



UNESCO-ICHEI

Higher Education Digitalisation Pioneer Case Award (2023) Reform and Innovation of Blended Learning in Higher Education Winning Cases





Award Ceremony

2023 UNESCO-ICHEI Higher Education Digitalisation Pioneer Case Award

4 EDUCATION

This year's Higher Education Digitalisation Case Award was supported by the generous donation of the **BYD Charity Foundation**

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The Pioneer Award: Empowering Global Innovators to Drive Digital Transformation in Higher Education



The Pioneer Award is committed to discovering localised practical solutions in developing countries and promoting digital transformation in global higher education through best cases. It also aims to generate a widespread impact to improve the quality and equity of education.



The "Higher Education Digitalisation Pioneer Case Award" (hereinafter referred to as the Pioneer Award), organised by the International Centre for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI), aims to inspire the constructive explorations, innovations, and practical implementations undertaken by individuals, partner institutions, and enterprises in the domains of pedagogy and administration. The Pioneer Award is a philanthropic prize directed by UNESCO-ICHEI, made possible through corporate sponsorship. The theme of the 2023 Pioneer Award is **"Reform and Innovation of Blended Learning in Higher Education"**, covering innovative teaching, resource building, student support, institutional governance, and strategic transformation, etc.

A total of **83 institutions and 9 enterprises from 42 countries** participated in the first Pioneer Award, collectively submitting **131 works**. Twenty-two outstanding cases have emerged as winners. Among them, there are 12 cases from overseas institutions, 4 cases from Chinese institutions, and 6 cases from enterprises. The Pioneer Award not only serves as a platform for exchanges between higher education institutions (HEIs) from various countries but also as an important stage for university-enterprise cooperation and innovation in digital education.

Background of the Pioneer Award

The integration of digital technology and education is exerting a more extensive impact on the transformation of higher education in developing countries, but the global digital divide remains a pressing challenge. According to UNESCO's Global Education Monitoring Report 2023, the pace of technological development surpasses the speed at which technology is evaluated. Educational technology products, on average, undergo updates every 36 months, with the majority of evidence coming from Global North countries. In contrast, low- and middle-income countries face equipment shortages and limited internet connectivity, making it more challenging to undertake digital transformations and harness the potential of digital technology in teaching [1].

Amid the ongoing transformation of higher education into the digital realm, it is crucial to assess, research, and reevaluate how educational technology is employed. A thorough understanding is required of how various technologies deeply integrate with teaching methods and how they adapt contextually to specific countries and areas. Not all experiences with technology in education are universally applicable, as what works in one environment might not seamlessly transfer to another. As technology matures and becomes more complex, it is essential to draw upon a diverse range of cases and experiences to explore the practicality and innovation. The Pioneer Award aims to inspire and encourage International Institute of Online Education (IIOE) global partners to engage deeply in the digitalisation of higher education.



The Judging Committee and Mechanism

UNESCO-ICHEI establishes a judging committee consisting of UNESCO agency experts, IIOE international advisory experts, International Institute of Online Education (IIOE) project advisors and experts, as well as renowned experts in the field of digital transformation in higher education, to conduct a diverse, authoritative and professional global award campaign. This committee guides the direction of the awards, formulates evaluation rules and criteria, executes the evaluation process, and confirms the evaluation results. A final decision must be approved by a majority to be considered valid. According to the evaluation standards and procedures, the jury comprehensively evaluates and scores the participating works and provides professional opinions and suggestions.

Twelve experts collectively worked on the selection process for the First Pioneer Award. The selection is based on six key elements:

- **Project design:** whether it is closely centred on the theme "Reform and Innovation of Blended Learning in Higher Education" and whether it contributes to quality, inclusion, and equity in education.
- Effectiveness of implementation: whether the project has improved the effectiveness of teaching and learning or institutional governance, including



The Meaning of the Pioneer Award Logo



The logo of the Pioneer Award is composed of five petals in different colours, combining elements of education, digitalisation, and pioneering spirit. Among these, the colour red represents the iconic tone of SDG 4, which responds to "ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all." The five petals are arranged in a rotating pattern, symbolising the continuous blossoming and flourishing of higher education through digital empowerment. This dynamic and lively representation signifies the future of education, about transformational learning in all its richness and vitality.

the effectiveness of student learning, the quality of teaching, and the effectiveness of policy implementation.

Professional development: Whether the project is effective in enhancing teachers' professional development and digital competency, including teachers' self-development and training.

Regional impact: Whether the project has been reasonably adjusted and adapted to the local culture, social background and other factors, and whether it is able to integrate with the local society and culture.

- Innovation: The degree of innovation in teaching mode, curriculum design, teaching resources, teaching development and institutional governance.
- **Sustainability:** Whether the experience and methodology of the project have the potential for long-term sustainable operation and can be replicated in other universities.

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International Jury of the Pioneer Award



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Chair Professor and Associate Dean (International Engagement), Faculty of Education and Human Development, Education University of Hong Kong, China; Chief Expert of IIOE, UNESCO-ICHEI



Grace Oakley

Associate Professor and Deputy Dean of the Graduate School of Education, University of Western Australia, Australia



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Senior Instructional Designer, Learning Mall, Centre for Knowledge and Information, Xi'an Jiaotong-Liverpool University



UET, Lahore: A Case of Technology-Training Convergence in AR/VR and AI Era in Pakistan



Project: Empowering Learners Through Blended Learning and Key Enablers: A Case of Technology-Training Convergence in AR/VR and AI Era in Pakistan Organisation: University of Engineering and Technology (UET), Lahore, Pakistan

Country: Pakistan

The jury's comment: Starting from IIOE's Smart Classroom (SCR) and online resources, and the innovative integration of emerging technologies, the project has made a step further from digital literacy to Artificial Intelligence (AI) literacy to support teachers and students with blended learning.students and educators.



Prof. Dr. Waqar Mahmood Director at KICS-UET



Mr. Muhammad Tahir Naeem Manager at KICS-UET

Project Background

With approximately 244 universities and 3,000 degree colleges as public and private institutions, Pakistan is a country rich in cultural diversity, with a multitude of languages, traditions, and historical legacies. This diversity extends to its education system, which is highly centralised, and the government plays a dominant role in setting policy and curriculum. Furthermore, Pakistan's higher education system is facing a number of challenges, including limited access to educational resources and inequity across the country. Therefore, blended learning is seen as a promising way to improve the quality and accessibility of higher education.

The University of Engineering and Technology (UET) Lahore is a public university located in Lahore, Punjab, Pakistan. Since establishing the Smart Classroom (SCR) facility in 2019, becoming a founding member of the flagship International Institute of Online Education (IIOE) in 2019 and commencing as IIOE National Centre of Pakistan in 2021, UET Lahore has made significant progress in the digital transformation of higher education domain in Pakistan. Al-Khwarizmi Institute of Computer Science (KICS), an integral part of UET Lahore and under the leadership of Prof. Dr. Waqar Mahmood, has been the main driver of key initiatives of the International Centre for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI) at the regional and national levels. In addition, Pakistan has 2600+ active members of the IIOE platform.



Project Objectives

UET Lahore's KICS envisions that blended learning can help to address education's challenges to some extent by:

Improving access: Since technologies offer boundless imaginations, blended learning can make higher education more accessible to Pakistani teachers and students who are unable to attend traditional campus-based programmes.

Promoting equity: Blended learning can help level the playing field for underprivileged teachers and students from all backgrounds in urban and remote areas of Pakistan.

Innovative Design

KICS has encouraged faculty members to adopt innovative teaching methods by conducting workshops, seminars, and webinars on digital teaching strategies. The KICS has also promoted the use of emerging technologies such as Artificial Intelligence (AI), Augmented Reality (AR), and Virtual Reality (VR) to enhance pedagogical approaches. Some applications encompass VR Frog Dissection Simulation, Learning and Visualising Alphabets in AR, AR Solar Systems, VR Training for Solar Panel Installation, Chemistry Lab, and Virtual Electronics Lab. With the attached materials, it is clear that with AR and VR, educators can deliver course content more interactively than traditional two-dimensional methods. These applications have immersive 3D content for visualisation and a deep understanding of the subject's concepts.

> Please scan the QR code to watch the Virtual Lab videos





Virtual Chemistry Lab



Commissioned by Large Language Models (LLM) and Generative AI (GenAI) applications such as ChatGPT, UET Lahore orchestrated a highly effective summer boot camp that delved into the realms of advanced technologies, including AI and Full Stack Development. This innovative programme seamlessly integrated blended learning, accommodating onsite and online students. Notably, the provision of recorded lectures for self-paced learning during non-peak hours expanded the reach and accessibility of the programme, facilitating simultaneous learning for a larger and more diverse cohort of students. This approach optimised learning opportunities and fostered a dynamic and inclusive educational environment.

