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Learning to Become:

Empowering the Future Higher Education Workforce

CLOUD - Connecting Leaders Online for University Digital Transformation

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Dear Partners and Colleagues,

Greetings from University of Engineering and Technology (UET) Lahore, Pakistan. As the IIOE Presidency Unit for 2021, the UET Lahore has worked closely with UNESCO-ICHEI to strive for excellence and fulfill our commitment of contributing to IIOE's development as the Presidency Unit.

At the beginning of this year, UET Lahore had multiple rounds of discussions on how to advance IIOE together with UNESCO-ICHEI. Preparation work also included hosting trainings, webinars, and other IIOE-supported events for faculty and staff of UET Lahore. We have also shared a complete guide about IIOE courses with our faculty and staff, involving necessary details and instructions on the benefits of using the IIOE platform. Our efforts have paid-off as we have received nominations from all departments and campuses at UET Lahore.

In my capacity as Chairman of HEC's National Computing Education Accreditation Council (NCEAC), I have extended the invitation to join IIOE to 154 Higher Education Institutions (HEIs) of Pakistan through NCEAC website (nceac.org.pk) as well as through email to the heads of these institutions. I would like to thank Prof. Dr. Waqar Mahmood, Director of Al-Khwarizmi Institute of Computer Science (KICS) at the UET Lahore, for his generous help along the process.

In collaboration with IIOE, we have conducted a series of training sessions at UET Lahore. The UET Lahore also assisted many crossinstitutional collaborations in ICT capacity building, and our work with the University of the Gambia (UTG) is a prominent example. We also shared online and blended teaching and learning (OBTL) experience during the pandemic on UNESCO-ICHEI's official publication, CLOUD, and our training on AI in Higher Education on the IIOE platform has been widely recognised. Currently, the UET Lahore is striving to make its institutional policies and missions in line with the IIOE Competency Framework for Higher Education Workforce (IIOE-CFHEW) recommendations. We are also working to enhance the ICT competency of faculty members. Thus, we can accelerate the digital transformation within UET Lahore with the help of new competency policies, webinars, and other IIOE initiatives relevant to our context.

UET Lahore is also glad to have coorganised the 2021 IIOE Asia Pacific Mid-Year Meeting - Digital Transformation for Inclusive and Quality Higher Education, which mapped the core competencies of the Higher Education Workforce with UNESCO-ICHEI partner higher education institutions. The meeting was very informative and useful for participants as they all gained insights and inspiration from other institutions and experts. Such gatherings provide an opportunity for partner HEIs to jointly respond to some frequently asked questions in higher education digital transformation and, most importantly, strengthen the HEI network at IIOE and create future collaboration possibilities.

We appreciate that IIOE has made distinguished achievements in improving teacher capacities for online teachings, such as drafting the excellent IIOE-CFHEW. We are also confident that IIOE is on a path that is increasingly inclusive and comprehensive. As 2021 approaches the end, the UET Lahore is committed to pursuing higher education digital transformation and IIOE agenda beyond the presidency. We would love to contribute to the IIOE advocacy and call for the engagement of partner HEIs with IIOE. While working together in HEW capacity building and HEI digital transformation more actively and proactively, we could build a more robust IIOE network and make more contributions to shape the future landscape of higher education in global south and beyond.

Prof. Dr. Syed Mansoor Sarwar Vice-Chancellor of University of Engineering and Technology (UET), Lahore, Pakistan. President IIOE 2021. Chairman NCEAC.



IIOE-CFHEW: Mapping out the Mapping out the key competency for futurefor futureready higher education workforce

et's meet Aisha, a 28-year-old senior lecturer in biomedical science woking at a top university in her country. Known as a technology geek in her department, Aisha already started integrating multimedia resources and technology-driven gadgets into her teaching practices even before the pandemic hit. Although a young professional, she became a leader in revolutionizing pedagogy at the biomedical science department; she also introduced many digital teaching and student learning management tools to her colleagues. However, when COVID-19 swept across the world, she found herself under unprecedented challenges like all her colleagues and friends. As laboratory closed down and in-person teaching suspended, her previous teaching plan and digital knowledge base turned out to be technically and pedagogically insufficient for fully online courses. Take Aisha 's favorite tool. 3D biomedical visualisation and modeling, as an example, Aisha used to teach modeling software hand by hand to her students, while in the remote setting, many operational details required excessive amount of time to explain, or were simply not teachable at all. Besides low efficiency in transferring knowledge, Aisha also realised unexpected blind spots in her own knowledge system, such as the application of virtual reality and augmented reality, both necessary when actual facilties were all locked up in labs. After mid-term, half of the students stopped showing up in Aisha 's visualisation class, and the other half - according to Aisha - "they turned in wrong homework, like their 15-page unformatted papers for ancient Greek architecture or just gave me their family photo at the zoo gate for the 3D human body modeling assignment." When having lunch with colleagues, Aisha learnt that beyond the biomedical department, many students also had difficulty understanding subject matter without hands-on practice, especially those on vocational education tracks. At staff meetings, chancellor told Aisha and her colleagues that student engagement rates decreased, and that unmeasurable learning losses emerged at the university level. Bad news kept flowing in: Aisha got a text message from BioGeek101, a reading club where she had been awarded "Most Talkative Member (In a Good Sense)", announcing long-term postponement immediately after the citywide lockdown notification. For next several months, Aisha often fell into depression due to social isolation, especially when she started reading a book.



Not long after, introduced by another educator friend, Aisha began resorting to integrated online platforms such as IIOE free training courses to cope with educational losses. Aisha enjoyed her time learning new concepts and equipping themselves with advanced ICT-driven educational skills through IIOE courses, and thus recommended to her colleagues at the biomedical department. However, further questions emerged: how can an individual of HEW ensure that the new skills learnt are most relevant to students and the society under pandemic? How can such individual organize their knowledge system after absorbing all the inputs? At the institutional level, how can HEIs promote self-motivated learning initiatives among HEW to build collective capacity for online – and blended in the future – teaching and learning? How can these institutions monitor and evaluate their capacity-building progress so that they cultivate a responsive mechanism whenever contextually relevant crises surface?

To respond to these questions, a support theory for all HEW to systemically conduct professional development becomes not only highly desirable but also much needed.

What is the IIOE-CFHEW?

The IIOE-CFHEW describes a set of future-oriented ICT competencies required by university teachers, administrators, support staff at all levels to reskill and upskill in transforming the higher education ecosystem. Through the lens of digital transformation, the taxonomy focuses on diverse knowledge, skills, and attributes that are of growing relevance to ICT-enabled higher education curriculum reform, teacher professional development, smart institution management & administration, in promoting local talent cultivation and indigenous innovation for developing countries in Asia and Africa regions.





Roadmap

As a roadmap, the IIOE-CFHEW highlights a series of ICT competencies, making related knowledge and capabilities explicit for the higher education workforces of different job functions to effectively involve in their respective professional development pathways considering dioital transformation trends.



Guideline

As a guideline, the IIOE-CFHEW coheres with the IIOE Quality Assurance Framework (IIOE QA) to empower Online/ Blended Teaching and Learning in higher education, suggesting practical solutions regarding how to mobilise ICT resources for optimised student outcomes and institutional capacity building. As a toolkit, the IIOE-CFHEW accords with the IIOE Online Course System and multiple training programmes, enabling HE professionals to practise essential ICT competencies and enhance digital literacy with adequate

educational resources and support.

Toolkit

Development of the IIOE-CFHEW

The IIOE Competency Framework for the Higher Education Workforce (IIOE-CFHEW) is developed by the International Institute of Online Education (IIOE) under the context of large-scale institutional closures and global higher education disruption caused by the Covid-19 pandemic. For several months, the crisis had forced educators and university administrators into emergency and uncertainty, affecting more than 220 million tertiary students worldwide from quality, equitable education. However, the pandemic is a also a wake-up call - 'how fast can we recover and transform challenges into opportunities in adaption to the changing trends of digital transformation?'

To tackle the current and postepidemic challenges, IIOE has worked on the CFHEW to support higher education professionals and institutions in developing countries to build resilience and emerge stronger after the crisis.

In 2020, IIOE had initially released the IIOE ICT Competency Framework 1.0 (ICT-CFT 1.0) to support HE teachers' need for Covid-19 education response knowledge and skills. The framework is closely associated with the Quality Assurance Framework 1.0 (IIOE QA 1.0) launched in the same period, serving as complementary tools for teachers and administrators in HEIs to assess their all-around capabilities and preparedness for digital transformation starting from Online/ Blended Teaching & Learning (OBTL) practices.

This year, the IIOE ICT-CFT 1.0 has been developed into IIOE-CFHEW as the upgraded 2.0 version based on practical experience and more in-depth research, in accelerating partner universities' digital transformation processes on a broader scale. In July 2021, UNESCO-ICHEI, along with University of Enginering and Technology, Lahore (rotating presidency of IIOE) jointly hosted the Asia-Pacific Mid-Year Consultation Meeting, inviting leading experts in HE management & research to review the IIOE-CFHEW and discuss its application according to HEIs' local institutional development needs.



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IIOE evaluates skill taxonomies in alignment with United Nations Sustainable Development Goals, technology trends, education sciences, and future workplace requirements, targeting both implementations of basic ICT devices and prospective uses of emerging technologies such as Artificial Intelligence (AI), Big Data, Cloud Computing, Internet of Things (IoT) in higher education.

The UNESCO ICT Competency Framework issued in 2018, which guides educators to integrate ICTs into their professional practices and transform existing curricula, has inspired the IIOE-CFHEW development process to identify various layers of Core Dimensions as different sets of competencies in the higher education context (Fig. 1). The ISTE (International Society for Technology in Education) standards for Educators and Education Leaders provide references for the CFHEW to accommodate technology uses in higher education, enabling the HEW to engage with technology and create authentic learning experiences that leverage technology (Fig. 2). Furthermore, IIOE evaluates a variety of research and literature from international organisations, national governments, and education institutions for the comprehensive review.

The IIOE-CFHEW applies to skill development tracks demonstrated by the Bloom Taxonomy. The major categories of Knowledge Acquisition, Knowledge Application, and Knowledge Creation are upgraded upon the adoption of Knowledge Management models, allowing different knowledge sets to be shared, constructed, and disseminated within the organisation for incremental innovation (Fig. 3; Fig. 4).

Apart from these resources, IIOE carries out situational analysis with partner HEIs to further explore how institutions can deploy these competencies to solve local problems for practical purposes. This enables the IIOE-CFHEW to remain versatile, combining research and practice insights. With the continuous contributions and consultations, IIOE will continue to build on the framework to ensure a more robust, comprehensive, and relevant competency architecture for partner HEIs to realise digital transformation in alignment with institutional, local and regional development goals.



UNESCO ICT Competency Framework for Teachers (UNESCO, 2018)







M. H. Zack Knowledge Management Lifecycle Model (Micheal H. Zack, 1996)



IIOE-CFHEW Spotlight: from 1.0 to 2.0 version

Both IIOE ICT-CFT (1.0) and the CFHEW (2.0) are designed to help HE professionals transform existing workplace practices towards digitised solutions, in providing inclusive quality, equitable higher education and lifelong learning opportunities for all (Fig. 5).

	IIOE ICT-CFT (1.0)	IIOE-CFHEW (2.0)
	Barrier Barrier Statustion Barrier Barier Barier Barrier Barier Barrier Barrier Barrier Barrier Barrier Barrier	
Features		
Customisation	HE Educators	The Higher Education Workforce (HEW)
Competency Development	3 Phases (Awareness Cultivation, Capacity Building, Knowledge Application)	4 Phases (Knowledge Acquisition, Knowledge Application, Knowledge Creation, Knowledge Sharing)
Knowledge Domains	General Competencies	Scenario-based, explicit Knowledge, Skills, and Attributes
Structures	Connection to IIOE Quality Assurance Framework (QAF) 1.0	Connection to IIOE QAF 2.0 & the IIOE Online Course System
Objectives	Empowering ICT-leveraged Higher Education Teaching & Management	Building Higher Education Ecosystem for Digital Transformation



The Higher Education Workforce (HEW):

Teachers play pivotal roles in ensuring higher education quality. Beyond the teaching roles, the Higher Education Workforce (HEW), including the faculty, administration, and support staff, work across contexts to achieve collective goals of talent cultivation and institutional development. The IIOE-CFHEW addresses the diverse needs of the HEW by different professions and creates possibilities for mutual support & inspiration in fostering organisational innovation.

Knowledge Sharing and Dissemination:

The ongoing trend of digitalisation has fundamentally altered the way we work, live, and communicate with each other; the broad-based implementation of ICTs continues to accelerate the process of knowledge creation and dissemination in building a knowledgebased society. The same situation applies to higher education reform and innovation. The IIOE-CFHEW accords with such trends to use ICTs to facilitate knowledge sharing; it also encourages HE professionals to establish networks and improve digital competencies through mutual support, collaboration, and exchange of expertise through diverse channels.





Future Talent Development and the Higher Education Ecosystem:

Higher Education, as the connector for research breakthrough, workplace transformation, and education innovation, is at the heart of today's digital transformation in facilitating directions for social, industrial, and economic development. The IIOE-CFHEW proposes novel models for universities, enterprises, research institutions, and intermediaries to form an active ecosystem to promote knowledge & technology transfer in various domains, and invest consistently in the next-generation talent cultivation.

The IIOE-CFHEW Competencies:



Three Core Dimensions for Diverse Work Scenarios

IIOE identifies three Core Dimensions for Higher Education Teaching & Professional Development considering current and future uses of ICT resources (Fig. 6). Dimension 1:

Dimension 2: Higher Education Administration & Managemen

Dimension 3:

Four Key Phases of Competency Development

Embedding ICTs into the Competency Architectures

• Mastering OBTL Practices in initiating digital transformation

The first dimension for **OBTL** & Education Transformation focuses on Online/ Blended Teaching and Learning (OBTL) practices. It depicts a roadmap for university teachers and curriculum supervisors on incorporating ICT into the existing syllabus, such as innovative curriculum designs, Teaching & Learning (T&L) approaches, ICT-enabled assessments, and the reflective feedback mechanisms in improving OBTL practices (Fig. 8).



