

Teaching Development and Language Enhancement Grant (TDLEG) for the 2025-28 Triennium

OVERALL PLAN

Preamble

- 1.1 Hong Kong Baptist University (HKBU) welcomes the continued provision of the Teaching Development and Language Enhancement Grant (TDLEG) in the 2025-28 triennium. The effectiveness of the TDLEG has been far-reaching and evident, particularly in advancing our educational goals for students.
- 1.2 We carefully consider the TDLEG key areas and themes in 2025-28 as specified in the UGC letter dated 17 April 2025. In addition, we conduct many discussions in the University and refer to the following documents to prioritise and design the initiatives in this plan:
 - HKBU's University Accountability Agreement (UAA) with the UGC for 2025-28
 - Report of the third cycle of UGC-QAC Quality Audit of HKBU (October 2023, UGC-QAC Report)
 - HKBU's Institutional Strategic Plan (ISP) 2018-28
 - HKBU's Planning Exercise Proposal (PEP) 2025-28 and UGC's feedback
 - HKBU's TDLEG 2022-25 Triennium-end Final Report
 - Feedback from reviewers on HKBU's TDLEG 2022-25 Plan and Mid-triennium Report

A. Strategic Plan and Priorities

- 2.1 The use of the TDLEG has been closely aligned with our ISP, with Best Student Experience (BSE) as its first strategic priority. We aim to prepare students for cultural understanding, global collaboration, leadership, service, and employment in an increasingly interdependent, intertwined world.
- 2.2 With the UGC's endorsement, our PEP 2025-28 elevates our educational goal to nurture future-shaping students capable of designing, implementing and contributing to the future generations of social, educational, organisational, and financial systems. This is realised through a flexible and adaptive curriculum, composed of the expansion of transdisciplinary undergraduate education and provision of multiple study pathways. Our reformed curriculum strongly emphasises contextualised and solution-based learning (service- and experiential learning (SL & EL)) and assessment (authentic assessment).
- 2.3 We will sustain and strengthen the Features of Good Practice (FGPs) in the UGC-QAC Report including (a) a comprehensive approach to improve teaching and learning (T&L) through Innovative Technology-in-Education and professional development, and (b) the deployment of authentic assessment, and (c) promotion of an inclusive and supportive learning environment. The FGPs will also be infused into our endeavours laid out in later sections as important enablers.
- 2.4 HKBU is the first UGC-funded institution to establish a campus in the Mainland (Beijing Normal-Hong Kong Baptist University, BNU) in 2005. In 2022, HKBU started the “One University, Two Campuses” plan to synergise curriculum design, diversification of learning experiences and promotion of internationalisation and cultural exposure. Existing initiatives include the “Extended Study Programme” in which students of both campuses may study for

one semester or one year at the other campus, Immersive Tour in Zhuhai and Shenzhen for all non-local students, and an induction visit to Zhuhai for HKBU first-year students. We are developing 2+2 or 3+1 programmes between the two campuses and an adventure education centre in the Zhuhai campus.

- 2.5 We will expand partnerships with UGC-funded and self-financing universities through the inter-institutional collaborative activities (IICA) initiatives, where HKBU teachers will lead 5 (**Figure 1** and **Appendix 1**) and participate in 14 projects. All these projects have undergone rigorous internal vetting and are closely aligned with our strategic goals and priorities.

Teaching Materials-Driven AI Tutor: Personalizing Learning Excellence		Resilience and Integrity Through Scenario-Based Engagement (RISE)	
 Objective	To provide tailored and effective e-learning support by building a Teaching Materials-Driven AI Tutor.	 Objective	To develop students' ethical reasoning and resilience through experiential, emotionally resonant learning with scenario-based gamification.
 Partners & Roles	HKBU will oversee the project, integrate core technology with e-learning platform, and conduct data analysis for evidence-informed practices. CUHK will handle knowledge base curation, pilot studies, and feedback collection.	 Partners & Roles	HKBU will lead the project, e.g. developing the gamified application, co-creating scenarios, and disseminating project outcomes. Participating universities (all other UGC-funded universities, BNU , and 3 self-financed institutions (HKMU , HSUHK , SFU)) will co-develop and disseminate scenarios, and engage student partners.
BRIDGE: Building Relationships Through Interlingual Intercultural Dialogue for Global Engagement		Learning in Motion: Real-Time Reinforcement Learning Assistants for Immersive Education	
 Objective	To enhance student intercultural competence through facilitated language and cultural exchange.	 Objective	To design and implement adaptive VR environments with personalised AI avatar guidance and feedback.
 Partners & Roles	HKBU will develop and implement a student matching platform, collect and report evidence. CityUHK and HKUST will support implementation, engage students and teachers, and gather and share evidence for improvement.	 Partners & Roles	HKBU leads and oversees toolkit architecture and task modeling, collaborating with LU , PolyU , HKUST and two overseas partners on simulation development, implementation, and evaluation.
Enhancing Chinese Medicine Clinical Learning Through AI: Building Tools for Bilingual and Cross-Disciplinary Medical Education			
 Objective	To establish a standardised bilingual Traditional Chinese Medicine glossary database and develop an AI-driven chatbot for medical training.		
 Partners & Roles	HKBU will create the database, develop the AI tool, and coordinate the project. CUHK , PolyU and HKU will survey AI literacy and pilot the databases and AI tools.		

Figure 1. Objectives and Roles of Participating Universities in Five HKBU-Led IICA Projects

- 2.6 Many TDLEG key themes have been embedded and are advancing in the implementation of PEP 2025-28. HKBU will use the TDLEG strategically to step up these and new initiatives. To summarise, HKBU has the following aims for TDLEG 2025-28:

- Scaling up Generative AI (GenAI) and EdTech integration into T&L;
- Advancing transdisciplinary education and personalised learning with a flexible and dynamic curriculum to nurture future-shaping students;
- Enhancing student well-being and personal growth through holistic learning experiences;
- Sustaining collaboration and inter-institutional partnerships;
- Cultivating students' abilities in articulating knowledge and perspectives, and undertaking solution-based learning in disciplinary or transdisciplinary contexts;

- 3.4 The proportion of the IICA portion to be applied towards TD and LE is:

Allocation for	Amount HK\$(M)	Percentage
Teaching Development	4.95	79.2%
Language Enhancement	1.30	20.8%

C. Deliverables, Evaluations and Timeline

Theme 1: Addressing Evolving Challenges in Teaching and Learning – Teaching Development

- 4.1 Theme 1 includes seven focus areas. It is addressed mainly with the TD portion, yet LE will also contribute as appropriate.

Technology-Enhanced Pedagogy

- 4.2 HKBU aims to nurture students who are AI-empowered, AI-critical, AI-ethical and capable of building and sustaining human uniqueness¹. Education technologies will be developed and integrated into teaching and assessment to foster personalised, reflective, and collaborative learning. The implementation of Model-as-a-Service can enable easy access to AI models and integration with various applications, supporting a range of GenAI T&L initiatives. Drawing on an online-offline hybrid mode of T&L, blended and flipped classrooms will be expanded to facilitate self-paced learning and use of class time for in-depth interaction and collaboration. Learning analytics will be tracked systematically to guide the design of student learning activities and assessment.
- 4.3 HKBU will further strengthen its EdTech team. The team will address technological needs in T&L and empower teachers to leverage digital solutions effectively in their practices. We will upgrade HKBUniverse to create an immersive, AI-enabled virtual learning environment, enabling closer cross-campus engagement between HKBU and BNNU teachers and students.
- 4.4 Contextualised and authentic assessment will be expanded through (a) implementation of learning process rubrics with iterative feedback to students, and (b) discipline-specific assessment redesigns. The dedicated Advanced Study Institute, started in 2021, will continue to support these efforts by facilitating collaboration among assessment specialists and teachers via workshops and best-practice exchanges.
- 4.5 Complementing these strategies, the Teaching Development Grants (TDG) scheme will incentivise staff-initiated projects aligned with institutional goals, prioritising scalable innovations in GenAI, blended learning, and authentic assessment.

Transdisciplinary Education

- 4.6 With the UGC's endorsement of PEP 2025-28, HKBU is expanding transdisciplinary education in AY2025/26, including the introduction of a four-year transdisciplinary undergraduate programme, seven transdisciplinary second majors (TSMs), two senior year (SY) transdisciplinary programmes, and two second majors. HKBU is also working closely with BNNU to develop transdisciplinary programmes for the latter. Starting in AY2024/25,

¹ HKBU's four Guiding Principles for the Use of Generative AI Tools in Teaching and Learning, and Assessment.

students of both campuses collaborate on transdisciplinary student projects. More joint-campus projects will be developed.

- 4.7 HKBU Senate approved in early 2025 its definition of transdisciplinarity (**Figure 3**): explicit relation to a pertinent global issue such as the Sustainable Development Goals (SDGs), participation/collaboration across academic disciplines and sectors, and problem solving with EL and SL. As such, the transdisciplinary programmes and TSMs will engage many local and overseas institutions and community partners to develop contextualised and solution-based learning initiatives that focus on the SDGs. Students will also be engaged as partners to design and work collaboratively on various projects.

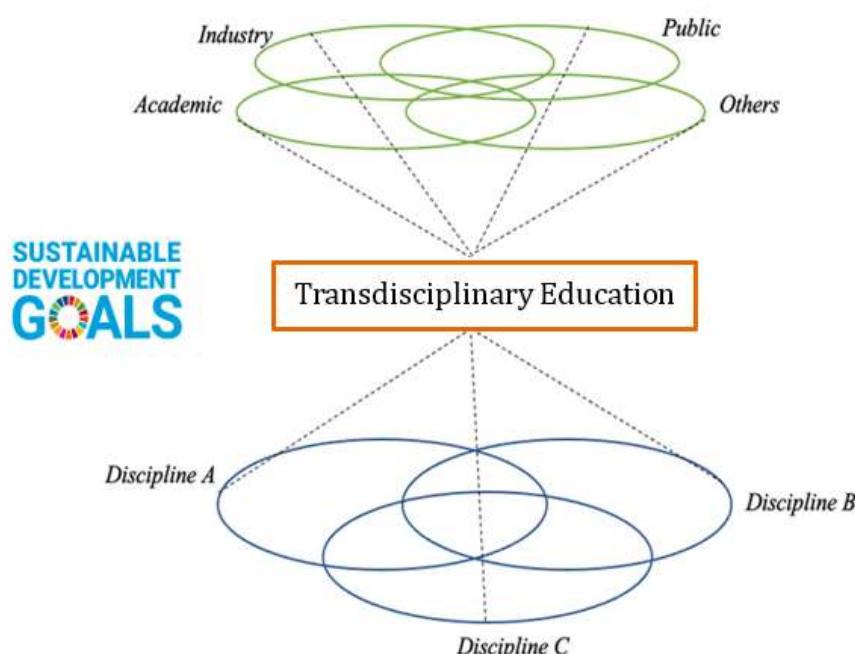


Figure 3. Transdisciplinary Education at HKBU

- 4.8 Critical reflection in SL and EL is crucial for engaging students in deep learning. An AI-powered online solution will be developed to streamline transdisciplinary portfolio creation and cross-institutional collaboration. In addition, a “Transdisciplinary Online Bazaar” will be set up as a repository of educational resources co-developed with students in the transdisciplinary programmes to facilitate resource and practice sharing, especially with partner institutions and local secondary schools.

Contextualised and Solution-Based Learning

- 4.9 In addition to the transdisciplinary programmes and TSMs, other programmes will also include more courses or learning activities in SL and EL with the support of the Centre for Innovative Service-Learning.
- 4.10 To achieve more comprehensive assessments of students’ community-based learning, a community partner assessment toolkit and a service user feedback toolkit will be designed and applied to all courses with SL and EL. In addition, dashboards will also be created to track and enhance the effectiveness of SL and EL, as well as social innovation initiatives.
- 4.11 GenAI and cutting-edge technologies will be integrated into SL and EL. An AI-powered reflection bot will be designed to motivate a shift from superficial and anecdotal reflections

to more profound analyses and critical thinking. Furthermore, grants and student subsidies will be allocated to support SL courses incorporating innovative technologies and GenAI.

Student Well-Being and Personal Growth

- 4.12 All HKBU students may opt to join the adventure education programme starting at BNBU in 2026. They will undertake challenging outdoor activities to strengthen resilience, teamwork, problem-solving skills and self-confidence. 1,000 students are anticipated to benefit in 2026-28. The programme will be evaluated through behavioural and attitudinal shifts and students' self-assessment.
- 4.13 A student-centric and wellness approach will be integrated into the GE courses. Summer GE courses about well-being and healthy lifestyles will be co-organised with BNBU. SL courses will feature structured reflection and personal growth activities, with assessments emphasising resilience and interpersonal skills.

Fit-for-Purpose General Education Programme

- 4.14 The University will launch the new GE programme in AY2025/26 which will enable students to (a) assimilate transdisciplinary and transcultural knowledge and perspectives to gain insights and synthesise ideas, (b) articulate the ethical and critical uses of technologies for social good; and (c) appraise different lifestyles and solutions to problems. It is carefully designed with flexibility to cater for the needs of students pursuing different study pathways.
- 4.15 A mandatory GE Level 1 AI Literacy course will provide all students with an appreciation of the AI-related ethical issues, foundational skills in GenAI, and digital literacy. Technology-enhanced flipped classrooms incorporating GenAI tools will be implemented in GE courses. These classrooms will utilise interactive learning platforms and GenAI capabilities to deepen understanding and cultivate higher-order thinking skills.
- 4.16 A new GE Capstone Workshop will be introduced to engage students in transdisciplinary projects in areas such as entrepreneurship, social innovation, scientific advancement, and sustainable development. Students will have the opportunity to devise innovative solutions to address real-world challenges.
- 4.17 Innovative pedagogies, such as Students-as-Partners (SaP), authentic assessment, solution-based learning and flipped classroom, will be integrated into the GE courses. Sharing sessions on best practices will support course instructors in adopting these new teaching approaches.
- 4.18 BNBU is in the process of aligning its GE programme to the new one at HKBU. The two campuses are working closely and developing courses together.

Professional Development and Scholarship of Teaching and Learning (SoTL)

- 4.19 Our professional development activities will engage teachers in developing GenAI and educational technology integration, authentic assessment, transdisciplinary curriculum design, transcultural learning and other pertinent T&L practices. A "Digital Ethics" micro-credential will address ethical technology use, while partnerships with industry leaders will ensure the training is responsive to emerging trends and real-world applications.
- 4.20 In 2025-28, the HKBU HEA Fellowship Scheme will undergo re-accreditation by Advance HE and expand to double its Fellowship community. Evidence of the Scheme's impact on teaching practices and student outcomes will be collected to inform future strategy.

- 4.21 BNUB colleagues may attend HKBU's SoTL activities, and there will be joint activities between the two campuses.

Theme 2: Strengthening Partnerships and Collaborative Learning

- 4.22 Our aim is to build a cohesive academic community not only through joint events but also by actively involving our partners in both HKBU-led and other IICA projects, thereby enhancing the scope and impact of our collaboration.
- 4.23 Our partnerships will extend to employers, industry practitioners, overseas T&L experts, and external professional communities (e.g., Advance HE, United Board for Christian Higher Education in Asia, Global Alliance for Inter- and Transdisciplinarity), who will co-develop or co-deliver T&L initiatives with us, and provide benchmarking standards and diverse perspectives.