Project Outcomes

UET Lahore has been at the forefront of driving the reform and innovation of blended learning in higher education. KICS's commitment to leveraging technology and digital solutions has played a pivotal role in enhancing the education landscape. KICS's work and achievements can be showcased in the following sub-areas related to the reform and innovation of blended learning.

• **Digital Classroom Teaching:** KICS has been instrumental in revolutionising digital classroom teaching by developing and implementing robust Learning Management Systems (LMS). These systems facilitate seamless content delivery, interactive sessions, and real-time assessment.

Virtual Electronics Lab

• **Digital Practical Teaching:** Incorporating hands-on learning experiences in a smart classroom setting has been a significant challenge. KICS's work has focused on developing smart classrooms that provide students with practical exposure, even when physically distant.

Digital Teaching Resource Building and Application: KICS has built extensive digital teaching resources and applications, including Open Educational Resources (OER) repositories, online textbooks, and multimedia content. These resources are easily accessible to both educators and students.

• **Digital Strategy and Transformation Policy:** KICS has collaborated with universities to formulate digital strategy and transformation policies. These policies serve as roadmaps for institutions looking to embark on their digital transformation journey. They include guidelines for investment, infrastructure development, and faculty training.



Impact and Sustainability

Different segments of the project successfully harnessed digital technology to modernise teaching and learning design in higher education at UET Lahore. It tackled issues of access, quality, resources, and teacher training, making education more inclusive.



Access and Inclusivity: One of the major problems addressed was the lack of access to quality content and instruction, particularly for learners with low-or-no ICT background. The introduction of online and blended learning, supported by digital technology, expanded access to a broader range of students, bridging geographical gaps.

Quality Enhancement: As mentioned earlier, the quality of higher education in Pakistan faced challenges across institutions, including UET Lahore. The use of AI, AR, and VR technologies improved the quality of teaching and learning by making it more interactive, personalised, and engaging.

Resource Sharing: UNESCO-ICHEI's Smart Classroom project and IIOE platform's digital technology reduced the burden on physical infrastructure and allowed for the efficient utilisation of resources. Al-driven content delivery enabled instructors to reach more students with fewer resources.

Teachers' Training: The project provided comprehensive training for educators in the effective use of digital tools and technologies, ensuring they could adapt to the evolving educational landscape.

In the future, KICS aims to extend its efforts to promote regional educational equity by partnering with universities in underserved areas. Future initiatives may provide access to digital resources, facilitate online courses, and develop localised content to bridge the educational gap.

Ain Shams University: Empowering Higher Education Institutions For Digital Teaching and Learning in Egypt



Project: Empowering Higher Education Institutions For Digital Teaching and Learning in Egypt

Organisation: Ain Shams University

Country: Egypt

The jury's comment: This project fortifies the IIOE Egypt National Centre and advances digital teaching and learning in Egyptian HEIs, promoting interactive and engaging learning experiences for students and educators.



In Egypt, digital transformation has become a priority of national development. However, it was found that despite numerous achievements, Egyptian Higher Education Institutions (HEIs) still face various challenges in achieving more effective digital teaching and learning.

Teachers' digital teaching competencies need to be further strengthened with special emphasis on improving the quality of digital courses.

There is a need for awareness raising and sharing of experience among HEIs' top management to better steer the digital transformation process and manage change.

• There is a need to guide HEIs' management in translating visions and strategies into supportive policies, standards, guidelines, and daily practices.

To address these challenges, the International Centre for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI) and Ain Shams University jointly established the International Institute of Online Education (IIOE) Egypt National Centre in May 2022. The Centre aims to build a national network of Higher Education Institutions (HEIs) and construct a national platform of dialogue for the professional development of the higher education workforce. As of December 2022, twenty-three Egyptian HEIs have joined the IIOE Egypt National Centre network, forming a national community of HEIs committed to digital teaching and learning. The IIOE Egypt National Centre, in collaboration with UNESCO-ICHEI, launched the project "Empowering Higher Education Institutions for Digital Teaching and Learning in Egypt" to support higher education digital transformation.

Project Objectives

The project's overarching goal is to fortify the IIOE Egypt National Centre and advance digital teaching and learning in Egyptian HEIs.

The project has two specific goals:

Enhance teachers' competencies in digital teaching, improve the quality of digital courses, and strengthen digital teaching practices.

Establish a conducive institutional environment for digital teaching and promote the culture of digital transformation in higher education among the Egyptian HEIs' management.



Innovative Design

The project encompassed innovative digital tools and approaches aiming to enhance educational experiences, expand educational opportunities, remove physical constraints, and promote interactive and engaging learning experiences for students and educators alike. Here are a few examples:

Learning Management Systems (LMS): LMS platforms (ASU2Learn) served as a central hub for online courses, allowing educators to create and organise course content, deliver assignments, facilitate discussions, and track trainees' progress.

• Online collaboration platforms: The final project was assigned to different teams of master teachers who were tasked with utilising a variety of collaborative online tools to enhance their productivity and streamline their workflow. The team began by using online group communication platforms to arrange their meetings, such as Zoom and virtual white-boarding tools like Miro and Mural.

Presentation Tools: Tools like Microsoft PowerPoint, Google Slides, or Prezi offer dynamic ways to create visually appealing presentations. They enabled master teachers to incorporate multimedia elements, interactive



features, and collaborative editing capabilities to make sessions more engaging.

• **Project-based training:** Projects were in the form of designing and developing online courses targeted at students, in which teams worked together to accomplish the tasks.

Hybrid Conferences: Hybrid conferences combine physical and virtual elements, giving attendees the option to participate either in-person or remotely. This was applied in two activities: the National Policy Dialogue in January 2023 at Galala University and the Digital Leadership Symposium in March 2023 at the Innovation Hub (iHUB) of Ain Shams University.

Project Outcomes

• Digital Teaching Training Programme: It aligns with the broader mission of IIOE to catalyse positive transformations in online education and equip educators with the necessary skills. Two rounds of three workshops on digital teaching and learning for master teachers from national partner HEIs of the IIOE Egypt National Centre. Notable achievements include the participation of 63 teachers, of which 37 were females, constituting 64.7% of the total. Impressively, 51 teachers received certificates of competency, representing an 82.5% completion rate.

• Egyptian National Policy Dialogue for Digital Teaching and Learning: The event was organised by IIOE Egypt and hosted by Galala University. Keynote speeches highlighted the importance of quality assurance and



international best practices in eLearning. A panel discussion highlighted the impact of digital teaching strategies and the challenges faced by Egyptian universities. The event concluded with the release of a report supporting digital teaching and learning in Egyptian higher education, which was in line with Egypt's national strategy for digital education.

Digital Leadership Symposium: The symposium endeavoured to strengthen the digital leadership capabilities of top management in Egyptian HEIs and assist HEIs in formulating digital transformation strategies and policies.

Impact and Sustainability

The training programme that was targeted to master teachers and change agents in their institutes aimed to equip them with the necessary knowledge and skills to effectively integrate blended learning into their classrooms. Teachers received comprehensive training on various aspects, including selecting appropriate online resources, designing interactive online activities, and managing and evaluating blended learning environments. By mastering these techniques, educators were empowered to create engaging and personalised learning experiences for their students. Moreover, they were introduced to the IIOE platform and encouraged to conduct training and support other teachers at their universities using the provided resources.

The sustainability of any educational initiative relies on the active involvement of policymakers and educational leaders. The project facilitated policy dialogues where key stakeholders, including education policymakers and university management, discussed the benefits and challenges of implementing technology tools in higher education and shared their experiences. These conversations helped build consensus on the importance of integrating technology into education and paved the way for the creation of supportive policies and guidelines. By engaging higher education leadership, the project ensured that the necessary support and resources were available to sustain the blended learning initiative beyond the initial training phase.

A collaborative network of representatives of the partner universities was formed to continuously discuss the opportunities for professional development and support teachers in refining their blended learning practices and staying up to date with the latest technological advancements. Moreover, this network aimed to encourage knowledge sharing and peer support among educators. Additionally, monitoring and evaluation systems, such as the IIOE Quality Assurance Framework 2.0, were introduced to ensure ongoing assessment of the effectiveness of blended learning implementation.

