

Research & Innovation

Establishment of Hong Kong's First Research Centre for Immersive Learning and Metaverse in Education

Scholars from PolyU and The Education University of Hong Kong (EdUHK) have joined forces to explore the vast possibilities of the metaverse, in the hope of opening up new horizons for educators to deliver impactful immersive experiences to learners.

The two universities signed a Memorandum of Understanding (MoU) to establish the Centre for Immersive Learning and Metaverse in Education, which is the first of its kind in Hong Kong. The Centre

will focus on how immersive experiences, including those in virtual reality and the metaverse in general, can enhance students' cognitive processing, attention, memory, brain function, and ultimately, learning outcomes.

Under the MoU, PolyU and EdUHK will conduct both basic and applied research in immersive technologies and the metaverse, develop practical guidelines to shape the educational values of these technologies for students, and promote immersive learning among educators through hosting regular workshops, seminars, and conferences.

Professional Training in Teaching Non-Chinese Speaking Students

Supported by a **HK\$48.9 million grant** from The Hong Kong Jockey Club Charities Trust and in collaboration with three local universities and two NGOs, the Department of Chinese and Bilingual Studies leads a four-year consultancy project entitled "Scaling up C-for-Chinese@JC in Kindergarten Sector to Cultivate Culturally Responsive Education (CRE)".

The project aims to enable the majority of kindergartens to provide CRE through a home-school-community model, whereby early integration, primary transition, and Chinese language acquisition of students – with a particular focus on the non-Chinese speaking student population – can be promoted. The project is also designed to facilitate an ecosystem change that embeds CRE to benefit Chinese-speaking students through a culturally responsive teaching approach at both kindergarten and junior primary school levels.

The project is currently in its second stage, with the provision of professional training for kindergarten, primary and secondary school teachers in teaching Chinese to ethnic minority students. It is hoped that the project will ultimately help improve the quality of Chinese language teaching to ethnic minority students in the territory-wide school sector.



Capstone Ninja: A Breakthrough Education App

The Educational Development Centre and the English Language Centre jointly designed and launched an award-winning interactive mobile application, Capstone Ninja, which aims to enable undergraduate students who are working on their capstone projects to access discipline-specific, customised learning materials in real-time. It features English language tips specific to the capstone project, a to-do list with reminders and alerts that helps students manage deadlines, and a chat function for students to communicate with their supervisor and groupmates to schedule meetings and make and respond to enquiries. Student users reported that the app also helped them learn the importance of precision and conciseness in language use.

The success and positive impact brought about by Capstone Ninja are exemplified by its **winning the Quacquarelli Symonds (QS) Reimagine Education Awards 2022: International Category Award – Breakthrough Technology Innovation in Education (Silver Award)**.

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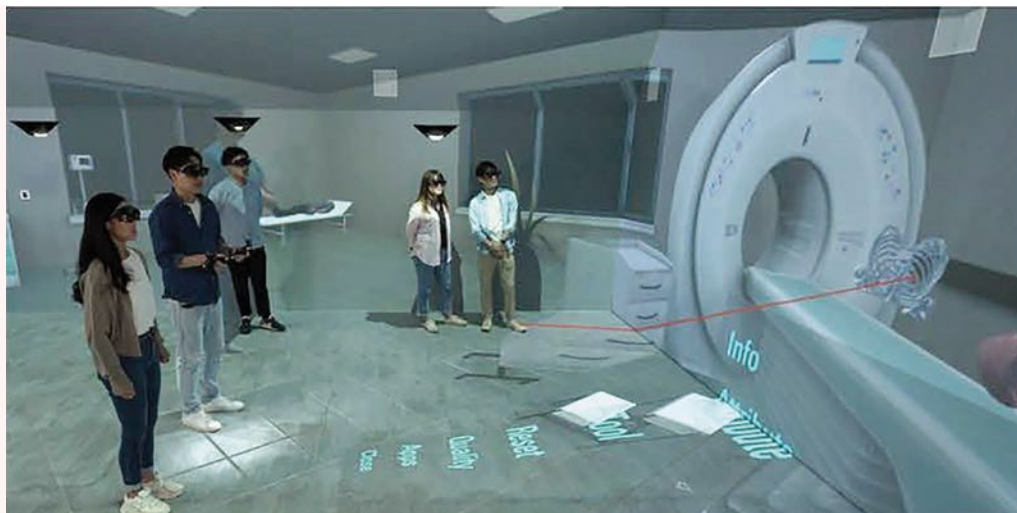
Teaching & Learning

Redefining Education with Metaverse and Immersive Learning Environments

With the object of preparing students to thrive in a technology-driven future, a number of PolyU academic departments have introduced a Cave Automatic Virtual Environment (CAVE) to revolutionise conventional teaching methods and provide students with immersive learning opportunities based on different real-world scenarios.

Apart from the metaverse, students can benefit from the University-developed groundbreaking Hybrid Immersive Virtual Environment, which is **the world's first large-scale fully immersive virtual reality classroom and six-sided CAVE platform**. Located in the University's Industrial Centre, it offers students a 360-degree blended learning experience, particularly useful in discussions and debates, as well as in video sharing after field trips.

In relation to the metaverse, students from across disciplines have been participating in a pilot project exploring three novel metaverse-based pedagogies, namely the Metaverse Gallery where an immersive experience encourages exploration, Metaverse Collaborations that establish interconnected virtual spaces for collaborative knowledge creation, and Metaverse Technologies research which aims to determine the effectiveness of such tools in optimising learning outcomes.