Theme 3: Enhancing Global Competencies through Language Studies

Language Enhancement

- 4.24 HKBU Senate approved a Language Education Policy in 2025. The Language Centre (LC) will collaborate closely with academic programmes and support units to develop students' competencies in disciplinary/transdisciplinary communication, professional communication, and multilingual/multicultural communication through strategic teaching, situated learning, and intercultural engagement. AI and technologies will be incorporated, and personalised learning fostered to advance language education.
- 4.25 The collaborative relationship among the four pillars of successful language learning is depicted in **Figure 4**, with each pillar shouldering different responsibilities in a complementary manner.

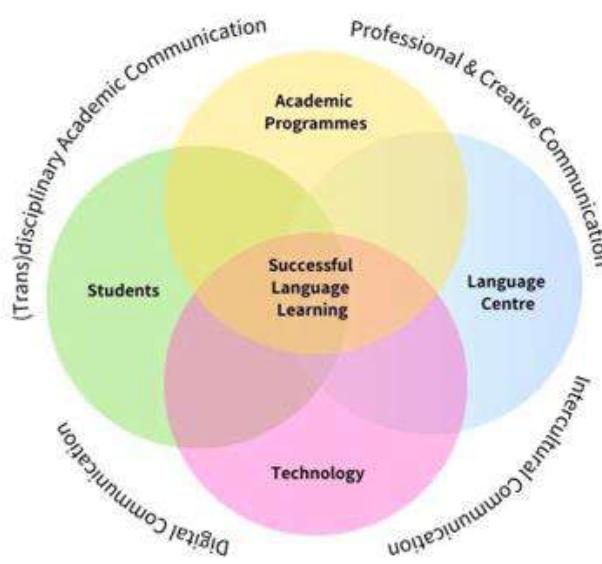


Figure 4. Four Pillars of Successful Language Learning at HKBU

Leveraging AI tools to Strengthen Disciplinary and Transdisciplinary Academic and Professional Communication Skills

- 4.26 A comprehensive strategy combining face-to-face teaching with AI tools for tutoring and feedback will be implemented. The flipped classroom will engage students with technology-enhanced learning materials (e.g., videos and digital exercises), while AI-powered platforms (e.g., customised chatbots) will facilitate personalised learning. This approach will be prioritised in core language courses. Mastery of AI and digital communication skills will be incorporated into the Course Intended Learning Outcomes (CILOs).
- 4.27 A transdisciplinary e-learning platform will be piloted to facilitate collaboration between students, language instructors, and discipline-specific faculty. This platform will serve as a repository for shared resources and activities that highlight English use in transdisciplinary contexts. In senior years, capstone-specific language mentoring will offer personalised guidance for students' project planning and revision, with co-assessment with subject teachers.
- 4.28 LC will contribute to local and overseas SL and EL in the curriculum to develop students' communication skills in real-life contexts. Teacher feedback, AI-mediated strategies and peer-assisted models will be blended to optimise personalised and scalable language support. To further promote learning autonomy, sponsorship will be provided to students to organise language and cultural activities for their peers.
- 4.29 Academic programmes will integrate learning outcomes in communication and the corresponding assessment into their courses. LC will build on its successful English in the Disciplines and support academic staff and departments. It will also organise staff development activities in language and communication education.
- 4.30 For students with HKDSE level 3 or below in English, the current enhancement course will be revamped to more explicitly focus on English proficiency and learning skills. Customised AI chatbots will be utilised for flipped independent learning.

Fostering Global Competence Through Multilingual and Intercultural Education

- 4.31 Foreign language offerings will be enriched, featuring a minimum of five languages.
- 4.32 Opportunities for intercultural communication will continue and expand through initiatives such as the Social Learning Space and Global Dialogues. Inbound exchange students will be recruited to engage in in-depth cultural or intellectual dialogues or joint activities with local and other non-local students. Immersive exchange programmes and virtual exchange opportunities will connect HKBU students with their peers globally, further fostering students' global competence.
- 4.33 The Language Exchange Programme will be strengthened with structured activities to promote deeper intercultural understanding alongside language practice. The Cultural Exchange Course will support outbound students' cultural learning, while Chinese cultural workshops will support inbound non-local students to facilitate their integration and deepen their understanding of the local traditions. Informal, community-focused spaces for students' language practice will be created in student residences.
- 4.34 Chinese courses will be offered specifically for non-Chinese-speaking students, supplemented by Chinese cultural immersion activities and field experiences to ensure inclusive and equitable access to language learning resources and opportunities.

Nurturing Creativity Through Literary Arts and Performance

- 4.35 Chinese creative writing workshops will cultivate students' literary voices under the guidance of experienced writers and instructors. Competitions, including the Hung Leung Hau Ling Young Writer Award, English Short Story Competition, and Chinese Playwriting Competition, will showcase exemplary student work and teaching practices.
- 4.36 Other contests, such as the Multilingual Singing Contest, Cantonese Recitation Contest, English Speaking Competition, and the 3-Minute Thesis Competition (3MT), will celebrate students' creativity, linguistic artistry, as well as research output, presenting opportunities for real-time learning and skill development.

Enhancing Professional Communication and Employability

- 4.37 Career-focused language initiatives, such as courses and activities focusing on workplace communications and professional civil servant recruitment exams (e.g., JRE/CRE), will equip graduates with professional communication competences and adaptability.
- 4.38 Collaboration with faculties on job search skills will continue. Professional communication workshops will simulate workplace scenarios (e.g., business etiquette, negotiations) and link to employment outcome evaluations.

Preparation for Language Tests

- 4.39 Workshops and preparatory sessions will be organised for students taking internationally recognised standardised language proficiency tests (e.g., IELTS, TOEFL, and PSC). Subsidies will be provided to cover the exam fees.

D. Programme Management

- 5.1 Our TDLEG initiatives follow the University's fit-for-purpose quality culture, which is encapsulated in five Guiding Principles: Alignment with the University's strategic directions and goals, Benchmark locally and internationally, Consistency across programmes and all learning activities, Due process with multi-layered mechanisms to ensure transparency, ownership and cost-effectiveness, and Evidence-based practices.
- 5.2 In addition, the University will adapt to evolving educational landscapes. Policies and operational guidelines will undergo regular reviews to cater for technological and pedagogical advancements.
- 5.3 The effectiveness of the initiatives in TDLEG will be monitored through students' academic performance, achievements in standard tests (e.g., TOEFL) and feedback from students, staff and outside stakeholders such as peers and employers. Such feedback will be used to inform subsequent policy formulation and planning following the principles in our quality culture and the Approach-Deployment-Results-Improvement approach.
- 5.4 The TDLEG will be managed by a Working Group under the leadership of the Vice-President (Teaching and Learning). The Teaching and Learning Policy Committee and the Language Education Board will oversee the projects via regular reviews and careful consideration of the reports and project outcomes.

E. Sharing of Good Practices and Sustainability

- 6.1 HKBU submitted a progress report on its action plan implementation regarding the UGC-QAC Report. We will share the FGPs and other good practices via channels such as workshops, international conferences, academic publications, compendia, and co-organised thematic events with partners such as the Hong Kong Teaching Excellence Alliance.
- 6.2 Project outcomes will be shared through means such as traditional forums, AI-powered knowledge-sharing platforms, and virtual symposia. Collaborative webinars with global EdTech leaders, teacher-led and student-led podcasts, as well as digital portfolios of creative work, will further amplify impact.
- 6.3 As most funded TDLEG initiatives are not exclusively supported by the TDLEG, successful outcomes from these projects will continue beyond 2025-28. High-impact projects will be identified and scaled up.

Total: 2,977 words
30 June 2025

Glossary

3MT	3-Minute Thesis Competition
AI	Artificial Intelligence
BNU	Beijing Normal-Hong Kong Baptist University
BSE	Best Student Experience
CILOs	Course Intended Learning Outcomes
CRE	Common Recruitment Examination
EdTech	Educational Technology
EL	Experiential Learning
FGPs	Features of Good Practice
GE	General Education
GenAI	Generative Artificial Intelligence
HEA	Higher Education Academy (Advance HE)
HKBU	Hong Kong Baptist University
HKDSE	The Hong Kong Diploma of Secondary Education Examination
IELTS	International English Language Testing System
IICA	Inter-institutional Collaborative Activities
ISP	Institutional Strategic Plan
JRE	Joint Recruitment Examination
LC	Language Centre
LE	Language Enhancement
PEP	Planning Exercise Proposal
PSC	Putonghua Shuiping Ceshi
QAC	Quality Assurance Council (UGC-QAC)
SaP	Students-as-Partners
SDGs	Sustainable Development Goals
SL	Service-Learning
SoTL	Scholarship of Teaching and Learning
SY	Senior Year
T&L	Teaching and Learning
TD	Teaching Development
TDG	Teaching Development Grants
TDLEG	Teaching Development and Language Enhancement Grant
TOEFL	Test of English as a Foreign Language
TSMs	Transdisciplinary Second Majors
UAA	University Accountability Agreement
UGC	University Grants Committee

Appendix 1a

Hong Kong Baptist University Teaching Development and Language Enhancement Grant 2025-28 Triennium

HKBU-led Inter-institutional Collaborative Activities

I. Project Brief

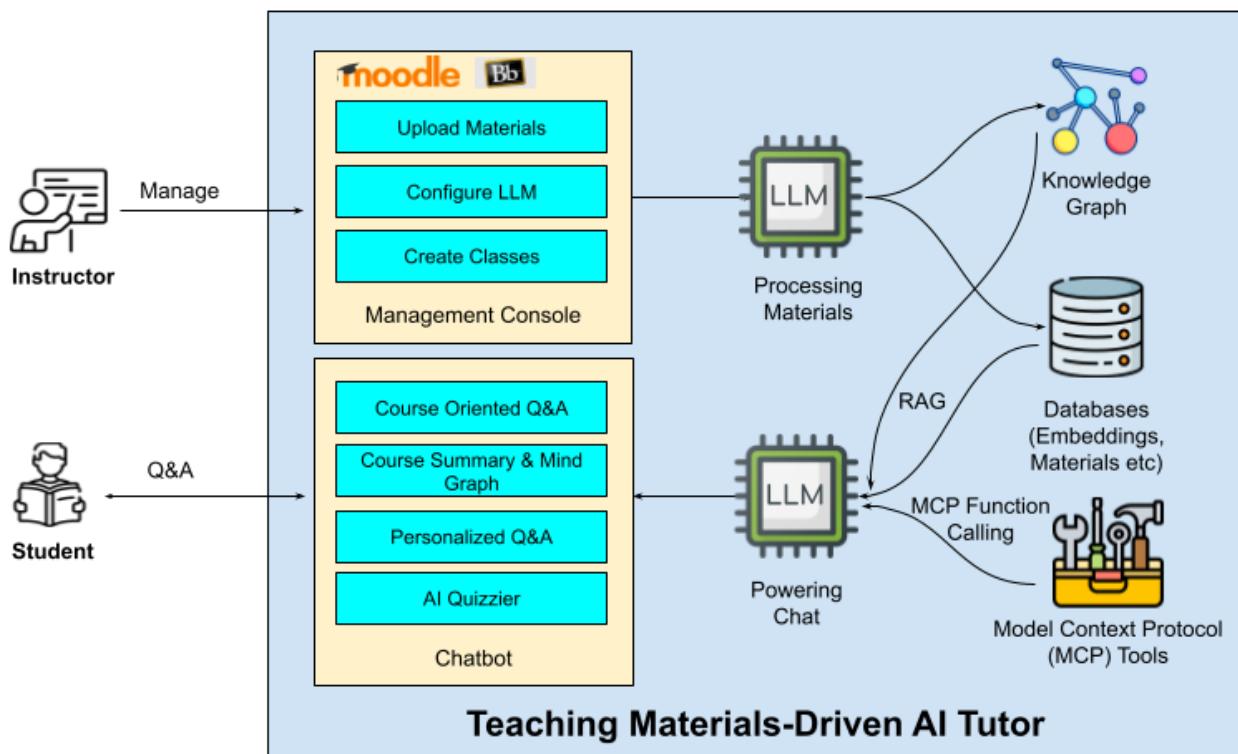
Lead University	Hong Kong Baptist University	
Participating University(ies)	The Chinese University of Hong Kong (CUHK)	
Project for	Teaching Development	✓
	Language Enhancement	
Project Type	Expansion of Existing Initiative	
	New Initiative	✓
Project Theme	1. Integrating Generative AI and Innovative Technologies	✓
	2. Student Well-Being and Personal Growth	
	3. Enhancing Global Competencies through Language Studies	
	4. Others (Please specify) Student-Teacher Partnership	
Alignment to HKBU ISP Best Student Experience	1. Cross-cultural Learning Experiences	
	2. Inclusive Admission for Diversity	
	3. Innovative Programme Design and Pedagogy	✓
	4. Capacity Building	
	5. Research-led Curriculum, and Service and Experiential Learning	
Anticipated Number of Student & Staff Beneficiaries	<i>Staff:</i> 80+ (HKBU), 5 (CUHK) <i>Students:</i> 2,500+ (HKBU), 300 (CUHK)	

II. Project Details

Project Title
Teaching Materials-Driven AI Tutor: Personalizing Learning Excellence
Project Description and Objectives
<p>Current AI systems, such as ChatGPT, DeepSeek, and Anthropic's Socratic Tutor, often lack academic precision and up-to-date content due to their broad training data, occasionally producing hallucinated responses. To address this issue, we propose a Teaching Materials-Driven AI Tutor, which leverages Retrieval-Augmented Generation (RAG) integrated with course-specific materials to provide accurate, tailored, and effective e-learning support for students. The specific objectives of the proposed project are as follows:</p> <ul style="list-style-type: none">Design and Implement an LLM-Powered AI Tutor with RAG: Develop an LLM-powered, retrieval-augmented AI Tutor that uses course-specific teaching materials to deliver personalized, adaptive learning experiences tailored to individual student needs.Innovate Teaching Pedagogy with a Personalized AI Tutor: Transform traditional teaching methods by integrating the AI Tutor into courses across various disciplines to provide dynamic, student-centered instruction, fostering engagement and enhancing learning outcomes.Integrate the AI Tutor with E-Learning Platforms for Seamless Accessibility: Incorporate the AI Tutor into existing e-learning platforms (e.g., Moodle at HKBU and Blackboard at CUHK) to ensure user-friendly access, enabling students and instructors to leverage personalized tutoring within familiar digital environments.
Project Team
<ul style="list-style-type: none">Prof. Jianliang Xu, Department of Computer Science, HKBUDr. Xiaoyi Fu, Department of Journalism, HKBUProf. Chuan Yu, Department of Translation, Interpreting and Intercultural Studies, HKBUDr. Ce Zhang, Department of Computer Science, HKBUProf. Hong Cheng, Department of Systems Engineering and Engineering Management, CUHK
Description of Project Implementation and Deliverables
<p>To address the limitations of current AI systems and enhance the student learning experience, the proposed Teaching Materials-Driven AI Tutor (AI Tutor for short) utilizes LLM and RAG integrated with course-specific materials. This approach ensures the AI Tutor delivers highly relevant, accurate, and contextually appropriate support to students.</p>
System Overview:
<p>The AI Tutor system, as depicted in the system diagram below, comprises two interconnected subsystems: the Instructor Sub-system and the Student Sub-system.</p> <ul style="list-style-type: none">Instructor Sub-system: This sub-system ensures the AI Tutor's responses are accurate and relevant by grounding them in verified course content. Through a dedicated interface, instructors can create courses and upload various teaching materials (slides, videos, and reference books), with potential integration with popular e-learning platforms like Moodle, Blackboard, and Canvas. Uploaded materials will be processed and structured into a dedicated knowledge base using both a knowledge graph (for mapping conceptual relationships) and vector embeddings (for nuanced semantic understanding). This structured knowledge base, accessed by the RAG framework, allows the LLM to effectively leverage course-specific information. This dual-representation approach can significantly reduce the risk of irrelevant or out-of-scope responses.