UN-CHK: The Role of Open Digital Spaces in Distance Education in Senegal and Sub-Saharan Africa



Project: The role of Open Digital Spaces (ENO) in distance education in Senegal and Sub-Saharan Africa **Organisation:** Université numérique Cheikh Hamidou KANE (UN-CHK, ex UVS, Virtual University of Senegal) **Country**: Senegal

The jury's comment: The Open Digital Spaces (L' Espace numérique ouvert, ENO) make digital technology accessible to all possible, especially communities that cannot follow the courses in traditional universities, promotes the inclusion of people with reduced mobility, and the reduction of gender-related inequalities.



Project Background

The creation of the Université numérique Cheikh Hamidou KANE (UN-CHK; formerly UVS, Virtual University of Senegal) in Senegal addresses the need to improve accessibility to higher education. It is a public university with

an innovative learning system based on Information and Communication Technology (ICT). UN-CHK transforms the traditional university ecosystem by focusing on digital orientation. It promotes the use of new technologies and plays a pioneering role in combating the digital divide in Senegal. It is also the first digital university in West Africa, offering diverse training programmes tailored to the needs of learners (students and professionals), including digital and emerging science disciplines and classical ones. UN-CHK is at the forefront of shaping the educational landscape in the region.

Project Objectives

The Open Digital Spaces (L' Espace numérique ouvert, ENO) makes digital technology accessible to all, especially communities unable to access traditional university education. The ENO network promotes the inclusion of persons with reduced mobility and gender-related inequality reduction. Women find a welcoming learning environment, boosting female enrollment rate in higher education; for instance, there's a 55% female presence at UN-CHK. Implementing ENO addresses the training needs of local communities. The ENO network aims to enhance digital territorial planning, with each ENO interconnected to the University's headquarters, equipped with necessary ICT tools for effective learning (e.g. high-speed internet, video conferencing, telemedicine, computers, etc.).



Innovative Design

Through its ENO, UN-CHK has a multimedia production setup for digital content creation. The model used within the University is called the Adapted Comodal (le Comodal adapté), which allows face-to-face and distance learning models to coexist simultaneously, adapting content delivery to learner needs and preferences. UN-CHK offers over 200 accessible training portals through a single gateway at the online learning platform.

Free provision of student work tools (computers and internet packages) to enhance student autonomy and initiative.

Provision of ENO: ENO is equipped with a technological infrastructure hosting students for learning activities and provides thin clients (explained below) for students who benefit from teacher guidance, tutors, and monitors through synchronous sessions (virtual classrooms), live lectures (synchronous sessions between teachers and students), and asynchronous activities (discussion forums), with open access to online library resources.

In UN-CHK's ENO, pedagogical design includes formative and summative assessment methods to measure learners' understanding and achievement of pedagogical objectives. Learning resources are developed as manuals, videos, audios, simulations, and tele-laboratories to support learning. At the end of the training, questionnaires are given to students to evaluate teachers and their teaching. The course or programme may be revised based on learner feedback, reflecting an iterative process aimed at continuously improving learning outcomes.



Generative and predictive Artificial Intelligence (AI) for online assessments is being tested for automated assignment grading and exam topic generation. Augmented reality (AR) is utilised in specific fields, such as robotics or modelling, for simulations, virtual tours, and practical experiments. With the analysis of data generated by our learning platforms, teachings are becoming increasingly personalised.

Thin Client

In computer networking, a thin client is a simple (low-performance) computer optimised for establishing a remote connection with a server-based computing environment. This contrasts with a rich client or a conventional personal computer; the former is also intended for working in a client–server model but has significant local processing power, while the latter aims to perform its function mostly locally. A thin client is cheaper than a conventional computer because the former has lower IT-support costs. Moreover, thin clients can significantly improve students' access to the Internet and digital devices.



Source: Jacquelyn Bengfort. "Zero vs Thin vs Thick Clients: What's Right for Your Business?" Technology Solutions That Drive Business. https://biztechmagazine.com/ article/2018/10/thin-vs-thick-vs-zero-client-whats-right-fit-your-business-perfcon

Project Outcomes

Over ten years, UN-CHK has successfully implemented an innovative pedagogical model based on new technologies. The establishment of ENOs and the pedagogical model has enabled reaching over 60,000 students in 2023 compared to 2,400 in 2013. The initially high dropout rate (40%) saw significant improvement, dropping to 11% in 2023. Success rates are 77% for undergraduate degrees and 89% for master's degrees.

UN-CHK's model has been highly successful in the sub-region. Countries such as Ivory Coast, Burkina Faso, Mali, Chad, Guinea, and Gabon have benchmarked with UN-CHK and expressed interest in adopting its model. The university has become Senegal's second-largest in terms of enrollment, with 30% of the country's high school graduates now directed to UN-CHK.

Through ENOs, UN-CHK has also conducted significant community service activities, including training, popularisation of sciences, and digital literacy initiatives, benefiting approximately 82,950 individuals in 2022.

Plans include:

- Establishing ENOs in all 46 departments of Senegal (at least one in each) within five years. Currently, there are 17 functional ENOs and 23 under construction;
- Defining and supporting an effective management model for the sustainability of ENOs;
- Designing and modelling ENOs to ensure better alignment between missions and human, financial, material, and pedagogical resources;
- Defining and supporting a socialisation framework with an environment conducive to students' social, cultural, and sports development.
- Senegal and its partners are responsible for building the ENOs. The map above shows ENO delivered or under construction in green and ENO in the pipeline in red.

Impact and Sustainability

UN-CHK is the first digital public university in Francophone Africa with an exclusively innovative pedagogical model dedicated to distance learning. It has contributed to expanding the university landscape with the establishment of a network of Open Digital Spaces, which helps reduce the digital divide

The number of students having access to ENOs

The dropout rate

40%

50%

40%

30%





UN-CHK has significantly increased the number of students using ENOs

The dropout rate of UN-CHK has been effectively controlled



through its modern technological setup. This unique model in West Africa addresses the training needs of communities and facilitates their global connectivity through digital means. UN-CHK is committed to promoting innovative teaching methods tailored to socio-economic realities. The UN-CHK model, along with its ENOs, is being replicated in the sub-region, with Burkina Faso and Guinea's Institut Supérieur de Formation à Distance (ISFAD) adopting the same model with ENO integration.

TUIT: Empowering Qualified Information and Library Specialists through the Competency-based Approach and the Casestudy Method



Project: Educational laboratory "Digital Library" (simulator) based on the competency-based approach and the case-study method to improve the training of qualified information and library specialists

Organisation: Tashkent University of Information Technologies

Country: Uzbekistan

The jury's comment: This well-achieved project has a high potential to be replicated by more peers. The pedagogical experiment result is very impressive and has great potential to be extended to a wider scope within institutions and disciplines.



The system of training, retraining, and advanced training of library personnel, unfortunately, today does not meet modern requirements. More than 12 thousand information and library institutions and 27 thousand library employees work in information and library institutions in the country. They need to acquire modern knowledge and skills in digital technologies; accordingly, they need innovative methods and approaches applicable to the educational process.

Today, at two universities, the Tashkent University of Information Technologies named after Muhammad al-Khwarizmi (TUIT) and the State Institute of Arts and Culture (SIAC), as well as in their branches, about 1000 students study (full-time and part-time) in the direction of "Library and Information Activities". One of the prerequisites for the development of blended education methods for library staff was the need to use distance learning systems during the COVID-19 pandemic, where teachers were forced to conduct online and offline classes.

Aligning with the national strategy "The Concept of Development of the Higher Education System of the Republic of Uzbekistan until 2030", the TUIT has been reforming the existing higher education system with the transition to a credit-modular education system, which implies a radical change in the entire paradigm of education and a closer connection between "education-science-production-digital economy".

Project Objectives

The purpose of the project is to improve the training of qualified information and library specialists based on innovations in digital education (competencybased approach and case-study method), blended learning using specialised





information and library systems (ILS).

- The project aims to improve the rate of qualified information and library specialists through the use of advanced ICT in the learning process;
- Increase students' interest in the learning process;
- Provide advanced training and professional development of teachers;
- Improve the quality in teaching special subjects;
- Overcome psychological barriers to the introduction of ICT on the part of all participants in the educational process;
- Increase students' competence in the use of advanced ICT.





Innovative Design

The main emphasis in pedagogical design was on improving information and communication competency and the development of future library specialists' professional interest in innovations of digital technologies in the educational process (multimedia resources, collaborative navigation and design, analytical platforms, automated ILS), educational platforms (moodle.tuit.uz), distance learning tools, development of an industry digital library, etc.).

The project has innovative efforts in three aspects:

- Application of blended learning in the educational process in the training of library personnel using ILS;
- Using the case-study method with digital learning innovations (Zoom, Kahoot, IBS, and other platforms);
- Development of cases based on real professional scenarios using intelligent ICT.