		Phase 1 Knowledge Acquisition	Phase 2 Knowledge Application	Phase 3 Knowledge Creation	Phase 4 Knowledge Sharing
OBTL & Education Transformation	Curriculum Development	Understand the definition, philosophies, methodologies, and variety of educational approaches of Online/ Blended Teaching & Learning (OBTL)	Implement OBTL instructional methods and apply various ICT instruments in transforming existing curricula and future development	Design innovative curriculum contents & activities with ICT resources to ensure inclusive and integrative OBTL experiences	Share and disseminate innovative OBTL curricular resources and practices in promoting quality, equitable education
	Teaching& Learning	Understand the transformative learning modes enabled by ICT in OBTL contexts, and various student-centred Learning (SCL) strategies that situate a digital education environment	Apply and adapt SCL and other pedagogical strategies to 08TL contexts, and equip students. with essential digital literacy to thrive in an online learning environment	Explore pedagogical innovation in OBTL beyond conventional teaching & learning modes and take advantage of multiple ICT resources	Lead peer to seer communities to actively share and exchange experience of ICT-enabled teaching & learning in OBTL contexts
	Assessment & Reflection	Understand how to incorporate ICT in assessing students' learning outcomes and the reflective mechanisms in improving the quality of teaching in OBTL contexts	Implement ICT-/ non-ICT based assessment methods covering various perspectives for comprehensive evaluations of students' learning outcomes, and optimize related OBTL practices	Create suitable assessment methods in OBTL and related quality assurance procedures in providing personalised, collaborative, and constructive learning support	Share and exchange expertise in setting effective OBTL assessment standards in support of transformative curricula integrating teaching & learning feedback at all levels

• From OBTL Fundamentals in Classroom settings towards ICT-enabled Faculty & Institution Development on an

Organisational Level

The second dimension for *ICT* & *Institutional Development* emphasises institutional capacity with ICT from the perspectives of HE leaders and administrators, in terms of leadership distribution, resource allocation, and consistent investment in a learning organisation. A critical aspect is to create mechanisms to facilitate staff professional development through ICT-enabled programmes, and through multiple communities of practices for mutual support and inspiration (Fig. 9).



		Phase 1 Knowledge Acquisition	Phase 2 Knowledge Application	Phase 3 Knowledge Creation	Phase 4 Knowledge Sharing
ICT & Institutional Development	ICT Infrastructure	Understand the role & uses of ICT intrastructure in Higher Education (IRE) in Inversaging education practices, institutional management, and organisational development	Apply and use various ICT tools, platforms to facilitate research, education, or management processes regarding distinct roles and responsibilities	Mobilise resources and develop cost-effective ICT applications and infrastructure in accordance with local contexts and educational demands	Build a broad consensus of HE digital transformation and promote staff awareness & responsiveness to updated uses of ICT through active communication & support
	ICT & Staff Professional Development and Support	Understand directions and approaches for HE staff professional development enabled by the introduction of ICT resources	Adopt ICT-related professional development pathways as virtual professional learning communities, online novice training systems in ensuring effective staff development	Explore, create, manage, and upgrade ICT-enabled staff professional development programmest at all levels in fostering a learning organisation with improved digital literacy	Establish dynamic networks and communities of practices to empower sharing of knowledge & expertise in ICT- enabled stall professional development
	ICT Policy & Institutional Leadership	Understand the relevance of ICT in HE policies, research, documentation, and their relevance to institutional, local, and national education goals	Establish visions for institutional development and translate values & expectations into achievable goals connected to ICT policies and digital transformation plans	Transform and innovate on institutional development place integrating global HE digital transformation practices, and formulate locally based ICT policies & route maps	Advocate institutional policy- and decision making in creating conditions that allow faculty & staff to step forward and take actions for positive changes

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• Understanding Emerging ICT in Higher Education for Futureoriented Talent Cultivation

The third dimension for *Emerging ICT & Education Innovation* addresses the overarching impact of ICT in higher education that extends beyond university campuses. It suggests practical solutions for all HEW of internal and external stakeholders to build a future Smart Institution with the collective endeavour, and facilitate future talent cultivation through research innovation, industrial partnership, and entrepreneurial projects creating broad social benefits (Fig. 10).



		Phase 1 Knowledge Acquisition	Phase 2 Knowledge Application	Phase 3 Knowledge Creation	Phase 4 Knowledge Sharing
CT & Education Innovation	EmergingICT Landscape	Understand the basic knowledge & applications of emerging ICT (listed as Al, Big Data, Cloud, IoT, Blockchain, etc.), and their development trends in higher education contexts	Evaluate the development of emerging ICT and related knowledge production, and reflect on their applications in IE teaching & learning, research, and administration & management	Develop innovative solutions to empower the HE eccesystem for digital transformation in exploring prospective uses of emerging ICT in various social, economic, and industrial settings	Foster knowledge sharing and experience exchange in building a people-centric, data-driven, and technology- enabled Smart campus with emerging ICT
	Disciplinary Development & Future Talent Cultivation	Understand the trends and significance of disciplinary reform & development, and related talent cultivation in emerging ICT fields	Identify existing issues & opportunities in disciplinary development and takent cultivation according to local digital transformation demands	Conceive and reform education disciplines & programmes and create opportunities for students to use, understand, and learn with ICT memoraling its relevance in future digital workplaces	Build a shared vision of ICT- enabled future taleast development for augmented human intelligence and metacognitive learning capabilities in constructing a knowledge-based digital society
5)			
Emergin	Innovation & Entrepreneurship	Understand the models, processes, and mechanisms for university-industry partnership and entropresenship projects capturing digital opportunities	Initiate academic, scientific research, entrepreneurship projects integrating multi- forous-disciplinary ICT resources, and in collaboration with internal & external partners	Create standards and procedures for research innovation with ICT, funding 8 support, technology commercialisation, Intellectual Property (IP) rights, and entrepreneeuship training & practices	Advocate the development of entrepreneur ecosystems and innovation-driven environments within HEIs addressing the convergence of values, beliefs, and digital transformation of HE

Regional Consultation Series



Moderator: LIM Cher Ping

Chief Expert of IIOE, Chair Professor of Education University of Hong Kong, China

- 1. How could the Competency Framework be improved upon or clarified from the perspective of your institution?
- 2. Who are the higher education stakeholders that will benefit from the IIOE-CFHEW in your higher education context? How will they benefit?
- 3. How could the IIOE-CFHEW be integrated with other competencies for different HEIs? And how does the IIOE-CFHEW support your institutional development needs?

On July 15th, 2021, UNESCO-ICHEI successfully held two pre-consultation meetings with IIOE's 2021 Presidency Unit, University of Engineering and Technology (UET) Lahore, Pakistan Aligned with the theme Digital Transformation for Inclusive and Quality Higher Education: Mapping the Core Competencies of the Higher Education Workforce for the 2021 IIOE Asia-Pacific Mid-Year Consultation Meeting, the preconsultation meeting invited experts and scholars from East Asia, Southeast Asia, South Asia, Central Asia, and other Russian-speaking countries. and focuses on the professional development of teachers and the building of a supportive ecosystem. Specifically, the meeting served as a platform for experts and specialists from the region to share their

views on the IIOE-CFHEW. The constructive feedback and suggestions collected at both meetings synthesized significant insights, and had been incorporated into the updated CFHEW. The regional consultation meetings were held in a blended format: the inperson meeting was held at the International Convention Center of the Southern University of Science and Technology (SUSTech), and some speakers participated through online meeting platforms. Professor Lim Cher Ping moderate the pre-consultation meetings and introduced the background for developing IIOE-CFHEW and the three core dimensions and four key phases of the current framework. He also proposed the following guiding questions to facilitate the panel discussion:



Regional Consultation 1 - East Asia and Southeast Asia



Badarch Dendev

Professor, Education Advisor to Speaker of the State Great Hural (Parliament), Head of the Higher Education Research lab at the Open Education center, Mongolian University of Science and Technology, Mongolia.



Samsilah Roslan

Professor, Dean, Faculty of Educational Studies, Principal Researcher, Innovative Learning Sciences Research Centre of Excellence (INNOVATE), Universiti Putra Malaysia, Malaysia. The IIOE Competency Framework for Higher Education Workforce (CFHEW) is a very timely and relevant resource for reskilling and upskilling the workforce in higher education. With the acceleration of technology development, UNESCO-ICHEI has become one of the leading forces in guiding the implementation of educational technology in higher education institutions (HEIs) globally.

The current CFHEW has focused extensively on the perspective of teachers; however, in the spirit of UNESCO's 4 pillars of education, namely "learning to know, learning to do, learning to be, learning to live together, I suggest the further edition of this framework sheds

The CFHEW developed by IIOE is very robust and comprehensive, covering all the key dimensions of professional development in higher education. This is a relevant and timely material for institutions to train the HEW to ensure that they are well equipped for the transaction into an effective and efficient online learning ecosystem.

I would like to invite the audience to consider the following ideas when revisiting the framework. First, one way of preparing for the unimaginary and unpredictable future challenges is by instilling soft skills and inculcating virtues to the students through virtual platforms. Second. the HEW needs to rethink and redesign balanced, fair, relevant and accurate online assessments keeping in mind the diverse backgrounds of students and the discrepancies in terms of the students' ability to follow synchronous learning. Third, there

light on the learners and their learning processes. In addition. design thinking is one of the most powerful tools for teachers, and therefore, ICT should be integrated into the design thinking process as a key competency for teachers to craft individualized knowledge and lessons for learners. I would also love to see a more explicit emphasis on the role and competencies of leadership in this framework. Last but not least. in Mongolia, the protection of intellectual property is extremely vital for innovation in HEIs, and thus I believe that knowledge on concepts such as copyrights and intellectual property rights can also be a crucial competence for the HEW.

should be a distinction placed between the competencies for online distance learning (OER) and Emergency remote teaching (ERT). The former is fully planned and flexible, well-equipped and by choice, and the latter is a measure taken under emergency circumstances to ensure learning and with less flexibility. Fourth. there should be some consideration on pandemic pedagogy as it requires more than educational technologies: educators have to adapt to emergency remote teaching and be trained on pandemic pedagogy to deliver effective and efficient lessons for students in different situations. Last but not least, ensuring the psychological well-being of educators is a crucial premise for building an ecosystem of online learning, as educators need to take care of themselves before they take care of others

▲ 15 ▶ 16



Lim Cheolil

Professor, Department of Education, Director of Education Research Institute (ERI), Seoul National University, Korea.

I was impressed by the idea of dimensions and phases and think that they can be applied to universities across regions and cultures. The phases of knowledge acquisition, application, creation, and sharing intuitively reflect the practices of the higher education workforce. I would like to propose three ideas to consider in future revision of CFHEW: interdiciplinary covergence, promotion of engagement and monitoring and evaluation. Many ICT competencies, such as coding, computational thinking, and artificial intelligence (AI) are of great importance, and thus should be integrated into traditional disciplines such as management, art, or engineering, to foster new learning approaches. A question that is frequently asked by faculty from my institution is on how educators can promote active participation or learner engagement in online and blended learning. I believe that one of the solutions can be institutional

change and actions that promotes learner engagement, such as building an institutional support agency for faculty capacity building. Additionally, the optimal use of ICT in higher education is indispensable from formative assessment and feedback from the students, and the feedback system should be monitored by institution leadership on different levels: departments, colleges, and the institution itself.



Zhai Xuesong

Professor, Senior Researcher, College of Education, Zhejiang University

I would like to respond to CFHEW from three perspectives, namely involving negative factors in the key phases, transitioning from ICT infrastructure to new infrastructure. and improving assessment approach. The key phases in this framework have focused only on the positive aspects of teaching and learning, yet some negative factors should also be taken into consideration. Knowledge hiding, a multifaced phenomenon that includes an intentional attempt of an individual to conceal knowledge that others have requested can be one of them. The framework underscores the importance of ICT infrastructure in online and blended learning; however, a smart learning space that is built with not only technology, but also designed from the perspective of students based on their characteristics and needs in specific ages and background, might be considered to create more student-centered learning spaces. Assessment of online and blended learning outcome is another controversial issue that concerns many institutions. I would like to propose an ICT governance approach from an input-output perspective for assessments

in online and blended learning. Previously, China has focused mainly on the input dimension, and the success of online and blended learning is based on the quantitative measure of the digital infrastructure and other inputs. Overtime, the focus of assessment has shifted from input to output, delving into how the input in technology and other resources can be transferred to academic achievement, student cultivation, social service, crossnation communication, and many other improvements of the learning community.



Paulina Pannen

Professor, Director of Innovation System, Ministry of Research and Technology/National Agency of Research and Innovation, Indonesia.

The CFHEW is a useful and wonderful framework for government agencies and higher education institutions, and considering the real working situation of lecturers, professors, and the higher education workforce in Indonesia. I believe that the framework can improve in the following dimensions. The types of higher education teachers in Indonesia are instructor, assistant, lecturer, senior lecturer, and professor, and all faculties are responsible for research, innovation and community services besides their teaching responsibilities. While an instructor, assistant, and lecturer

only teaches and advises students, senior lecturers and professors holds the role of advisors for junior teaching staff. This framework so far only applies to the pillar of teaching and learning, thus covering solely the responsibilities of junior lecturers, and missing the competencies required for research and community service. For senior lecturers. I think there is a need to develop "transfer skills" more than just sharing so that they stay on top of trends and innovations in the field to better facilitate the teaching activities in the institution. I also look forward to seeing a separate manual for HEI leaders, which

shall include cost-benefit analysis and cost-efficient analysis, system thinking, business or change management. This set of skills is of great importance for HEI leaders, especially at this time of change. When the framework is applied, it will call for systemic change at the macro as well as microlevel and is influenced by various other supporting factors, such as the digital economy, etc. Thus, a macro-view of the context for online and blended learning should be introduced and addressed to better improve teachers' understanding of the environment.

Regional Consultation 2 - South Asia and Central Asia



Fazal Ahmad Khalid

Professor, Chairman of Punjab Higher Education Comission, Pakistan

With the higher education sector in Pakistan fast expanding, there is an increasing need for access to higher education. In the "new normal" situation of COVID-19 for the last year and a half, we have been working on the continuation of academic programmes online and offline, which has opened an opportunity for digital platforms. Therefore, we had to ensure the access of students from far areas to distance learning as well as the training of teachers' ICT competencies. As for my suggestions on CFHEW, one thing that I want to highlight is teacher training, which is a critical element of CBD (communitybased development) and lifelong learning. It is of great significance for us to think how we can do the mapping of all courses in a four-year degree program and link them up with the presented competencies or graduate attributes, in order to enhance employability, knowledge, skills, values and attitude. Meantime, we are looking forward to expanding our experience in engineering education to other areas and strengthening collaboration with our partners, so that we can ensure wider acceptance and recognition, while also maintaining the quality.