The instructor interface will also allow for continuous updates to teaching materials, keeping the AI Tutor's knowledge base current. Additionally, instructors will have access to a management console to configure LLM parameters and manage course settings.

- **Student Sub-system:** This sub-system offers students an intuitive interface, primarily an interactive chatbot, for engaging with the AI Tutor. Powered by the LLM and the RAG framework utilizing the processed course materials, this sub-system provides an array of features to personalize and enhance their learning. Students can ask course-specific questions and receive precise, referenced answers; receive personalized support and explanations tailored to their learning profiles based on past interactions and quiz performance; request concise summaries and AI-generated interactive mind maps for improved comprehension; and utilize an adaptive AI quizzier that generates tests directly from the course content. Furthermore, integration with the Model Context Protocol (MCP) via MCP Function Calling will allow the AI quizzier to automatically evaluate complex submissions, such as programming assignments, providing immediate and constructive feedback.



Project Implementation:

The project will be implemented in three phases: development, integration, and evaluation.

- **Phase 1: Development.** This initial phase focuses on designing and building the core functionalities of the AI Tutor. We will develop a robust Teaching Materials Processing Pipeline capable of ingesting diverse teaching materials and transforming them into a structured, searchable knowledge base. This involves advanced segmentation of materials into manageable chunks, generation of vector embeddings for each chunk to facilitate efficient semantic retrieval, and construction of a knowledge graph to capture relationships between concepts. Concurrently, we will develop the RAG pipeline, integrating a suitable LLM (e.g., ChatGPT, DeepSeek, or other state-of-the-art models) with the knowledge base (encompassing both the vector database and the knowledge graph). The RAG system will be engineered to answer student queries with high accuracy by retrieving relevant contextual information from the course materials and using it to inform the LLM's response generation. Initial versions of the student and instructor interfaces will be developed to facilitate early testing and feedback.

Key Deliverables for Phase 1:

- Functional Material Processing Pipeline: A system capable of processing various material types into a structured and searchable knowledge base.
- Operational RAG Pipeline: A functional RAG system effectively integrating the LLM with the knowledge base to generate contextually relevant responses.
- Prototype AI Tutor Interfaces: Basic, interactive user interfaces for both students and instructors.
- **Phase 2: Integration.** This phase focuses on embedding the AI Tutor within existing educational ecosystems. We will target widely used e-learning platforms like Moodle and Blackboard to ensure seamless accessibility. To achieve this, we will develop the necessary APIs and plugins to enable robust communication and data exchange between the AI Tutor and the chosen e-learning platform(s). The integration will prioritize a user-friendly experience, allowing students to access the tutor's functionalities and instructors to manage materials directly within their familiar learning environment.

Key Deliverables for Phase 2:

- Platform Integration API/Plugin: A functional and secure interface connecting the AI Tutor to the selected e-learning platform(s).
- Integrated AI Tutor System: The AI Tutor accessible and operational directly within the target e-learning platform(s).
- User Documentation (Initial Draft): Clear instructions for students and instructors on utilizing the integrated AI Tutor.
- **Phase 3: Evaluation.** This crucial phase is dedicated to rigorously evaluating the AI Tutor's effectiveness in enhancing student learning outcomes and user satisfaction. We will design and conduct a pilot study with a representative group of students and instructors in a real-world educational setting. Comprehensive qualitative and quantitative data will be collected, focusing on student engagement, satisfaction levels, learning performance (e.g., quiz scores, task completion rates), and system usability. We will analyze student interactions with the AI Tutor, assessing the accuracy, relevance, and helpfulness of its responses. Where feasible, student performance in courses utilizing the AI Tutor will be compared with control groups employing traditional learning methods or alternative support tools.

Key Deliverables for Phase 3:

- Pilot Study Implementation: Successful execution of the pilot study according to the defined methodology, including participant recruitment and data collection.
- Comprehensive Data Analysis: Rigorous analysis of all collected data, identifying trends, strengths, and areas for improvement.
- Final Evaluation Report: A detailed report summarizing the pilot study's findings, assessing the AI Tutor's impact on learning, and providing data-driven recommendations for future enhancements, broader deployment, and potential research contributions.

Project Deliverables:

Upon successful completion, this project will deliver the following key outputs:

1. **Integrated AI Tutor Platform:** A fully developed and tested system featuring intuitive student and instructor interfaces, accessible via web and integrated with target e-learning platforms.
2. **Advanced AI Core & Knowledge Base:** A robust backend system comprising a materials processing pipeline, data management module, and the RAG-LLM engine for intelligent, context-aware interactions.
3. **MCP-Powered Assessment Module:** An integrated capability leveraging the Model Context Protocol for flexible and automated evaluation of student tasks, with an initial focus on

<p>programming assignments.</p> <p>4. Evaluation Report & Documentation: A final pilot study evaluation report, detailed user manuals for students and instructors, and technical documentation for system maintenance and future development.</p>
Roles of Each Participating University
This project will be a collaborative effort between HKBU and CUHK. Each university will play a distinct role in the project's successful execution.
HKBU (Lead University):
<ul style="list-style-type: none"> • Project Leadership and Management: HKBU will oversee the overall project, including project planning, coordination, and reporting. This includes managing the project timeline, budget, and communication between all participating universities. • Primary Development of AI Tutor: HKBU will lead the development of the core AI Tutor technology, including the RAG pipeline, knowledge base creation, and initial user interface design. • Integration with E-learning Platform: HKBU will take the primary role in integrating the AI Tutor with the chosen e-learning platform, developing the necessary APIs and plugins and providing training materials for instructors. • Pedagogical Integration and Best Practices: HKBU will explore and document best practices for integrating the AI Tutor into existing teaching methodologies. • Data Analysis and Reporting: HKBU will lead the data analysis and reporting efforts during the evaluation phase, compiling the findings and producing the final evaluation report.
CUHK (Participating University):
<ul style="list-style-type: none"> • Knowledge Base Curation and Refinement: CUHK will contribute significantly to curating and refining the knowledge base of teaching materials, ensuring its comprehensiveness and accuracy. This may involve providing specific course materials and expertise in relevant subject areas. • Pilot Study Participation: CUHK will participate in the pilot study, implementing the AI Tutor in selected courses and collecting data on student engagement and performance. • User Feedback and Interface Refinement: CUHK will provide valuable feedback on the AI Tutor's usability and functionality, contributing to the refinement of the user interface and overall user experience. CUHK will also explore best practices for integrating the AI Tutor into existing teaching methodologies.
Project Period and Implementation Timeline
The project will span 36 months from 1 July 2025 to 30 June 2028, encompassing the following phases:
Phase 1: Project Inception and Planning (Months 1-2)
<ul style="list-style-type: none"> • Project kickoff meeting and team formation. • Requirements gathering and specification development. • Selection of target e-learning platforms and LLM/RAG technologies. • Development of a detailed project plan and timeline.
Phase 2: AI Tutor Development and Integration (Months 3-18)
<ul style="list-style-type: none"> • Development of the core AI Tutor functionality, including the RAG pipeline and knowledge base integration. • Design and development of the user interface. • Integration of the AI Tutor with the selected e-learning platforms.

- Rigorous testing and quality assurance.

Phase 3: Pilot Study and Evaluation (Months 19-30)

- Recruitment of student participants for the pilot study.
- Deployment of the AI Tutor in a real-world learning environment.
- Data collection and analysis to evaluate the effectiveness of the AI Tutor.
- Refinement of the AI Tutor based on pilot study feedback.

Phase 4: Dissemination and Sustainability (Months 31-36)

- Preparation of project deliverables, including documentation, codebase, and evaluation reports.
- Dissemination of project findings through publications, presentations, and workshops.
- Establishment of a project website and open-source repository.
- Development of a sustainability plan for long-term maintenance and community engagement.

Intended Outcomes and Impact

With the aim to transform the learning experience for students and enhance teaching practices for instructors, the intended outcomes and impact on the target beneficiaries are outlined below:

For Students:

- **Enhanced Learning Experience:** The AI Tutor will provide personalized support and on-demand access to relevant learning resources, fostering a more engaging and effective learning experience. Students will benefit from immediate feedback, clarifying explanations, and tailored guidance, leading to improved comprehension and knowledge retention.
- **Increased Accessibility and Flexibility:** The integration of the AI Tutor with e-learning platforms will ensure seamless access to support, irrespective of time or location. This will particularly benefit students who require additional assistance or have scheduling constraints.
- **Improved Learning Outcomes:** By providing personalized feedback and addressing individual learning gaps, the AI Tutor is expected to contribute to improved student performance and academic achievement.

For Instructors:

- **Reduced Workload:** The AI Tutor will automate many routine tasks, such as answering frequently asked questions and providing basic explanations, freeing up instructors' time to focus on more complex pedagogical activities and student interactions.
- **Enhanced Teaching Effectiveness:** The data collected through the AI Tutor will provide valuable insights into student learning patterns and identify areas where students struggle. This data-driven approach will empower instructors to tailor their teaching methods and address specific learning needs more effectively.
- **Innovation in Teaching Practices:** The project will promote the adoption of innovative teaching practices by integrating cutting-edge AI technology into the educational environment. This will enhance the overall quality of education and prepare students for the demands of the future workforce.

Overall Impact: This project has the potential to transform the educational landscape by providing personalized, accessible, and engaging learning experiences. By empowering both students and instructors with AI-driven tools, the project aims to improve learning outcomes, enhance teaching effectiveness, and promote innovation in education. The open-source nature of the project will further amplify its impact by enabling other institutions to adopt and adapt the technology, fostering a wider community of practice and contributing to the advancement of AI in education.

Monitoring and Evaluation Mechanism

This project will employ a robust monitoring and evaluation mechanism to track progress, assess effectiveness, and ensure alignment with project objectives. Key Performance Indicators (KPIs) will be used as reflective measurement tools against the intended outcomes:

Objective 1: Design and Implement an LLM-Powered AI Tutor with RAG:

- KPI 1: Knowledge Base Completeness: Measured by the amount of teaching materials successfully integrated into the knowledge base. Target: 100% of core course materials including lecture notes integrated.
- KPI 2: RAG Pipeline Accuracy: Measured by the percentage of student queries accurately answered by the AI Tutor based on the provided teaching materials. Target: 90% accuracy.
- KPI 3: AI Tutor Response Time: Measured by the average time taken for the AI Tutor to generate a response to a student query. Target: <5 seconds.

Objective 2: Innovate Teaching Pedagogy with a Personalized AI Tutor:

- KPI 4: Student Engagement: Measured by the quality, frequency, and duration of student interactions with the AI Tutor. Target: Average of 3 high-quality interactions per student.
- KPI 5: Student Satisfaction: Measured through student surveys assessing their satisfaction with the AI Tutor's functionality and usefulness. Target: Average satisfaction score of 4 out of 5.

Objective 3: Integrate the AI Tutor with E-Learning Platforms for Seamless Accessibility:

- KPI 6: Platform Integration Success: Measured by a binary indicator (yes/no) reflecting successful integration with the chosen e-learning platform(s). Target: Yes.
- KPI 7: System Uptime: Measured by the percentage of time the integrated AI Tutor is available and functional. Target: 99% uptime.

These KPIs will be monitored throughout the project lifecycle. Regular progress reports will be generated, and corrective actions will be taken if any KPIs deviate significantly from the targets. Data collected during the pilot study will be analysed to assess the impact of the AI Tutor on student learning outcomes and inform further development. The evaluation report will provide a comprehensive overview of the project's success in achieving its objectives and offer recommendations for future iterations and wider implementation.

Sustainability of the Project and Means for Disseminating Deliverables/Outcomes

Project sustainability will be ensured through open-source of the AI Tutor codebase and the creation of comprehensive documentation, enabling other institutions to adapt and implement the technology. Dissemination of project deliverables and outcomes will be achieved through various channels:

- **Open-Access Repository:** The code and documentation will be published on a publicly accessible platform (e.g., GitHub, Zenodo).
- **Conference Presentations and Publications:** Project findings will be presented at relevant educational technology conferences and published in peer-reviewed journals.
- **Workshops and Webinars:** Workshops and webinars will be conducted to train instructors on utilizing the AI Tutor and integrating it into their teaching practices.
- **Project Website:** A dedicated project website will serve as a central hub for disseminating information and resources related to the AI Tutor. This will ensure long-term accessibility and facilitate community engagement.

Appendix 1b

**Hong Kong Baptist University
Teaching Development and Language Enhancement Grant
2025-28 Triennium**

HKBU-led Inter-institutional Collaborative Activities

I. Project Brief

Lead University	Hong Kong Baptist University	
Participating University(ies)	<p><i>UGC funded institutions</i></p> <ul style="list-style-type: none"> • City University of Hong Kong (CityU) • Lingnan University (LU) • The Chinese University of Hong Kong (CUHK) • The Education University of Hong Kong (EdUHK) • The Hong Kong Polytechnic University (PolyU) • The Hong Kong University of Science and Technology (HKUST) • The University of Hong Kong (HKU) <p><i>Non-UGC funded institutions</i></p> <ul style="list-style-type: none"> • Beijing Normal–Hong Kong Baptist University (BNBU) • Hong Kong Metropolitan University (HKMU) • Saint Francis University (SFU) • The Hang Seng University of Hong Kong (HSUHK) 	
Project for	Teaching Development	✓
	Language Enhancement	
Project Type	Expansion of Existing Initiative	✓
	New Initiative	
Project Theme	1. Integrating Generative AI and Innovative Technologies	
	2. Student Well-Being and Personal Growth	✓
	3. Enhancing Global Competencies through Language Studies	
	4. Others (Please specify) Student-Teacher Partnership	✓
Alignment to HKBU ISP Best Student Experience	1. Cross-cultural Learning Experiences	
	2. Inclusive Admission for Diversity	
	3. Innovative Programme Design and Pedagogy	✓
	4. Capacity Building	✓
	5. Research-led Curriculum, and Service and Experiential Learning	
Anticipated Number of Student & Staff Beneficiaries	<p><i>Staff:</i> Expected to benefit 800 academic/teaching staff from all partnering institutions, out of whom 200 will be from HKBU</p> <p><i>Students:</i> Expected to benefit over 12,000 students from all partnering institutions, out of whom 6,000 will be from HKBU</p> <ul style="list-style-type: none"> • The application developed under the proposed project will be incorporated into activities with broad student coverage, e.g., residential education, university orientation week, etc., to target beneficiaries. 	