Project Outcomes

The creation of a training laboratory called "Digital Library", which, in turn, will contribute to improving the training of qualified information and library specialists based on innovations in digital education (digital resources, SMART Class, information and analytical competence, digital simulators, ILS) in the course: "Information and Analytical Products and Services".

The key features of the project:

• Use of ILS for students to simulate real production situations in the

classroom cases (with open and closed code);

- Opportunity for students to remotely create electronic resources (electronic libraries, electronic catalogues, full-text information databases, etc.);
- Studying a particular course based on the case-study method using digital systems of learning process controllers and intelligent ICT (Ims.tuit.uz, xn.tuit. uz, ILS, Kahoot);
- Quick adaptation of graduates to real work in information and library institutions;
- Final qualification work is carried out on a specific production base and using digital technologies.

Impact and Sustainability

The use of digital technologies (simulators in the educational laboratory, automated ILS with open and closed code) in the educational process forms the psychological perception of innovations, further interest, desire and need to use them in their professional activities in order to be competitive in the labour market.

Several innovative digital technologies used in real library practice have been implemented into the educational process (development of joint Biblio-Pro projects, technologies of the Library 4.0 concept, electronic cataloguing, cloud technologies, and Radio-frequency identification (RFID) technologies in libraries). The formation of a system of information and analytical competencies of an information and library specialist will open up new opportunities in the process of implementing and applying innovative technology when transitioning to the era of digitalisation of education.



Addis Ababa University: Digital Classroom Teaching Implementation in Ethiopia



Project: Digital classroom teaching implementation at Addis Ababa University, Ethiopia **Organisation:** Addis Ababa University

Country: Ethiopia

The jury's comment: Digital classrooms have reformed the University's teaching method and accelerated the University's digital transformation. It enhances the teaching capacity and empowers the University to extend its impact on society.



Dr. Mulat Asnake

Director for Continuing and Distance Education at Addis Ababa University Project team leader



Mr. Yosef Shiferaw

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Mr. Fanuel Zegeye

E-learning team leader of the ICT office Project team member



Digital learning has become a prerequisite for acquiring knowledge and accessing the amenities of higher education. As one of its core values, Addis Ababa University promotes the development of innovative ideas that are marketable and address societal needs. Furthermore, excellence in research, technology transfer, and knowledge management is one of its strategic thematic areas, and investing in ICT technology, infrastructure, and institutional facilities is a major strategic goal of the University. The University encourages online learning systems with its motto of 'all-digital'. Addis Ababa University introduced technology-enhanced classroom teaching and learning initiatives five years ago to attain its stretched strategic goals, initiatives, missions, and vision. It continues implementing digital classroom education, mainly in its graduate programs, by utilising new digital tools.

Project Objectives

Addis Ababa University has introduced digital classroom teaching with the overarching goal of enhancing quality higher education.

The specific objectives include:

- To open up the opportunity for students to access education at a time and place of their choice and pace of learning.
- To enable personalisation of the course materials used by the students.
- To provide affordances unavailable in other formats, including the ability to provide.
- To enable learners to cultivate an innovative culture positively imparting for their study and beyond.
- To create alternative learning opportunities for learners.

Innovative Design

The application of digital classroom teaching is innovative in many ways. Before its introduction, teaching-learning activities at Addis Ababa University used to be conducted in traditional ways by utilising low-tech teaching resources, including chalk and blackboards, whiteboards and markers, LCD projectors, etc. Moving forward to using high-tech pedagogical resources supported by digital tools is a transformative venture. This innovation has solved the practical challenges of inflexible teaching modality and improved the interests of learners.

In most colleges, Addis Ababa University uses SMART Interactive Whiteboards/Displays during the teaching-learning process. The University introduced around 30 Interactive Touch Screens five years ago. The Interactive Touch Screens have a number of functions that create opportunities for students and learners to access digital education. Teachers share reading materials and assignments using Touch Screens and give immediate feedback to the students.

In addition, teachers can access e-learning resources from Addis Ababa University Digital Library, Moodle e-Learning platform, and other possible global sources and distribute them to their students. Addis Ababa University, particularly Addis Ababa Technology Institute's teachers, are using the International Institute of Online Education (IIOE) Smart Classroom launched by the collaborative efforts of the International Centre for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI) and Addis Ababa University. This Smart Classroom has more advanced functions, including cameras that can broadcast fully together with Zoom and Microsoft Teams platforms. In general, these digital resources are used in combination with the face-to-face modality following a blended approach.



Smart Classroom at Addis Ababa University

Project Outcomes

The implementation of digital classroom teaching in Addis Ababa University has resulted in a number of positive outcomes in the teaching-learning process.

Many students and teachers have become aware of the technology, which helped them facilitate their teaching and learning endeavours. Since digital technology is exciting for learners, it has assisted them in being more engaged in their education.

It has encouraged active learning, knowledge construction, inquiry, and exploration on the part of the learners. It increased students' decisions about their studies, the sharing of their ideas and experiences, and the use of help from other students and teachers.

• Digital technology has provided immediate feedback for both the learner and the teacher. All these efforts will contribute to better learning and achievement of the learning objectives. The introduction of digital education has also contributed to the technological capacity of the university.

Impact and Sustainability

The digital classroom has contributed to the development of institutional capacity. Generally, the impacts could also go beyond the University and contribute to the national development of the country. The sustainability of digital classroom teaching at Addis Ababa University is ensured.





First, the application of ICT technology in higher education is a global phenomenon, and this international trend is an opportunity for more advancement of technologysupported teaching than ever before.

Second, it has unwavering support from the university management team, and this is reflected in its *Ten-Year Strategic Plan (2020-2030)*.

Third, the application of digital technology in higher education teaching is becoming a culture of the University that facilitates the acceptability of digital tools by the broader university community. Ten-Year Strategic Plan (2020-2030) of Addis Ababa University



Tecnológico de Monterrey: Generating Learning Opportunities in Logistics through GOAL Project



Project: GOAL Project: Generating Learning Opportunities in Logistics **Organisation:** Tecnológico de Monterrey (Monterrey Institute of Technology and Higher Education, ITESM)

Country: Mexico

The jury's comment: GOAL is an online platform encompassing blended learning, containing valuable resources for students, and offering students a coherent knowledge framework instead of the fragmented offerings found in many university curricula.



ERNESTO PACHECO Project leader and designer of the simulator and platform



MICHEL ANGULO Learning facilitator and expert in educational technology



Educational researcher and instructional designer



Expert in educational technology and support software designer



ducational innovation coordinator an instructional design expert



IVAN ARANA Educational researcher and learning facilitator



The evolution of Information and Communication Technologies (ICT), intensified global market competition, changing customer expectations, and the prevalence of short product lifecycles have substantially transformed corporate production and logistics systems. On the other hand, ICTs have also led to substantial shifts in student characteristics and expectations.

However, a significant disadvantage for logistics development in Mexico and Latin America is that the majority of cases depicted in textbooks or scientific articles originate from logistics systems in developed countries (North America, Europe, and some parts of Asia), which significantly differ from those in developing nations. It is imperative to model and create cases that mirror their challenges to enhance efficiency in businesses within developing countries.

Traditionally, the topics of teaching logistics encompass forecasting, inventory management, transportation, and optimisation, among others. However, the establishment of scenarios where students can visualise how these concepts interrelate is extremely limited. This has resulted in fragmented views of reality, whereas logistics intends to coordinate all the elements within the system. New learning designs must possess a fundamental feature: offering students a fresh and engaging learning experience, encouraging them to participate actively, and fostering the development of skills essential for the future.

Project Objectives

"Generating Learning Opportunities in Logistics" (GOAL Project, for its acronym in Spanish, Generando Oportunidades de Aprendizaje en Logística) represents the effort of a group of professors in the logistics area of Tecnologico de Monterrey to disseminate and make more fun of the learning of logistical concepts. To do this, the group created an open online platform for students to find help with topics and exercises to practice and receive immediate feedback about their level of learning.

Beneficiaries of the platform implementation results include individuals and academic, business, civil, and government groups. Key stakeholders include the government (Department of Economic Development, Mexico), professional associations, NGOs, and the business sector.

The project's objectives include:

- Transform logistics into an integrative discipline, enabling students to experiment, devise strategies, manage interfaces, and comprehend the constraints of diverse logistics systems;
- Explore new ICT technologies that promote flexible, adaptable learning;

 Help students detect opportunities for improvement in their learning and skills;



GOAL Project YouTube Channel



- Motivate the students to commit themselves to their self-learning;
- Explore different support tools that help the students reflect on their learning process.

