preliminary findings were presented in the Alzheimer's Disease and Dementia/Technology in Aging Collaborative Symposium in the Annual Scientific Meeting 2019, organised by the Gerontological Society of America in Austin, the USA. The project was funded by the Start-up Fund for New Recruits of the PolyU University Grants Committee.

* Dr Jeffery C H Chan (engineer), Dr James Cheung (engineer), Mr Isaac Leung (statistician), Ms DeeJay Mak (bio-technician), Dr William Tsang (professor in physiotherapy), Dr Shirley Lo (nursing), Dr Wai-kit Tang (mental health nursing), Dr Rick Kwan (nursing), and Dr John Yuen (biomarker expert).



CGN members developed new VR training systems

Solution for older adults with cognitive frailty

To help those older adults maintain their cognitive functions and simultaneously improve their motor abilities for carrying out activities of daily living, **Dr Rick Kwan** and his collaborators at Pok Oi Hospital have developed the Virtual Reality (VR) Motor-Cognitive Game-based Training System.

When users put on the wireless VR headset, they are taken on a journey to complete tasks of activities of daily living. Following the on-screen instructions and by riding on the ergometer exercise bike, players 'walk' around streets to reach a shop or a supermarket to buy daily commodity by themselves, or 'walk' to a bus stop and travel to different destinations.

The VR training system provides 16 levels of tasks with increasing difficulties to enhance the cognitive functions of players. The resistance level of the ergometer exercise bike can also be adjusted corresponding to the training need. Players have to attend two (30-minute each) VR sessions per week for a total of eight-week for achieving health results, such as mobility improvement and reducing risk of dementia.

Dr Kwan's team [Co-investigators: Prof. Kenneth Fong, (Professor, PolyU's Department of Rehabilitation Sciences) Dr Justina Liu, Dr Harry Qin, and Dr Claudia Lai; Research assistants: Ms Lydia Suen and Ms Abigail Kam] conducted a pilot test earlier on a small group of older adults with cognitive frailty. Those in the intervention group showed significant improvement in cognitive ability, when compared with participants in the control group, who received motor and cognitive training separately (each session included a 15-minute cycling and 15-minute cognitive tablet games or newspaper reading). Currently the VR training has been implemented in six elderly centres under Pok Oi Hospital serving 41 participants. This project is funded by the Innovation and Technology Fund for Better Living, the Innovation and Technology Bureau with HK\$ 2.9 million.

Click [here](#) to see the demonstration of our VR motor-cognitive training system.



◀ Put on the VR headset and rode on the ergometer exercise bike to take on a journey to complete tasks of activities of daily living. The bike helped the user improve motor abilities while performing the 'shopping' tasks.

Innovation to enhance students' understanding and empathy towards the needs of older people with cognitive problems

The School's Gerontological Nursing Laboratory offers a new way for students of health care disciplines to experience physical and cognitive challenges associated with ageing. Two virtual reality (VR) games were developed by **Dr Justina Liu** (Principal Investigator) **and her team**** to deliver experiences of 'losing spatial reference and wandering in streets and visual hallucinations, which are disorders experienced by older adults with cognitive problems.

The VR games allow students to visualise abstract concepts, such as Delirium, a common syndrome affecting many elderly patients in geriatric wards and the community. When students put on the wireless VR headset, they are taken on a journey to a hospital ward to experience cognition changes that lead to hallucinations, which involve distorted visual images and perception. The game gives vivid but creepy images that allow students to immerse in an experience of sensory misperception to understand what it is like to have a delirium.

Another game 'Get lost' sets in a local community in Hong Kong. Users are required to find the way to a supermarket. While 'walking' around the streets, users find themselves unable to identify directions and may get lost in a familiar surroundings. 'These VR games play a unique role in addressing challenges associated with ageing and they are useful tools for experiential learning. Through the "hands-on" experiences, we expect that students will increase their understanding and develop empathy towards older people, which is essential for quality elderly care, said Dr Justina Liu. Students are also expected to apply their knowledge gained through the VR training to propose solutions or care plans targeted older people with cognitive impairment and disabilities.

