



## Research and Publication in Higher Education: Insights from the Editor of The Internet & Higher Education

LIM Cher Ping

Chair Professor of Learning Technologies and Innovation

## Why do we engage in research of higher education teaching and learning?

## Why Research in HE T&L?

- Enhances quality, equity and efficiency of HE T&L within a discipline or across disciplines in a particular context or across contexts;
- Informs and guides HE T&L policy (professional development, learning support, infrastructure, hardware and resources, curriculum and assessment) formulation and implementation; and
- Tests and generates theories that explain responses and solutions to HE T&L questions, issues and challenges.

# Why do we seek to publish our research of higher education teaching and learning?

## Why Publish Our Research?

- External pressure of grant deliverables, promotion and tenure expectations, and teaching award requirements;
- Sharing of promising practices and lessons learnt as communities of HE practitioners; and
- Contribution to the scholarship of higher education teaching and learning.

## How do we publish in higher education research journals?



#### Journal of Engineering Education (JEE)

#### **Journal of Engineering Education**

#### Welcome

Welcome to the Journal of Engineering Education (JEE), a peer-reviewed international journal published quarterly by the American Society for Engineering Education (ASEE).

Role: The Journal of Engineering Education is more than a place to publish papers-it is a vital partner in the global community of stakeholders dedicated to advancing research in engineering education from pre-college to post-graduate professional education.

Vision: The Journal of Engineering Education seeks to help define and shape a body of knowledge derived from scholarly research that leads to timely and significant improvements in engineering education worldwide.

Mission: The Journal of Engineering Education serves to cultivate, disseminate, and archive scholarly research in engineering education.

The Journal of Engineering Education is supported in part by the Clemson University College of Engineering, Computing and Applied Sciences.

Educational Technology

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## The Don'ts for HE T&L Journals

- Don't focus solely on the design of the innovation; focus on the design of the innovative learning environment.
- Don't focus on the features of an application or strategy; consider how it is used to enhance the quality, equity or efficiency of teaching and learning.
- Don't be tempted by trends in innovative teaching and learning; always go back to the basics of learning engagement and outcomes.
- Don't focus solely on the opportunities of the innovation for teaching and learning; there are the limitations as well that have to be dealt with.
- Don't be tempted to generalise your findings as innovative learning environments are context-dependent.

## The Do's – Advice from Computer &

#### Education

- Papers must:
  - align with the aims of the journal
  - be within the scope of the journal
  - include an appropriate, current and comprehensive literature review
  - have a sound research methodology (see additional notes on methodology below)
  - evidence a high level of critical analysis
  - explicitly indicate how they advance the field
  - comply with the author guidelines
  - not have been submitted/published elsewhere
  - not already have been rejected (without the option to resubmit) by CAE

## Aligning to the Scope of Journal

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Guide for Authors 🛛 🗸				
Abstracting/ Indexing				
Track Your Paper 🗸 🗸 🗸				
Order Journal 🗸 🗸 🗸				
Journal Metrics				
CiteScore: 5.79 <sup>(i)</sup>				
More about CiteScore				
Impact Factor: 4.238 🛈				
5-Year Impact Factor: 5.130 🛈				
Source Normalized Impact per Paper (SNIP): <b>3-914</b> <sup>①</sup>				
SCImago Journal Rank (SJR): <b>2.825</b>				

The Internet and Higher Education, a is quarterly journal devoted to addressing contemporary issues and future developments related to **online learning**, **teaching**, and **administration** on the **Internet** in post-secondary settings. It is a peer-reviewed journal intended to be a vehicle for scholarly presentation and dissemination of contributions, theoretical and applied, significantly addressing innovative deployments of Internet technology in instruction and reporting on research to demonstrate the effects of the Internet and information technology (IT) on instruction in various contexts in **higher education**. The journal is international and interdisciplinary, inviting contributions from across the globe and from various academic disciplines. The journal provides a venue for theory papers, research studies, critical essays, editorials, reviews, case studies, and social commentary contributions. Special issues are often devoted to specific topic areas with guest editors assisting in the editorial process.

The scope of the journal is broad in terms of the range of issues and trends to be addressed, for example, innovations or best practices in online teaching, learning, management, and administration. Other issues may include: Internet technology design and use; instructional models in online courses; online course development and instructional design; interaction in online courses; collaborative learning; usability and evaluation of online environments and portals; online communities of practice; institutional policies, standards and assessment; accessibility standards in online instruction; internationalization and cultural aspects of online classrooms; and issues and trends in synchronous, asynchronous, and hybrid online learning.