Innovative Design

Educational Videos

The GOAL Project is an academic platform to generate new methodologies for learning logistics. More than 150 videos have been placed on both the platform and a YouTube channel. This set of videos has been used to develop strategies such as "flipped classroom" and the development of "Self-Directed Learning" competencies.

A game called "Logistics Simulator" (LOST)

This game simulates the operation of a company dedicated to the manufacturing and sale of sports balls for various sports. The game's objectives are to help students quickly and enjoyably acquire logistics concepts, demonstrate the consequences of each decision, enable students to create mental models that help them identify key variables and the interrelationships between them, establish indicators that facilitate students in comparing their performance, generate motivation and commitment in students toward their own learning.

A reward system

To motivate students to review the videos produced, the platform has a reward system that teachers can design according to their interests. For example, based on the videos, it is possible to create different quizzes for different topics. Based on the results of these quizzes, a rewards system can be generated that allows participants to modify certain game characteristics (reduce delivery times, lower costs, increase demand, increase production, etc.). This feature of the platform enables teachers to use gamification techniques.

Project Outcomes

The GOAL Project platform (http://goalproject.co) has garnered over one and a half million visits, and over 20,000 individuals have registered on the platform.



Example of design of a new logistics chain in the new version of the game

It features two games, Logistic Simulator (LOST) and Production Game (PRO Game). The platform is freely available, and all academic resources have been delivered as Open Educational Resources. Over sixty universities in Mexico and more than forty universities abroad have used the platform. Additionally, a YouTube channel has been established, featuring over 150 videos related to logistics education and boasting more than 13,000 subscribers.

Within interviews with professors, the majority of them agree that:

The use of the logistics simulator has generated greater motivation among students.



Estamos diseñando una plataforma de simulación para diferentes industrias que apoye la toma de decisiones a través de tecnologías emergentes como: la inteligencia artificial, las realidades extendidas y el big data.

Students who make an effort to achieve a better score regularly develop a clearer understanding of logistics-related concepts, meaning there is a significant relationship between the score obtained in the game and the grade obtained in quizzes and exams.

Most professors favour establishing more activities that depend solely on the student, i.e., promoting self-directed learning.

Please scan the QR codes below to view GOAL Project's videos and website.





GOAL's YouTube Channel

GOAL's Official Website

Impact and Sustainability

The development of this platform is important because it contributes to the overall well-being of society by helping to generate a more competitive industry and individuals who are better prepared to make efficient decisions. Potential users of the platform will be able to acquire concepts in a playful manner, observe the consequences of each decision in different areas of an organisation, identify the key variables influencing a real process, and develop intrinsic motivation to investigate, understand, and experiment with new strategies to optimise problem-solving.

It is difficult to find a similar development that provides the flexibility and ease of use offered by this new software. Its development is important because it will allow the reflection of industry-specific characteristics in each region or country, enabling adjustments that cater to each company's unique needs and reflecting the characteristics that define and make each supply chain unique.



Institut Teknologi Sepuluh Nopember: Intelligent Learning and Smart Campus



Project: Intelligent Learning and Smart Campus **Organisation:** Institut Teknologi Sepuluh Nopember (ITS)

Country: Indonesia

The jury's comment: The project demonstrates high inclusivity and equity, particularly in its focus on remote and underserved areas. It ensures the provision of equitable, high-quality education across the diverse regions of Indonesia.



Prof. Adi Soeprijanto



Prof. Aulia Siti Aisjah



Prof. Heri Kuswanto



Prof. Siti Machmudah



PhD Bagus Jati Santoso



PhD Fadlilatul Taufany



Institut Teknologi Sepuluh Nopember (ITS) is systematising the "Intelligent Learning and Smart Campus" project to welcome a new era of digital education. This initiative is motivated by several critical factors shaping Indonesia's educational landscape. At the outset of 2020, Indonesia's education system grappled with the challenges of insufficient technological integration. The country was at a pivotal juncture, with a significant digital divide in education, particularly affecting remote and underserved areas.

Moreover, ITS, guided by the first point of its Master Development Plan (2016-2040): "the development of a more creative and flexible learning system based on information technology, where online learning plays a strategic role", recognises the imperative to develop a creative and adaptable learning system founded on information technology. This places online or blended learning at the core of their strategy. The COVID-19 pandemic further accelerated technology adoption in education at ITS, underscoring the need for resilient, technology-driven learning solutions. This backdrop highlighted the pressing need for digital transformation and innovation in education.

Project Objectives

ITS stands at the forefront of this transformative journey, fostering a culture of innovation, leveraging policy support, and harnessing technological capabilities to improve the quality of the internal learning process and ensure equitable access to quality education throughout Indonesia's diverse regions.



Digital Strategy, Regulation, Policy, Incentive Programmes, and Workshops:

This encompasses the development of comprehensive strategies, policies, and incentive structures to facilitate a seamless transition to digital education in ITS.

Innovations in Digital Learning:

ITS initiates some activities such as IoT Based Labwork, Workshops on Blended Learning, and Incentives of Online courses to promote digital learning in ITS.

Promotion of Regional Educational Equity:

ITS has opened access to its learning content via free MOOCs and is collaborating with the Ministry of Education to undertake various technology-based educational activities to support this mission.



Innovative Design

ITS has established a cutting-edge teaching system centred around a blended learning model, effectively combining digital media, digital technology, stateof-the-art hardware, and innovative classroom facilities.

This comprehensive approach encompasses various pivotal elements:

- Smart Classrooms: ITS has made significant investments to create 3-5 intelligent classrooms in its 39 departments. They empower educators to deliver interactive and engaging learning materials, elevate the quality of education, and foster active student involvement.
- Online Learning Workshops: ITS regularly conducts online learning workshops for its faculty members. The current focus is on harnessing Artificial Intelligence (AI) in education.
- Blended Learning Regulations: ITS has implemented specific regulations requiring at least 30% of teaching to be conducted face-to-face for each course.

• Online Learning Incentive: This incentive motivates instructors to enrich their course content in the Learning Management System (LMS) and utilise various IT-based learning tools.

• **Grants for Online Labs Innovation:** These grants incentivise faculty members to develop innovative solutions for online labs and learning.

Quality Assurance Document for Electronic or Blended Learning: This document, initiated at the beginning of 2020, has become the primary reference for developing Learning Plans for all courses facilitated at ITS. Several aspects of quality assurance include Learning Tools, Material Adequacy, Methods of Blended/E-Learning Delivery, and Assessment and Evaluation.

In implementing "Intelligent Learning and Smart Campus" project, numerous innovative solutions have supported blended learning at ITS. The three main activities that encourage learning innovation and the use of technology are online lecture incentives, online practicum grants, and MOOC grants.

Some examples of innovation are: Virtual Auditorium; iProctor (Virtual Proctoring with AI); iAssessment (Smart Assessment System); iMmersits (Immersive-Based Learning System); iCar (Intelligent Autonomous Car); iBoat (Intelligent Autonomous Bot)

Project Outcomes

Nearly 100% of ITS faculty have been implementing blended learning since 2020.





Almost all ITS faculty members are proficient in operating digital learning hardware, including Moodle's features, particularly assignment, quiz, and interactive video H5P.

Augmented Reality (AR) and Virtual reality (VR) technologies are being incorporated into labwork activities at ITS, greatly enhancing comprehension and supporting student learning outcomes, particularly in technical subjects.

The ITS MOOC (learning.its.ac.id) has provided almost 400 free courses, serving thousands of students who can access education from ITS for free, contributing to the equalisation of education.

The ITS-developed DIGITS tablets are used by students in various underserved regions of Indonesia, promoting equal educational quality.

Impact and Sustainability

The project has addressed several key challenges in education, including:

• Accessibility: The availability of online resources and simulations ensures that students, regardless of their physical location, can access and engage with educational materials effectively.

 Practical Learning: Innovations like laboratory simulators and VR labs enable students to gain hands-on experience even when physical lab attendance is restricted.

• **Student Engagement:** Interactive tools and platforms enhance student engagement and participation in remote learning environments.

 Quality Assurance: These innovations support consistently delivering high-quality education, aligning with critical learning objectives and outcomes.

Regional Educational Equity: From 2020 to the present, ITS has opened access to its learning content via free MOOCs and collaborated with the Ministry of Education on various technology-based educational activities to support regional educational equity.

Overall, the project has revolutionised the educational landscape at ITS, enhancing the quality of education and ensuring equitable access for all students, even in the face of circumstances such as the COVID-19 pandemic.