This project is funded by the Larger-scale Collaborative Project, Learning and Teaching Committee, PolyU and School of Nursing, PolyU (Matching Fund).

****** Dr Rick Kwan, Dr Patrick Kor, Dr Daphne Cheung, Dr Mimi Tse, Dr Xue Bai (Associate Professor, PolyU's Department of Applied Social Sciences), Prof. Kenneth Fong (Professor, PolyU's Department of Rehabilitation Sciences), and Dr Tulio Pereira dos Santos Maximo (Assistant Professor, PolyU's School of Design).



◀ The game gives vivid but creepy images to allow students to understand what it is like to have a delirium.



◀ Users of the VR game unable to identify directions and get lost in a familiar surrounding.

FEATURES

Overcame self-doubt and achieved international recognition

Mr Laurence Parial, a member of the Centre and our PhD student (Chief Supervisor: Dr Angela Leung; Co-Supervisor: Dr Simon Lam), received several pieces of good news. He was given the Doctoral Student Award from the National Hartford Center of Gerontological Nursing Excellence, the United States, for his PhD study entitled *Effects of Dual-Task Zumba Gold on the Cognition of Community-Dwelling Older Adults with Mild Cognitive Impairment: A Feasibility Study and Pilot Randomized Controlled Trial* (details of the study click [here](#)). Later in November, 2020, he received the Outstanding Paper Award (3rd prize) in the 27th Annual Congress of Gerontology organised by Hong Kong Association of Gerontology.

Dated back in 2019, the Hong Kong PhD Fellowship brought Laurence to PolyU to embark on his PhD study. His goal was to enhance his research knowledge and skills, also learn more about nursing practice in Hong Kong. However, the transition from a nursing educator (he was a clinical instructor before joining the School of Nursing) to a researcher is never easy. With limited research experience and having received a lot of critical feedback in his first writing, Laurence began to wonder whether he was able to meet the high demand of a PhD study. 'The first year of the study was very difficult. I was supported by a scholarship and I did not want to disappoint people around me. I thought of quitting the study many times,' said Laurence.

Thanks to the adequate emotional support from Dr Doris Y Leung, (the School's previous Research Postgraduate Programme Coordinator; now Adjunct Assistant Professor) and Dr Angela Leung (Chief Supervisor), as well as other PhD students, Laurence took on the challenge, has continued his research work, and finally his effort has been recognised.

The high expectation and guidance from Dr Angela Leung is the driving force behind Laurence's achievements. 'Dr Angela Leung always expects my work to be well prepared and good enough before presenting to others,' Laurence said. He recalled the encouragement from Dr Leung at the Annual Congress of Gerontology. He did not expect winning an award as there were many experienced researchers. However, Dr Angela Leung thought that he had a chance and urged him to modify his presentation and paid attention on his presentation skills. 'She sees my potential more than I do and she continues challenging me to go beyond my limits,' Laurence concluded.

Joining the CGN team also gave Laurence great opportunities to learn from many experienced researchers in the School. Laurence mentioned the experience of involving in two research projects that investigated the levels of health literacy on online information about COVID-19 in several Asian countries, and on dementia among the local ethnic minorities. 'Hong Kong is a diverse society and these projects have given me wider perspectives from people from different cultures,' said Laurence.

Currently, the suspension of global air traffic due to the COVID-19 pandemic has caused a delay in his data collection and difficulty in recruitment of older adults as the research participants. Laurence has more challenges to overcome before he can achieve his goal: being the FIRST Filipino student who complete a PhD programme in the PolyU School of Nursing. We are looking forward to hearing his good news.



◀ Laurence (1st row, 2nd from left) joined the School's INSPPIRE# programme 2018. The programme inspired Laurence to pursue his PhD study in Hong Kong.



▲ Laurence is grateful to the support from his supervisors (left photo: 1st from left Dr Angela Leung; 1st from right: Dr Simon Lam); (right photo) Head of the School (2nd row 3rd from right), Dr Doris Leung (2nd row 2nd from right) and other PhD students.