Hide full Aims & Scope

## **Understanding the Review Process**

- Editors engage in desk reviews;
- Editors assign manuscript to reviewers keywords;
- Reviewers review based on guiding questions, rubrics or template;
- Editors collate reviews and make a decision Accept, minor revisions, major revisions or reject;
- Editors send decision letter to authors;
- In the case of revisions, authors have up to four weeks to address the comments and suggestions;
- Authors submit revised manuscript with responses to the comments of the reviewers;
- Editors send revised manuscript to original reviewers.

## **A Collaborative View of Publication**

Roles in the Publication Process				
Role	Task(s)	Goal(s)	Challenge(s)	
Author	Submit manuscript Respond to feedback Revise feedback	Get manuscript published	Accepting peer feedback	
Reviewer	Read manuscript Provide feedback and assessment	Complete a quality review in a timely manner	Write feedback in a constructive manner	
Editor	Triage manuscript Select reviewers Render decisions based on review- er feedback and personal review	Uphold the integrity of the review process Ensure the journal has a steady stream of high-quality manu- scripts to publish	Secure reviewers Triangulate reviews and make decisions Deliver bad news to authors	

A Plausible Approach – Research to

• Peoplication ack to the basics of teaching and learning to consider student learning needs (challenges and misconceptions) and gaps in teaching and learning practices.

- Be clear about what the contributions of your research study are to the scholarship of higher education teaching learning.
- Be open to forming inter-disciplinary teams that may include instructional designers, education researchers, learning support staff, and discipline-specific academic staff.
- Be educated about the range of HE T&L journals and choose one that your research findings are most well-aligned to.

What are the existing gaps and emerging issues for research in Internet-enabled teaching and learning?

(1) Capacity Building of the Higher Education Workforce for ICT-enabled Teaching and Learning

#### **Pivotal Role of HE Teachers**

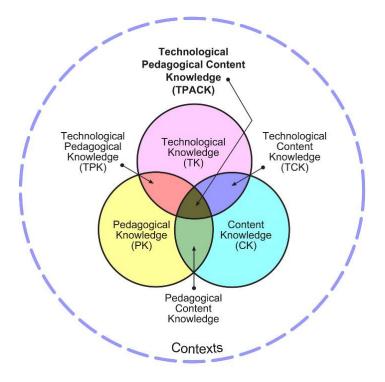


- Pivotal role of teachers in quality online teaching and learning
- Pre-pandemic issues on teacher capacity highlighted in coping, recovery and building it back better phases of the pandemic.

#### **Competencies of University Teachers**

- Analysing context and student learning needs;
- Designing and implementing quality online and blended learning lessons;
- Developing online and blended teaching and learning resources;
- Providing learning and psychosocial support for students;
- Managing and evaluating online and blended teaching and learning; and
- Planning for and implementing assessments online and/or blended.

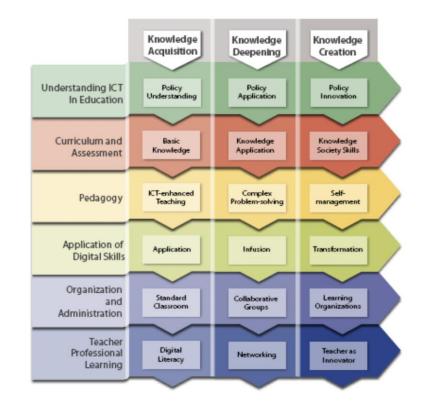
#### **Teacher Competencies (Online & Blended Learning)**



#### **Teacher Competencies (Online & Blended Learning)**



#### **Teacher Competencies (Online & Blended Learning)**



Version 3.0

#### **Teacher Professional Development (TPD)**

- "activities that develop an individual's skills, knowledge, expertise and other characteristics as a teacher" (OECD, 2009, p. 49)
- may include formal and informal experiences.
- effective TPD is a long-term and continuous process that includes regular opportunities and experiences planned systematically to promote growth and development in the profession (Darling-Hammond, et al., 2017)
- a systems approach to TPD should be adopted to strategically develop high-quality teachers at scale in a cost-effective way (Asian Development Bank, 2017)

## **Effective (Quality) TPD**

- Content focused.
- Incorporates **active learning** utilizing adult learning theory.
- Supports **collaboration**, typically in job-embedded contexts.
- Uses models and modeling of effective practice.
- Provides coaching and expert support.
- Offers opportunities for feedback and reflection.
- Of sustained duration.