Acceleration of the second sec

Copperbelt University: Digital Teaching Resource Building and Application



Project: Digitalisation Initiative: Digital Teaching Resource Building and Application **Organisation:** Copperbelt University

Country: Zambia

The jury's comment: The initiatives involving digital infrastructure installation, Moodle integration into the in-house developed Student Information System (SIS), and Learning Management System (LMS) deployment design presented a strong case for the university's efforts in digital transformation.



Group Photo the CBU Team

The Copperbelt University Digitalisation Initiative builds on the national imperative to utilise digital technologies to transform the economy. *The Eight National Development Plan 2022-2026* pursues digital transformation and innovation facilitated by Information and Communication Technologies (ICTs) and science and technology for job creation. In the wake of the COVID-19 pandemic, the university more vigorously pursued integrating digital technologies to provide for virtual learning. The digitalisation strategy required deliberate efforts to install digital infrastructure in classrooms, adopt a blended learning policy, and ensure student learning support and a Learning Management System (LMS).

Project Objectives

This project seeks recognition of the endeavours to transform the university into a dual-mode institution. As part of the university's digitalisation strategy, it aims to link its satellite campuses nationwide. The Copperbelt University adopted digital transformation as the means through which teaching, learning, and research experience for both students and staff could be improved.

The objectives of the initiative can be summed up as:

- Improve the use of digital technologies in teaching, learning, and research.
- Enhance space for innovation and flexibility in teaching and learning.
- Improve management of learning progress.
- Increase flexibility and improve remote access to university courses.
- Meet the needs of students and improve their employability competencies.

Innovative Design

The project's innovation has provided the technologies and applications to enable blended teaching and learning and manage learning progression. Students and staff can make virtual presentations and thus demonstrate the digital skills expected to develop and upload materials and interrogate issues.

Installation of digital infrastructure. Video conferencing facilities and



The Eight National Development Plan (2022-2026) of Zambia

web conferencing tools like MS Teams, Zoom, and Google Meet are used. In addition, the university has also installed interactive screens and overhead projector systems in various classrooms.

Integrating Moodle into an in-house developed Student Information System (SIS). Moodle was adopted and implemented to provide a platform for delivering online and blended learning courses and tools for collaboration and assessments.

LMS Deployment Design. An innovative design adopted in the implementation of Moodle allowed for integration with the SIS. The integration is seamless and allows for student data, such as enrollment information and lecturer course assignment data, to be automatically synchronised between the two systems.

Project Outcomes

The project has provided the technologies and applications to enable blended teaching and learning and manage learning progression. It has installed video conferencing facilities for satellite campuses to support learning at a distance.





Installed Video Conference Facility

This enabled interface block-teaching (face-to-face) and online learning. This has solved the problem of lack of flexibility in traditional face-to-face learning and has allowed students to access course material and lectures when not on the main campus.

Concerning online learning support, the university has adopted Moodle LMS and integrated it into the in-house developed student portal. The LMS has solved the problem of keeping registers and continuous assessment records. It has solved the problem of fear of technology by building the confidence and capacity of both students and staff, increasing the range of their digital competencies.

Throughout the year, seminars are conducted to build digital skills and capacity to teach and learn with installed or adopted technologies, including Moodle. The following are the accomplishments:

- Reaching students in far-flung places who would otherwise be excluded from higher education.
- Curriculum adaptation and pedagogical innovation and flexibility in the mode of delivery.
- Use of technology and LMS to support monitoring of progression.
- Realising the attainment of digital competencies needed for employability.

Impact and Sustainability

The project has focused on transforming the University's core academic activities and processes by improving student engagement and boosting enrolment, optimising learning, teaching, administrative, and research processes, and enhancing the digital skills and job prospects of students, as well as increasing the productivity and job satisfaction of academic and administrative staff. The long-term impacts are the following:

Realising Administrative Efficiency: upgrading server infrastructure will allow for required system integration so that the library system can be integrated with the student information system, which would, in turn, reduce manual tasks, minimise errors, and improve efficiency and effectiveness.

Enhanced Research and Innovation: upgraded server machines will be able to host suitable research tools, grow digital resources and databases, and provide optimal storage and required collaboration for research activities.

Preservation and Protection of Resources:upgraded servers with enhanced backup and storage capabilities will safeguard valuable digital collections, research data, and administrative records against loss or damage, ensuring their long-term availability and accessibility.

 Social Impact and Digital Inclusion: the university needs to bridge the digital divide by providing equitable access to modern ICT resources.
Empowering students with digital literacy skills will enhance their employability and the socioeconomic development of local communities.



Installed Overhead Projector and Interactive White Board

University of Sharjah: Empowering Education Inclusivity through Hybrid Learning



Project: Empowering Education Inclusivity: The University of Sharjah's Hybrid Learning SuccessOrganisation: University of SharjahCountry: United Arab Emirates

The jury's comment: The model establishes a dynamic assessment and evaluation programme containing regular summative and formative assessments for each course, which other universities can learn beyond the pandemic.







Ms. Afra Saif Altuniji Head of Curriculum, Academic Scheduling, and Learning Space Management







Moving towards a proficient hybrid education model presents challenges at an institution as large as the University of Sharjah, with over 700 faculty and nearly 20,000 students.

Challenges include the following aspects:

- Ensuring a deep understanding of hybrid learning among students and faculty,
- Providing practical professional training,
- Accommodating a wide range of subjects and courses,
- Expanding the model to cover all programmes,
- Adhering to rules and policies,
- Updating course content and multimedia resources.

Leveraging its achievements in remote learning during the COVID-19 pandemic, capitalising on substantial investments in infrastructure, training, and workforce, His Highness Sheikh Dr. Sultan bin Muhammad Al Qasimi, the Ruler of Sharjah and Founder of the University of Sharjah, announced a groundbreaking project to implement wide-scale hybrid education delivery. The University of Sharjah is the first institution in the United Arab Emirates (UAE) and the Gulf Cooperation Council (GCC) Region to officially institute the hybrid learning approach across all academic programmes (over 120 in 15 colleges). To ensure scalability and overcome the challenges presented by the large number of instructors (over 700 instructors) who needed to be trained on the hybrid approach, the university implemented the "Hyper Champions: Adoption and Diffusion" model.

In this model, a group of instructors were selected based on their subject (college), technical skills and enthusiasm and were given intensive training by partners at Abdulla Al Ghurair Foundation (AGF) through the University Consortium for Quality Online Learning (UCQOL). Upon completion of the intensive training the champions were assigned as peer-tutors to assist in the next phases to train more instructors.

Project Objectives

The initiative aligns with the UAE national agenda of offering a "First-Rate

Education System" that is inclusive and accessible. It builds on the work of UCQOL. It aims to accommodate students with exceptional circumstances who cannot attend a publicly-funded facility for reasons like employment, medical issues, motherhood, or special assignments. The strategic goal is to create an inclusive, innovative and resilient learning environment at the University of Sharjah. By partnering with AGF, as a part of the UCQOL team, the initiative will maintain the consistently high quality of learning, as evidenced in the earlier design sprints for general elective courses. This strategy also fosters a culture of continuous learning, collaboration, and innovation, contributing to the long-term success of hybrid learning initiatives at the University of Sharjah.

Innovative Design

Providing Technical and Pedagogical Training. Professional development training activities were offered throughout the year to ensure all instructor readiness.

Securing the Needed Systems, Equipment and Devices. This includes a Learning Management System (LMS), recording devices, interactive screens, laptops, and integrated display screens.



• Establishing a Post-graduate Certificate for Technology-Enhanced Learning. The certificate will consist of four graduate-level courses developed in collaboration with UCQOL and led by the Leadership Institute in Higher Education.

Enhancing Resource and Support Center. Create an online centralised facility that can access training materials, recorded webinars, tech support, and other resources. Establish a help desk or support centre to provide technical and pedagogical support.

Evaluation and Feedback. Develop mechanisms for evaluating the effectiveness of the training programme through assessments, surveys, and feedback sessions. Use the evaluation data to continuously improve the training programme and policies and adapt it to the evolving needs of faculty.

• Enhanced Infrastructure. Create four one-button studios across the campus to support flipped classrooms. The studios will create video/audio elements that can be immediately uploaded to the Blackboard LMS.



Project Outcomes

The initiative is well-received by students and their parents as it promotes education inclusivity and access and improves the quality of education.

Student-Centred Learning: Using lessons learned during COVID-19, courses are redesigned using interactive learning tools and evidence-based pedagogy to enhance student-centred learning.

• **Empowering Educators:** The initial faculty team was trained on design and production sprints and reimagined their courses to deliver engaging, high-quality content that adapted to the diverse needs of their students.