◀ Full of confidence and got ready to take on the challenges ahead.

International Nursing Scholarship for Pre-PhD in Research Excellence (INSPPIRE).

CURRENT ISSUES

2020

(Oct-Nov)

Members of the CGN participated in the 27th Annual Congress of Gerontology of the Hong Kong Association Gerontology and The National Harvard Gerontological Nursing Excellence (NHCGE) Virtual Leadership Conference, the USA. Several projects were presented in the events:

Project titles	Authors	Format of presentation
27 th Annual Congress of Gerontology organised by Hong Kong Association of Gerontology (28 Nov 2020) (hybrid mode)		
The buffering effect of digital health literacy on anxiety among older adults during the COVID-19 pandemic	Angela Leung	Invited speech in Plenary Session
Using of a visual art intervention programme (MOLACE) to enhance holistic well-being for older people living with stroke in residential care homes: A feasibility randomised controlled trial study	Phyllis Pang, Daphne Cheung, Vico Chiang	Oral
The usefulness and user experience of an electronic pain management programme for working population	Angel Tang, Mimi Tse, Sau-fong Leung & Fotis Theofanis	Poster
Making a happy and health aging: being a volunteer	Mimi Tse, S.S.M. Ng, X. Bai, H.P. Lee, R. Lo & Angel Tang	Poster
Burden of informal caregivers for older persons with chronic pain: Cross sectional study	Y.W. Chan, K.Y. Cheng, Lau, A.S., Leung, W.M., Tsang, M.P., Yeung, I.K. & Mimi Tse	Poster
A secondary data analysis on pain interference and pain knowledge: does it related to depression, self-efficacy and quality of life among the older adults living in nursing homes?	S. M. Chan, S. M. Choi, W. Y. Fong, K. Y. Kong, K. Y. Lau, K. Y. Wong, C. S. Wu, O. S. Wu & Mimi Tse	Poster
Leadership Conference 2020 organised by National Hartford Centre for Gerontological Nursing Excellence (27-27 Oct 2020) (virtual conference)		
Enhancing holistic well-being in chronic stroke older people using visual art intervention: A comprehensive literature review	Phyllis Pang, Daphne Cheung & Vico Chiang	Poster
Community partnership in Internet-based interventions: Experience gained in an electronic pain management programme	Angel Tang, Mimi Tse, Sau-fong Leung & Fotis Theofanis	Poster

(4 Nov)

Dr Claudia Lai, our Honorary Professor, met our freshmen online to answer questions related to nursing, share her career journey and give encouragements to the students.



(27-28 Nov)

Dr Angela Leung and Dr Simon Lam were invited speakers at the Conference on Zhuhai's Cutting-Edge Funded Scholarly Exchange Projects, which gathered nursing and medical experts in the Greater Bay Area to exchange research findings and nursing experiences under the challenges of the new coronavirus. The event was jointly organised by the PolyU School of Nursing; the 5th Affiliated Hospital of Zunyi Medical University, Zhuhai; and Guangdong Provincial Nurse Association.



(8 Dec)

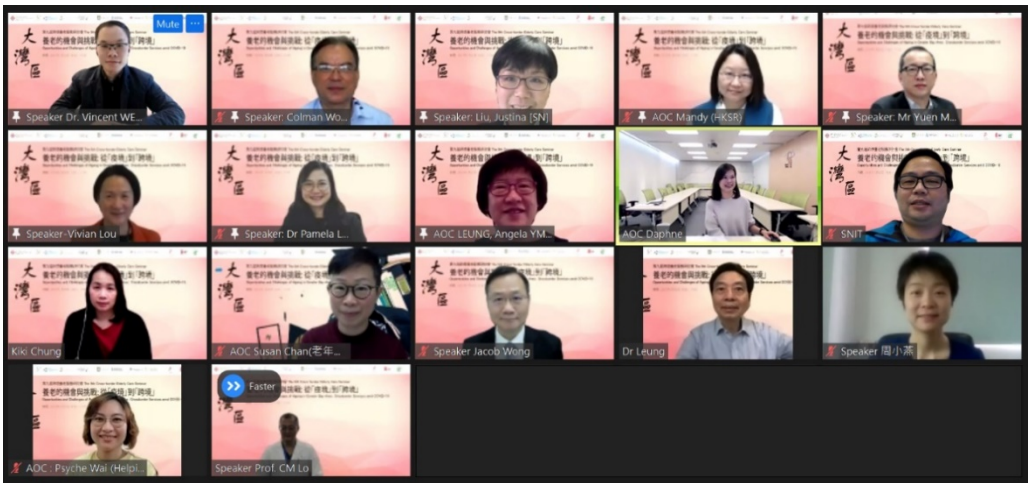
Dr Angela Leung was invited to speak in the webinar 'Understanding of Dementia and Care Needs among People with Multicultural Background', organised by Hong Kong Christian Service, and present the findings on 'Dementia literacy among Older Adults and Their Caregivers with Multicultural Background in Hong Kong'.