Ganga Ram Gautam

Professor, Director, Open and Distance Education Center, Tribhuvan University, Nepal

The CFHEW is quite relevant for Tribhuvan University (TU) in the current context and the competencies listed in the framework have been incorporated in the various policy documents across the country. TU has started faculty development training for in-service teachers to equip them with the skills to deliver courses online and the three dimensions mentioned align with organizational activities TU is working on at the moment.

Nevertheless, we are facing two big challenges at the moment, the one is teacher capacity building. Many teachers need to start with what they already know instead of burdening them with more new information. The other challenge is investment on infrastructure, and one resolution that we have been working on is pushing the agenda for resource allocation. The CFHEW will contribute to action plan making as well as implementation in TU. In terms of suggestions from the perspective of our institution, CFHEW needs to touch upon the competencies of policy makers, who should realize how important it is for them to make investment on ICT and technical pedagogies. We also would like to discuss with IIOE and other partners how to better suggest strategies to implement the framework in the HEIs among different stages.



Mahbub Ahsan Khan

Professor, Dean, Institute of Education and Research, University of Dhaka, Bangladesh

In Bangladesh, there is a big difference between public and private universities: public universities usually have to follow the government rules, private universities commonly have better infrastructure. During the COVID-19, public universities were unprepared and stuck, while some private universities did extremely well with ICT technology despite most of them are struggling. Currently, since many local institutions have vague understanding of OBLT, we do not have a strong policy for quality measurements or online-based education or ICTbased blended learning, and we are still in the developing process of infrastructure. In terms of implementation of CFHEW in Bangladesh, we are still confronted with some challenges. And to resolve these challenges, questions like "Who will implement it? How will it be implemented? How will the good practices be shared within and across universities?" deserve more consideration. There should also be some mechanisms and some common platforms about blended learning. In addition, someone from the top ministry or other education agencies should be forced to implement it, make some follow-ups on monitoring that we are sharing the ideas and good practices.



Meirgul Alpysbayeva

Education National Professional Officer, UNESCO Almaty, Kazahstan

Many students in Central Asia have been affected by school closures and many educational institutions have to switch to distance learning during the COVID-19, however, because of the skills gaps in the use of ICT in teaching and learning, the quality of education provided is questionable. Consequently, it is quite significant and relevant to develop ICT competency framework at national level, which is also consistent with the findings from assessments of teachers' ICT competencies conducted by UNESCO Almaty. The three core dimensions and key phases of CFHEW are very relevant to the Central Asian context, because the countries now are moving to competency-based education. The Framework would be more comprehensive if we can highlight inclusiveness, specifically, the higher education workforce needs to learn to cater to students with special needs and adjust to their needs by using ICT. Also, translation into Russian and local languages is helpful for framework dissemination and adoption. In addition, UNESCO-ICHEI and UNESCO Almaty could organize capacity building workshops or trainings for staff to learn how to utilize the framework.

Svetlana Knyazeva

Professor, Chief of Section of Digital Pedagogy and Learning Materials, UNESCO Institute for Information Technologies in Education, Russia

Il would like to relate the CFHEW to my experience of being part of the task force for the development of UNESCO's ICT Competency Framework for Teachers (ICT-CFT) (Version 3). "Knowledge Sharing" mentioned in the IIOE CFHEW is also covered in the UNESCO ICT-CFT under the Knowledge Deepening part.

As far as I am concerned, it's better to establish stronger links between QA Framework and the CFHEW. In terms of infographics, there shall be clear differentiation between different roles at HEIs (Lecturers/ Support Staff; Curriculum Leader/Supervisor; Manager; Senior Manager/Executive) and differentiation between different ICT competency levels (beginner, competent, proficient). It would be very helpful if we could create a kind of a one-page matrix with courses available on IIOE platform, so that people can better navigate and see how these courses are related to each of the differentiated roles and levels mentioned above.

Expert Review

To reflect on the core competencies of future higher education workforce and the updated IIOE Competency Framework, a panel discussion was organized under the framework of the 2021 IIOE Asia-Pacific Mid-Year Meeting, gathering experts' insightful reviews from partner institutions in the Asia-Pacific region. Mr. Libing Wang, Chief of Section for Educational Innovation and Skills Development, UNESCO Asia-Pacific Regional Bureau for Education, has presided over the panel discussion, which attempted to optimize the IIOE Competency Framework and make it more inclusive by focusing on the following three questions: 1. Are there any gaps in the current version of CFHEW for further revision?

- 2. What roles can CFHEW play in the context of higher education institutions?
- 3. Any applicable national or institutional alignment of CFHEW?



Opening remark by Libing Wang, Chair of the panel discussion:



Libing Wang:

Professor, Chief of Section for Educational Innovation and Skills Development, UNESCO Asia-Pacific Regional Bureau for Education, Thailand UNESCO Bangkok had many collaborations with UNESCO-ICHEI in terms of ICT in education. We are glad that every time we connected with UNESCO-ICHEI and the IIOE network, we've seen significant progress despite the challenge of COVID-19. Actually, facing a pandemic is a great opportunity to rethink how technology can bring to teaching and learning. It is also commendable that the IIOE network is very sustainable and has created its own ecosystem. Since the founding of UNESCO-ICHEI, we have seen multiple connections among the private sector, online learning solution providers, foundations, etc. The network serves beyond higher

education institutions and thus involves multiple stakeholders to sustain the ecosystem. Such an ecosystem is robust because the stakeholders are not just providing surface-level support, such as a single software, but also helps to upgrade the infrastructure, such as the Smart Classroom project. We are also glad to see a holistic approach in the implementation of IIOE. The platform uploads online courses based on self-developed theories like the IIOE-CFHEW (Competency Framework for Higher Education Workforce) and IIOE-QA (Quality Assurance Framework), both based on evidence and an inclusive consultation process.

Reviews of Experts from the Asia-Pacific Region



Bernard Tan

Professor, Senior Vice Provost, National University of Singapore, Singapore

concepts of competency development, yet there could be different interpretations over some key ideas. Through my personal experience, "ICT for education" and "Education for ICT" are different but both essential. For over ten years, NUS has been conducting "tech-enhanced education", a form of "ICT for education." After practice, we found that the best way to do online learning was to examine must-learned key ideas for students. Therefore, NUS developed two types of videos for each course: one explained the key concepts, while the other described the relationship among those concepts and introduced applicable circumstances. NUS also created

CFHEW catches many essential

assessments and tasks for students to self-evaluate their learning progress. Leveraging technological advancement and smart gadgets like AR or VR helped lecturers transfer knowledge efficiently. NUS responded quickly to COVID and further realized that "ICT for education" may facilitate students visualizing information and understanding concepts. ICT would be the centric of many industries regardless of whether we like it or not. Therefore, HEIs should be prepared to expose all majors to ICT. NUS, for example, revamped general education to include data literacy and integrated ICT/ Al component in the curriculum design of non-computer-science departments.



Chandrika N. Wijeyaratne

Senior Professor, Vice Chancellor, University of Colombo, Sri Lanka educational resources have greatly helped for University of Colombo (UOC) students who struggled with difficult situations and for UOC staff to transform from blended learning to 100% online learning to cope with the pandemic. Collected data also showed that students benefited from the IIOE courses. In our context, what troubles teaching staff most is actually not teaching and learning but assessment. One university-wide challenge for UOC is insufficient devices. We hope capacity building supporters could consider from a more user-friendly perspective to include non-traditional digital device users such as smartphone users, especially in the assessment

The IIOE initiative and its free

process. In this sense, CFHEW could direct more toward a learner-centred mechanism rather than staying teacher-centred. Considering the distinct nature of each discipline, we would like to have more specifications in CFHEW to explain when to apply necessary in-person elements and how to add on public-benefiting soft skills to our regular training. It is also crucial to consider students with special needs. To achieve inclusivity, we need collaborations between governments and financial support for students in challenging environments. If possible, linguistic localisation of CFHEW would also be very helpful for staff who do not use English as the primary language.



Ethel Agnes Pascua-Valenzuela

Professor, Director, Southeast Asian Ministers of Education Organization Secretariat (SEAMEO Secretariat), Thailand It is exciting to learn that IIOE is proposing CFHEW, and SEAMEO has also just finished the Southeast Asia Teacher Competency Framework. When developing our own framework, we found it essential to reflect on the purpose and audience. Digital technologies are ubiquitous in the 21st century; learners today are usually avid and experienced Internet users even before the pandemic. We are targeting these young learners for future higher education, and we are glad to learn that CFHEW also has a growth mindset in its design. In Southeast Asia's case, ICT had already been embedded into the curriculum at the K-12 level a decade ago. As a result, students report higher digital

literacy, better ICT skills, and higher digital resilience than the previous decade in surveys we conducted. Nevertheless, we also found that Southeast Asian students scored lower than average in digital creativity and confidence in using digital tools, which are crucial 21stcentury skills. To cope with that, the higher education workforce will have to be aware and capable of developing creativity in their students and hopefully preparing the younger generation for the future job market. SEAMEO is happy to learn from CFHEW and will try to utilize CFHEW to support our Southeast Asia Teacher Competency Framework.



Sungsup Ra

Professor, Director of South Asia Human and Social Division & Chair of Education Sector Group, Asian Development Bank, the Philippines

ADB Education Portfolio has significantly grown to 1.5 to 2 billion dollars in the past years and will continue growing. Although higher education is not the focus of the Education Portfolio by far, ADB is planning to expand investment in higher education to 20 to 25 per cent of the total Education Portfolio soon. Yet we have two questions for the higher education sector. First, how much money we've invested really goes into curriculum development or other relevant improvement efforts in classroom settings? Currently, most money might have just gone liquored out to buildings rather than to classrooms. Secondly, how can

higher education institutions respond to societal challenges in a proactive rather than reactive way? Many higher education institutions are not yet agencies that proactively leading positive social changes to their local context. The pandemic could be an opportunity to rethink the future of higher education. In this context, I like the intense focus of CFHEW on STEM and inclusivity in guality higher education, and I appreciate that CFHEW takes lifelong learning and self-directed learning as focal points. As blended learning might become mainstream in future education. CFHEW will play an essential role in many aspects.



Way Forward

Although the Competency Framework of Higher Education Workforce (CFHEW) was launched amid the COVID-19 crisis and derived from situational analyses of higher education institutions' (HEIs) immediate needs, the framework looks beyond the status quo and focuses on the long-term capacity reconstruction of the higher education workforce in the postpandemic era. Drawing experiences from a considerable amount of internationally recognised literature and practices, IIOE synthesised a procedural competency structure and pointed out critical phases of capacity development. In addition to the content creation work, CFHEW also went through multiple rounds of revision with support from ICT education and higher education experts. The publication of IIOE-CFHEW serves as a milestone of IIOE's current accomplishment. In the future, the framework will also inform IIOE's curriculum design and program development. It is also encouraged that partner HEIs take advantage of IIOE-CFHEW to inform their HEW professional development strategies and refine their strategies for digital transformation What IIOE and UNESCO-ICHEI hope to achieve through this framework is not only to establish a theoretical infrastructure of digital competencies for the higher education workforce in a systemic fashion but also to involve a comprehensive range of relevant stakeholders in the execution of HEI digital transformation. In this sense, we are delighted to see that the latest version of IIOE-CFHEW has been a collaborative effort of IIOE and UNESCO-ICHEI's partner HEIs and participating experts. Crucial points and gaps of current CFHEW were referred to in consultation and expert review meetings, and all inputs, including theoretical support and example cases, are sincerely appreciated.

As resources and methodologies in the ICT field upgrade rapidly, IIOE-CFHEW needs to develop itself dynamically and keep the conversation floor open. IIOE and UNESCO-ICHEI look forward to continuous collaborations with HEIs and experts who are already engaging in CFHEW or potentially interested in jointly working with future versions of CFHEW. Starting from a roadmap, guideline, and toolkit, the IIOE-CFHEW is ready to radiate its efficacy to a broader audience and contribute to cultivating the higher education workforce's digital competencies.



Co-Development of IIOE Courses -Contribution of the University of Colombo



Development of video-based online courses

The project was started by inviting all the staff members of the university. "Cyber Campus", the Open and Distance Learning Centre of the University of Colombo (See Picture 1 for "Cyber Campus Website), leads this project. They conducted several training programmes to develop the staff's required skills related to video editing. Also, they prepared templates and guidelines to support the team to maintain the quality and the standards in the production of video-based courses.

(Picture 1)"Cyber Campus" Website v



Currently, Cyber Campus is administering only a few Bachelor degree programmes, and they do not deliver any short courses. In 2021, they have planned to conduct some short courses, and with the support of IIOE, they expect to increase the number of short courses that they can administer to more than ten in the next year. The ten new courses they have planned to develop are based on STEM (Science, Technology, Engineering and Mathematics) and staff training. The staff development courses will be on communication skills, research and publication, office skills (computer skills, document handling, and finance handling), health and personality development, coordination and leadership, and e-learning development.



Dr Thushani A. Weerasinghe

Senior Lecturer, Coordinator of e-Learning Center, University of Colombo School of Computing In response to COVID-19, IIOE has initiated several projects. Among them, the promotion of online course development in the IIOE gained more attention and expected support from its partner universities. In order to support this endeavour as a leading contributor of the IIOE, the University of Colombo started two projects: (Project-1) development of video-based online courses to deliver via IIOE and (Project-2) conducting an online course on how to design and develop video-based learning content for blended or online courses.





This project aims to conduct an online course on video-based online course development for blended or online learning. The course will support academic staff in South Asian and African countries to design and develop video-based online course materials and delivering them via the IIOE platform. The intended learning outcomes of the course are as follows.



The course will be delivered on a schedule, and it will support both asynchronous and synchronous learning. The participants will engage with different activities that will help them develop their skills related to video-based course development. There will be Q&A sessions to discuss issues related to course activities, provide some feedback and support the participants to complete the activities successfully.

The participants of the course will first be introduced to online learning and blended learning approaches and practices of the University of Colombo. Second, they will be exposed to the e-learning and blended learning course development process. Most importantly, they will understand the instructional design principles and guidelines that can be used to design video-based learning content. Next, the participants will be trained to use some easy to use video and voice editing applications through hands-on activities. Finally, there will be an evaluation process where the participants will present their work and discuss how to develop quality content for online and blended learning. At the end of the training, there will be an award ceremony, where participants will be awarded training certificates for their participation and successful completion of the course activities. The promotion video of the course has already been delivered (See Picture 2 for a screen image of the video).