(Darling-Hammond, et al., 2017)

**@Scale** as defined in the emerging research and development field of learning at scale ("L@S") refers to learning environments mediated by information and communication technologies (ICT) that engage large numbers of learners, whether remotely or face-to-face.

## **Envisioning TPD@Scale**

#### Effective TPD

(Darling-Hammond, Hyler, and Gardner, 201

- Content-focused
- Active learning
- Collaborative learning
- Models effective practice
- Coaching and expert support
- Feedback and reflection
- Sustained duration

#### Learning@Scale

- MOOCs
- Open courseware
- Intelligent tutoring systems
- Peer learning networks, professional learning communities, communities of practice

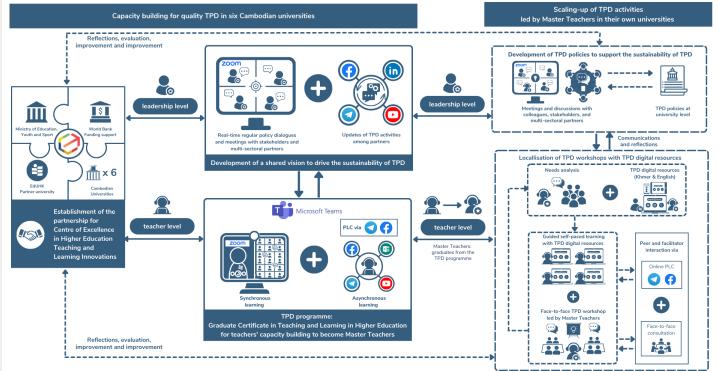
#### Challenges in the Global South

SCALE

- Quality of teachers
- Opportunities for continuing professional development
- Diverse school environments
- Gender-based and other asymmetries and biases

## **TPD@Scale in Higher Education**

#### **CENTRE OF EXCELLENCE TPD MODEL**



#### Facilitating Elements of TPD@Scale

- Digital professional learning resources
- TPD curriculum and assessment
- Professional learning community
- Facilitators and mentors
- Support of universities, local governments and/or national governments
- Partnerships of key stakeholders

2. Generative AI in Higher Education Teaching and Learning (Including Assessment)

#### **Generative AI in HE T&L (Assessment)**

#### ChatGPT Poe

Education technology, also known as EdTech, can sometimes fail to have a significant impact in the education sector due to a variety of reasons:

Why does education technology fail in the education sector?

- Lack of Pedagogical Considerations: Effective education technology should be designed with pedagogy in mind.
  However, some EdTech solutions focus more on the technology itself rather than on how it can enhance teaching and learning: If the technology does not align with educational goals or fails to engage learners effectively, it may not deliver the desired outcomes.
- Insufficient Teacher Training and Support: Teachers play a crucial role in integrating technology into the dassroom. If they lack proper training and ongoing support to effectively use the technology, they may struggle to incorporate it into their teaching practices. Without adequate guidance, teachers might not fully understand the potential benefits of the technology or how to leverage it optimally.
- 3. Limited Access and Infrastructure: Education technology requires access to reliable internet connectivity, devices, and appropriate infrastructure. In many regions, especially in developing countries or underserved communities, there may be a lack of these resources, hindering the widespread adoption of EdTech solutions. Unequal access to technology can exacerbase deucational inequalities.
- Implementation Challenges: The successful integration of EdTech often requires careful planning and implementation strategies. Poor execution, resistance to change, or inadequate support from school administrators can hinder the effective use of technology in classrooms. Lack of coordination among stakeholders, such as teachers, administrators, and IT staff, can also immede the adoption and implementation process.
- 5. Lack of Personalization and Adaptability: Education technology should cater to diverse learning needs and preferences. If EdTech solutions are not flexible enough to accommodate individual learners' variations in pace. style, and interests, they may fail to provide personalized learning experiences. Onesize-fits-all approaches may not effectively address students' unique requirements.

Talk to ChatGPT on Poe

6. Insufficient Evidence of Effectiveness: While many EdTech solutions claim to improve learning outcomes, the evidence base supporting their efficacy may be limited. The lack of rigorous research and evaluation of EdTech tools makes it difficult to gauge their true impact on student learning. Without convincing evidence, educators and institutions may be reluctant to invest in or adopt new technologies.