2021

(22 Jan)

The 9th Cross-Border Elderly Care Seminar, themed ‘Opportunities and Challenges of Ageing in Greater Bay Area: Cross-border Services Amid of Covid-19’ was held online on The seminar, jointly organised by eight local research institutes/societies and associations, attracted 270 participants to attend, including elderly care professionals and people who are interested in cross-border elderly care.

Organisers of the seminar included: the Centre for Gerontological Nursing, School of Nursing, The Hong Kong Polytechnic University (PolyU CGN); PolyU’s Institute of Active Ageing and Department of Applied Social Sciences; Sau Po Centre on Ageing, The University of Hong Kong (HKU); Asia-Pacific Institute of Ageing Studies, Lingnan University; Helping Hand; Hong Kong Association of Gerontology, and Hong Kong Society for Rehabilitation.

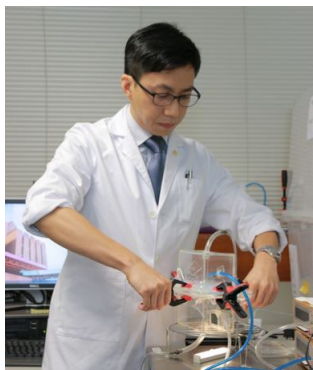


(22 Jan)

Dr Patrick Kor collaborated with the Patient Resource Centre of Queen Elizabeth Hospital to deliver an online workshop ‘Mindful Caregiving’ for caregivers of patients to reduce their caregiving stress.



OUR PEOPLE



◀ **Dr Simon Lam** was selected to be awarded the 2021 Emerging Nurse Researcher/Scholar Award for the Asia Region by Sigma Theta Tau International Honor Society of Nursing for his outstanding achievement. His efforts against COVID-19 stood out among other candidates and he received the 2nd place of the Special Recognition Award for COVID-19 pandemic, given by the Hong Kong Academy of Nursing. Congratulations!



◀ **Dr Patrick Kor** has taken up the role as an Associate Editor for *BMC Geriatrics*, commencing January 2021. He received the Faculty Distinguished PhD Thesis Award from the PolyU Faculty of Health and Social Sciences in January for his study entitled 'Effects of a Modified Mindfulness-based Cognitive Therapy for Family Caregivers of People with Dementia: A Randomized Controlled Trial'.

Welcome to new members



◀ **Dr Ivy Zhao**, Postdoctoral Fellow. Ivy received her PhD from Auckland University of Technology, New Zealand in 2020. She is a certified health promotion specialist in the United States. Before joining the School, she worked for Age Concern Auckland to support Auckland Council with age friendly city initiatives and carry out projects to prevent loneliness and social isolation of older Asian immigrants. She is particularly interested in loneliness of older people, especially late-life immigrants; age friendly initiatives in urban and rural areas; healthy ageing and co-design.



◀ **Dr Jing Jing Su**, Postdoctoral Fellow, who is specialised in ageing and cardiovascular health. Dr Su has extensive experience in theory-based health behavior change interventions and conducting qualitative and quantitative research, including systematic review and meta-analysis, randomised controlled trials, and qualitative descriptive studies on nursing.

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