(Picture 2)Promotion Video of the video-based learning content development course A

The e-Learning Centre of the University of Colombo School of Computing (https://ucsc.cmb.ac.lk/) leads this project with advisory support from the Vice-Chancellor of the University of Colombo. UNESCO-ICHEI supports both projects by providing infrastructure, sharing their expertise and knowledge, and some financial support. In order to make this project successful, both UNESCO-ICHEI and the University of Colombo have to work together, making their friendship more tightened (See Picture 3).

(Picture 3)Advisory Partners of Project 2 V



One of the biggest challenges of succeeding in the above projects is motivating the staff members to engage in video-based content development, among many other commitments that have emerged due to the COVID-19 pandemic. The university is trying hard to make these projects successful by helping the staff members understand that this activity will bring more opportunities to the teachers and the students and resources available to help them through this process.



Digital Teaching and Learning Approaches for Basic Engineering Courses



Prof. Danaa Ganbat

Director of Open Education Center, Mongolian University of Science and Technology (MUST)



Dr. Tsooj Shambaljamts

Ass. professor in the Department of Technical Mechanics, School of Mechanical Engineering and Transportation, Mongolian University of Science and Technology (MUST)



The Mongolian University of Science and Technology at Mongolia (MUST) organizes Digital Teaching and Learning in a holistic approach, which consists of several parts: Digital professors, Digital students, Digital textbooks, and digital learning materials. To prepare our Digital professors with high-quality video lessons, we have chosen lightboard technology to prepare for video recordings. The reasons for using lightboard are that it is cheap and fast to prepare, easy to use with traditional teaching methods, and is suitable for teaching Basic Engineering Courses. Historically, the idea of lightboard in teaching is not new. For example, in 1949, "Learning glass" was used to show how Picasso drew his pictures¹. Picture 1. Development of lightboard studios in MUST ^

this technology has been gaining popularity. One can make a lightboard for under 100 US dollars with a metal or wooden frame, transparent glass, LED light, neon marker, and lighting devices, and depending on the materials used, the prices for lightboards varies greatly. MUST has started to prepare and use this technology since 2018 by first using the small ones for testing purposes and then making larger ones and several portable lightboards, etc. Now the university has three lightboard studios (Pic. 1).

[1] https://www.youtube.com/watch?v=UOMI1JKfWwc

Nowadays, there are many kinds of lightboards, and

Last year, the Mongolian government closed all the campus activities, and all courses were moved online because of the pandemic. MUST decided to use the Lightboards to prepare video lessons, especially video lectures for Basic Engineering Courses, studied by thousands of students. Using lightboard was the most effective way to prepare video courses with high guality, and there have been 6,639 minutes of courses across 12 disciplines developed using lightboard. The digital professors recorded video lessons and uploaded all videos on the internet sites at the beginning stage. The main advantage of lightboard is that it allows simple traditional teaching to be delivered quickly, which can be made into several videos. At a more advanced level, as we call the second generation, digital professors made their video lectures with supported animation effects. Recently in the third generation of using lightboard, some of our professors made video lessons with a combination of modelling and simulation analysis, which have produced impressive results. Students can watch the video lectures using their smartphones or tablets to study anytime, anywhere, and the video courses also make it possible to study deeply. The Basic Engineering Courses are traditionally considered as difficult to study and require long learning time for students. Therefore, our lecturers are working hard to organize and deliver knowledge of challenging coursework to students in simple ways (Pic. 2).





The 2nd generation of Digital Professors with video effects and animations



The 3nd generation of Digital Professors with simulation results



Picture 2. The first, second and third generations of Video Courses using lightboard²



Regarding textbooks and handbooks, MUST is preparing digital textbooks for some courses to support video lectures and also video explanations for solutions to some simple problems. Text contents in textbooks are connected with online video lessons through QR codes. MUST gained first-hand experience in developing multimedia and interactive learning materials for Basic Engineering Courses, especially on Mechanical Engineering. For instance, virtual laboratories are developed, and students can access using their student ID, and they can study theoretical parts and virtual examples through the virtual laboratories. After studying the theoretical parts, students can check their prerequisite understanding and knowledge levels using quizzes. Then, using their ID code, each student can receive different tasks and instructions on conducting experiments. Students can define necessary parameters during lab experiments and measure and analyze required parameters for mechanisms and machines. Finally, students prepare reports and take final tests to receive grades (Pic. 3).



Us 🔏

Smartphone applications are becoming popular among students, and due to the current demand of the students, MUST is developing smartphone applications. MUST hopes to take advantage of this opportunity for learning as much as possible and with the combination of AR and VR technology. During the COVID- 19 pandemic, MUST had to make significant changes in the learning management system (LMS) in a short period of time. In addition, MUST developed a smartphone application for easy connection to the university LMS for both students and professors. Acknowledging the importance to evaluate online teaching and learning, MUST did follow up studies after each semester during COVID-19.

It's also important to improve the capacity of faculties and staff to adjust their mindsets. Traditional teaching has changed to digital. The Open Education Center at MUST has organized several online training programs for the university faculty members on how to effectively organize online learning with a combination of digital technologies and modern teaching and learning approaches based on some of the experience and best practices from MUST. A total of 784 faculty members attended the ten-day online training, and on each day during the training, there were about 400 to 500 teachers engaged in the program. The statistical results from this training will be synthesized into a research paper. MUST organized the online training using synchronously and asynchronously. These online training are good demonstrations to our professors, lecturers, and instructors on effectively organising online learning (Pic. 4).

Online Training Serial Program With combination of Sychronous (Webinars) & Asynchronous (MOOCs) ways



Picture 4. Serial Online Training Program for faculty members **^**



Last but not least, since joining the IIOE network, MUST has learned a lot from the partners through participating in several international conferences, webinars, meetings, etc. In addition, last year, MUST received CreatView Smart Classroom equipment and is currently working to improve the establishment of Smart Classroom (Pic. 5). In the near future, MUST looks forward to preparing high-quality virtual lessons using Smart Classroom.



Picture 5. CreateView Smart Classroom in MUST <



Cultivating ICT Talents, a Locally Relevant and Globally Respected Approach



Mr. Tutun Juhana

Associate Professor, Dean of School of Electrical Engineering and Informatics, Bandung Institute of Technology (Indonesia)





Figure 1 One of EASTEM activities **^**

Institut Teknologi Bandung (ITB) was founded in 1959 and has the mission to serve science and technology to develop the nation. To carry out this mission, we have the slogan "locally relevant and globally respected", attempting to a gain global reputation in research as well as in education. However, in this process of becoming globally respected, we have never forgotten about the local development. So in this article, we will present how we try to make ITB globally respected and develop our nation. In addition, our Ministry of Education has also launched a program, called " Kampus Merdeka" and advocates the "freedom to learn" on campus. "The freedom to learn" means that students have the freedom to choose what course they want to take. This program is quite a big challenge for us because we already have a specific curriculum for our education. In this credible campus program opportunity, we have to definitely choose some of the credits to obey and confirm this program with our government. In relation to the challenge, we see it as the opportunity to go further at the same time.

To answer the question of how do we try to be a globally respected university? Our reply is that the key is collaboration. Two examples here could demonstrate our efforts to become globally respected. One is the cooperation with European and Asian nations, called EASTEM (Euro-Asia Collaboration for enhancing STEM Education). Both European universities and Asian universities have participated in this program. And the other example is the AOTULE program, aiming at the Asia-Oceania. AOTULE makes great efforts to enhance collaboration with the Asian universities and Oceanian universities in engineering education as well as research in an attempt to cultivate ICT talents through some ICT exchange programs for our students.

Figure 2 AOTULE ∨

Us 🔠



∢ 39⊳40



There also exists some examples of our cooperation with the industry, specifically Google, a well-known cross-national technology enterprise. ITB has an ICT program with Google (Google Bangkit) to improve our students' talents, especially in machine learning and cloud computing.



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Figure 3 Google Bangkit **^**

you need to transit from academia to the

- machine learning, mobile development, and cloud

Figure 4 International Virtual Course ^

The "International Virtual Courses" program also reflects our efforts to be a globally respected university. The program was previously called "Summer Courses", but since the pandemic, we cannot organize the program offline, so it has been called "International Virtual Courses" this year. Students who would like to join this international program can participate through a URL, and some ICT related courses are available in this program. The "International Virtual Courses" attracted students from ITB. other Indonesian universities and also foreign countries. Besides, some professionals registered in this program as well.

After demonstrating our efforts to be a globally respected university, in this part, we would like to show you how we try to build our nation from inside - locally relevant. Firstly, ITB always supports the government program, for instance, the "Digital Talent Scholarship" program from our government, which provides scholarship for fresh graduate students from all of the universities in Indonesia so that they are more ready to be in the workforce. Last year, we had programs in cyber security, IoT and AI, and this year we added cloud computing, etc. Moreover, ITB shares its idea on how to be an outstanding university and its good practices with other local universities, such as the program for police officers in order to help them catch up with our university.

As for the IIOE, at present, we don't have any experience with IIOE since we are now in the phase of importing IIOE equipment, and we haven't had IIOE in place yet. However, in addition to ITB's own platform, IIOE opens opportunities for ITB's broader audience; therefore, IIOE is a good opportunity for us to make ITB more globally respected and locally relevant.



Dengan materi pelatihan berstandar global dan dipandu oleh instruktur berpengalaman serta dapatkan Sertifikasi Global GRATIS!

6 1

JAWEI Artificial Intelligence Cloud Computing DataCom Storage	CISCO NETWORKING ACADEMY • Big Data using Python • CCNA Network Engineer • Cyber Security Operation • IT Fundamentals
ED HAT ACADEMY Core System Administration	ORACLE ACADEMY • Database Design & Programming with SQL • JAVA (Java Foundation
ICROSOFT Microsoft Fundamentals : Azure, Data, Artificial Intelligence, Power Platform	& Java Programming)

Figure 5 Digital talent scholarship 🔨



FGA Graduate

Us 🕌

UTG ICT Capacity Building by UET Lahore



Dr. Waqar Mahmood

Professor, Director of Al-Khawarizmi Institute of Computer Science (KICS), University of Engineering and Technology, Lahore (Pakistan)



Muhammad Tahir Naeem

Senior Research Officer at Al-Khawarizmi Institute of Computer Science (KICS), University of Engineering and Technology, Lahore (Pakistan) University of The Gambia (UTG) is the only Public Sector University in the Gambia offering undergraduate programs in information technology, law, business administrations, engineering and medical Science. On the sideline of the IIOE launch meeting in China in 2019, UET and UTG started their collaboration. Dr. Faqir Muhammad Anjum, Vice Chancellor of UTG, requested Dr. Waqar, Director of KICS-UET to support UTG in terms of capacity building of their IT staff, training of faculty on ICTs as well as suggestions to improve existing IT infrastructure at the university. The request was accepted under the Cross Regional Collaborations of IIOE. We evaluated the request as well as part of the university management to extend our support. (Picture 1)

In the first phase, two staff members and researchers from KICS-UET visited the Gambia in 2020. They were there to audit the existing IT infrastructure of the university, access the capabilities of IT staff, prepare a comprehensive report on identified problems in their existing IT infrastructure and propose a set of costeffective solutions to the challenges.





(Picture 2)Professor Dr. Faqir Muhammad ANJUM (Vice-Chancellor University of The Gambia) visit to Al-Khawarizmi Institute of Computer Science (KICS) & UET Lahore in January 2021

Later, in early 2021, the Vice Chancellor of University of The Gambia, Dr. Faquir Muhammed Anjum, visited UET Lahore and had meetings with Vice Chancellor of UET as well as the Director of KICS. In addition, an MoU has been signed between KICS and UTG to explore the possibility of cooperation and training. Dr. Faquir Muhammed Anjum also visited the labs of KICS and ongoing projects at KICS.(Picture 2)









(Picture 3)Mr. Abdou Darboe (Director IT UTG) & Mr. Pasara Drammeh (Manager IT UTG) meeting with Prof. Syed Mansoor Sarwar Vice-Chancellor UET & Dr. Waqar Mahmood (Director KICS UET Lahore & Resource Person IIOE UET) at VC Office UET Lahore

Then the IT team of UTG visited the facilities such as various labs in KICS-UET, Lahore, specifically in Artificial Intelligence, IoT, the Center of the Language Engineering, Data Science Lab, Software Systems Research Lab and Professional Development Center. They also visited the Smart Classroom, Huawei UET Joint Telecom & IT Center etc., and had discussions with managers and research staff. The Smart Classroom that they have visited was established with the help of WEDON under the infrastructure development of the IIOE program in 2019.(Picture 4)

(Picture 4)Mr. Abdou Darboe (Director IT UTG) & Mr. v Pasara drammeh (Manager IT UTG) visit KICS UET Lahore Labs and WEDON Smart Classroom at UET



In the second phase, two members from the University of the Gambia, Mr. Abdou, Director IT UTG and Mr. Pasara, Manager IT UTG, visited UET Lahore for multiple training programmes and certifications. Both stayed with us in the UET guest house for about two months in March and April this year. The training programmes and certifications which were conducted for Director IT and Manager IT of UTG are listed below. (Picture 3)

Cisco Certified Network Associate (R&S)
Huawei Certified ICT Associate (R&S)
Cisco Certified Network Professional (R&S)
Huawei Certified ICT Professional (R&S)
Huawei Certified ICT Associate (AI)
Huawei Certified ICT Associate (Cloud)
ITIL 4 foundation
Certified Ethical Hacker (CEH)
Microsoft Certified Solutions Associate
Project Management Professional (PMP)



The trainees were provided with the certification since they completed the whole training program and passed the examinations. At the end of the visit, they were given a recreational tour of the countryside. They also visited Islamabad for relaxation, which is the capital city of Pakistan.

Going forward, there will undoubtedly be more opportunities to work together. A new Master of Science in Computer Sciences will be started in UTG with the help of KICS-UET. Initially, the program is being developed, and the curriculum is being provided to UTG. Besides, the faculty development, quality assurance as well as other services will be provided by KICS-UET. In the initial phase, UET PhD faculty will travel to the Gambia to conduct classes in the Gambia. The worthy Vice Chancellor UET will also visit for monitoring and evaluation of the program. The plan is to start the program in September this year, and we are confident that it can be improved as time goes by. In addition, UTG is requesting the capacity building of more staff. Consequently, more people will be coming from the UTG to KICS-UET Lahore for competency development, especially in the areas of ICTs.