Curriculum Resilience: This project's flexible, adaptable curriculum model is at the heart. Implementing an accurate Hyflex model to meet all needs that could arise (at any time during any circumstance) requires faculty to fundamentally incorporate best practices like Universal Design for Learning.

Technology Integration: The project focuses on creating a robust IT infrastructure, ensuring seamless access to digital resources and tools with ongoing training is available for both students and educators.

• Expanding across Faculty Education Ecosystem: Collaborating and sharing with the Ministry of Education, Commission for Academic Accreditation (CAA), AGF and nine of the leading universities across the UAE as part of the UCQOL network ensures support and collaboration that benefits not only the university but the wider UAE community.

Impact and Sustainability

The university is among the leading institutions in successfully implementing remote learning during COVID-19, ensuring the continuity of education operations. The experience can be applied in the post-COVID-19 era. This initiative has top-down, cross-institutional support and is a foundation for establishing a sustainable hybrid learning model at the university. It will provide a blueprint for future growth, fostering a culture of continuous improvement and innovation in teaching and learning methodologies. It will impact the lives of 20,000 students, now and in the future. It aligns with the broader strategy of the University of Sharjah and the UAE national agenda, embodying the commitment to continuous improvement and innovation in teaching and learning methodologies.

This new model also brings numerous opportunities, such as fostering inclusivity, reducing student attrition, enhancing the overall student experience, optimising resource utilisation, updating curriculum and content, improving assessment methods, addressing academic integrity issues, and strengthening the recruitment and enrollment processes to boost the university's reputation.

Overall, this project strengthens the institution's capacity for hybrid learning and builds a foundation for long-term educational excellence and adaptability. It underscores the University of Sharjah's commitment to delivering highquality education, guaranteeing the project's enduring impact.
MUST: Blended Learning Capacity Building for STEM Teachers through IIOE Pilot Project in Mongolia



Project: IIOE Pilot Project in Mongolia: Blended Learning Capacity Building for STEM Teachers **Organisation:** Mongolian University of Science and Technology (MUST) **Country:** Mongolia

The jury's comment: The pilot project empowers Mongolian university teachers with competency and skills in blended learning and supports the implementation of related policies, facilitating the digital transformation of Mongolian higher education.



Prof. Ganbat Danaa Director of MUST-OEC, Project Coordinator



Assoc. Prof. Tsooj Shambaljamts Head of Department of Technical Mechanics, National Blended learning Master Teacher and Research Team Member



Assoc. Prof. Ariunbolor Davaa Head of Teaching and Learning laboratory at MUST-OEC, Pedagogical Expert



Assoc. Prof. Tserenchimed Purevsuren National Blended learning Master Teacher and Deputy Secretary General at IIOE National Centre in Mongolia, Project Manager



Mr. Radnaa Naidandorj Instructional design expert at MUST-OEC, Project Consultant



Prof. Dendev BadarchPresident of National University of Mongolia37and MUST-OEC Consultant, ProjectConsultant



As a developing country, Mongolia faces a number of challenges and obstacles to educational digital transformation, such as ensuring the sustainability of ICT Infrastructure, limited resources of digital content and Open Educational Resources (OERs), early development of the MOOC concept, and internet connection problems in rural areas. A recent policy review by UNESCO identified two main issues in Mongolian Higher Education related to teachers' professional development that hinder digital transformation. These are the need to mainstream ICT competency standards for teachers and the limited opportunities for teachers to find advanced professional development training.

To identify the challenges front-line teachers face in implementing blended learning, the Open Education Center of Mongolian University of Science and Technology (MUST-OEC) and the International Centre for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI) jointly conducted a study among teachers from MUST. The study revealed that the main challenges are:

- Lack of benchmarks and guidelines on blended learning,
- Lack of systematic training on blended learning, especially pedagogy,
- Lack of effective support for teachers in content development,
- Lack of exemplary blended learning courses as references, especially for course evaluation.

Therefore, based on international trends in online and blended learning and local need analysis, MUST-OEC, as International Institute of Online Education (IIOE) National Centre in Mongolia, implemented this project in collaboration with UNESCO-ICHEI in 2022.

Project Objectives

The overall purpose of the pilot project is to empower Mongolian university

teachers with competency and skills in blended learning and support the implementation of related policies so as to facilitate the digital transformation of Mongolian higher education.

There are several sub-objectives:

- Carry out a training programme on blended learning to prepare nationallevel master teachers.
- Conduct university-wide blended learning practices at six national universities.
- Develop blended learning assessment tools.
- Develop guidelines for blended learning course development.
- Disseminate project outcomes at the institutional level as well as the national level.

Innovative Design

MUST-OEC led the project through the full cycle of initiating, planning, executing, and closing. At the same time, UNESCO-ICHEI acted as an external observer and supporting body that provided funding opportunities and expert consulting.

The project was designed in four main phases, along with specific vital deliverables.

• **Project Preparation (Phase 1):** A number of activities, such as project need analysis, development of preliminary proposal and action plan, international expert meeting, and preparation of the training contents, were planned to be implemented in Phase 1.



Blended Learning Practices



• **Capacity Building (Phase 2):** The master teacher selection process, localisation of the training materials, organising master teacher training, cascading training at six national universities, and local workshops were planned at this stage.

University-wide Practice (Phase 3): The core project activity was the development of two courses with a blended learning approach as a best example or benchmark. A nationwide workshop to disseminate the pilot project and its outcome was planned to be carried out in cooperation with the National Institute of Teacher Profesional Development.

• **Tool Development (Phase 4):** The main tasks were the development of the blended learning course design guideline (handbook) and the course design evaluation tool that can further accelerate blended learning development at each higher education institution (HEI).

Project Outcomes

The developed blended learning guidebook (handbook), open textbook, and course design evaluation tools are currently fundamental local benchmarks for transforming courses into online and blended formats. Blended Course Design Guidelines for Learner Engagement online open book was under development process.

In total, 65 master teachers on blended learning were prepared nationwide. About 450 teachers (6.4% of total teachers) participated in a series of pilot project training. MUST officially include "Blended learning Methodology" graduate courses in the Educational Management master course and preservice teacher training programme. Master teachers are important human



Published Domestic and International Research Articles on Blended Learning

resources for developing online and blended learning in Mongolia's higher education and are valuable drivers for digital transformation.

The research team, including international experts, is processing two scientific publications, namely "Digital Learning Transformation in Higher Education International Cases of University Efforts to Evaluate and Improve Blended Teaching Readiness" and "Assessment of the Blended Teaching Readiness in Mongolian higher education teachers".



Impact and Sustainability

This project was one of the first initiatives on capacity building in the Mongolian higher education sector. The blended learning master teacher training, as well as cascading training, were planned and implemented in an innovative way. It was implemented as a pure reflection of the classic blended learning format covering overall course design and onsite and online assessment so that teachers can gain more practical insight.

The project could raise awareness of blended learning in the Mongolian higher education sector by reaching top-level HEIs, National Institutions of Teacher Profession Development, and the General Authority for Education in Mongolia.

- The project is stimulating HEIs, especially MUST, to rethink regulatory mechanisms and policies of online and blended learning.
- The project could empower Mongolian university teachers with competency and skills in blended learning and facilitate the digital transformation of Mongolian higher education.

Ahmadu Bello University: Empowering Institutional Policy Implementation for Digital Teaching and Learning in Nigeria



Project: Empowering Institutional Policy Implementation for Digital Teaching and Learning in Nigeria **Organisation:** Ahmadu Bello University (ABU) **Country:** Nigeria

The jury's comment: The Teaching and Learning Policy (TLP) Implementation Plan reflects the university's commitment to creating an enabling environment for the adoption of Online and Blended Teaching and Learning (OBTL), ensuring the university takes its rightful place among leading universities in producing competent graduates that shall facilitate solving the myriad problems in the society.



Prof. Muhammed Bashir Mu'azu Professor at Department of Computer Engineering, Director of IIOE Nigeria National Centre



Prof. Emmanuel Adewale Adedokun Professor at Department of Computer Engineering



Dr. Ahmed Abubakar Director of Academic Planning Monitoring and Evaluation Team Leader



Mr. Muhammad Lawal Abubakar Monitoring and Evaluation Team Member



PhD. Zaharuddeen Haruna Technical Leader of Project



Dr. Basira Yahaya Head of Project Administration and Advocacy



In the developing world, the adoption of Online and Blended Teaching and Learning (OBTL) by Higher Education Institutions (HEIs) is facing some challenges, including the lack of institutional organisation structure, policies and digital infrastructure, and limited capacity and experience to conduct OBTL.