Hybrid Immersive Virtual Environment



Reimagining Student Autonomy and Language Learning through Hybrid Pedagogy

With the aim of helping students acquire generic competence to become effective independent learners, the Department of Chinese and Bilingual Studies has integrated learning-to-learn components into curriculum design and assessment across its programmes, and developed an online platform with rich resources including training videos and knowledge-check questions. To enable students to stay abreast of current technological developments, generative artificial intelligence topics ranging from its growth to underlying ethical considerations are also incorporated into the platform, allowing students to strengthen their lifelong learning motivation and capability.

This academic year also saw the Japanese and Korean minor programmes become the first in Hong

Kong to adopt an innovative hybrid pedagogy, where almost 60 animated videos were created to complement textbook materials at the introductory and intermediate levels with voice-overs by first-language speakers. Thanks to this hybrid learning methodology, students are given the flexibility and freedom to prepare and review their learning in both pre- and post-class settings at their own pace, enabling them to benefit from such learner-controlled language education.

Sponsoring Undergraduate Students to Undertake Research Overseas

The Undergraduate Summer Research Abroad Sponsorship programme, administered by the Graduate School, aims to enable undergraduate students to gain research experience and international exposure. This academic year,

sponsored students undertook research under the guidance and supervision of academics at pre-eminent overseas universities, including Harvard University and University of California, Berkeley in the US; McGill University, University of British Columbia, University of Calgary, University of Toronto, and University of Waterloo in Canada; Osaka University, University of Tokyo, and Kyoto University in Japan; University of Edinburgh in the UK; Nanyang Technological University in Singapore; and University of Sydney in Australia.

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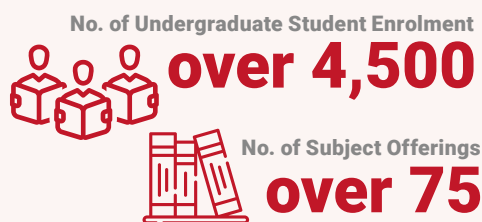
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Outreach & Engagement

Resumption of Non-Local Service-Learning Projects

The University's Service-Learning (SL) requirement forms an integral part of the PolyU four-year undergraduate curriculum, integrating meaningful community service with academic study and reflection to enrich students' learning experiences. Since its inception in 2012, **over 1.5 million hours of service have been performed** in Hong Kong, Mainland China, and beyond.

During the pandemic, SL programmes moved online in order for students to continue serving local and international communities; this academic year saw the return of some 75 SL subjects, of which nearly a third were conducted in Mainland China, Taiwan, Japan, Southeast Asia, Central Asia, and Africa.



Professional Development for Local Teachers and Mainland Chinese Learners

The Department of Chinese and Bilingual Studies has collaborated with the Education Bureau of the Hong Kong Government to enhance the professional capabilities of Hong Kong primary and secondary teachers in teaching Chinese as a second language, through diverse professional development programmes tailored to specific needs. Around 20 workshops were offered this academic year for teacher participants who are committed to providing school-based support for second language learning, developing effective teaching and learning strategies, and fostering an inclusive school environment.

In addition, with the funding support from the Education Bureau, the Department of English and Communication offers a school-based support programme for English language and non-language teachers on conducting English extended learning activities (ELAs) in secondary schools. **Over 50 teachers** took part in the programme and joined in discussions on topics such as how to take ownership, contribute, and collaborate for enhanced ELA support through the medium of English; research implications of genre, register, and the specific language for ELA task development; and student-centred pedagogical practices.

Moreover, the English Language Centre developed and hosted MOOCs to upskill **nearly 3,000 Mainland Chinese learners** in areas such as business English, English grammar, and autonomous and lifelong English language learning.

Governance & Operations

Enhancing Education with Open Access Resources and Upgraded Library Facilities

PolyU Library has archived open educational resources created by the University community and facilitated the use of public domain e-learning resources via the PolyU Institutional Research Archive, Open Educational Resources Portal, Digital Collections Portal, and Outstanding Work by Students Portal. Meanwhile, the MOOC project "InfoLit for U" has **helped more than 1,000 students** develop their university and career-related information literacy practices through a focal module and eight discipline-specific modules.

Furthermore, as open access democratises access to knowledge, empowering educators, students, and self-directed learners worldwide to engage with the latest research and educational content, the Library is committed to making research output, including scholarly articles, theses, and book chapters, openly and freely available in the PolyU Institutional Research Archive. This resource contains almost 19,000

full-text copyright-cleared publications by PolyU researchers, over 5,000 MPhil/Doctorate theses, and some 1,000 patents created or owned by the University community.

In terms of physical space, as part of a major Library extension and renovation project, the sixth floor of the PolyU Library building has been opened, providing nearly 2,100m² of additional space for different forms of individual and group study. Regarding virtual space, the Library received three awards in the Hong Kong Web Accessibility Recognition Scheme 2022/23 and the first-ever gold awards for its PolyU Digital Collections Portal and Open Educational Resources websites.

Empowering Students to Shine and Thrive

PolyU established the Special Talents Admission and Recognition Scheme (STARS) this academic year to open up quality tertiary education opportunities to students who have displayed remarkable talents in



Sixth floor of PolyU Library building

sports; arts and culture; community service and leadership; and science, technology, engineering, and mathematics. STARS students are awarded scholarships and given access to the STARS Residential College, which provides a vibrant living and learning environment for their all-round development. The University has so far **admitted more than 130 students to the STARS Residential College.**