UTG is also looking for assistance in terms of the Campus Network design, the information security framework, the data centre, and cloud services in the new campus of UTG. This is the list of proposed courses for the MS CS program and the corresponding faculties which have given their consent to deliver the program in the Gambia. It is admitted that this kind of knowledge sharing opportunity is quite significant for the cross-regional collaboration on the institutional capacity building between UTG and UET Lahore.(Picture 5)

(Picture 5)UET Lahore & UTG ∨



BLOCK

Striding Forward with UET Lahore

Since its inception in December 2019, IIOE has gradually developed into an educational platform that provides higher education workforce with open and free ICT-related quality resources, as well as effective consultation and well-rounded support for institutional capacity building. Particularly, UET Lahore, being the Rotating Presidency Unit of IIOE for 2021-2022, has been working side by side with UNESCO-ICHEI to create content related to teacher professional development in line with the local demand of the country. For that matter, UET is geared up in getting deans and faculty's hands on to the IIOE platform for its effective usage and IIOE activities engagement. Besides working at an institutional level, expansion of IIOE partnership among HEIs, enterprises, organizations, and government bodies within its network, UET Lahore as a national hub of IIOE has also been actively promoting IIOE to create an impact at local, provisional and national levels.

With a mission to empower university workforce with data literacy, IIOE multilevel training

series (Big Data General Level) was launched on September 28,2020. Participants from UET Lahore have actively taken part in this training series. Therefore, a certificate awarding ceremony for UET participants was organized at Vice Chancellor's conference room on September 16, 2021. Vice Chancellor and Chair of IIOE, Prof. Dr. Syed Mansoor Sarwar, Director of KICS Dr. Waqar Mahmood, Dean of Faculty of Chemical Engineering Dr. Naveed Ramzan, Dean of Faculty of Electrical Engineering Dr. Muhammad Kamran, Dean of Faculty of Natural sciences, humanities and Islamic studies Dr. Shahid Rafique, Dean of Faculty of Mechanical Engineering Dr. Nadeem Mufti, Dean of Faculty of Earth Sciences & Engineering Dr. Zubair Abubakar, Dean of Faculty of Architecture Dr. Rizwan Hameed, Dean of Faculty of Civil Engineering Dr. Habib ul Rehman, and other faculty members attended this joyous occassion.

At the ceremony, Vice Chancellor UET Lahore and Chair IIOE Prof. Dr. Syed Mansoor Sarwar highlighted the importance of active participation of faculty in IIOE and encouraged deans to





disseminate the message among their faculty and research staff. "We might not be able to fully get away with COVID restrictions very soon," he said, "and therefore, the situation demands educators to develop online content." He also expressed his thanks to Director of KICS, Dr. Waqar Mehmood and his team for putting in efforts to make it happen successfully. At the end, certificates along with gifts from IIOE were distributed among participants and dignitaries. The ceremony was concluded with a group photo of participants with distinguished guests.





Supporting Future Skills Core Competency Development Through ICT-driven Initiatives in Malaysia's Higher Education System



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Introduction

In order to support future skills core competencies, the present and future role of higher education must be geared towards providing learners from all walks of life equal access to quality education as stated in Sustainable Development Goal 4. It is hoped that by year 2030, the need for information and communication technologies (ICT) driven education and development agenda will be in place and successfully implemented. Hence, the present and future role of higher education should strive towards shaping youth and adult as personalised learners, with an increasing emphasis on using ICT to help them acquire foundational competencies, inter-cultural competencies and professional competencies.

The present and future role of higher education should empower learners to have access to quality resources for the purpose of their up-skilling, re-skilling, crossskilling and personalised continuing professional development (CPD) activities and protean career changes. Policies must always be driven by vision with good understanding of context, but not limited to only within the educational context. It should also consider the social, economic, cultural, political and historical contexts of the nations as well. Implementation of policy needs to able to ensure a clear alignment at

cultural, political and historical innovation in education is the answer and solution to address the needs for better future learning, future working and future living opportunities.

Current trends and implementations in Malaysia's higher education ecosystem



Picture 1: Four-Quad Future University Model [3] A

every systemic level from the macro, meso to micro.

There is also a need for systematic evaluation of the

policies in place. Evaluation needs to include quality

assurance and quality enhancement. Evaluation

must be able to collect solid evidences of impact. The

impact would be driven by KPI that HEIs are trying

to achieve; for instance, all academic programs must

have a component on ICT-enabled learning and so

forth. Therefore, the present and future role of higher

education should also be focused on strengthening

the partnership between university and university,

university and industry, university and government as

In the context of Malaysia, initiatives are already in

place to nurture present and future learners to be

ready to undertake the opportunities provided by

technology and automation to prepare themselves

for their future employment. Preparing today's

higher education students with the right skills

and competencies to thrive in an ICT-driven work

environment and surrounding will favour the wellbeing

of humans and sustainability of societies. ICT-driven

well as university and community.

The vision of higher education in Malaysia is mainly for high quality education, excellent individuals, and prosperous nation. Traditional teaching and learning approaches will likely be dominated by technology, innovation and personalised learning mode. By 2030, the traditional brick and mortar institutions in Malaysia will probably be available in the field of hard sciences which still require clinical and experimental practices as well as in the field of soft sciences such as education and religious studies. Based on this direction, various initiatives from both bottom-up and top-down approaches in the higher education institutions are in place and supported by the Ministry of Higher Education Malaysia including through the implementation of flexible learning pathways through its Accreditation of Prior Experiential Learning (APEL), Open Distance Learning (ODL), Massive Open Online Courses (MOOCs), and micro-credentials.



Blended Learning in Malaysia's Higher Education Ecosystem

The Malaysia Education Blueprint 2015 - 2025 (Higher Education) has been launched and ten shifts outline to continue strengthening Malaysia in Higher Education (HE). All 10 Shifts address key performance issues in the system, particularly with regard to quality and efficiency, as well as global trends that are disrupting the higher education landscape. Shifts #9 is Globalised Online Learning (GOL). GOL focusing on expanding access to education, improving the quality of teaching and learning while enabling learning to be tailored to the current needs of students.

Dasar e-Pembelajaran Negara (DePAN) 2.0 or National e-Learning Policy 2.0 supports the strategic essence of the 10th Malaysia Plan. One of the five strategic thrusts of the 10th Malaysia Plan is to develop world-class human capital by focusing on the 12 national key economic areas (NKEAs), especially in the field of information and communication technology (ICT) and education services.

DePAN 2.0 specifies that e-Learning unit should be established to oversee the eLearning activities at the organization in collaboration with the IT unit. There are various shifts to be implemented through the Malaysia Education Blueprint 2013-2025. The plan is designed in the context of increasing our education standards internationally and as a government aspiration in preparing students in the country to cope with the 21st century education challenges.

In the Malaysia's higher education system, several educational reforms have been undergone in the past years. National e-Learning Policy (DePAN) which focusses on the quality of education delivery, encourage innovation in education, branding of Malaysian education, reduce delivery costs, and cultivating lifelong learning through digitalization and uplifting ICT-driven learning activities in higher educations. Through the guide from Malaysian Public Universities Council of e-Learning (MEIPTA), the public and private universities, and colleges are implementing blended learning (BL) with proper guidelines and platforms to support BL. The traditional learning methods of face-to-face are supported with universities Learning Management Systems (LMS). which the online learning gives the privilege learn from anywhere and anytime with any device and gaining access to the relevant materials and information in more convenient way. This blended learning involves self-assessment which requires the relevant tools to apply, infuse and transform into a successful learning experience. We foresee the indispensable of different approach from formal education to various approaches for a lifelong learning system.

University Malaya (UM) is known as one of the top public universities in Malaysia and they concluded that approximately, close to 30,000 users are using Microsoft 365 app daily as part of their e-learning conduct. The demand for the SPeCTRUM learning management system (LMS) reaches an averagely of 12.41M transactions monthly. The Academic Enhancement and Leadership Development Centre (ADeC), UM is responsible to design and conduct professional development programs for UM's academic staff to providing training on teaching and learning (T&L) towards producing future renowned and highly competent academic leaders in T&L. research and supervision. ADeC intent to develop and support UM's academic staff in the domains of: T&L. research and supervision, as well as leadership and well-being. Accordingly, ADeC also manages and facilitates a range of academic enhancement activities including e-learning and learning spaces development.

Active users - Microsoft 365 Apps **29.8K active users** A 38.1% Total Number of unique actiwe users per Microsoft 365 App 63% 47% 47% 16% 0 Exce... OneN... Outl... Powe... Team... word Active users

Picture 2: E-learning statistics by University Malaya (UM)^[2]



There are many initiatives taken by universities to give better learning experiences such as, online webinars, alternative assessments, web tools, e-learning platforms, enhancing engagements tools, ICT training, eBook, and many more.



Picture 3: Number of video publications in 2020 compared with 2019 based on data collected from Sistem Maklumat Penerbitan Universiti (SMPU)^[2]



Picture 4: University Pendidikan Sultan Idris (UPSI) E-Learning statistics [2] A

The Department of Higher Education manages both public and private education providers to establish the vision of the government in making Malaysia a center of educational excellence and internationalising Malaysian education. Therefore, the educators should be enhanced. Teachers must be creative and innovative to make the learning session fun, engaging and effective at the same time. University Pendidikan Sultan Idris (UPSI) develops webinars to help educators in many ways. The webinars foster them with information on how to develop learning materials, how to present during online presence, how to include gamification in teaching, and other relevant knowledge needed for educators to teach. These are essential to build and deliver the information effectively. They are committed to providing excellent leadership in education, based on the advantage of broad experience and high competency in levelling up according to global changes. Their mission is to generate knowledge through teaching, research, publication, consultancy, and community services to

achieve an internationally recognised education level.

As for Universiti Kebangsaan Malaysia (UKM), two key initiatives standout for the university teaching and learning ecosystem that are: Initiative 1: New and advanced online teaching and learning environment – UKMFolio; and Initiative 2: Synchronous and asynchronous online training modules for lecturers and students.

In facing the challenges of today's technological sophistication and the 4IR, Universiti Putra Malaysia (UPM), spearheaded by Centre for Academic Development (CADe) initiates the Innovative Teaching and Learning Delivery Transformation. It is implemented by the 'PUTRA InnoCreative Educator' (PreCEptor) who enables 'PUTRA InnoCreative Delivery' (PrIDe) for effective teaching and meaningful learning towards producing Future-Proof PUTRA Graduates.



Picture 5: UPM InnoCreative Initiative [1] A





Picture 7: UITM E-Learning statistics – Developing Blended Learning Substitution Guideline ^[2]



Picture 8: Initiatives by Universiti Teknologi Mara (UiTM)^[2]



Picture 9: Overall e-learning statistics as of December 2020 by Universiti Islam Antarabangsa Malaysia (UIAM). [2] 🔨

COVID-19: Challenges and Opportunities for ICT-driven Initiatives in Malaysia's higher education ecosystem

COVID-19 altered the global education systems indeed. In terms of providing the right support systems during the prolonged crisis period, some Higher Learning Institutions (HLIs) were unprepared and forced themselves to learn to ensure that they can be better in facing similar future events. Students' wellbeing and learning effectiveness were affected during the COVID-19 pandemic. Students faced challenges in coping with the crisis, both in general and in regard to their daily learning activities. Problems in identifying and providing the appropriate kinds of technological and psychosocial support needed to address students' needs were highlighted by affected institutions. In terms of perceived severity of COVID-19 on their well-being and learning readiness, both students and educators were significantly concerned and found it difficult to work effectively at home or at their campus hostels during the early period of the outbreak.

Challenges faced by students include difficulty undertaking online learning due to poor or unreliable internet connectivity, unfamiliarity with online learning mode and difficulty completing online learning tasks assigned by lecturers. While the HLI has formulated effective policies to respond to the coronavirus (COVID 19) outbreak they can further improve on communication with students to ensure the everyone affected are updated frequently. Administrators, lecturers and students were caught unprepared with the new norms at the initial stage of pandemic and eventually learn to address student and staff wellbeing and continuity of learning and living during and after the coronavirus pandemic situation. However, through these challenges, opportunities for ICT-driven initiatives emerged. The following are some evidences observed at the higher education institutions:



Conclusion

Though blended learning is still new and progressing, COVID-19 outbreak is the catalyst for it to grow and it is now seen as the future trend in higher education. Few research with the collaboration of UNESCO and universities around the nation are established to explore, to monitor and to enhance the efficiency of the blended learning and self-assessment tools as part of the ICT-driven initiatives that support future skills core competency development. ICT driven initiatives enable all stakeholders including learners to have access to quality resources for the purpose of their up-skilling, re-skilling, cross-skilling and personalised continuing professional development (CPD) activities as well as protean career changes. Implementation of policy needs to be supported with sufficient infrastructure and resources to support every systemic level through an agile and strategic partnership between university and university, university and industry, university and government as well as university and community.

[1] PrIDE: Putra InnoCreative Delivery. (2019). Centre for Academic Development (CADe), Universiti Putra Malaysia.

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Seewo: Digital transformation for universities with ICT

SEEW/O希沃 教育信息化应用工具提供商

Seewo cvtouch

Established in 2008, Seewo has been committed to developing hardware and software products in education informatization and carrying out services to improve teachers' informatization literacy. As the creator of interactive smart tablets in China, Seewo serves millions of students and teachers with its presence in over 2 million classrooms.



Seewo's layout in higher education to empower teachers with ICT skills

As a player in higher education, Seewo focuses on using information technology to promote teaching, creating smart classrooms, helping higher education institutions to transform teaching and learning by going digital and creating a teaching eco-system of connected terminals, application systems, and data platforms. The smart education solutions offered by Seewo can provide higher education institutions with interactive smart terminals, large-size display terminals, and other teaching equipment to help them build an information-based intelligent teaching environment and improve teaching efficiency. The interactive teaching application system realizes human-computer interaction, teacher-student interaction, and student-student interaction, forming new learning methods such as participatory learning and independent learning supported by information technology, and improving teaching quality; With the help of the data analysis platform, data about equipment and application in various teaching scenarios is collected, providing a basis for decisionmaking concerning teaching informatization and management informatization in higher education institutions. Meanwhile, for the benefit of higher education workers, Seewo has developed an array

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of products to meet the needs of digital teaching and management targeting different teacher groups, such as Seewo Whiteboard and Seewo cross-platforms classroom.