II. Project Details

Project Title
Resilience and Integrity through Scenario-based Engagement (RISE)
Project Description and Objectives
<p>Fast-emerging technologies create a digital era with unprecedented opportunities mixed with new dilemmas. In the education context, for instance, transformational technologies, including generative AI (GenAI), open a promising future of individualised learning and automation of mechanical tasks; they, however, come with challenges for students to keep pace with technology advancement, to process a flood of complex information, maintain well-being in the face of set-backs and high stress dilemmas, and to understand the exercise of ethical practices in new grey areas created by technology. For students to navigate through increasing complexities and adapt to the evolving world, resilience and integrity are imperative. Resilience enables and is manifested in “effective negotiating, adapting to, or managing significant sources of stress or trauma” (Windle, 2011, p.152). Students with better resilience can thus mitigate the pressure from coursework, co-curricular activities, and personal lives and grow from those experiences, reflected by positive correlations between the resilience level and mental health as well as academic attainment (Hartley, 2011). Meanwhile, integrity is “a commitment to ethical responsibilities to the self and others”, encouraging students’ upholding of academic honesty in the school and serving as a valuable quality in the workplace (Wong et al., 2016, p. 2). In other words, integrity encompasses adherence to ethical, moral, and legal obligations during one’s operation in personal, academic, professional, and societal contexts.</p> <p>This project, titled <i>Resilience and Integrity through Scenario-based Engagement (RISE)</i>, addresses two critical yet intersecting challenges: (1) promoting/upholding integrity and (2) enhancing student resilience within the context of current higher education. Considering the digital disruption and the growing prevalence of GenAI, it is of paramount importance to develop educational strategies that engage students meaningfully to foster capabilities to make ethical judgments and informed decisions and strengthen adaptive coping skills. Traditional punitive interventions against academic dishonesty and didactic workshops have been found to deter dishonest actions and raise awareness of academic integrity, but not yield consistent behavioural changes (Wu et al., 2024). Resilience-building, on the other hand, requires equipping students with an array of skills to tackle different challenges, e.g., managing stress and building networks (Winwood et al., 2013), necessitating extended training and ample opportunities for reflection. However, unless made compulsory, standalone interventions outside the curriculum tend to attract few students (Stallman, 2010), highlighting the need to spark student interest and sustain student engagement as a prerequisite for cultivating student resilience.</p> <p>Therefore, scenario-based gamification will be adopted in this project as a pedagogical strategy to promote student engagement and to deepen students’ ethical reasoning and resilience through experiential, emotionally resonant learning. Unlike traditional instructional methods, scenario-based experiences create authentic, immersive contexts in which students must navigate complex moral dilemmas, face ambiguity, make consequential decisions, and reflect on their actions. These elements are essential for building both integrity and adaptive capacity in the digital age. Recent research has shown that game-based learning ensures student engagement and promotes sustained motivation (Buckley & Doyle, 2016; Poondej & Lerdpornkulrat, 2016). The game context also provides learners a safe space to practise reasoning about ethics and stress-mitigating strategies, facilitating knowledge acquisition, value shift, and behavioural changes (White et al., 2025). Situated in real-world academic and social contexts, such as plagiarism under peer pressure or choosing between convenience and honesty, the practices are meaningful and relevant. Using scenario-based gamification in RISE thus aligns with both the cognitive and affective dimensions of learning needed to foster reflective, responsible, and resilient students.</p>

To ensure wide reach and practical integration, the gamified web/mobile application developed under RISE will be promoted through student-focused events and initiatives. It will also be included into selected academic and co-curricular curricula across participating institutions, enabling students to engage with the scenarios as part of their learning journey. One possible course series identified at HKBU for such integration is the “*Values and the Meaning of Life*” themed general education courses. Pioneer at HKBU, the project will additionally tap into residential education by involving hall master(s) in piloting informal learning activities within student residences, further embedding the learning experience into students’ daily lives.

This project builds directly on the successful outcomes of previous initiatives of the lead institution (HKBU), for example:

- Digital Citizenship Project, which enhances the teaching and learning of Digital Citizenship by developing scenario-based augmented reality learning trails with students as partners; and
- Digital Ethics And Responsibility Project, which engages different stakeholders from various disciplines in dialogue around digital ethics and responsibility in higher education and beyond.

RISE represents a strategic continuation and scaling of these efforts, retaining the student-as-partner (SaP) model and transdisciplinary collaboration established in previous projects, while further advancing the model through the introduction of trans-sectoral partnerships to enhance authenticity, applicability, and impact, and broadening the pedagogical scope to address the two pressing and intersecting concerns — students’ capacity for ethical decision-making and their ability to cope with increasing stress.

In addressing these challenges and exploiting new opportunities, the RISE project is designed not only as a technological intervention but also as a learning experience grounded in pedagogical research and institutional continuity. It integrates what we have learned from past initiatives while expanding our approach to better prepare students for ethical complexity and personal adversity in the digital era. Accordingly, the project sets out to achieve the following three objectives:

1. Enhance student resilience and integrity through interactive, scenario-based learning grounded in real-life dilemmas
2. Empower students as co-creators in a transdisciplinary and trans-sectoral partnership.
3. Foster a collaborative community of practice for ethical, reflective learning across disciplines and institutions.

Central to RISE are robust collaborative efforts. The project builds on the SaP model and transdisciplinary collaboration established in earlier initiatives, while expanding into trans-sectoral partnerships with industry and community collaborators to ensure real-world relevance. It also emphasises inter-institutional collaboration, enabling cross-university co-design, piloting, and dissemination. This integrated approach strengthens the authenticity, diversity, and scalability of the project’s outcomes.

Project Team

Principal Investigator

- Dr Theresa Kwong (Director, Centre for Holistic Teaching and Learning, HKBU)

Co-Investigators (UGC-Funded Participants)

- Dr Beatrice Chu (Head of Professional Development, Centre for Education Innovation, HKUST)
- Professor Han Peng (Associate Professor of Teaching, Department of Accountancy, LU)
- Professor Annis Fung (Department of Social and Behavioural Sciences, CityU)
- Professor Paul Lam (Associate Professor, Centre for Learning Enhancement And Research, CUHK)
- Dr Jack Tsao (Associate Director, Common Core Office, HKU)
- Dr Esther Lau (Associate Professor, Department of Psychology, EdUHK)
- Ms Kevinia Cheung (Education Development Centre, PolyU)

Co-Investigators (Non-UGC Funded Participants)

- Professor Eugene Ch'ng (Dean, School of Culture and Creativity, BNBU)
- Dr Vivien Chan (Director, Centre for Teaching and Learning, BNBU)
- Dr Eugene Wong (Director, Virtual Reality Centre, HSUHK)
- Dr Muk Yan Wong (Director, Common Core Curriculum, HSUHK)
- Dr Apple Wong (Senior Lecturer, School of Education and Languages, HKMU)
- Dr Amy Chan (Associate Vice-President (Quality Assurance cum Acting Director of Centre for Excellence, SFU)

Members (HKBU)

- Professor Andrew Wai-luen Kwok (General Education Office, & Academy of Chinese, History, Religion and Philosophy, HKBU)
- Professor Levi Mahonri Checketts (Academy of Chinese, History, Religion and Philosophy, HKBU)
- Dr Benjamin Cheng (School of Continuing Education, HKBU)
- Dr Kimmy Cheng (Centre for Holistic Teaching and Learning, HKBU)
- Dr Louis Cai (Centre for Holistic Teaching and Learning, HKBU)
- Dr Henry Fung (Department of Communication Studies, HKBU)
- Dr Lucia Fung (Department of Management, Marketing and Information Systems, HKBU)
- Dr Glos Ho (Division of Transdisciplinary Undergraduate Programmes, HKBU)
- Dr Gray Ho (Department of Chemistry, HKBU)
- Dr Chris Ku (School of Chinese Medicine, HKBU)
- Dr. Jean Lai (Department of Computer Science, HKBU)
- Dr Kristen Li (Department of Computer Science, HKBU)
- Dr Paolo Mengoni (Department of Interactive Media, HKBU)
- Ms Grace Ng (Centre for Holistic Teaching and Learning, HKBU)
- Professor Ahti-Veikko Juhani Pietarinen (Academy of Chinese, History, Religion and Philosophy, HKBU)
- Professor Anna Qin (Academy of Visual Arts, HKBU)
- Professor Rachel Siow Robertson (Academy of Chinese, History, Religion and Philosophy, HKBU)
- Dr Florin Constantin Serban (Department of Communication Studies, HKBU)
- Dr Dimple Thadani (Department of Management, Marketing and Information Systems, HKBU)
- Professor Pak-hang Wong (Academy of Chinese, History, Religion and Philosophy, HKBU)

Members (non-HKBU)

- Dr Kitty Chan (School of Nursing, PolyU)
- Professor Tsui Lik Hang (Talent and Education Development Office, CityU)
- Professor Geng Hongyan (Science Unit, LU)
- Dr Sukki Ho (School of Nursing, PolyU)
- Dr Peter Lau (Teaching and Learning Innovation Centre, HKU)
- Dr Iceman Leung (School of Culture and Creativity, BNBU)
- Dr Kendrew Mak (Department of Chemistry, CUHK)
- Professor Matthew James Sansom (School of Culture and Creativity, BNBU)

Description of Project Implementation and Deliverables**Project Implementation:**

The RISE project will develop a digital platform—accessible via both mobile and web—designed around a gamified, scenario-based learning experience. Students will progress through a series of levels simulating real-life academic and social challenges, such as making ethical decisions about the use of AI tools, and responding to microaggressions in social settings. These scenarios requiring them to exercise ethical judgment, critical thinking, cultural sensitivity, and decision-making under pressure.

Scenarios will be intentionally designed with elements of ambiguity and occasional setbacks to promote self-reflection and resilience.

Central to the project's development is the SaP model, whereby students will actively co-create, test, and refine both the content and the digital interface through various avenues, including integration into course activities, design workshops, and internships. This SaP model ensures that the learning design remains grounded in student realities and fosters a strong sense of agency and engagement throughout the process.

The project is further distinguished by its commitment to transdisciplinary and trans-sectoral collaboration. Academic expertise from philosophy, education, psychology, communication, and computer science will be integrated with insights from industry professionals, NGOs, and community partners. This ensures the development of content that is not only pedagogically robust and contextually meaningful but also adaptable across a wide range of disciplines and professional settings. In addition to contributing disciplinary expertise, academic members involved in this project team will be supported in exploring and innovating approaches to developing and implementing the application with their student partners.

To ensure long-term relevance and institutional impact, the project will be implemented through iterative design cycles, formative evaluations, and stakeholder engagement across multiple institutions. It will culminate in a series of outputs that extend beyond the digital platform itself, contributing to sector-wide innovation in ethics and resilience education.

Key Deliverables:

- A gamified mobile/web application featuring interactive scenario-based levels, co-designed (created) with students to promote academic and moral integrity, ethical decision-making, and resilience.
- A documented library of diverse, adaptable scenarios addressing ethical dilemmas and resilience-building challenges, along with a framework for designing and implementing new scenarios.
- Empirical analysis of the project's impact on student learning and pedagogical effectiveness.
- Sharing of good practices through seminars, workshops, symposia, conferences, publications, and inter-institutional dissemination, complemented by multimedia outputs such as e-books, videos, and podcasts.

Roles of Each Participating University

HKBU will serve as the lead institution and will be responsible for:

- Providing overall leadership in driving, managing, coordinating, and monitoring the implementation of the RISE project.
- Leading the development of the gamified mobile/web application in collaboration with partner institutions, and promoting its adoption across the sector.
- Co-developing scenario-based levels with partner institutions to ensure relevance, diversity, and cross-disciplinary applicability.
- Disseminating good practices through various events and platforms, supported by multimedia outputs such as videos, podcasts, and digital publications.

Each participating university will contribute to the achievement of the RISE project's objectives by supporting the development, implementation, and dissemination of the project deliverables through a collaborative model. Leveraging the strengths of each institution, participating institutions may:

- Engage in the SaP model by involving students in the co-creation, testing, and refinement of scenario-based levels that cultivate resilience and integrity.
- Contribute transdisciplinary expertise from diverse academic fields to ensure the content is pedagogically rigorous and broadly applicable.

- Facilitate trans-sectoral collaboration by connecting with industry, NGOs, and community stakeholders to co-develop authentic, real-world scenarios relevant to ethical and resilience education.
- Pilot the gamified platform within academic and co-curricular programmes/initiatives, supporting both implementation and data collection to assess learning impact across contexts.
- Collaborate on dissemination efforts, including the development of multimedia resources, and jointly organise inter-institutional events — such as symposia, workshops, and roundtables — to promote cross-sector exchange and wider adoption of the RISE model.

Project Period and Implementation Timeline

Duration: January 2026 – June 2028 (2.5 years)

This proposed 2.5-year project aims to co-create a gamified, scenario-based learning platform that fosters student resilience and integrity through interdisciplinary, cross-sector, and inter-institutional collaboration. Key deliverables include the development of scenario-based learning levels, a mobile/web application, empirical research outputs, and dissemination of good work. The project will be implemented in phases with continuous feedback loops involving students, teachers, and industry/community partners.

Major Tasks	2026				2027				2028	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Recruitment of project staff / Seek ethics approval	●									
Conduct literature review and collect case examples on ethics/ resilience education	●	●								
Co-design scenario frameworks with student partners and expert contributors, based on the literature review		●	●							
Develop gamified mobile/web application with scenario-based levels	●	●	●	●	●	●				
Pilot modules and app across participating institutions					●	●				
Collect learning data and feedback from students and teachers					●	●	●			
Organise collaborative workshops / knowledge exchange events				●		●	●			
Produce and disseminate good practices					●	●	●	●		
Evaluate pedagogical impact of the project					●		●	●		
Project reporting									●	●

While the project will follow a structured 2.5-year timeline, the project team acknowledge the fast-changing nature of digital technologies and the evolving ethical challenges faced by students in higher education. As such, the project team will adopt an agile and responsive approach, periodically reviewing the content and implementation priorities based on emerging trends. This ensures that the project objectives and deliverables developed remain relevant, adaptive, and impactful across participating institutions.

Intended Outcomes and Impact

Deliverables and outcomes of the RISE project include:

- A gamified mobile/web application featuring a series of interactive, scenario-based levels that simulate real-life ethical dilemmas and academic challenges. Students will navigate these levels by making decisions under pressure, encountering setbacks, and reflecting on their actions—mirroring the complexity of academic and social life.
- A curated bank of immersive scenarios co-created with students and experts across disciplines and sectors. These scenarios will address diverse contexts of academic integrity and personal resilience, providing a rich and engaging learning experience grounded in authenticity and relevance.
- A suite of resources—e.g. videos, podcasts, infographics designed to promote good work and incorporate RISE into a wide range of academic and co-curricular settings.

- A series of inter-institutional and trans-sectoral engagement events, including student showcases, professional dialogues, and collaborative workshops, aimed at fostering shared ownership of academic integrity and resilience education.

Proposed Impact on Target Beneficiaries:

The primary beneficiaries of this project are undergraduate and postgraduate students across participating institutions. Through immersive gameplay and reflective activities, students will develop stronger ethical awareness, greater self-regulation, and improved resilience in the face of different stressors. Such developments are aligned with local universities' commitment to student holistic development: HKBU emphasizes well-being as one of its recently revised graduate attributes. These outcomes will be reinforced through both formal learning environments and informal settings, including residential education initiatives.

As for student partners of this project, additional benefits include honing of disciplinary knowledge and skills in scenario and application development and expanded capability to transdisciplinary collaboration. The project also directly benefits teachers, who will gain access to innovative tools and approaches for teaching integrity and well-being in a digitally relevant and student-centred format. Institutions, in turn, will benefit from a replicable and research-informed model that strengthens their capacity to cultivate responsible, adaptable graduates prepared for the complexities of the AI-influenced learning environment and professional world.

With the gamified application accessible to all universities and the public, this educational resource will contribute to the nurturing of integrity and resilience within Hong Kong and beyond.

Monitoring and Evaluation Mechanism

Evaluation and Progress Monitoring:

- Project progress will be tracked through milestone reviews and regular check-ins against the development timeline.
- Usage data from the application (e.g., the number of users and users' progression in the game) will be monitored to assess engagement and inform improvements.
- Mixed-methods evaluation will be conducted to measure learning impact, including pre- and post-surveys of resilience and awareness of integrity and focus group interviews.
- Learning analytics (e.g., the time spent on different scenarios and clickstream data) will be collected to examine user behaviour in each scenario.
- Content analysis of reflective outputs will help assess integrity and resilience growth.
- Feedback from partner institutions will support ongoing refinement and scalability.