- 7. Cost and Sustainability: Implementing and maintaining EdTech solutions can be expensive, especially for cash-strapped educational institutions. The cost of purchasing devices, software licenses, and technical support services can strain budgets. Moreover, ensuring the long-term sustainability of EdTech initiatives may be challenging without adequate financial planning and commitment.
- 8. Ethical and Privacy Concerns: Education technology often involves the collection and analysis of student data. Privacy concerns arise when data security measures are insufficient, or when data is used for purposes beyond its intended scope. Concerns about the ethical implications of data usage can lead to resistance and hesitancy among educators, parents, and students.

It is important to note that while education technology faces challenges, it also holds immense potential to transform teaching and learning when designed and implemented thoughtfully, with consideration for pedagogy, teacher support, accessibility, personalization, evidence-based practices, and ethical considerations.

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## Why does EdTech fail in the education sector?

- 1. Lack of pedagogical considerations
- Insufficient teacher training
- 3. Limited access and infrastructure
- 4. Implementation challenges
- Lack of personalisation and adaptability
- 6. Insufficient evidence of effectiveness

#### **Generative AI in HE T&L (Assessment)**



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#### Reconceptualizing ChatGPT and generative AI as a student-driven innovation in higher education

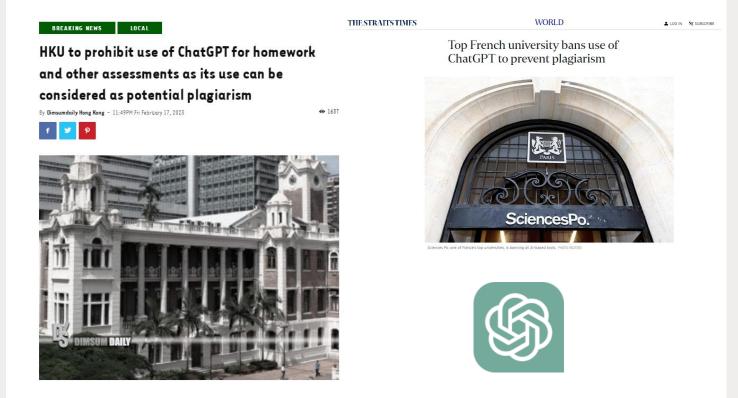
Yun Dai<sup>a\*</sup>, Ang Liu<sup>b</sup>, Cher Ping Lim<sup>c</sup>

Department of Curriculum and Instruction, The Chinese University of Hong Kong, Hong Kong SAR, China
School of Machanical and Manufacturing Engineering, University of New South Wales, Sydney, Australia
Faculty of Education and Human Development, The Education University of Hong Kong, Hong Kong SAR, China

\* Corresponding author. Tel.: +085-3943-6719; E-mail address: yundai@cuhk.edu.hk

Dai, Y., Liu, A., & Lim, C.P. (2023). Reconceptualizing ChatGPT and generative AI as a student-driven innovation in higher education. *Procedia CIRP*.

## **ChatGPT in the Beginning: Threats**



### **ChatGPT in the Beginning: Threats**

Can you please explain why some universities ban ChatGPT?

#### ChatGPT Poe

As an Al language model, I don't have access to real-time information or specific details about recent events. However, as of my last knowledge update in September 2021, there were no widespread bans on using Al language models like ChatGPT in universities. However, it's possible that individual universities or academic institutions may have implemented restrictions or guidelines on the use of Al models for specific reasons. Some potential reasons why a university might consider banning or limiting the use of ChatGPT or similar models could include:

- Academic integrity: Universities have strict policies regarding plagiarism and maintaining academic integrity. If students were using AI models to generate essays or assignments without proper citation or acknowledgment, it could be seen as a violation of these policies.
- 2. Unequal access to resources: Al language models like ChatGPT require substantial computational resources to run effectively. If some students or departments have more access to these resources than others, it could create an imbalance in the educational experience. Universities may implement restrictions to ensure fair access to resources.
- 3. Ethical concerns: Al models are trained on large datasets, which can include biased or unethical content. If universities have concerns about the ethical implications of using Al models without proper oversight or regulation, they may choose to restrict their use.
- 4. Misuse and abuse: Al models can be used for malicious purposes, such as creating fake news, spreading misinformation, or engaging in harmful activities. Universities may ban or limit the use of Al models to prevent such misuse and ensure responsible Al usage.
- 5. Lack of human interaction: Some educators and institutions may argue that relying too heavily on AI models for educational purposes could diminish the importance of human interaction, personalized feedback, and critical thinking skills

Talk to ChatGPT on Poe

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#### Why do some universities ban ChatGPT?

