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INSPIRING NOVEL APPLICATION OF TECHNOLOGY AND SELF-DIRECTED LEARNING IN LIBRARY MAKERSPACE

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Abstracts

The Hong Kong Polytechnic University's mission is to nurture next generation of critical thinkers, effective communicators, innovative problem solver, and global citizens. Opened to all students in September 2017, the i-Space of the Hong Kong Polytechnic University Library is designated to ignite students' spirit of innovation and facilitate the development of self-directed learning.

The vision of the i-Space is to lower the barrier of entry of the latest technology for students of all disciplinary and inspire novel application in their disciplinary work. Students can explore different technologies, including 3D scanning, 3D printing, laser cutting, vinyl cutting, Virtual Reality, Internet of Things, video recording and editing on their own in the i-Space, or join workshops or contests of its MakerMindset@i-Space programme to nurture a creative, curious, and can-do mindset.

Apart from picking up new techniques, students also develop self-directed learning competence like identifying goals, plan for decisions and arrangements arising from the goals set, identify new skills to learn and set their learning pathway, setup evaluation criteria, constructive use of comments and feedback for further improvements and so on.

Keywords

Digital makerspace, emerging technology, innovation, self-directed learning, can-do mindset

As a tertiary institution, the Hong Kong Polytechnic University's mission is to nurture next generation of critical thinkers, effective communicators, innovative problem solver, and global citizens. Opened to all students in September 2017, the i-Space of the Hong Kong Polytechnic University (PolyU) Library is designated to ignite students' spirit of innovation and facilitate the development of self-directed learning.

Located on fourth and third of the PolyU Library, the i-Space is a group work space, where “i” stands for Inspiration, Ideation and Implementation. The Inspiration Zone, housed with design books, aims to introduce design thinking to students. Both the Inspiration Zone and the Ideation Zone, with a variety of reconfigurable furniture and movable white boards, are purposefully designed to inspire and stimulate creativity and curiosity through interactive and multidisciplinary collaboration. The Digital Visualisation Room, the Digital Makerspace and the two Studios are available in the Implementation Zone, where students can build prototypes and make videos to actualise and present their ideas in one go. The Digital Visualisation Room is equipped with a high performance computer and a high resolution Video Wall to facilitate visualisation of data with images and videos for research seminar and academic discussion, and to support collaborative learning activities through connecting users’ portable devices to project images, videos, and research data on multiple screens simultaneously. The video wall consists of nine 46-inch LED TV panels with ultra-high resolution (5760pixels x 3240pixels), which enables data visualisation on multiple screens accepting one to nine simultaneous inputs from mobile devices, laptop computers and other devices via wireless or wired connection. The Digital Makerspace provides hands-on workshops and technical support to encourage students from all disciplines to learn and operate the easy-to-use digital and fabrication tools. Students can explore different technologies (e.g., 3D scanning, 3D printing, laser cutting, vinyl cutting, Virtual Reality, Internet of Things, video recording and editing) on their own. The Digital Studio is dedicated to support audio and video recording, creation of class materials for blended learning, recording interviews of faculty or students, speech rehearsal or thesis defense preparation, etc. The studio setting is capable to support PowerPoint presentation on TV in front of a curtain backdrop, small group interview with curtain backdrop, interaction with video/graphics displayed at chroma key background, small-scale product video demonstrations in front of a solid backdrop, audio recording and still photography. The One Button Studio is a self-service studio with a brand new service model to support students to actualise their creativity and help them to create digital content with just a few steps. Unlike traditional studio, the One Button Studio does not require special knowledge or expertise to control the audio/video recording equipment during the production. The settings of the studio are user-friendly and ready to support product demonstration, presentation with PowerPoint projection, speech rehearsal, small scale interview, etc.

The vision of the PolyU Library i-Space is to lower the barrier of entry of the latest technology for students of all disciplinary and inspire novel application in their disciplinary work. Students can explore different technologies on their own in the i-Space, or join workshops or contests of its MakerMindset@i-Space Programme. Through the MakerMindset@i-Space Programme of the i-Space, students learn to prototype ideas using 3D printing; create large-scale adhesive displays using a vinyl cutter; communicate their research through an immersive VR environment; or make the video recording by themselves in the self-serviced One-Button Studio. Students can also join different contests with series of supporting talks and workshops to learn new technologies through

picking up new challenging tasks. One of them is the VR Contest Stories from ancient China. By participating in a series of culture talks and VR workshops, students were able to pick up skills to develop their own VR story on ancient China.

The MakerMindset@i-Space Programme of the PolyU Library i-Space, with sponsorship of the Shun Hing Education and Charity Fund, aims to nurture a creative, curious, and can-do mindset that will help the students acquire skills, overcome challenges, and adopt technologies in the future. The Programme seeks to engage students in the Arts, Humanities, and the Social Sciences, as well as those in Engineering and Sciences, in adopting technology to learn and to explore. The MakerMindset Programme also seeks to build community, whether by gathering students for knowledge sharing sessions, or bringing in industrial experts and other successful makers to share their stories. Apart from picking up new techniques, students also develop self-directed learning competence like identifying goals, plan for decisions and arrangements arising from the goals set, identify new skills to learn and set their learning pathway, setup evaluation criteria, constructive use of comments and feedback for further improvements.

The vision of MakerMindset@i-Space Programme is to develop the spirit of innovation in students, by helping them bring emerging technologies to their disciplinary work. Uptake of emerging technologies has traditionally been stronger in the sciences and engineering. As the Library provides academic support to the whole university, the i-Space of the Library is uniquely positioned to lower the entry barrier for all students, regardless of academic discipline or family background. More information about the i-Space and the MakerMindset@i-Space Programme of the PolyU Library is accessible at <https://www.lib.polyu.edu.hk/i-Space>.