The reflective Key Performance Indicators (KPIs) include:

- Increased student engagement with and understanding of academic integrity, assessed through app analytics, scenario completion rates, and pre-/post-intervention surveys
- Evidence of improved self-regulation, resilience, and coping strategies among students, as captured through, for example, reflection data and focus groups.
- Active student participation in scenario co-design and content creation, tracked through project logs, contribution metrics, and qualitative feedback.
- Uptake of the RISE platform across multiple institutions, e.g. the number of participating courses, departments, or co-curricular programmes.
- Number and diversity of cross-sector and inter-institutional collaborators contributing to scenario design, implementation, and dissemination.
- Number of output disseminations, such as conference presentations, peer-reviewed publications, and publicly available digital content.

Sustainability of the Project and Means for Disseminating Deliverables/Outcomes

Sustainability of the Project:

The RISE project is designed with long-term relevance and scalability in mind. Its modular structure ensures that individual scenario-based components can be adopted, adapted, or expanded by other institutions to fit diverse disciplinary or institutional contexts. This flexibility promotes integration into both academic and co-curricular programmes beyond the lifespan of the project. Further scenario development would be supported by the framework established as the foundation of this project.

The developed application will be self-hosted and accessible to the public without requiring a subscription fee. There will be no limit on the number of accounts. The open access, in conjunction with the widely recognised need to develop integrity and resilience, would ensure continued impact on universities and beyond.

The SaP co-creation process will be carefully documented through case examples and reflections, forming reusable resources for future SaP-driven initiatives. This process model not only supports the continuation of student engagement beyond the project but also contributes to broader institutional strategies focused on participatory and inclusive curriculum development.

Another key enabler of sustainability lies in the project's transdisciplinary and trans-sectoral collaboration. Engaging faculty from diverse institutions and academic disciplines alongside partners from industry and the community sector, the collaborations create strong external linkages that enhance the authenticity of scenario design and promote sector-wide awareness and integration of RISE deliverables beyond the academic setting.

RISE directly aligns with university-wide goals related to academic integrity, digital-age learning, and student well-being. As such, it offers strategic value for institutions aiming to embed ethical awareness and resilience into their teaching and learning environments in response to emerging digital challenges.

Means of Disseminating Deliverables/Outcomes:

To maximise reach and uptake, project deliverables and outcomes will be disseminated through multiple channels:

- Publications and presentations: Findings and outcomes will be shared through journal articles, conference papers, and symposium presentations across local and international platforms.
- Inter-institutional events: Seminars, webinars, and roundtables will be jointly hosted with partner institutions and industry/community sector collaborators to promote shared learning and peer exchange on the good work of this project.
- Multimedia outputs: Videos, podcasts, infographics, and e-booklets, etc., will be produced to make core concepts and good practices accessible to a wider audience, including students and teachers.

References

- Andrews, T., Dyson, L. E., & Wishart, J. (2015). Advancing ethics frameworks and scenario-based learning to support educational research into mobile learning. *International Journal of Research & Method in Education*, 38(3), 320-334.
- Buckley, P., & Doyle, E. (2016). Gamification and student motivation. *Interactive Learning Environments*, 24(6), 1162-1175.
- Hartley, M. T. (2011). Examining the relationships between resilience, mental health, and academic persistence in undergraduate college students. *Journal of American College Health*, 59(7), 596-604.
- Poondej, C., & Lerdpornkulrat, T. (2016). The development of gamified learning activities to increase student engagement in learning. *Australian Educational Computing*, 31(2).
- Stallman, H. M. (2011). Embedding resilience within the tertiary curriculum: A feasibility study. *Higher Education Research & Development*, 30(2), 121-133.
- White, W., Gault, P., Shimi, J., Herd, K., & Manwaring, G. (2025). Exploring digital games-based learning design for enhancing resilience in higher education students: unveiling the potential of RESSIL. *Discover Education*, 4(1), 1-17.
- Windle, G. (2011). What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology*, 21(2), 152-169.
- Winwood, P. C., Colon, R., & McEwen, K. (2013). A practical measure of workplace resilience: Developing the resilience at work scale. *Journal of Occupational and Environmental Medicine*, 55(10), 1205-1212.
- Wong, S. S. H., Lim, S. W. H., & Quinlan, K. M. (2016). Integrity in and beyond contemporary higher education: What does it mean to university students? *Frontiers in Psychology*, 7, Article No. 1094.
- Wu, J., Chui, W. H., Yau, A., & Hue, M. T. (2024). Instilling the need for academic honesty into Hong Kong university students: how well are we doing?. *Asia Pacific Journal of Education*, 44(4), 887-900.

Appendix 1c

**Hong Kong Baptist University
Teaching Development and Language Enhancement Grant
2025-28 Triennium**

HKBU-led Inter-institutional Collaborative Activities

I. Project Brief

Lead University	Hong Kong Baptist University	
Participating University(ies)	City University of Hong Kong (CityU) The Hong Kong University of Science and Technology (HKUST)	
Project for	Teaching Development	
	Language Enhancement	✓
Project Type	Expansion of Existing Initiative	
	New Initiative	✓
Project Theme	1. Integrating Generative AI and Innovative Technologies	
	2. Student Well-Being and Personal Growth	
	3. Enhancing Global Competencies through Language Studies	✓
	4. Others (Please specify) Student-Teacher Partnership	
Alignment to HKBU ISP Best Student Experience	1. Cross-cultural Learning Experiences	✓
	2. Inclusive Admission for Diversity	
	3. Innovative Programme Design and Pedagogy	✓
	4. Capacity Building	
	5. Research-led Curriculum, and Service and Experiential Learning	✓
Anticipated Number of Student & Staff Beneficiaries	<i>Staff:</i> 30 <i>Students:</i> 2000	

II. Project Details

Project Title
BRIDGE: Building Relationships through Interlingual Intercultural Dialogue for Global Engagement
Project Description and Objectives
<p>This proposal outlines a collaborative teaching and learning initiative designed to strengthen partnerships among the five participating universities, namely, HKBU (Lead), HKU, HKUST, CityU and PolyUHK particularly in enhancing student intercultural competence through language and cultural exchange. The project leverages the diverse student populations of the participating institutions by pairing international students with local students for suggested but flexible language and cultural exchange activities. This initiative promotes collaborative learning, mutual understanding, and the development of valuable intercultural skills essential for success in an increasingly globalized world.</p> <p>The innovativeness of the project lies in:</p> <ol style="list-style-type: none">1. its capacity to utilize student resources that are not normally and readily available within a single institution;2. its design to promote language exchange between different student populations through authentic interactions in a structured manner;3. its ability to establish a substantive relationship between formal and informal curriculum;4. its approach to prioritize authentic interactions over traditional assessments for more engaging and more effective development of students' language competency. <p>The primary goal of the project is to enhance student global competencies, promote diverse cultures and foster a sense of global citizenship through collaborative language and cultural exchange between local and international students. The specific objectives of the project are to:</p> <ul style="list-style-type: none">• Establish a robust platform and system for facilitating language and cultural exchange partnerships between international students and local students at participating universities.• Increase student awareness, understanding and appreciation of diverse cultural perspectives and communication styles.• Improve students' language proficiency in multiple languages through practical application and peer learning.• Develop students' ability to navigate intercultural interactions with confidence and sensitivity.• Promote a sense of community and belonging among students from diverse backgrounds. <p>With universities becoming more international and the modern work environment growing increasingly global and interconnected, proficiency in foreign languages and intercultural competence are crucial for students' career success (Simões, 2021). The importance of developing intercultural competencies in higher education is hence increasingly acknowledged as vital for enhancing cross-cultural communication and understanding. Intercultural competence is characterized as possessing knowledge, attitudes, and skills that facilitate effective interactions with individuals from varied linguistic and cultural backgrounds (Portera, 2017). This competence integrates cognitive, communicative, and social-emotional skills, enabling individuals to adeptly handle intercultural exchanges (Pellerey, 2004; Milani 2018).</p> <p>Theoretical perspectives suggest that intercultural competence is cultivated through experiential learning within dynamic environments, shaped by temporal, contextual, and social factors (Milani, 2016; Portera, 2020). Deardorff's (2006) model of intercultural competence illustrates its development as a dynamic process, driven by meaningful interactions that encourage openness, curiosity, and a shift towards multicultural perspectives. Initiatives for internationalization at home (IaH) have been shown to effectively boost students' intercultural competencies, often equaling the benefits of study abroad programs by fostering intercultural dialogue and interaction (Soria & Troisi, 2014). These initiatives</p>

result in internal mindset shifts and external behavioral adaptations, promoting increased openness and participation in intercultural communication (Fozdar & Volet, 2016; Li et al., 2016).

In summary, integrating structured intercultural learning experiences within higher education is essential for nurturing the competencies needed for global citizenship and effective intercultural engagement.

Project Team

- Dr Cissy Li, Dr Ellie Law, Dr Li Xinxin Ally, Ms Alice Marie Le Gall (HKBU- Lead)
- Prof Melinda Whong, Director of Center for Language Education (HKUST) / Dr Yin Zhong, Coordinator of the Foreign Languages Section
- Dr Wesley Curtis, Head of Language Centre (CityU)

Description of Project Implementation and Deliverables

The project will empower students at the participating universities seeking to improve their language skills and cultural understanding, and gain experience interacting with peers from diverse cultural backgrounds. Drawing on Lockley and Yoshida (2016)'s language and cultural exchange operational framework, this project will be implemented in three distinct phases:

Phase 1: Platform and System Establishment

1. Partnership Building -formalize a partnership agreement among the participating universities, outlining roles, responsibilities, and resource allocation.
2. Platform Establishment -establish a user-friendly online platform for student registration, matching, communication, and resource sharing. This platform will include features such as:
 - Student profiles with language proficiency levels and cultural interests.
 - Matching algorithms based on shared interests and language learning goals.
 - Communication tools (e.g., instant messaging, video conferencing).
 - Resource library with relevant cultural information and language learning materials.
3. Curriculum Integration – identify courses that are suitable for the integration of BRIDGE into the curriculum
4. Training and Orientation - conduct training workshops for participating students on effective communication strategies, intercultural sensitivity, and responsible online interaction.
5. Evaluation Instruments Development – design program evaluation instruments (e.g., pre and post-program questionnaires, interviews)
6. Pilot - launch a small-scale pilot program with a select group of students to test the platform and refine the matching process.

Phase 2: Implementation

1. Student Matching - pair international students with speakers of Chinese and other languages based on their profiles and learning objectives.
2. Structured Exchange Activities - facilitate regular language and cultural exchange activities, such as:
 - Language exchange sessions
 - Cultural immersion activities (e.g., museum visits, cultural heritage sites)
 - Local and non-local student joint presentations on cultural topics at cultural parties
 - Online platforms for sharing experiences and asking questions.
3. Monitoring and Support - provide ongoing support and guidance to participating students through regular check-ins, feedback sessions, and access to mentors.

Phase 3: Evaluation and Dissemination

1. Data Collection - collect data on student participation, language proficiency, and intercultural competence through surveys and interviews.
2. Data Analysis - analyze the collected data to assess the impact of the project on student learning

- and intercultural understanding.
3. Reporting and Dissemination - prepare a comprehensive project report summarizing the findings and recommendations. Disseminate the results through presentations at conferences and publications.
 4. Celebration of Learning
 - to organize sharing sessions where students can present their learning experiences;
 - to hold a symposium cum award ceremony to showcase the project's impact and recognize outstanding student contributors and contributions.

Roles of Each Participating University

HKBU's role (lead):

1. Project Coordination: Serve as the central coordinator, managing communication and logistics across all participating universities. Develop and maintain the project timeline, ensuring milestones and deadlines are met.
2. Platform Development and Implementation: Establish the platform in collaboration with the participating institutions. Oversee and ensure successful deployment and implementation of the platform.
3. Quality Assurance: Establish standards and guidelines for project activities to ensure consistency and quality. Monitor progress and provide feedback to ensure objectives are being met effectively.
4. Data Collection and Reporting: Collect and share relevant data and research findings to contribute to the project's knowledge base. Lead and participate

Participating Universities' role:

1. Implementation Support: Execute project activities within their own institutions, adapting them to local contexts as necessary. Provide logistical support for events and other project-related activities.
2. Student and Foreign Languages Units' or Departments' Engagement: Identify courses and encourage active participation from students and Foreign Languages Units' and Departments in project activities, fostering collaboration and learning.
3. Implementation and Adaptation: Provide feedback on project activities and suggest adaptations to better fit institutional context. Share best practices and lessons learned to improve overall project implementation.
4. Data Collection and Reporting: Collect and share relevant data and research findings. Participate in joint analysis and discussions to draw meaningful conclusions from the data.

Project Period and Implementation Timeline

Phase 1	Platform and System Establishment (Sept – Dec 2025)
Phase 2	Pilot run (Jan – May 2026) Review and improvement (June - Aug 2026) Implementation 1 (Sept –Dec 2026) <ul style="list-style-type: none"> • Practicing language and cultural exchange (e.g. sharing, events) Implementation 2 (Jan- May 2027) <ul style="list-style-type: none"> • Practicing language and cultural exchange (e.g. sharing, events) Implementation 3 (Sept – Dec 2027) <ul style="list-style-type: none"> • Practicing language and cultural exchange (e.g. sharing, events)
Phase 3	Evaluation and Dissemination (Jan – June 2028) Processing data Analyzing results Celebration of learning (Symposium cum Award Ceremony) Writing up reports

Intended Outcomes and Impact

This interinstitutional project offers a comprehensive framework for fostering intercultural competence and strengthening partnerships through collaborative language and cultural exchange. By investing in this initiative, participating universities can empower students to become global citizens and contribute to a more interconnected and understanding world.

1. Established Exchange Platform: A sustainable and robust platform for language and cultural exchange is successfully implemented, facilitating ongoing partnerships between students.
2. Enhanced Intercultural Competence: Students demonstrate improved abilities to interact effectively and sensitively with peers from diverse cultural backgrounds.
3. Increased Language Proficiency: Participants demonstrate their learning progress in learning logs.
4. Greater Cultural Awareness: Students exhibit a deeper understanding and appreciation of diverse cultural perspectives and communication styles.
5. Fostered Community and Belonging: A sense of community and belonging is evident among students from diverse backgrounds, as reflected in increased engagement and satisfaction.
6. A Comprehensive Framework for Fostering Intercultural Competence: A pedagogical model to empower students to become multilingual language users and intercultural communicators.

Monitoring and Evaluation Mechanism

The project's impact will be evaluated using a mixed-methods approach, including:

- Pre- and post-programme surveys to assess changes in language proficiency and intercultural competence.
- Student self-reflection - to gather student feedback on their experiences and perceptions.
- Interviews -to explore student perspectives in more depth.
- Analysis of student work (e.g., learning logs, self-reflections) - to assess their understanding of intercultural competence.

Intended Outcomes	KPIs
<ul style="list-style-type: none"> • Established a robust platform and system for facilitating language and cultural exchange partnerships between international students and local students at participating universities. • Increased student awareness, understanding and appreciation of diverse cultural perspectives and communication styles. • Improved students' language proficiency in multiple languages through practical application and peer learning. • Developed students' ability to navigate intercultural interactions with confidence and sensitivity. • Promoted a sense of community and belonging among students from diverse backgrounds. 	<ul style="list-style-type: none"> • Usage rate of the platform • Users' evaluation of the platform • Students' development of intercultural competencies and language proficiency through quantitative and qualitative measures: Quantitatively, pre- and post-questionnaires will be used to assess students' intercultural sensitivity (Chen & Starosta, 2000) and intercultural competence (Deardorff, 2006; Kelley & Meyers, 1995; Koester & Olebe, 1988). Qualitatively, methods such as interviews, analysis of student work (e.g., learning logs, self-reflections, portfolios) provide deeper insights into the complexity of students' cross-cultural experiences and their language development. • Participation rates in multicultural events and activities. • Qualitative feedback from students regarding their experiences and feelings of community. • Collection of testimonials or stories highlighting positive experiences.