- 1. Academic integrity
- 2. Unequal access to resources
- 3. Ethical concerns
- 4. Misuse and abuse
- 5. Lack of human interaction

### **ChatGPT: Addressing the Threats**

#### Universities must act, not just chat about ChatGPT

We may not need to ban AI technology, but we must be smart about drawing up clear regulations to curb academic dishonesty and plagiarism.

Sharifah Munirah Alatas - 07 Apr 2023, 7:00am





SHARIFAH MUNIRAH ALATAS

Dr Sharifah Munirah Alatas is an academic specialising in geopolitics with a special interest in socio-political issues of developing nations. of artificial intelligence (AI) technologies developed by Francisco-based start-up OpenAI. Other AI technolog in existence such as Microsoft Bing AI, Chatsonic, Jaş Google Bard AI, are part of a new generation of artifici intelligence systems. They are technically called "larg models" or LLMs.

ChatGPT was launched on Nov 30, 2022. It is part of a broader set

#### How can Singapore's universities deter Alassisted cheating in the age of ChatGPT?

Two universities said they are in the process of putting together a framework for managing the use of AI tools, which includes educating students on utilising the technology purely as a learning aid, and providing support for instructors.





## **ChatGPT: Taking Up Opportunities**

05 Apr '23 💿 280



Malaysia's Ministry of Higher Education Developing Guidelines for ChatGPT Usage in Universities

Malaysia's Ministry of Higher Education is formulating guidelines for utilizing OpenAl's ChatGPT in local universities. Minister Khaled Nordin acknowledged the potential benefits of Al technologies in learning but stressed that Al should not replace human involvement.



#### **ChatGPT as Student-Driven Education Technology**

## DeepTutor

#### Promoting Deep Learning





#### DeepTutor, funded by the Institute for Education Sciences, is an advanced intelligent tutoring system that fosters students' deep understanding of complex science topics through quality interaction and instruction. Quality interaction means the student and tutor understand each other at every turn and over many dialogue turns. Quality interaction is possible in DeepTutor through the use of a novel, state-of-the-art natural language-based knowledge representation, called the latent semantic logic form or shortly the semantic logic form (SLF), and advanced dialogue management techniques that embed novel conversational goals such as perfect grounding at every turn.

#### **ChatGPT as Student-Driven Education Technology**

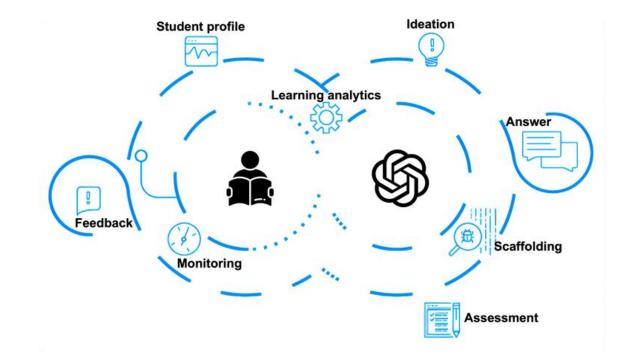




#### **ChatGPT as Student-Driven Education Technology**

- ChatGPT is an example of generative AI designed to generate new content rather than analyze or manipulate existing data.
- ChatGPT has a large and steeply increasing user base since its launch in December 2022 with 100 mil users in the first two months and 25 mil daily visits.
- The user interface of ChatGPT is a simple dialog format that affords conversations initiated and controlled by users.
- Question: As ChatGPT empowers students, do students have the capacity to carry out and manage the inquiries? What competencies are needed from students as they plan, organize and personalize their learning process?

#### **ChatGPT as Enabler in Higher Education**

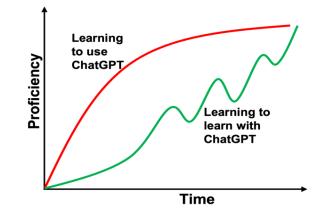


#### **ChatGPT as Enabler in Higher Education**

- Learning analytics for personalized learning
- Real-time assistance for customized scaffolding and feedback
- Ideation facilitator
- Enhancing education access and resource for social justice
- Question: How can we as teachers/professors design a learning environment to take up the affordances of ChatGPT as an enabler for higher education equity, quality and efficiency?