Learning teachers are the future of education. It is a pressing issue nowadays to make good use of advanced information technology to empower them. To that end, Seewo also focuses on improving informatization literacy for learning teachers, making the microteaching classrooms connected and used regularly. (Picture 5)



(Picture 5)Microteaching classrooms in higher education institutions

Provide informatization training for learning teachers

Build "teaching materials about educational technology and curriculum resource kits", provide advanced information-based teaching tools and applications, and strengthen practical training for students in normal universities to familiarize themselves with and apply the tools and get ready for teaching.

Transform microteaching classrooms to enhance the connection between micro-teaching training and practice bases for learning teachers in higher education institutions.

On the one hand, we encourage learning teachers to get exposed to apprenticeship, internship, and practice while solving the problems of wasted internship time on the road, low interns-hip funds, and troubled internship site capacity, etc. On the other hand, we introduce vivid and real classroom teaching situations as well as teaching resources of the practice bases directly into the classrooms of higher education institutions, making the seamless connection between the classrooms of higher education institutions and the classrooms of practice bases, enhancing the interconnection of different real situations, common problem solving and the efficiency of the guidance of dual instructors for learning teachers.

Build information-based college teacher development center.

After the live teaching in the proprietary recording classroom is recorded regularly, teachers can reflect on teaching design, optimize teaching activities, and enhance teaching evaluation design to improve their teaching ability and art through watching back the teaching live, asking instructors to watch the live, and peer evaluation in the teaching and research sections.

Seewo explores information-based teaching classrooms in colleges and universities

Facing different teaching needs of higher education institutions, Seewo has put forward five teaching scenario solutions: digital classroom, amphitheater classroom, group seminar classroom, room for experiments and training, and shared learning space, as well as Seewo cross-platforms classroom at the school-level teaching management platform. They have been applied to many domestic colleges and universities such as Fudan University and Wuhan University to help schools realize digital transformation.(Picture 2)



In 2019, Mr. Tang from Hunan Agricultural University took the lead in guiding students to explore smart seminars. Before the class, Mr. Tang will first send the key points to be covered in the chapter to students' smartphones through Seewo cross-platforms classroom, so that students can prepare for the class by themselves. At this phase, students only need to log in to the appropriate group through their personal terminals, and then the system can automatically check attendance, saving tedious statistical work. (Picture 3)



(Picture 3)Smart class in Hunan Agricultural University A

During the class, the teacher only needs to focus on imparting knowledge and more time can be spent on explaining the important points of the course. In the middle of the lesson, Mr. Tang will throw out a controversial question and guide the students to explore it using the Seewo group screen. Different points of view are displayed on the screen and up for discussion after which students may reach a consensus. At the end of the lesson, the interactive data from the classroom is summarized directly on the phone as a class report. At the same time, Seewo completes the recording of the whole class and automatically uploads it to the cloud as a reserve of teaching resources.

The above-mentioned Seewo Recording is a set of solutions to transcend geographical isolation that applies to classroom recording and remote classroom interactive live broadcasts to realize the interconnection of classrooms in different regions. For the live broadcast scenario, with the recording equipment and remote interactive assistant, it can realize the deep interaction between one teaching end and three listening ends for activities such as synchronous board writing, synchronous games, photo uploading, etc., while supporting multiple students to participate in the course learning, as if teachers and students in different places are in the same classroom, sharing a wonderful informationbased course. The recording is supported by the combination of recording host, camera, sound pickup microphone, and recording cloud platform. All you need to do is click on the recording button after which everything that happens in the classroom will be recorded and stored in the cloud platform for everyone

to watch at any time. The recording process supports automatic switching of panoramic and close-up views for both students and teachers so that viewers get to see clearly what's going on during the lesson. After the lesson, teachers can review the lesson and give feedback to promote teachers' discussion and enhance their ability to teach with information technology.(Picture 4)





(Picture 4)Recorded remote interactive classroom/online ^ teaching and research

In addition, this solution is suitable for building virtual teaching and research rooms in colleges and universities where teachers feel free to realize cross-discipline, cross-campus, and cross-territory exchanges and break the geographical barrier to fully discuss course implementation and teaching methods, etc. As a result, a high-quality teaching resource repository among universities will be built to make it easier to share teaching resources and benefit all.

Seewo with the International Centre for Higher Education Innovation under the auspices of UNESCO to launch teaching ability competition

Starting from September this year, Seewo and the International Center for Higher Education Innovation under the auspices of UNESCO will join hands to hold the first Interactive Teaching Innovation Competition for University Teachers, aiming to guide global university teachers to learn to use information-based teaching tools and methods. Through such an activity. we want to find teachers with excellent performance in information-based teaching, set positive examples around the world, and accelerate the process of global education informatization. The competition is expected to last for six months and is divided into two parts: the preliminaries will be based on courseware and the finals on lecture videos. It will be rich in prizes, including laptops and other tools that can support teachers' teaching informatization. We are looking forward to your participation.

Going forward, Seewo will continue to innovate ICT technology, cooperate with the International Center for Higher Education Innovation under the auspices of UNESCO, and bring informatization teaching methods and approaches to universities in Asia and Africa as well as in other regions. We will work to build smart classrooms, improve teachers' ability to impart knowledge with information technology, and help institutions of higher education across the world to shape an ecosystem of education informatization.



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A High Touch High Tech (HTHT) approach within Education Commission Asia (ECA)

Annie Hyokyong Nam Global Project Lead, Education Commission Asia



Sohee Shin CEO, Education Commission Asia



Yoo-Jeung Joy Nam Senior Consultant, Education Commission Asia



Ju-ho Lee Chairperson, Education Commission Asia Professor, KDI School of Public Policy and Management A regional hub of the Education Commission. Education Commission Asia (ECA) operates to encourage innovation and inclusion utilising Alpowered education in Korea, Asia, and beyond. ECA, led by Ju-Ho Lee, one of the Commission's 26 commissioners and former Minister of Education, Science, and Technology of the Republic of Korea, emphasises the importance of countries like Korea to take a more proactive role in sharing their experiences with other countries and regions in igniting and propelling the global learning transformation overall. An Al-powered education allows for mass personalisation, with algorithms providing intelligent and adaptive learning diagnostics and dashboards that feed information to teachers who can then change what and how they teach.

Coined High Touch High Tech (HTHT), this personalised learning approach utilises an adaptive software ('high tech'), which in turn allow teachers to design individualised instruction and active learning experiences in the classroom through project-based activities, discussions, and hands-on experiences that nurture higher order thinking skills and stimulate complex problem-solving abilities ('high touch'). In short, HTHT aims to make the best use of cuttingedge technology and the best pedagogy and learning design practices to equip students with the 21stcentury skills needed for the future of work.

HTHT in Grade 7 Math Program in Vietnam

The first prototype of the HTHT approach took place from March 2019 to March 2020 in four junior high schools in Vietnam-two in Hanoi and two in Ho Chi Minh City-demonstrating a significant impact on learning outcomes. Spearheaded by the Education Commission's Education Workforce Initiative (EWI) and Arizona State University (ASU), the project involved local leadership at all levels. At the national level, a dedicated Ministry of Education and Training (MOET) staff member was assigned to ensure communication and buy-in throughout the project. The McGraw Hill ALEKS (Assessment and Learning in Knowledge Spaces) was selected as the adaptive learning system because of its proven track record of success in adaptive learning systems. Teachers took the adaptive math course themselves as part of their experiential training. Students would spend two days a week working in ALEKS with teachers reviewing each student's progress report generated from the system and providing personalised guidance to students while they worked. One day was then spent on applied problem-solving exercises in groups

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guided by the teacher and another day was set aside for additional instruction and review.

A group of researchers from the Korea Advanced Institute of Science and Technology, Yonsei University, the University of Illinois, and Seoul National University conducted an external evaluation of the prototype to examine the effectiveness of the HTHT approach. A statistically significant impact on student math learning was observed, with treated students' math scores increasing by 0.436 standard deviations. The intervention also had a more substantial benefit for lower-performing students.



2 HTHT in Universities

The lessons learned from the Vietnam prototype, then, have motivated and catalysed the operations of the HTHT approach within the universities (higher education) in Korea.

After its launch in August 2020, the University Consortium has grown to 10 university members, 15 community colleges, and 3 graduate schools within a span of less than 13 months. The consortium's objective is to pave the path for mass scale higher education innovation, personalised learning, and deliberate evidence-based instructional design. The University Consortium provides participating schools with AI-based adaptive learning programs, provides personalised consultations on implementing and applying the Intelligent Tutoring System (ITS), and hosts regular seminars and workshops.

Introducing HTHT to universities encourages schools to rethink their curriculum, involve necessary technical equipment beyond a COVID-19 response, implement digital pedagogy, and innovate on all administrative levels of the school ecosystem.

How the HTHT model works inside the Higher Education classroom

While each participating institution is encouraged to apply the HTHT model in their unique way, adapting aspects of the technology and teaching to tailor to needs, the general implementation process of the HTHT model can be summarised as follows:

Once each class/faculty selects adaptive courseware, the teaching team maps out a lesson guide for the semester. When there is not a 100% match of the school's curriculum with the topics in the adaptive courseware, the faculty addresses the digital gaps with traditional teaching methods in the classroom. Before a class, a student typically logs into an adaptive courseware program and is asked to complete a series of knowledge checks. The adaptive AI platform then presents a personalised lesson plan (with differing lesson sequences and content selection), and algorithms, assessments, associations, and agency (student feedback) guide the process. Students can progress to the next topic when they demonstrate mastery of the subject and can lose topics through progress knowledge checks.



This adaptive system represents learning on the lower half of Bloom's Taxonomy of acquiring information through technology. Students are actively engaged in case studies and project-based learning in the classroom, where they are encouraged to develop and practise higher-order critical thinking skills.

The HTHT approach makes room for a student's prior knowledge, caters to individual learning needs, and reduces gaps in understanding. Faculty can monitor, measure, and maximise learning through the data accumulated by student's learning progress.

Moreover, lessons can be tailored and designed just for the needs of that particular class, allowing for a dynamic interplay of coursework.

What has the progress been?

Pilot runs of the HTHT model in the University Consortium have proven to be quite successful. Anecdotal evidence from schools that have implemented ITS has highlighted the positive impact HTHT has brought within the classrooms.

At Ajou University, a large private research university in Suwon, South Korea, students on the ITS track utilizing the HTHT approach have shown greater academic achievements thatn those not on the track. At Donggang University, a private technical college in Gwangju province, the automated grading and tailored assessments from the ITS have increased student engagement and motivation for learning.

At Hanlim University, a private university located in Gangwon province, student surveys have reported an increase in overall class satisfaction, interest in the subject, and willingness to learn.

Key Lessons Learnt

Jiyoung Kim, Director of ECA and Project Lead of the University Consortium, emphasises that solid support at the leadership level and an alignment of priorities at the highest level of school leadership and various stakeholders are critical for the continued success of the HTHT approach. Additionally, tolerance of mistakes, willingness to experiment, and fast failure are crucial in the initial implementation phases. Kim further states that universities should provide incentives to faculty who attempt innovative ways of teaching, such as the provision of research funding, a boost in review, and teacher assistants. While initial evidence of the HTHT approach in higher education is promising, experiences are still too few and far between. Continuing to build upon pilot cases of HTHT will remain to be an essential task for ECA. We must additionally strive to enhance and contribute to education innovation by partaking in rigorous research to measure and evaluate the impact of HTHT and share our findings with interested stakeholders.



E-portfolios and reflection: A potential solution to student assessment and learning during pandemic and beyond



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COVID-19 pandemic has been significantly disrupting normal functioning of educational institutions all over the world for the last two years. They have fully or partially been closed in different time lengths in different countries. According to UNESCO (2020), during the highest peak of virus transmission, educational institutions in more than 190 countries were closed around the world which nearly affected 1.6 billion students, 94% of the total global student population.

Indeed, the never-ending inequity in education has been exacerbated during this period. For example, educational institutions in developed countries were quick to switch to online education mode after some weeks of closure. On the other hand, educational institutions in many developing countries remained close for longer period, even more than a year in some cases. This includes higher education institutions too which were assumed to be less disrupted. Nevertheless, many higher education institutions gradually adapted to online education. Teachers and students were engaged in both synchronous and asynchronous mode of online teaching-learning activities. One particular issue, however, many higher education institutions faced during that period and indeed continues for some even these days. This is to do with assessment since the assessment in prepandemic period was dominated by paper-pencil based tests and assignments.

In this paper, we shed light on "e-portfolios and reflection" as assessment and learning techniques, their importance and benefits in higher education settings. We argue that they have the potential to be a solution during pandemic and beyond. They also have the potential to advance the IIOE (International Institute of Online Education) competency framework for the higher education workforce put forward by the UNESCO-ICHEI (2021), especially to master online based assessment and learning.



Artists have been using traditional portfolios for a long time to showcase their work-ability to their potential customers. It was only about three decades ago when educators began using portfolios in order to assess the quality of teaching (Bozhko, 2012). Since then, portfolios have been used for many different purposes such as showcasing students' learning evidences, professional development tool and assessment tool, etc. (Bozhko, 2012). In learning settings, traditional portfolios store all sorts of documents or evidences related to students' learning experiences which are usually called artifacts.

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Electronic portfolios are usually called e-portfolios but also known as efolios, digital portfolios, webfolios, etc. E-portfolios are a digital representation of traditional portfolios. E-portfolios purposefully collect digital artifacts which are stored in a web-based platform (Mills, 2013). One type of artifact can just record students' reflections and development (Barrett, 2006; Mills, 2013), Other types of artifacts may include coursework, assessments, pieces of work relating to life-long learning, reflections on achievements, goals, outcomes, transcripts, records of achievement, evidence of competencies, planning and reflection as well as self and peer feedback (Beetham, 2005; Stefani, Mason, & Pegler, 2007). In addition to being a repository tool, e-portfolios are also considered as supporting students' reflection. E-portfolios are a means "to improve student learning by providing a structure for students to reflect systematically over time on the learning process and to develop aptitudes, skills and habits that come from critical reflection" (Zubizarreta, 2004, p. 15)

Learning to document and manage students' own learning in ways that foster deep and continuous learning are necessary for coping with the increasing use of technology in learning (Jenson & Treuer, 2014). Indeed, e-portfolios are a good response to this. Jenson and Treuer (2014, p.55) defined: "the e-portfolio is a tool for documenting and managing one's own learning over a lifetime in ways that foster deep and continuous learning". The definition highlights that e-portfolios are a good fit for 21st century learning when learning takes place anywhere and anytime, both inside and outside formal education. The definition also emphasises that e-portfolios as a tool, and like any other tool, are without value if one does not know how to use them properly.