References

- Chen, G.-M., & Starosta, W. J. (2000). The development and validation of the intercultural sensitivity scale. Paper presented at the Annual Meeting of the National Communication Association, Seattle, WA.
- Deardorff, D. K. (2006). Identification and assessment of intercultural competence as a student outcome of internationalization. *Journal of Studies in International Education*, 10(3), 241–266. doi:10.1177/1028315306287002.
- Kelley, C., & Meyers, J. E. (1995). *The cross-cultural adaptability inventory*. Minneapolis, MN: National Computer Systems.
- Koester, J., & Olebe, J. (1988). The behavioral assessment scale for intercultural communication effectiveness. *International Journal of Intercultural Relations*, 12(3), 233–246.
- Li, M., Mobley, W. H., & Kelly, A. (2016). Linking personality to cultural intelligence: An interactive effect of openness and agreeableness. *Personality and Individual Differences*, 89, 105–110. doi:10.1016/j.paid.2015.09.050.
- Lockley, T., & Yoshida, C. (2016). Language and culture exchange in foreign language learning: An experiment and recommendations. Innovation in *Language Learning and Teaching*, 10(3), 238-254. <https://doi.org/10.1080/17501229.2014.960419>
- Milani, M. (2016). Intercultural competence needs and approaches for teachers and educators in the global context. *International Journal of Pedagogical Innovations*, 4(1), 9–16. doi:10.12785/ijpi/040101.
- Milani, M. (2018). Educating communities for the development of intercultural competences. *ECPS Journal*, 17(17), 207–220. doi:10.7358/ecps-2018-017-mila.
- Pellerey, M. (2004). *Le competenze individuali e il portfolio*. Firenze: La Nuova Italia.
- Portera, A. (2017). Intercultural competences in education. In A. Portera & C. A. Grant (Eds.), *Intercultural education and competences. Challenges and answers for the global world* (pp. 23–46). Cambridge Scholars Publishing.
- Simões, A. (2021). Developing Multilingual Competence and Cultural Awareness through Forms of Non-Formal Learning: A Contribution to Sustainable Employability, Active Citizenship and Social Inclusion. *European Journal of Education*. 4(2). 93-107. DOI:10.26417/670hst77c
- Portera, A. (2020). Intercultural competence: Different models and critical reflections. In A. Portera, R. Moodley, & M. Milani (Eds.), *Intercultural mediation counselling and psychotherapy in Europe* (pp. 31–55). Cambridge Scholars Publishing.
- Soria, K. M., & Troisi, J. (2014). Internationalization at home alternatives to study abroad. *Journal of Studies in International Education*, 18(3), 261–280. doi:10.1177/1028315313496572.

Appendix 1d

Hong Kong Baptist University Teaching Development and Language Enhancement Grant 2025-28 Triennium

HKBU-led Inter-institutional Collaborative Activities

I. Project Brief

Lead University	Hong Kong Baptist University	
Participating University(ies)	The Chinese University of Hong Kong (CUHK) The Hong Kong Polytechnic University (PolyU) The University of Hong Kong (HKU)	
Project for	Teaching Development	✓
	Language Enhancement	
Project Type	Expansion of Existing Initiative	
	New Initiative	
Project Theme	1. Integrating Generative AI and Innovative Technologies	✓
	2. Student Well-Being and Personal Growth	✓
	3. Enhancing Global Competencies through Language Studies	
	4. Others (Please specify) Student-Teacher Partnership	
	1. Cross-cultural Learning Experiences	
Alignment to HKBU ISP Best Student Experience	2. Inclusive Admission for Diversity	
	3. Innovative Programme Design and Pedagogy	✓
	4. Capacity Building	✓
	5. Research-led Curriculum, and Service and Experiential Learning	✓
Anticipated Number of Student & Staff Beneficiaries	<u>Staff:</u> 50 <u>Students:</u> ~500	

II. Project Details

Project Title
Enhancing Chinese Medicine Clinical Learning Through AI: Building Tools for Bilingual and Cross-Disciplinary Medical Education
Project Description and Objectives
<p>In the contemporary landscape of medical education and clinical training, integrating AI into specialized fields such as Chinese Medicine, Medicine, Physiotherapy, and Nursing presents significant hurdles. A primary obstacle is the lack of comprehensive and high-quality data. Ancient texts, vital for comprehending both traditional practices and modern instruction, remain insufficiently digitized with the precision needed for efficient searchability and analytical capability [1]. These texts require meticulous digitization and interpretation to preserve their essence.</p> <p>Moreover, within an increasingly collaborative medical world, Chinese Medicine faces considerable communication challenges. Its specialized vocabulary often lacks direct Western counterparts, potentially leading to miscommunications when practitioners from different medical traditions, including those in Medicine, Physiotherapy, and Nursing, attempt to engage. This necessitates careful translation and interpretation to facilitate understanding.</p> <p>AI models, primarily trained on Western biomedical literature, risk misinterpreting Traditional Chinese Medicine (TCM) texts without a nuanced grasp of its terminology [2]. As a result, students from the Chinese Medicine discipline do not attain the same level of preparedness for AI utilization as their peers in related fields such as Medicine, Physiotherapy, and Nursing, facing unique challenges in AI-assisted learning environments. These hurdles further complicate efforts by educators to integrate AI with Chinese Medicine education.</p> <p>Addressing these challenges requires proactive initiatives. We propose establishing a collaborative database and platform dedicated to students from Chinese Medicine, Medicine, Physiotherapy, and Nursing disciplines in Hong Kong, fostering positive transitions in this evolving educational landscape. This platform is crucial for ensuring accuracy and navigability across these disciplines by harmonizing divergent terminologies to build respect and understanding. Furthermore, it will create robust communication channels that bridge the specialized knowledge and practices of both modern and Chinese Medicine.</p> <p>The creation of a multi-university collaborative database-platform is not merely advantageous but essential. This initiative represents a vital step toward equipping future healthcare practitioners from all these disciplines with the skills to harness AI technology, thereby promoting interdisciplinary medical education in Hong Kong.</p> <p>The objectives are structured into two interdependent pillars,</p> <ol style="list-style-type: none">1. Enhancing Interdisciplinary Medical Education - Establish a Standardized, Bilingual TCM Basic Glossary Database:<ul style="list-style-type: none">Database Creation: Create the first bilingual and interoperable database that mainly standardizes Chinese Medicine glossaries, common diseases, diagnoses, and focusing on clinical manifestations which will be operable in mainstream mobile devices for accessibility.Support Enhanced Learning: Provide students with accurate and accessible information, thereby addressing language and communication barriers inherent in cross-disciplinary medical education.Facilitate Cross-disciplinary Understanding: Ensure that linguistic accessibility and reliability are prioritized, providing a foundation for future technological integration. This aids in promoting mutual understanding and collaboration among students from various medical backgrounds.

2. Fostering AI-Enabled Learning – Develop an AI Clinical Decision-Support Tool for Medical Training:

- **AI-Driven Chatbot Implementation:** Design and implement an AI-driven Chatbot that utilizes the database for preliminary diagnosis tasks. It aims to facilitate an interactive learning environment where students can engage with the database in a dynamic way.
- **Training Students on AI Use:** Train students to use the AI assistant effectively to make informed clinical decisions, thereby nurturing their depth of clinical thinking. It emphasizes the development of students' critical thinking and decision-making skills, preparing them to handle complex clinical scenarios, thus enhancing their overall clinical competences.
- **Innovative Learning and Assessment:** Focus on enhancing the learning experience by bridging theoretical knowledge with practical application. The AI tool will also serve as an innovative assessment mechanism, deepening students' understanding of clinical decision-making processes.

Project Team

- School of Chinese Medicine, Hong Kong Baptist University
- School of Chinese Medicine, The Chinese University of Hong Kong
- School of Chinese Medicine, The University of Hong Kong
- School of Nursing, The Hong Kong Polytechnic University

Members:

PI: Prof. Li Min (HKBU)

Co PI: Mr. Siu Sheung Yuen (HKBU), Ms. Hung Hing Yu Ada (CUHK)

Co I: Dr. Chan Kam Wa (HKBU), Dr. Lam Chun Pong (HKBU), Dr. Ku Ping Yui (HKBU), Dr. Zhang Xuan (HKBU), Mr. Yuen Chun Sum (HKBU), Ms. Li Wing Shan (HKBU), Dr Chan Sze Nga Sarah (CUHK), Dr. Janice HO Yuen-Shan (PolyU), Prof. Haiyong CHEN (HKU)

Description of Project Implementation and Deliverables

Phase 1 (Months 1–6):

Needs Assessment, Concept Development, and Collaborative Design

The project begins with where a multidisciplinary working group in the collaborative institutions is formed to conduct stakeholder consultations to define objectives and requirements for a bilingual database and an AI-assisted diagnostic platform.

We aim to gather responses from around 100+ students, ensuring a representative sample that covers different academic years and specialization areas. The approach to conduct a survey will involve selecting participants from a range of disciplines, including Chinese Medicine, Medicine and Nursing, across multiple institutions in Hong Kong. The survey will consist of both quantitative and qualitative questions designed to assess students' current understanding of AI in medical education, their specific needs for a bilingual database, and their anticipated challenges with AI-assisted learning tools. It will also be introduced as group discussion in HKBU clinical classes, to allow students deepening their understanding and sharing of concepts through face-to-face discussion. Data analysis will include statistical methods to identify trends and correlations, to inform the development of the database and AI platform, ensuring alignment with student needs and enhancing interdisciplinary collaboration. During this time, authoritative texts and current medical frameworks are reviewed, and pilot data collection is initiated to draft the initial structure of a bilingual database. It also involves crafting a concept paper on AI's role in diagnostics and identifying clinical scenarios as pilot content alongside reviewing texts for the bilingual database.

Suggested glossaries type and clinical scenarios of common diseases being included:

Basic Theory: Yin Yang 陰陽、Five Elements/Phase 五行

Clinical Manifestation: Headache 頭痛、Constipation 便秘

Diseases and Pattern of Syndrome:

Internal Medicine: Stroke 中風、Tuberculosis 肺癆、Asthma 哮喘

Paediatrics: Scarlet Fever 丹痧、Measles 麻疹、Small Pox 水痘

Dermatology: Eczema 濕瘡、Shingles 蛇串瘡、Acne 粉刺

Orthopaedics: Cervical Spondylosis 頸椎病、Frozen Shoulder 肩周炎

Above suggested type of glossaries will be translated into English while not all diseases would be translated but common diseases which will be selected from each subject and confirmed with the working group advisors for ensuring the quality of the translation. Worth to be mentioned that the database would be created purposely for educators and learners, while there will be room for updates once there is need for the educators.

Phase 2 (Months 6–18):

Data Collection, AI Engine Development, and System Integration

Moving into phase 2, efforts focus on compiling and validating key datasets, developing a prototype database with bilingual and search functionalities. For data validation, the multidisciplinary working group will involve regular consultations and reviews of the data by experts in Chinese Medicine, Medicine, and Nursing. Further integration will be progressed of existing AI models with diagnostic datasets derived from the bilingual database being developed in the project. An interactive user interface is designed, enabling students to engage with AI-generated preliminary diagnoses.

The prototype platform is equipped for web-based access. For testing, a structured protocol will be established, involving iterative feedback sessions with over 80+ students from varying disciplines and from academic year 1 to 4. Feedback will be collected through surveys and focus groups, focusing on usability, functionality, and educational impact. This iterative process will guide refinements to the platform, ensuring it meets the educational needs and expectations of its users.

Details of the database, and adoption of AI-clinical decision supportive tool:

The criteria for adopting and training AI models will focus on their ability to process bilingual medical terminology and their adaptability to our specific datasets. We will co-operate with the developers to select proven track records in medical diagnostics and train them using our validated datasets to enhance their accuracy in interpreting Traditional Chinese Medicine (TCM) concepts. The user interface design will prioritize accessibility and ease of use, incorporating fundamental navigation and interactive elements that facilitate engagement with the AI tool. The platform will be accessible via the web.

Phase 3 (Months 18–24):

Pilot Implementation, Iteration, and Final Deployment

Transitioning into the final phase, it encompasses training and orientation sessions to ensure smooth integration into curricula. The platform is deployed as a learning and assessment tool across selected courses at HKBU and partner institutions. Deliverables include a fully operational AI-assisted diagnostic validation tool and user manuals for educators and students.

Details of student learning through databases and AI supportive tool:

Implementation Party:

1. HKBU Year 3 and 4 students studying Internal Medicine and Pediatrics
2. CUHK, PolyU, HKU – Nursing, Chinese Medicine, and Medicine students studying Chinese Medicine relevant subjects
3. Project team from HKBU, CUHK

Training sessions will be strategically structured to maximize the AI tool's impact on clinical education, particularly for year 3 and 4 Chinese Medicine students who are engaging with clinical subjects. These

sessions will be designed to deepen students' clinical thinking skills by integrating real-world case studies with the AI tool. Students will initially use the tool to generate preliminary diagnoses for actual cases they have been collecting during the first and second phase, and being guided by instructors, students will then validate and refine these AI-generated diagnoses, thereby enhancing both their understanding of Traditional Chinese Medicine (TCM) and their ability to apply clinical reasoning.

Instead of fully integrating assessment modules within the platform, an operable solution would be to design structured assessment activities that use the AI tool as a reference point. These activities include guided reflection exercises, peer-review sessions, and instructor-led discussions based on AI-generated diagnostic outcomes. Students will first use the tool to analyze real-world case studies and generate preliminary diagnoses. Following this, they will engage in group discussions to reflect on these outcomes, comparing them with actual case insights provided by instructors. Peer-review sessions will allow students to critique each other's findings, in instructor-facilitated workshops where students present their analyses and justify their decisions based on AI recommendations and traditional methods, encouraging deeper understanding and validation of the AI tool's output.

For students in other disciplines, such as Medicine and Nursing, the tool and its database will introduce the foundational principles of TCM, promoting interdisciplinary understanding and collaboration. Training materials will include detailed case study documentation that illustrate the tool's capabilities. This approach not only aligns with the project's objective to enhance interdisciplinary medical education through a standardized, bilingual resource. There will be at least one session in partner institutions for the introduction of the AI tool to students. Their experience will be additionally collected through feedback forms during these activities, which will further inform refinement of the AI model and the educational process. A online workshop for groups of students will be conducted in Zoom to discuss clinical cases, and by application of the database and AI tool for enhancing mutual understanding.

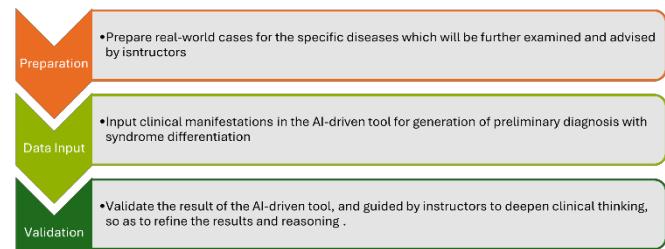


Figure 1 Utilization of AI supportive tool in Chinese Medicine students learning

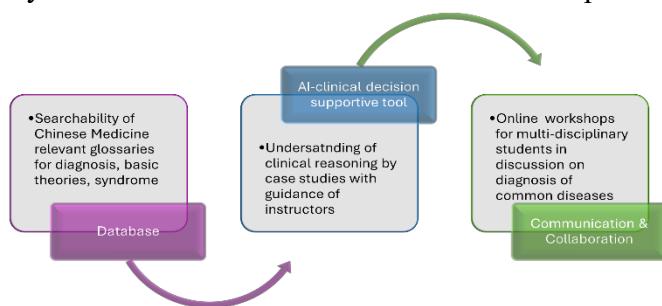


Figure 2 Utilization of AI in educating multi-disciplinary students

Roles of Each Participating University

Lead University: Hong Kong Baptist University

- Create database, develop AI-clinical decision supportive tool, startup project working group, hold regular meetings, set schedules, and timetables, confirm details, conduct regular evaluations, write final reports, etc.