#### Learning with ChatGPT

- Shifting from learning via ChatGPT to learning with ChatGPT
- Learning to learn with ChatGPT
- Question: Do students and teachers/professors know how to learn? How do we scaffold lifelong learning?



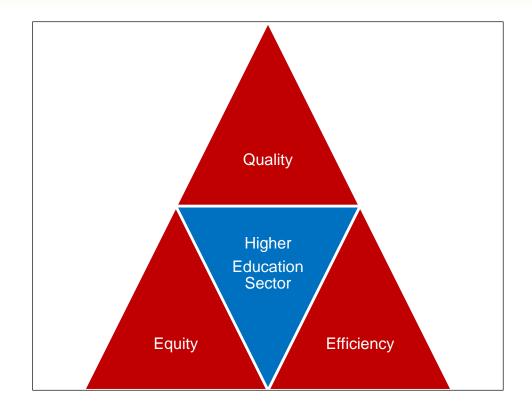
- Introducing an innovation such as ChatGPT requires simultaneous innovations in pedagogy, curriculum, assessment, and institutional organization.
- The changes caused by the interactions between technology and the institution system not only determine how technology is adopted, but also affect the operation of the institutional system.
- Therefore, the dynamic co-adaptation and coevolution of students, teachers, institutional leaders, and other stakeholders with technology and the system determines whether the opportunities of technology for engaging students can be realized in universities.

## **Issues and Challenges**

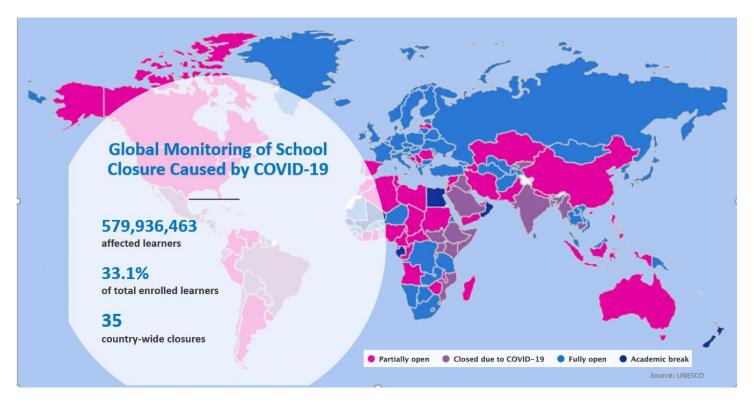
- Lack of scale: Isolated promising practices
- Lack of access for teachers and students to Internet connection, hardware and resources
- Lack of motivation and capacity of teachers to engage in teaching and learning innovations
- Lack of capacity of students to learn with technologies
- Lack of institutional understanding and support

3. Internet-enabled Higher Education Teaching and Learning for Addressing Equity Issues

## **Higher Education EQE**



#### **Impacts of COVID-19 Pandemic**



# Impacts on Equity, Quality and Efficiency

- Access to infrastructure, devices and resources.
- Online learning resources and strategies tailored to students with special learning needs.
- Quality of online teaching and learning.
- Online learning support for students.
- Modes of assessment.
- Relevance of curriculum to changing demands of emerging industries and the future shape of the workforce post-COVID-19

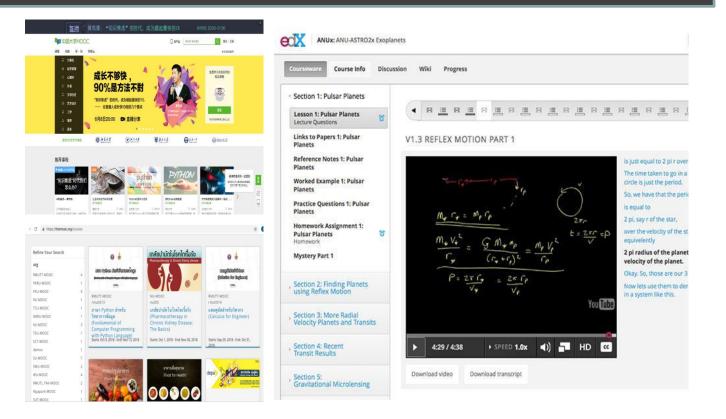
# **Digital Transformation in Higher Education**

- From Uni-versity to Multi-versity: Scaling online and blended teaching and learning for inclusive and equitable quality higher education.
- Emerging Technologies and its Roles in Higher Education T&L: VR/AR, artificial intelligence, big data and learning analytics, gamification and game-based learning, and multi-user virtual environment.