What is reflection and why it is important?

Reflective thinking or reflection in general is an analysis of previous experiences that may help develop a new understanding. Specific to learning context, reflection or reflective thinking are those intellectual and affective activities by which learners engage in, examining their experiences that may yield new understandings, insights and appreciations. The following specifies what reflection is in the context of learning:

...experience consists of the total response of a person to a situation or event: what he or she thinks, feels, does and concludes at the time and immediately thereafter. The situation or event could be part of a formal course, e.g. a workshop, a field trip, a lecture; or it could be more informal: an event arising from a personal study project or from the actions of a community group, or a totally unplanned occurrence in daily life.....reflection in the context of learning is a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understanding and appreciation. (Boud et al., 1985, p. 18-19)



A number of other definitions of reflection are also available. Five important features of reflection can be derived from all these definitions (Rogers, 2001). First, reflection is a cognitive and affective process. Second, reflection requires individual's active engagement. Third, reflection is triggered by doubt, hesitation, perplexing situation or experience. Fourth, reflection involves examining individual's beliefs, assumptions and responses. Fifth, reflection yields new understanding to individual's experience.

An important objective of higher education is to prepare students to participate effectively in their future life. Equipping students with skills such as reflective thinking, critical thinking, life-long learning, autonomous learning are paramount to enable them to successfully perform in knowledge based society. Therefore, currently, many educational programmes in the context of higher education have a common aim to develop students' reflective thinking (Bubnys & Žydžiunaite, 2010).

Reflection, which is the foundation of philosophy of learning, starts from day-by-day experience at a higher education institution (Bubnys and Žydžiunaite. 2010). One of the main goals of learning at a higher education institution is analysis of experiences that are occurred through reflection by enriched learning and accumulated personal and professional competence to facilitate outlive. Reflection that stimulates learning, self-analysis, as well as solves problems is essential in the experience gaining process both at the beginning and afterwards. Reflective practice can be exercised by all students in higher education settings (Barnett, 1992; Brockbank et al., 2002). Thus, reflection provides conditions for students' development (Bubnys & Žydžiunaite. 2010) as well as opportunities for teachers to improve teaching quality (Ndebele, 2014).

Now-a-days, the higher education authority in some come countries puts greater emphasis on the uses of e-portfolios for the development of generic skills among students as well as the enhancement of teaching and learning. E-portfolios provide a means of showcasing evidence of students' learning and achievement which can also be a reflective document that enhance students' development as well as help students become reflective thinkers (Stefani, Mason, & Pegler, 2007). The process of creating and managing e-portfolios supports students to become reflective thinkers which paves the way to be lifelong learners.

Being reflective thinker students can reflect on what and how to present their learning evidence, can reproduce their past experiences, and by looking back at their past, they can identify in which part they need improvement. Otherwise, it might be difficult for students to identify the areas that need further development and there is a chance that students can make the same mistake again and again. Reflective learning is also seen as transformational that can develop students' abilities to identify and solve problems, to change attitudes and to become more tolerant (Morrison, 1996). These skills are essentials for students to become a life-long learner and an active learner. They help them in this way for their development in the future.

Benefits of e-portfolios and reflection

Research across various contexts confirm that e-portfolios help develop students' reflective thinking. For example, undergraduate students at a Hong Kong university developed their reflective thinking through working on e-portfolios (Sultana, Lim & Liang, 2020). In fact, the participants in the study developed two top levels of reflection. Reflection was also found developed with the uses of portfolios in two in-service courses for mentors of teachers in Israel (Orland-Barak, 2005). In addition, positive findings were reported in terms of the efficacy and effectiveness of e-portfolios for summative assessment as well as for encouraging students to engage in deep learning and self-reflection in a minority serving American higher education institute (Buzzeto-More, 2010). About 91% students viewed e-portfolios helped them to reflect upon the knowledge and skills they developed over the period of their degree time. Moreover, positive impact of e-portfolios on developing reflective thinking and self-directed learning readiness were found among 4th year students of Palestine refugees in a practice education programme at the Faculty of Educational Sciences in United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), Jordan (Awwad, Nofal, & Salti, 2013).

Apart from developing reflective thinking, research also suggests that e-portfolios have other benefits. E-portfolios have the ease of storage and accessibility that provides opportunities for continuous documentation of lifelong learning (Lamont, 2007). With the enhancement of autonomous or selfregulated learning skills through e-portfolios, students are equipped with the competencies for future, lifelong and life-wide learning. Moreover, the adoption of e-portfolios benefitted students in improving their employability outcomes (Konsky & Oliver, 2012; Lin, 2008).

Student assessment in higher education provides information about how well an individual student is learning. But it also importantly illuminates the needs to take steps if the learning is not happening as expected levels. Here is the main advantage of e-portfolios and reflection to be effectively used as assessment and learning techniques since e-portfolios are easy to manipulate, provides flexibility to rework and reconsider materials over time, and increase the possibilities of interaction due to outer readership (Challis, 2005).

Such meaningful engagement with e-portfolios, through continually creating and recreating them, provides a real opportunity for enhanced learning. Thus, e-portfolios and reflection become authentic assessment techniques (Wang, & Jeffrey, 2017). E-portfolios also increase the ability of monitoring own work, and indicates the potentials of being a sustainable assessment technique (Lamont, 2007).

Nevertheless, there are a number of issues and factors involved in successful implementations of e-portfolios as assessment tool (Lamont, 2007). E-portfolios can be loaded with difficulties of authentication, misrepresentation and validity. Combining both purposes of assessment and learning in e-portfolios can be challenging. E-portfolios also can affect assessment quality due to inequity in access and level gaps in skills. Furthermore, e-portfolios must possess sequence of activities in order to have action-reflection in built in them. These issues and factors clearly suggest that e-portfolios' planning needs to be carefully done.

Conclusion

The current pandemic situation is not over yet. It has, however, clearly conveyed a message across that assessment and learning activities have to be reimagined in order to cope with any future disruption. E-portfolios and reflection seem to have good potential to be widely adapted as assessment and learning techniques in higher education settings for a number of reasons. First, they are online based and technology supported, therefore, they can be used anywhere and anytime. Second, students take ownership of their learning by working on e-portfolios. Third, learning is reinforced by continuously creating and recreating the e-portfolios as well as from the feedback. Fourth, e-portfolios help develop reflective thinking, and reflection enhances learning. Fifth, e-portfolios and reflection equip students with the skills such as reflective thinking, critical thinking, active learning, and autonomous and self-regulated learning which are important to succeed in today's knowledge-based society. Finally, e-portfolios and reflection pave the way to lifelong learning trajectory to achieve United Nation's Sustainable Development Goal 4 (SDG 4) (United Nations, 2015). Awwad, F. M. A., Nofal, M. B., & Salti, N. S. (2013). The impact of electronic portfolio on developing reflective thinking and self-directed learning readiness. Cypriot Journal of Educational Sciences, 8(1), 78-104.

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Future Competencies of Higher Education Workforce

Higher education is understood as all types of education (academic, professional, technical, artistic, pedagogical, long distance learning) provided by universities, technological institutes, teacher training colleges, which are normally intended for students having completed a secondary education, and whose educational objective is the acquisition of a title, a grade, certificate, or diploma of higher education .

A higher education institution is 'authorised to issue diplomas, degrees and certificates at the higher-education level.' The higher education workforce includes **teacher-researcher**, **leadership**, **and supporting staff**.

Higher Education Workforce Global Overview

Teacher-Researcher



13,120,856

Teachers in tertiary education programmes



Percentage of private sector-sponsored education in the world



Percentage of science and engineering researchers among all higher education researchers

COVID-19 Impact on university operations ^[2]

No	imp	act					Co.	int of	respo	nding	HEI
Cl cu	Closure of university/college during the current or next academic year										
Re in	educt the i	ion o nfrast	f mai ructu	ntena ire	ance	and	servu	ices			
Ot	her			-							
	1										
0	5	10	15	20	25	30	35	40	45	50	55

COVID-19 impact on staff employment



Government Expenditure

on postsecondary non-tertiary education as a percentage of GDP (2017) 0.13%

Leadership



an S

on tertiary education as a percentage of GDP (2017)



Supporting Staff



215

thousand

supporting staff in the education field around the world



These functioning student services include





Counselling



[2] Low-and lower-middle-income countries were more affected by university closures than higher-income countries.

(● 77 ▶ 78

[1] : Based on information available



Characteristic: 🗐

- A fusion of technologies that is blurring the lines between the physical, digital, and biological spheres
- Emerging technology breakthroughs in fields such as AI, robotics, the Internet of Things
- Integrated and comprehensive response required, involving all stakeholders of the global polity

Challenge

- Yield greater inequality, particularly in its potential to disrupt labor markets
- Diminish some of our quintessential human capacities, such as compassion and cooperation

Opportunities:

- The potential to raise global income levels and improve the quality of life
- Opportunity for cross-cultural understanding and cohesion
- Widespread technology access
- Previously unthinkable realities via interplay between fields like nanotechnology, mobile networks and computing

Characteristic: 록

- Provide the second s
- O Used electronics and information technology to automate production

Characteristic: 😸

 Brought mass production through assembly lines and electrification

Future beyond the Fourth Industrial Revolution

 Putting people first and shaping a future that works for all

 Technology as a complement to creativity, empathy, stewardship

Education Beyond 2030

 Asking what education might yet become – and what education might yet enable us to become

"Education does more than respond to a changing world. Education transforms the world."

History of ICT & Future of Education

1971 ITU Telecom World Event

• Evolving of the term "information technology"

· Focused on telecom, voice over fixed infrastructure

telecom 71



1980s Market Liberalization & Mobile Tech

• Fall of 1981: IBM introduced the first personal computer

Ran by national operators





Advancement of mobile technology



- Aging population
- Economic dynamic shift from West to East





• Social media and technological advances: Cloud, M2M

2021 ITU Digital World 2021: Building The Digital World. Together.

 Funding and facilitating digital transformation with ministers, heads of regulators and tech sector leaders

• Al, cybersecurity, digital skills are key factors

accelerating digital transformation.

ITU Digital World 2021



production

? Brought machine innovations like the

steam engine, cotton spinning and railroads

O Used water and steam power to mechanise

Challenges for Higher Education Workforce

Types of Challenges



- 2 Emotional
- 3 Behavioural
- 4 Social

4 81 ⊳82

5 Environmental

Mostly-mentioned Challenges

The TOP FIVE biggest challenges of remote study, according to a UNESCO National Commissions survey on higher education in 2020.



The survey included



10 in Asia and the Pacific

HEIs

21 in Asia and the Pacific

Other Frequentlymentioned Challenges

In another UNITWIN/UNESCO Chair Holders survey in 2020, respondents also reported following challenges.



excessive

screen time

family

concerns

health concern

aspects.



Competencies Needed

In face of these challenges, HEW needs to grow competencies in following

Proactive learning initiatives



Technical skills and capacity

student

a lack of organization of time and tasks



visa concerns



Intercultural literacy and communications





limited access to literature and library

a lack of

working discipline

a lack of

team working

a lack of familiarity with online platforms

mental

training on how

to apply e-learning



Competency 1: Proactive Learning Initiatives



[3] Velasco et al. survey on 764 HEI professionals in 2014. In total, 729 faculty members in three universities completed the surveys: Universidad Europea de Madrid (317), INTI (68), Universidad de Anhembi Morumbi (344). The demographic profile of the sample included 51 % women and 49% men. The mean age of faculty members was 43 years (SD = 9.8 years). Approximately 26% had been members of the faculty for less than 3 years, 21% between 3 and 5 years, 18% between 6 and 10 years and 35% for more than 10 years. Apart from teaching at the university, 66% were involved in other professional activities.

[4] The survey conducted by UNESCO's Section for Higher Education was addressed to UNESCO's 193 Member States and 11 Associate Members to provide an evidence-based overview of the current situation of the higher education system at the national and global levels. The survey was available online between 15 December 2020 and 12 February 2021. Sixty-five countries submitted responses, 57 of which were valid and were applied to the following analysis. 9 countries and 16% of total responses are from Asia and the Pacific. **90%** of 729 HEI professionals

find it either important or very important to develop competencies develop competencies in higher education. $^{\left[3\right] }$



Digits



19% increase

in research activities and university extension work in teaching and learning after the initial COVID-19 outbreak.

Teaching Mode Changes during COVID-19 (%)

HEIs are making changes in their teaching mode to adapt to the COVID-19 reality, according to a UNESCO survey.

Fully online	Count of responding HEI
Primarily online	19
Hybrid (40-60% online) 28	
Primarily in person	1
Fully in person / No impact	2



Among HEIs replying pre-COVID remote learning experiences, percentage of courses regularly taught online



No disruption of on-line/remote studies

7% and 9% HEW reported that the capacity for their institution to deliver remote learning has not been disrupted by student or staff/teachers contracting the COVID-19 virus, respectively.





Disabled Women in people in migrant and persons STEM fields rural areas refugee populations

Technical skills and capacity are also for...⁶

According to UNESCO, these populations are underrepresented in HEIs, either as HEW or as student.



[5] The current report presents the preliminary summary findings of a survey of UNITWIN/UNESCO Chair programme host universities, distributed electronically to all 793 institutions in English, French and Spanish from 6-20 April 2020.

[6] According to UNESCO, the global literacy rate for adults with disabilities is as low as 3 per cent, and only 1 per cent for women with disabilities. The 1 billion people with disabilities are the world's largest minority, accounting for about 15 per cent of the global population. However, students, scholars and researchers with disabilities in higher education remain under-represented and they are among the most marginalized, vulnerable, and excluded groups on campus. Also, vulnerable groups – such as disabled persons, migrant and refugee populations, and people in rural areas – face continued obstacles to accessing higher education, and women are still under-represented in science, technology, engineering and mathematics (STEM) fields.