Participating Universities:

The Chinese University of Hong Kong

- Disseminate survey, adopt database and AI-tool in teaching and learning, attend regular meetings, discuss activities details, submit supporting documents for final reports, etc.

The Hong Kong Polytechnic University, The University of Hong Kong

- Disseminate survey, Participate in testing of database and AI-tool in teaching and learning

Project Period and Implementation Timeline		
Preparation Stage (Month 1-6)	Recruitment of Project Staff and Formation of Working Group 1 Aug 2025 - 31 Aug 2025	
	Confirming Project Details, Schedules 1 Sept 2025 – 31 Sept 2025	
	(HKBU, CUHK, HKU, PolyU) Survey dissemination to students across various disciplines 1 Oct 2025 – 30 Nov 2025 (2025 – 2026 Semester 1)	(HKBU, CUHK) Preparation Stage on Database creation and AI-supportive tool integration 1 Oct 2025 – 28 Feb 2026 (2025 – 2026 Semester 1 and 2)
	(HKBU) Data-collection and Analysis 1 Nov 2025 – 31 Dec 2025 (2025 – 2026 Semester 1)	
	(HKBU, CUHK, HKU, PolyU) Sharing data and results of the survey with partner institutions 1 Jan 2025 – 28 Feb 2025 (2025 – 2026 Semester 1)	
	(HKBU, HKU, CUHK) 1 st Pilot test of database and preliminary AI-supportive tool for Year 3-4 Students studying Chinese Medicine 1 Mar 2026 – 15 May 2026 (2025 – 2026 Semester 2)	
Project Stage (Month 6-18)	(HKBU) Students' and Teachers' Evaluations, Questionnaires 14 May 2026 – 31 Jun 2026 (2025 – 2026 Semester 2)	
	(HKBU, CUHK) Deployment Stage 1 Jul 2026 – 31 Aug 2026 (2025 – 2026 Semester 2)	(HKBU, CUHK) Enhancement of Database with AI-supportive tool and its corresponding guidelines and rubrics design 1 Jul 2026 – 31 Dec 2026 (2026 – 2027 Semester 1)
	(HKBU, HKU, CUHK) 2 nd Pilot test of database and preliminary AI-supportive tool for students across disciplines 1 Sept 2026 – 15 Nov 2026 (2026 – 2027 Semester 1)	
	(HKBU, CUHK) Evaluation of Students' Performance and Effectiveness of Database and AI-supportive tool 16 Nov 2026 – 31 Dec 2026 (2026 – 2027 Semester 1)	
	(HKBU, CUHK) Deployment of finalized database and AI-supportive tool in clinical subjects or relevant Chinese Medicine students 1 Jan 2027 – 31 Mar 2027 (2026 – 2027 Semester 2)	
	(HKBU, CUHK)	

Implementation Stage (Month 18-24)	Online workshop for multi-disciplinary students of clinical case-scenarios discussion with the database and AI-supportive tool 31 Mar 2027 – 31 May 2027 / 31 May 2027 – 30 Jun 2027 (2026 – 2027 Semester 2) (HKBU, CUHK)
	Students' and Teachers' Evaluations, Questionnaires, Focus Group Interviews on Effectiveness of Database and AI- supportive tool 1 Jul 2027 – 30 Jul 2027 (2026 – 2027 Semester 2)
	Finalize the Enhancement of the Database and AI-supportive tool with its guidelines and rubrics 31 Mar 2027 – 30 Jul 2027
	Online Symposium Sharing Experience on AI-assisted Chinese Medicine Education with local and overseas universities 1 Aug 2027 – 31 Aug 2027
	Completion of the Final Report 1 Jul 2027 – 31 Aug 2027
	Full Adoption of the Database and AI-supportive tool in the New Academic Year (2027 - 2028) 1 Sep 2027

Intended Outcomes and Impact

The proposed two-year project goes beyond enhancing current learning by setting the stage for future collaboration among various medical disciplines. With the growing trend of AI-assisted diagnostic tools, there is a heightened need for medical education to evolve from imparting basic knowledge to fostering deep clinical thinking. This platform acts as a pioneering training ground, enriching Chinese Medicine students' clinical reasoning skills and simulating an interdisciplinary clinical environment. Additionally, it provides educators with a valuable opportunity to explore the efficacy and challenges of integrating AI technology into medical education.

Monitoring and Evaluation Mechanism

The team expects to

KPI 1	Conduct survey for at least 100+ medicine-discipline students in CUHK, HKU, PolyU and group discussion session in HKBU to investigate the challenges of inter-disciplinary communication and current understanding of AI in medical education, their specific needs for a bilingual database of Chinese Medicine in the 1 st semester of AY 2025-26.
KPI 2	Deliver a bilingual, interoperable database of Chinese Medicine glossaries and common diseases (including its clinical manifestation and diagnosis) with basic searchability in the 2 nd semester of AY 2025-26 for accurate and reliable use of students from Chinese Medicine, Medicine, Nursing instructed by experts from the multi-disciplinary working group
KPI 3	Deliver an AI-clinical decision supportive tool integrated with the bilingual database which will be web-based and leverage in providing preliminary diagnosis with a user-interface, for educational use in Chinese Medicine students starting from the 2 nd semester of AY 2025-26

Appendix 1e

Hong Kong Baptist University Teaching Development and Language Enhancement Grant 2025-28 Triennium

HKBU-led Inter-institutional Collaborative Activities

I. Project Brief

Lead University	Hong Kong Baptist University	
Participating University(ies)	Lingnan University (LU) The Hong Kong Polytechnic University (PolyU) The Hong Kong University of Science and Technology (HKUST) (International - Singapore) Singapore Institute of Technology (International - Malaysia) Universiti Kebangsaan Malaysia	
Project for	Teaching Development	✓
	Language Enhancement	
Project Type	Expansion of Existing Initiative	
	New Initiative	
Project Theme	1. Integrating Generative AI and Innovative Technologies	
	2. Student Well-Being and Personal Growth	
	3. Enhancing Global Competencies through Language Studies	
	4. Others (Please specify) Student-Teacher Partnership	
Alignment to HKBU ISP Best Student Experience	1. Cross-cultural Learning Experiences	
	2. Inclusive Admission for Diversity	
	3. Innovative Programme Design and Pedagogy	
	4. Capacity Building	
	5. Research-led Curriculum, and Service and Experiential Learning	
Anticipated Number of Student & Staff Beneficiaries	<i>Staff:</i> 200 over 3 years (50 to 80 HKBU staff through dissemination) <i>Students:</i> 1200 over 3 years (400 HKBU students)	

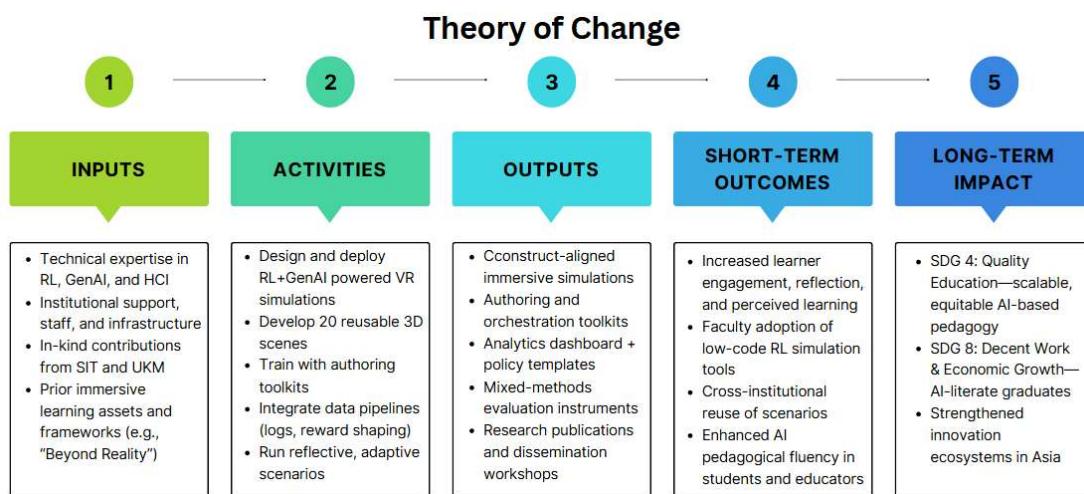
II. Project Details

Project Title
Learning in Motion: Real-Time Reinforcement Learning Assistants for Immersive Education
Project Description and Objectives
<p>Immersive virtual reality (VR) environments hold promise for student-centered learning, but most current designs follow rigid, pre-set paths that do not adjust to individual learner needs. Reinforcement Learning (RL) offers a way to create adaptive systems, but its use in education has been limited due to technical complexity and poor alignment with classroom teaching practices. This project will design and implement adaptive VR learning environments that adjust in real-time to student behavior. By combining RL with Generative AI (GenAI), we will build simulations that offer personalized guidance and feedback through AI-powered avatars. These avatars will help students by prompting reflection, offering hints, and adjusting the level of difficulty based on student progress.</p> <p>We adopt an action research model guided by a new framework—Adaptive Reinforcement-Orchestrated Simulation for Immersive Learning (ARSIL)—where each partner university leads development on a distinct pedagogical construct (e.g., feedback timing, ethical reasoning, debugging support). This structure allows for customized, discipline-specific implementations while contributing to a shared, adaptable educational system.</p> <p>The objectives are: (a) Provide adaptive instructional support in immersive VR environments by using reinforcement learning to adjust feedback, task difficulty, and guidance based on how students interact with the learning tasks in real time. (b) Support personalized learning across multiple subjects—including design, engineering, computer science, and ethics—by building VR simulations that adapt to student choices, pace, and learning pathways. (c) Build a user-friendly toolkit that allows educators to easily create and adjust VR learning paths, control AI-driven guidance, and track student learning—without needing programming skills.</p>
Project Team
Hong Kong Baptist University <ul style="list-style-type: none">• Paolo Mengoni, Senior Lecturer, Department of Interactive Media• Kristen Li, Lecturer, Department of Computer Science Lingnan University <ul style="list-style-type: none">• Paulina Wong, Associate Professor, Science Unit• Helen Geng, Assistant Professor of Teaching, Science Unit Hong Kong Polytechnic University <ul style="list-style-type: none">• Sunny Choi, Assistant Professor, School of Design,• Geng Ping, Lecturer, Department of Food Science and Nutrition Hong Kong University of Science and Technology <ul style="list-style-type: none">• Gibson Lam, Assistant Professor of Teaching, Department of Computer Science and Engineering• Yin ZHONG (Beth), Center for Language Education Singapore Institute of Technology (SIT) <ul style="list-style-type: none">• Kiattipoom Kiatkawsin, Associate Professor, Cluster: Business, Communication and Design Universiti Kebangsaan Malaysia (UKM) <ul style="list-style-type: none">• Umawathy Techanamurthy, Senior Lecturer, Department of Engineering Education, Faculty of Engineering & Built Environment• Doris Padmini Selvaratnam, Associate Professor, Faculty of Economics and Management

Description of Project Implementation and Deliverables

This project enhances immersive VR learning with Reinforcement Learning (RL) Assistants and Generative AI (GenAI). RL Assistants adjust instructional difficulty and support based on how each student learns and performs, while GenAI generates tailored feedback, guiding questions, and dynamic learning content. Together, they enable responsive learning environments that support diverse learning styles and promote deeper understanding, critical thinking, and problem-solving skills. Building on the 2022 FITE project “Beyond Reality” (led by Lingnan University), this model integrates RL and GenAI into multi-agent VR simulations, promoting active reasoning and situated practice within an embodied learning context. This addresses the challenge of providing individualized support within authentic, complex VR learning environments. For example, Mengoni et al. [5] emphasize that interactive learning experiences maintain engagement, and other studies [7] confirm that it is adaptive instructional support, not visual realism, that most influences learning outcomes in VR.

We adopt an applied research model, where each participating university will implement RL-enhanced VR simulations in real disciplinary courses. These deployments will explore how adaptive systems can improve students’ conceptual understanding, digital literacy, and decision-making. HKBU leads RL policies and GenAI integration across all topics while other universities will handle feedback and authoring related constructs. Aligned with TDLEG’s goal of integrating Generative AI and innovative technologies, this project offers a scalable, low-code methodology where educators design intelligent simulations and students experience personalized, feedback-rich learning journeys. Our theory of change is shown below Figure 1.



*Figure 1.
Theory of
Change for
projected
input
activities
and
outcomes*

Participants: This project will engage undergraduate and postgraduate students across four universities—HKBU, PolyU, Lingnan, and HKUST—through immersive simulations integrated into credit-bearing courses in computing, engineering, and ESG education. Each university will develop and implement two simulations grounded in their disciplinary strengths, targeting a total of 300 students across three years. Helpers will support simulation rollout, data collection, and scene design.

Project Design

Using an action research approach, five universities will iteratively develop and refine VR simulations. The project follows the ARSIL model—a three-tiered framework integrating GenAI, multi-agent orchestration, and reinforcement learning (shown on Table 1) while Table 2 shows the distribution across universities. Each simulation features a pedagogical arc: orientation, dilemma, and resolution within complex scenarios. Students will be randomly assigned to either a control group (scripted) or treatment group (adaptive). Ethical protocols like informed consent will be followed.

Table 1. Core ARSIL framework tiers. Tier 1 enables real-time orchestration of difficulty and pacing via RL assistants. Tier 2 ensures domain-specific fidelity through procedurally grounded simulations. Tier 3 supports scalable, low-code authoring for cross-context adaptation and reuse.

Tier	Function	Purpose
1. Real-Time Pedagogical Orchestration	RL assistants adjust task difficulty, pacing, and feedback based on live learner input.	Delivers timely, personalized support.
2. Domain-Adaptive Simulation Contexts	Simulations reflect authentic disciplinary practices and constraints.	Aligns feedback with subject-specific learning.
3. Scalable Authoring Toolkit	Low-code tools for educators to design and adapt adaptive VR experiences.	Enables broad reuse and customization.

Table 2. Institutional role assignments within the ARSIL framework.