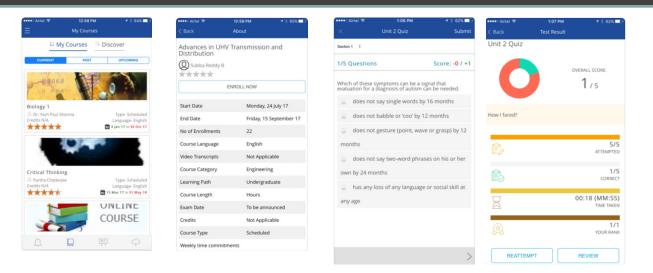
RQ1: How does scaling online and blended teaching and learning enhance higher education equity, quality and efficiency?

RQ2: How do emerging technologies address the tensions between higher education equity, quality and efficiency?

# MOOCs



# **MOOCs on Mobile (India)**



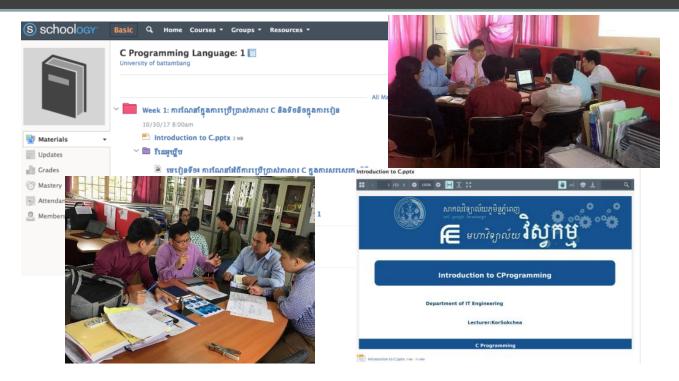
Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) is a MOOC platform offered by the Ministry of Human Resource Development, Government of India, to achieve access, equity and quality as outlined in its Education Policy (SWAYAM, 2018). https://swayam.gov.in

## Localising for Inclusiveness

- 1. Issues of inclusion need to be understood and responded to at local levels
- 2. Digital technologies enable efficiencies of scale and personalization but need to be selected carefully, paying attention to learners' access and competencies.
- 3. Sustainability of the teaching and learning program within the system is through continuous adaptation and improvement to move towards equity, while striking the proper balance between quality and efficiency.

RQ: How do we localize a at-scale teaching and learning programme or course for inclusive and equitable quality higher education?

# Addressing Rural-Urban Gap (Cambodia)



RQ: How does blended and online teaching and learning address the rural-urban quality gap of higher education in Cambodia?

# **Blended and Online Learning (Cambodia)**

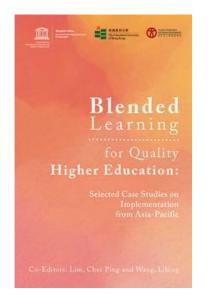
- The online resources provided by the national "flagship" university ensured the quality of the content delivery across the three partner universities.
- Blended learning has provided more active and personalised learning among students.
- Teacher has played a pivotal role in making blended learning effective.
- The access of technology remains a hindering factor; the growing penetration of mobile technologies is changing such a situation but the speed still presents challenges for embracing blended learning.
- Teachers adoption of blended learning is constrained by the policies at the institutional/system level.

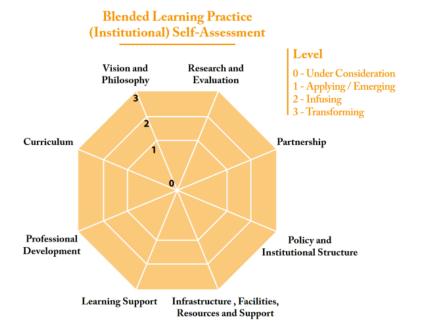






## **Blended and Online Learning (Cambodia)**













# Thank You!

LIM Cher Ping Chair Professor of Learning Technologies and Innovation The Education University of Hong Kong <u>clim@eduhk.hk</u>