Competency 3: Intercultural Literacy and Communications



Increasingly Diverse Student Body

Inbound internationally mobile students



23.9%

41.2% Increase in Asia and the Pacific

68.5 million Displaced Individuals⁷⁷

put measure in place to

mentor students

of refugees are enrolled in tertiary education, compared to 37% of young people worldwide.

provide both academic

and non-academic support



[7] Globally, 68.5 million individuals are either displaced within their home country or living in exile as refugees. Displaced persons and refugees chronically lack access to education: only 1% of refugees are enrolled in tertiary education, compared to 37% of young people worldwide

Tips for Higher Education Workforce



Building a higher education support ecosystem for all

More international policy dialogue	14%
More international cooperation in research to be organized remotely	16%
Guldelines/tools/teaching learning materlals to develop online/distance learing	21%
Improvement in the infrastructure and availability of devices for online/distance learning	21%
Other	5%

Good practices for delivering OBTL



- Make a clear plan to organize the transition to distance learning
- Combine synchronous and asynchronous activities for the same course
- Redesign courses to fit online formats, making them shorter and tighter
- Discuss with students outside teaching time
- 5 Quickly and precisely respond to student requests for information
- 6 Keeping in contact with students, addressing their problems to access, taking their opinions into account
- Explore new paths for teaching and learning
- 8 Use project and task-based working methodology
- Use continuous evaluation

UNESCO-ICHEI's effort







Knowledge



IIOE-Competency Framework for the Higher Education Workforce 2.0

Available in Chinese and English



IIOE Competency Framework for the Higher Education Workforce (IIOE-CFHEW)

(IIOE-CFHEW) Suggestions on IIOE-CFHEW from the preconsultation meetings on 15 July 2021 & Executive summary of IIOE-CFHEW UNESCO-ICHEI, July, 2021



on the verge of digital transformation, by which the progression has been accelerated by the profound, long-lasting impacts of the broadbased implementation of Informations Technology (ICT) since the outbreak of COVID-19. The Higher Education Workforce (HEW), which constitutes different

Higher Education is

job functions at all levels, including the faculty, administration, and support staff, will all need to thrive in their professional development trajectories in ensuring a future-ready higher education ecosystem for sustainable development. In this context, the IIOE Competency Framework for the Higher Education Workforce 2.0 (IIOE-CFHEW) was released by the International Institute of Online Education (IIOE) in 2021 to accelerate partner universities' digital transformation on a broader scale.

The IIOE-CFHEW outlines a comprehensive series of future-oriented ICT competencies available to all higher education workforces (HEW). The framework also demonstrates innovative ICT competencies that proactively respond to current and future challenges for a digital higher education ecosystem. By identifying three core dimensions and examining four key phases for Teaching & Professional Development, IIOE-CFHEW presents a landscape for the futureready ICT-enabled Higher Education and a diverse set of knowledge & skills required by such transition in an attempt to leverage higher education with ICT for partner HEIs, and stimulate indigenous innovation through cultivating an active, capable future workforce by empowering the local Higher Education Workforces (HEW) to enhance digital literacy.

Link: https://www.ichei.org/Uploads/Download/2021-08-26/61274b96f1378.pdf

UNESCO ICT Competency Framework for Teachers (Version 3)



The 2030 Agenda for Sustainable Development recognizes that the prevalence of Information



United Nations Acadional. Scientific and

and Communication Technologies (ICTs) has a significant potential to accelerate progress, bridge the digital divide, and support the development of inclusive Knowledge Societies based on human rights,

gender equality and empowerment. ICTs are critical for progress towards the achievement of all 17 Sustainable Development Goals (SDGs), especially Quality Education (Goal 4), Infrastructure (Goal 9), Reduced Inequalities Within and Across Countries (Goal 10). Therefore, in partnership with industry leaders and global subject experts. UNESCO has created an international Framework that sets out the competencies required to teach effectively with ICT: the UNESCO ICT Competency Framework for Teachers (ICT CFT).

The ICT CFT (Version 3) addresses the impacts of recent technological advances on education and learning, such as Artificial Intelligence (AI), Mobile Technologies, the Internet of Things and Open Educational Resources, to support the creation of inclusive Knowledge Societies. This document is intended to inform teacher-training policies and programmes to strengthen the use of ICT in Education. It mainly targets teacher-training personnel, educational experts, policy-makers, teacher support personnel, and other professional development providers. The ICT CFT emphasizes that teachers should have ICT competencies and the ability to develop these in their students. They must also be able to use ICT to help students become collaborative, problem-solving, creative learners and innovative and engaged members of society.

Link: https://unesdoc.unesco.org/ark:/48223/ pf0000265721

Guidelines on Adaptation of the UNESCO ICT **Competency Framework** for Teachers: **Methodological Approach on** Localization of the **UNESCO ICT-CFT**



GUIDELINES ON ADAPTATION OF THE UNESCO ICT COMPETENCY FRAMEWORK



The application of new technologies in education assumes a new role of the teacher, new pedagogical techniques, and new approaches to teacher education. The success of ICT integration into actual educational classes will depend on the ability of teachers to restructure the academic environment to combine new technologies and new pedagogics. Therefore, the UNESCO

ICT Competency Framework for Teachers (ICT-CFT) was put forward at the 35th session of its General Conference to help countries develop comprehensive national teacher ICT competency policies and standards.

This document aims to provide the UNESCO Member States with a methodological approach to adapt the ICT-CFT to local conditions and create ad hoc national standards for teachers in ICTs for education (ICT-ED). At the same time, it is strongly recommended not to get stuck with this localisation methodology as if it was unique: national education systems and their requirements vary significantly within levels and sectors of education, so the methodology must be adapted accordingly. The methodological approach proposed in this document explains the most critical stages of the UNESCO ICT-CFT adaptation process. It suggests guidelines to determine the appropriate strategies and policies for the development of ICTs in education and the professional development of educators and identifies the resources needed for the successful implementation of the CFT to the local context.

Link: https://unesdoc.unesco.org/ark:/48223/pf0000 224188?posInSet=5&gueryId=a9697493-f904-48c0-977c-45c5553c832e

Southeast Asia Teachers **Competency Framework** (SEA-TCF)

Available in English

Revitalizing teacher education is one of 😂 🚯 😂 😚 the SEAMEO-led priority agendas of eleven Southeast Asian countries from 2015 to Southeast Asia 2035. Schools today Teachers Competency operate in a complex and constantly changing world of knowledge and information. Teachers need continuous professional development to improve their performance and thus

students with essential future skills. Hence, Southeast Asia has committed to promoting teaching as a firstchoice profession by professionalizing teachers' pre and in-service development using a regional competency framework as a guide.

better prepare and equip

This publication is a product of a regional collaboration involving eleven Ministries of Education in Southeast Asia (10 ASEAN Countries plus Timor Leste) working together to develop a Southeast Asia Teachers Competency Framework (SEA-TCF). The SEA-TCF is a set of skills, knowledge, behaviours, and attributes which the eleven Ministries of Education have agreed that teachers in their respective countries need to have. It consists of four essential competencies identified by principal high officials from the eleven Ministries of Education and experts in teacher education from the 11 countries. The objective of the SEA-TCF is to serve as a guide for use in teacher professional development toward realizing 21st Century Skills and practices within a context that is regionally appropriate and in line with global best practices.

Link: https://www.criced.tsukuba.ac.jp/math/ seameo/2019/pdf/SEA-TCF%20BOOK.pdf

UNESCO-Shenzhen Funds-in-Trust Project for Higher Education: **Building staff capacity** for ICT-driven innovation in Cambodia and Sri Lanka







The rapid growth of digital economies throughout the Asia-Pacific region challenges traditional higher education systems as institutions struggle to remain relevant by developing flexible lifelong learning strategies. There is a crucial need to cultivate a holistic approach to technology to ensure equitable access to quality higher education throughout

the region. From 2016-2019, UNESCO Bangkok, with generous support from the Shenzhen Funds-in-Trust (SFIT) and the International Centre for Higher Education Innovation under the auspices of UNESCO (ICHEI), implemented an initiative on ICT-driven innovation in Cambodia and Sri Lanka. Two flagship universities were engaged in the pilot project - the Roval University of Phnom Penh. Cambodia. and the University of Colombo, Sri Lanka.

Education 2030

One of the project's primary objectives was to increase access to quality higher education in Cambodia and Sri Lanka through ICT, including blended learning and MOOCs. Another objective was to strengthen higher education governance and partnerships for ICT-driven innovation. The project was designed to address the challenges of equitable access to quality higher education in line with Sustainable Development Goal 4, Target 3 (SDG4.3). As part of the project outcomes, this document introduces the efforts that ICHEI has made during the project and the new self-assessment framework on blended learning for quality higher education piloted in Cambodia and Sri Lanka.

Link: https://en.ichei.org/Uploads/Download/2021-06-07/60bd89e6d05a6.pdf

▲ 97 ⊳98

Diverse Approaches to Developing and Implementing Competency-based ICT Training for Teachers: a Case Study

Available in English

Perse Approaches to Developing and Implementing Competency-based ICT Training for Teachers: A Case Study With the formal adoption of the 2030 Agenda for Sustainable Development in September 2015, Member States are asked to abide by the Education 2030 Framework for Action that underscores the central role of teachers in achieving the new set of education goals. In line with this Framework, all governments are enjoined to ensure that

by 2030, all learners are taught by qualified, professionally trained, motivated, committed, and well-supported teachers who use relevant pedagogical approaches. Accordingly, one of the major focus areas for government is equipping teachers with the competencies through quality teacher training and continuous professional development, alongside favourable working conditions and appropriate support.

In response to this call, UNESCO Asia and Pacific Regional Bureau for Education (UNESCO Bangkok) has implemented the 'Supporting Competency-Based Teacher Training Reforms to Facilitate ICT-Pedagogy Integration' project, supported by Korean Funds-in-Trust and encourages governments to enact systematic policy-level changes. As part of the project, UNESCO Bangkok gathered four exemplary cases of Australia, Korea, China, and GeSCI to document and disseminate diverse approaches and national experiences in developing and implementing ICT competency-based teacher training and development. This publication takes stock of different frameworks, models, processes, and reference materials used in developing and implementing national ICT competency standards for teachers and provides step-by-step references for countries or organisations that wish to develop and implement competency-based teacher training and development.

Link: <u>https://unesdoc.unesco.org/ark:/48223/</u> pf0000246003

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Teachers in the Asia-Pacific: Career Progression and Professional Development



TEACHERS

N THE ASIA-PACIFIC 2030 Agenda is implemented to improve the quality of education, teachers will undoubtedly be central to the success of any efforts. However, despite wide recognition of teachers' importance in ensuring children have the necessary skills for the 21st century, many countries have not yet given teachers the support they require, and in some

As the new Education

countries, there has been a noteworthy decline in teachers' social status. Based on the findings from nine country case studies, this regional report emphasises that if we want teachers to meet the educational needs of 21st-century learners, we must support them in their professional development and provide them with career options suited to their areas of expertise. It also offers up-to-date information on the current situation of teachers in Asia and the Pacific and valuable insights for policy-makers, teachers, development partners and other stakeholders.

The objectives of the 2016 study were to examine and analyse the following to provide policy recommendations that support attractive and sustainable career pathways for teachers: • The career pathways available for teachers in the

- Asia-Pacific region;
- The policies and initiatives to promote and support the career progression of teachers;
- The roles of school leaders in professional development and career progression for teachers.

This study covered teachers working in basic education under the ministries of education in nine countries from the Asia-Pacific region:

- Central Asia Uzbekistan
- East Asia Mongolia and Republic of Korea
- Pacific Samoa and Fiji
- South Asia Pakistan and Sri Lanka
- · South-East Asia Indonesia and the Philippines
- Link: https://unesdoc.unesco.org/ark:/48223/ pf0000246011

ICT in Teacher Education: Policy, Open Educational Resources and Partnership





The UNESCO Institute for Information Technologies in Education (IITE) was established to assist UNESCO Member States in supporting policymaking and national capacity building regarding the effective ICT integration into educational systems and teaching processes. The International Conference IITE-2010 "ICT in Teacher Education: Policy, Open Educational

Resources and Partnership", which took place on 15-16 November 2010 in St. Petersburg, Russian Federation, served as an intellectual platform for open dialogue between policymakers, teachers, practitioners, experts from the public and private sectors, and representatives of educational, scientific and professional institutions and organizations.

The Conference covered the topics related to the main dimensions of the UNESCO IITE activities: policy advocacy, research, capacity development, knowledge sharing and partnership. It also pursued the following primary goals:

to introduce and disseminate the best practices in ICT application in teachers education,
to discuss the main problems in ICT use in education,

• to determine the following steps to build the united informational and educational environment for ICT-based teachers' education and professional development of the new generation of teachers in the Knowledge Society.

This document summarizes the Conference outcomes and contains key recommendations on improving teachers' training and development of ICT application in education, IT-literacy and OER dissemination, partnerships between IITE, leading IT companies, UNESCO ASPnet Schools and UNESCO Chairs working on distance learning and ICT in education.

Link: https://unesdoc.unesco.org/ark:/48223/pf0000 210844?posInSet=47&queryId=f73523c3-02bf-4ddf-af4e-faf9b238d27c

ICT Competency Standards for Teachers: Policy Framework







This document explains the rationale, the structure, and the approach of the ICT Competency Standards for Teachers (ICT-CST) project. It also describes how teacher professional development fits into the larger education reform context, as countries review their educational systems about producing 21st-century skills supporting social and economic development.

It can be used as a guide by those concerned with education decision-making and teacher professional development in preparing their training curriculum and course offering proposals.

The objectives of the UNESCO ICT-CST project are:

• To constitute a standard set of guidelines that professional development providers can use to identify, develop, or evaluate learning materials or teacher training programs in ICT use in teaching and learning.

• To provide a basic set of qualifications that allows teachers to integrate ICT into their teaching and learning, advance student learning, and improve other professional duties.

• To extend teachers' professional development to advance their pedagogy, collaboration, leadership and innovative school development using ICT.

• To harmonize different views and vocabulary regarding the uses of ICT in teacher education. The Standards will guide approved governmental, non-governmental, and private providers in constructing or revising their learning materials to support these goals. The Standards will also enable teacher development decision-makers to assess how these course offerings map onto required competencies in their country and thereby help drive the development of specific abilities and skills for the teaching workforce appropriate to the profession and national economic and social development goals.

Link: https://unesdoc.unesco.org/ark:/48223/pf0000 156210?posInSet=9&queryId=f73523c3-02bf-4ddf-af4e-faf9b238d27c