Institution	Simulation Theme	ARSIL Tier Focus / Discipline and Module Codes
HKBU (Lead)	Neural Network & Communication Ethics	Computing, Mathematics: Tier 1 (Orchestration), Tier 3 (Toolkit) 100 students: COMM2027 AI and Digital Communication, GAME2016 Mathematical Foundation of GDA, GCAP3065 - Design for Smart City: Towards a Sustainable Living
PolyU	Design, Process Engineering	Engineering: Tier 1 (Feedback Adaptation), Tier 2 (Task Fidelity). 100 students: ABCT3418 Food engineering and processing I, Neuroscience Design Tools (Module code pending)
Lingnan	ESG Ethics and Decision-Making	Social Sciences: Tier 2 (Ethical Link), Tier 3 (Agent Dialogue) 100 students: CLD9025 Climate Change and Human Health
HKUST	Algorithmic Thinking	Computing: Tier 1 (Debugging), Tier 2 (Procedural Simulation) 100 students: COMP1021 Introduction to Computer Science, LANG1422 Chinese for Workplace Applications

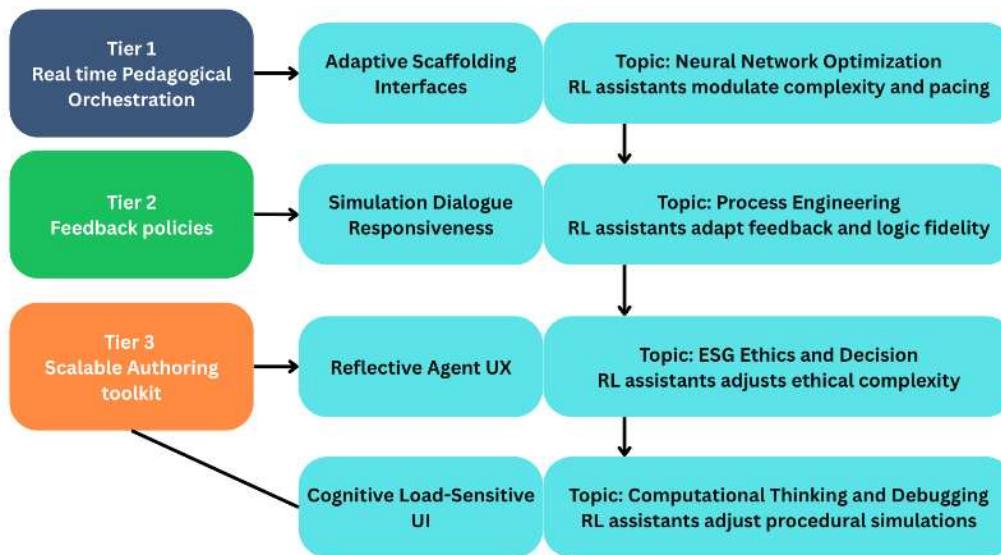


Figure 2. ARSIL Framework Construct
Alignment between the three core RL-enabled tiers—Real-Time Pedagogical Orchestration, Feedback Policies, and Scalable Authoring Toolkit—and their corresponding UX/HCI layers.

The project will include external collaborators from Universiti Kebangsaan Malaysia, Singapore Institute of Technology (SIT) and CUHKFAA Thomas Cheung Secondary School. Year 2 onwards, HKBU will coordinate cross-institutional deployment, cross-disciplinary generalization, construct adaptability across domains, and collect feedback from diverse learner profiles and curricular contexts.

Platform Capabilities and Learning Infrastructure. At least 20 (amongst universities) 3D scenes integrated in a shared VR platform equipped with: (i) A reinforcement learning engine that uses

curriculum-aligned reward functions to drive scenario progression. (ii) A **GenAI dialog system** that provides semantic scaffolding, generates tailored prompts, and reflects learner trajectory in real time. (iii) A **low-code authoring suite** for educators to configure agent behaviors, adjust scene logic, and access analytics dashboards. The platform supports **multi-device deployment** (VR headsets, desktop fallback).

The VR platform will boost capabilities of handling RL pipelines (See Figure 3) including but not limited to: (i) Instructional Sequencing (Curriculum RL) where task order is adjusted based on mastery paths [2]; (ii) Feedback policies, where RL agents determine when to intervene [4]; (iii) Reward shaping, RL agents provide options mapped to pedagogical rewards; (iv) Meta-Cognitive Calibration where reflection points and ‘pause-and-respond’ narrative nodes are encouraged [8].

Information Architecture

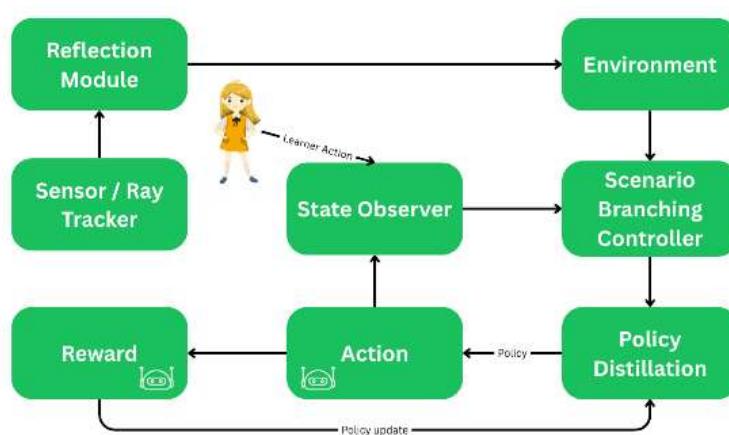


Figure 3. The ARSIL system uses a closed-loop reinforcement learning framework. Learner actions, sensed and reflected, inform a state observer, triggering scenario branching and reward-driven agent actions. Real-time adaptation and policy refinement enable continuous system evolution.

Assessment & Measures

This study compares scripted and RL-enhanced VR learning. Group A followed fixed instructions and text-based UI. Group B experienced adaptive tasks, avatar guidance based on behavior and gaze, and personalized reflection prompts, all orchestrated by RL agents. Both groups followed an identical five-phase protocol: offline briefing, onboarding, exploration, task engagement, reflection (see Figure 4).

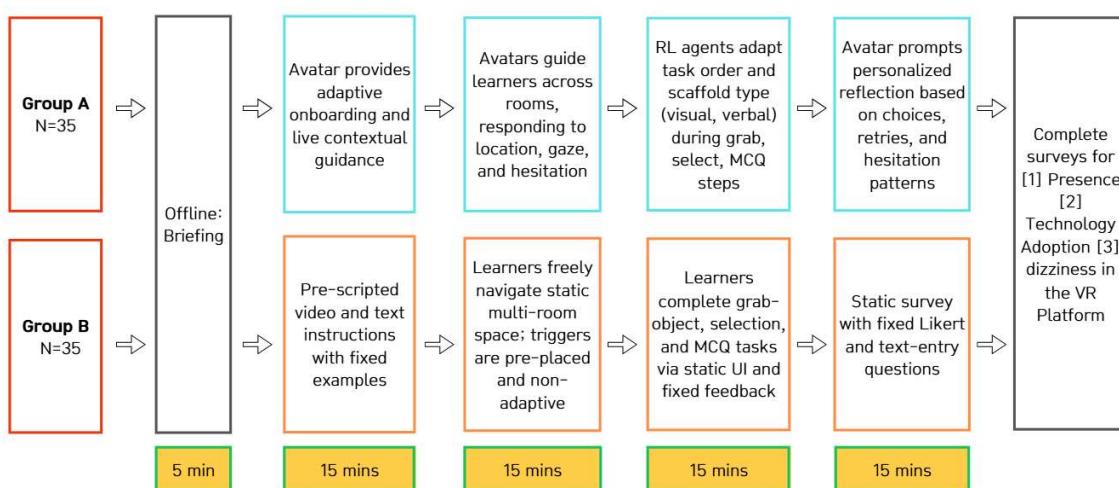


Figure 4. Five-phases protocol Experiment

At the end, this project will develop ARSIL into a framework with four constructs. Each constructs leverages reinforcement learning (RL) and generative AI agents to personalize narrative, feedback, ethical dilemmas, and debugging scaffolds within simulated scenarios (Table 3).

Table 3. Construct and activities for deploying and testing the ARSIL Framework

Construct (Lead Institution)	Frameworks	Learning Objectives & Measures	Simulation Storyline
C1: Adaptive Narrative Orchestration HKBU	Narrative Intelligence, RL-Supported Scaffolding, Semiotic Mediation via Generative Agents	<i>Focus:</i> AI Systems Literacy, Communication Ethics <i>DVs:</i> Task completion, message alignment, scaffold uptake <i>IVs:</i> RL pacing, prompt density, narrative	Debugging AI with moral logic bugs
C2: Engineering Feedback Fidelity PolyU	Procedural Fidelity, Flow Theory, Multimodal Affective Feedback	<i>Focus:</i> Process Design, Iterative Feedback <i>DVs:</i> accuracy, scaffolding, retry <i>IVs:</i> complexity, scaffold type, agent interjection	Navigating a food processing pipeline
C3: Ethical Role Complexity Lingnan U	Moral Development Theory, Emotion-Driven Simulation, Institutional Escalation	<i>Focus:</i> ESG Policy, Institutional Conflict <i>DVs:</i> Ethical score, escalation count, reflection depth <i>IVs:</i> Agent role conflict, emotional valence, decision	Acting as ESG whistleblowers
C4: Procedural Logic & Debugging Scaffolds HKUST	Computational Thinking in VR, RL Debugging, Policy Gradient Pedagogy	<i>Focus:</i> Algorithmic Thinking, Policy Simulation <i>DVs:</i> Debug, scaffold, logic structure <i>IVs:</i> RL reward, error, language friction	Debugging environmental policy code

Data Collection. Data will be gathered as shown below Table 4.

Table 4. Data Collection Matrix

Component	Details
Data Sources	- System-generated logs - Validated instruments - In-app reflective prompts
Quantitative Instruments	1. <i>Technology Acceptance Model for Dynamic Systems</i> – Usefulness, ease, enjoyment, intention 2. <i>Multimodal Presence Scale</i> (Makransky et al., 2017) – Immersion, embodiment, social presence 3. <i>Simulator Sickness Questionnaire (SSQ)</i> (Kennedy et al., 1993) – Nausea, disorientation 4. <i>Cognitive Load Scale</i> (Leppink et al., 2013) – Intrinsic, extraneous, germane load
Qualitative	Open-ended: - “Three things you liked?” - “Three things you disliked?”
System Log	- Learner paths - Retry counts - Pacing adjustments - RL scaffold engagement
Analytical Methods	- EFA/CFA for construct validation - Multilevel SEM for engagement and agent quality - Random Forests and Partial Dependence Plots for non-linear patterns - Thematic coding of GPT and user reflections

Data Analysis Plan. We will analyze via the below steps

1. Data Integration: Merge logs, surveys, and facilitator rubrics using a unified schema.
2. Descriptive Profiling: Analyze variation across sites and demographics;
3. Measurement Validation: Conduct EFA/CFA and assess reliability (Cronbach's α/ω)
4. Modeling & Hypothesis Testing:
 - Multilevel SEM (accounting for institutional nesting); PLS-PM for small site samples.
 - Mediation models for indirect/suppression effects.
 - Generalized Additive Models (GAM) for non-linear and moderation effects.

- Random Forests and Partial Dependence Plots for thresholds and interaction patterns.
5. Qualitative Integration: Apply double-coded thematic analysis to learner reflections and facilitator notes to identify key themes (e.g., “AI felt stubborn,” “multimodal freedom helped”).

Roles of Each Participating University

- **Hong Kong Baptist University (Lead Institution):** Leads RL policy, GenAI integration, and simulation design. Oversees toolkit architecture and orchestrated task modeling.
- **The Hong Kong Polytechnic University:** Develops design/engineering simulations focusing on real-time feedback and flow calibration in process-based domains.
- **Lingnan University:** Constructs simulations centered on ESG dilemmas and ethical complexity. Designs emotion-driven agent strategies and institutional escalation models.
- **The Hong Kong University of Science and Technology:** Implements simulations in algorithmic reasoning and procedural debugging. Focuses on computational logic and policy gradient pedagogy.
- **Singapore Institute of Technology (SIT):** Co-develops tourism consumer behavior simulations. Designs evaluation rubrics for decision-making, ethical reasoning, and scenario adaptation.
- **Universiti Kebangsaan Malaysia (UKM):** Integrates AI literacy and algorithmic awareness modules. Co-develops pedagogical strategies and contributes to cross-cultural implementation design.

Project Period and Implementation Timeline

Milestone	Key Activities
M1 (Month 1–6): Construct & Scenario Blueprinting	Define simulation, scenario structures, and RL roles. Map learning signals (e.g., hesitation, retry, navigation depth).
M2 (Month 7–12): Platform Configuration & Toolkit Build	Integrate GenAI dialog tools and RL policy templates. Enable authoring interfaces for domain-specific agent orchestration.
M3 (Month 13–18): Prototype Development & Internal Pilot	Each institution builds and tests their first scenario internally. RL tuning begins. Analyze orchestration effectiveness.
M4 (Month 19–24): Simulation Launch & Evaluation Round 1	Full pilot in classrooms. Deploy simulations with logging enabled. Capture system traces, task paths, and reflection data.
M5 (Month 25–30): Refinement, Scaling & Analytics Integration	Adjust agent strategies, pacing models, and GenAI prompts. Launch second scenarios. Improve predictive indicators.
M6 (Month 31–36): Final Toolkit & Dissemination	Release authoring toolkit, template libraries, and training materials. Conduct public workshops. Submit research outputs.

From M4 onwards, depending on the success of RL tuning and fitting, additional modules across departments could be added to evaluate impact and generalizability, such as potential partners in Department of English (Prof. Emily Chow), Division of Transdisciplinary Undergraduate Programmes (Dr. Glos Ho) and Academy of Music (Prof. Liila Taruffi).

Intended Outcomes and Impact		
The ARSIL project identifies its key beneficiaries as students, educators, institutions, and industry, each gaining context-specific advantages from adaptive simulations and GenAI integration.		
Time	SDG 4 – Quality Education	SDG 8 –Work & Economic Growth
Short-Term	Students experience immersive, AI-supported learning that enhances engagement, agency, and reflective thinking.	Universities deploy RL-integrated simulations that boost instructional efficiency and support curriculum innovation.
Medium-Term	Institutions adopt reusable frameworks (ARSIL) and scene templates that support construct-based pedagogy across disciplines.	Employers benefit from graduates equipped with AI collaboration skills and applied decision-making fluency.
Long-Term	Education systems implement scalable, adaptive learning models that support inclusive, cross-disciplinary innovation.	National economies gain future-proof graduates with transferable digital and collaborative problem-solving capacities.
Monitoring and Evaluation Mechanism		
Evaluation Criteria for Project Outcomes will include: <ul style="list-style-type: none"> • Educational Impact and Learning Gains – Measured through pre/post assessments using validated instruments (e.g., TAM, Presence, CTDS) to evaluate student engagement, critical thinking, and perceived learning. Qualitative data (learner reflections, interaction logs) will document AI-learner collaboration. • Implementation Breadth and Reuse – Assessed by the number of simulations deployed, student reach, and frequency of reuse across courses and institutions. Scene adaptability and cross-disciplinary uptake will reflect design efficiency. • Pedagogical Quality and Inclusivity – Evaluated through the integration of inquiry-based or experiential strategies, alignment of feedback with RL scaffolds, and evidence from usage data and facilitator reports indicating inclusive, co-regulated learning dynamics. 		
Sustainability of the Project and Means for Disseminating Deliverables/Outcomes		
Sustainability: <ul style="list-style-type: none"> • For reusability, we will use modular, reusable infrastructure—simulation scenes, avatar behaviors, and authoring tools will be built for cross-institutional adaptability. Institutional uptake will be supported through educator-facing resources, including hands-on training, low-code authoring environments, and plug-and-play pedagogical templates, empowering faculty to independently deploy and sustain immersive AI-powered learning across disciplines. • Dissemination will focus on both the technical reinforcement learning (RL) architecture and instructional design innovations. Outputs will be shared at AI and EdTech conferences (e.g., CHI, IEEE TALE, AIED, ICMET), emphasizing RL-powered orchestration, real-time adaptation, and GenAI integration. Annual workshops will target educators and system designers, showcasing simulation modules, training data flows, and policy templates. A shared, version-controlled repository will house reusable RL scaffolds, scenario templates. • At least one to two journal publications in education, or human computer interaction journals such as Human-Computer Interaction (Q1), Learning, Culture and Social Interaction (Q2), Virtual Reality (Q1) and Interactive Learning Environments (Q1). 		