With the support from the International Centre for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI), Ahmadu Bello University (ABU) is committed to leading HEIs in Nigeria and other West African Countries in transforming education through the use of modern and innovative technologies. On September 28, 2022, UNESCO-ICHEI and ABU officially launched the International Institute of Online Education (IIOE) Nigeria National Centre Pilot Project on Empowering Institutional Policy Implementation for Digital Teaching and Learning in Nigeria.

ABU has a Teaching and Learning Policy (TLP) which enshrines the distinctive approaches adopted to ensure the highest possible achievement and development of each individual student. ABU intends to achieve this by utilising modern information and communication technologies for curriculum development, planning, teaching and learning, leadership, and assessment through the acceptable use of technology and IT security.



Training of Trainers (TOT) Workshop of IIOE Nigeria National Centre

Project Objectives

This project is aimed to support the implementation of institutional policies for digital teaching and learning in Nigerian HEIs, and empower IIOE Nigeria National Center as a national hub driving the digital transformation of higher education teaching and learning.

The specific project objectives are as follows:

- Enhance teachers' digital teaching and learning capacities and improve the quality of online courses.
- Support ABU in implementing its TLP and facilitate coordination among departments and units to promote digital teaching and learning.
- Design, Development, and Production of at least three quality digital contents.

Innovative Design

Collaboration and Sharing: ABU will organise the member HEIs of IIOE Nigeria National Centre to fully engage in the project implementation, apply the project outcomes to innovative teaching practices, and support the digital transformation of Nigerian higher education. UNESCO-ICHEI will provide financial, technical and professional support for the project's implementation, and facilitate the sharing of project outcomes and promising practices within IIOE's global network.

Key Activities and Milestones

Training of Trainers (TOT) sessions on online course design, development and production for teachers from Engineering/Computing, Medical/Bio-Sciences, and Humanities/Social Sciences of IIOE Nigeria National Centre's partner HEIs. The ToT workshops commenced on 9 November 2022 with 55 participants (36 males and 19 females) drawn from ABU and six other partnered institutions.

To develop an implementation plan for ABU's TLP, the Institutional Policy Workshop took place on 12 November 2022 with 78 participants (74 males and 4 females). Four topics were selected for the design and production of quality online digital courses, including PowerPoint, voice-over-PowerPoint and videos. Other disciplines and partnered institutions are also set to cascade the training to their institutions.



Project Outcomes

- Relevant stakeholders from ABU and other partnered universities actively participated in the public lecture.
- Over fifty teachers from ABU and partnered universities were trained on how to design, develop and produce online content.
- A clear rubric has been developed, which can be used to assess the online content developed.
- Four quality digital/online content have been developed by different disciplines.
- A comprehensive implementation plan for the TLP has been developed by ABU.

Impact and Sustainability

Participants are anticipated to disseminate the training to their respective institutions, which are required to produce online content under the guidance of ABU. ABU will extend support to all partner institutions in the development of their TLP. Additionally, ABU is tasked with initiating the enforcement of TLP, alongside conducting extensive training sessions on online content development both within ABU and across other participating institutions.

Through participation in the programme, teaching personnel have had the opportunity to up-skill and build capacity in online content development, benefiting both their institutions and the wider public through academic content-sharing platforms like SkillShare and YouTube. Moreover, participating institutions stand to gain from the trained personnel, who can facilitate large-scale training initiatives aimed at implementing digital transformation policies such as Online and Blended Teaching and Learning (OBTL). This not only enhances the institution's educational offerings but also ensures alignment with modern pedagogical trends. Additionally, institutions have the opportunity to improve their facilities, further enhancing their capacity to deliver high-quality education in the digital age.



Cadi Ayyad University: Improving Professional Development of Teachers and Blended Teaching Competencies



Project: Professional Development of Teachers at Cadi Ayyad University - Improving Blended Teaching Competencies **Organisation:** Cadi Ayyad University (UCA)

Country: Morocco

The jury's comment: This training was developed to meet the imperative of quality of teaching. It aims to support changes in the Moroccan educational system that require capacity building, such as the development of appropriate tools and the construction of appropriate teaching and learning systems.



Prof. Belaid BOUGADIR

President of Cadi Ayyad University, Scientific Supervisor of the Certified Training in University Pedagogy and Digital Pedagogy



Prof. Bouchra LEBZAR

Director of the Training and Certification Center at Cadi Ayyad University, Responsible for the Certified Training in University Pedagogy, Coordinator of the Micro-Certification Programme



Prof. Said MACHWATE

Administrator at the Pedagogical Innovation Center of Cadi Ayyad University, Animator and Responsible for Media Coverage



Regarding the Education 2030 Agenda for the achievement of the Sustainable Development Goals (SDGs), in particular SDG 4, 'Ensuring inclusive and



The Training Project of Center of Lifelong Learning and Certification

equitable quality education and promoting lifelong learning opportunities for all', Continuing Education (CE) is seen as one of the powerful factors for improving public policies on employment and skills management.

In 2020, the sudden transition to l'Enseignement à Distance (EAD) led teachers to adapt their teaching methods. However, some teachers encountered difficulties in adapting content, and choosing and making optimal use of remote conferencing services and educational platforms made available to them by the university. Indeed, to strengthen these new skills, the Center of Lifelong Learning and Certification (CFCC) of Cadi Ayyad University (UCA) launched a certificate for

Project Objectives

The main objective of the training is the adoption of new concepts and tools for learning, teaching, and qualification in the field of digital pedagogy. This training has been designed to enable teachers to effectively integrate ICT competency into their educational environment and to acquire relevant knowledge, tools, resources and technological applications, thereby actively contributing to the improvement of blended learning and teaching quality.

The training programme encompasses a comprehensive array of skills essential for modern educators. Participants will gain proficiency in adopting



new learning and teaching concepts and acquire educational platform qualifications. Moreover, they will acquire a recognised qualification in educational platforms. Through hands-on experience, trainees will learn to script and produce instructional videos and present theories visually, improving teachers' audio-visual production skills in educational scenarios. Furthermore, the programme equips educators with the expertise to support students gain practical ICT skills and assess and design pedagogical tools.

Innovative Design

The programme consists of five modules aimed at strengthening teachers' capacity by increasing their technological and pedagogical expertise, based on UCA's rich experience in digital learning and its professional development programme "Pedagogy Academic", including "Design and Production of Educational Videos", "Designing A Manage Online Course", "Personal Educational Innovation Project", "Support and Tutoring", and "Assessment Methods".

Collaboration and Sharing: UCA and the International Centre for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI) jointly developed a training project to track the digital competency of teachers. The first co-developed module, "Design and Production of Educational Videos", was designed, produced and implemented by UCA, while UNESCO-ICHEI provided financial and technical support to the project, organised the participation of International Institute of Online Education (IIOE) partner HEIs in the training, and monitored and evaluated the project.

Learner-centred Design: The training was based on the blended-learning model in a Small Private Online Courses (SPOC) form. Synchronous sessions were organised to address needs requiring direct interaction with the teacher to help learners acquire the skills expected from this training. Through this project, learners can reflect on their teaching practices, raise awareness of the benefits of blended and hybrid teaching, and promote exchanges and sharing of knowledge between teaching personnel.

Conception et réalisation de capsules éducatives

Said MACHWATE

11 pays d'Afrique francophone (Maroc, Sénégal, Côte d'Ivoire, Togo, Bénin, les Comores, RDC, Gabon, Algérie, Tunisie, Cameroun)

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11 French-speaking African countries participated in IIOE training

Project Outcomes

From September to October 2022, 100 teachers from 11 French-speaking African countries participated in the training via the IIOE platform. Among these participants, 33 teachers have completed the training programme via IIOE and received a "Certificate of Fundamental Competency in Blended Teaching" issued jointly by UNESCO-ICHEI and UCA. Gaston Berger University (Senegal) and the Virtual University of Senegal selected their teachers to participate in the training, while the Virtual University of Côte d'Ivoire coordinated the participation of teachers from six public HEIs across the countries. All certified teachers produced PPT slides and videos in their respective disciplines. Fifty courses were produced and posted online. The training materials developed (videos, PPT slides, quizzes, recordings of synchronous sessions) are available on the UCA platform.

Impact and Sustainability

• Learners' self-assessments showed significant improvement in both awareness and competencies. The training enabled them to develop new skills and contribute to the development of quality online resources.

- The project raised awareness of the benefits of mixing online teaching and face-to-face teaching, as well as synchronous and asynchronous sessions.
- UCA has shared its online educational resources and practical experience with other institutions. In addition, an online community of teacher trainees was created and maintained for the exchange of experience and mutual learning in the field of online/blended pedagogy.

Regarding the partnership, UCA and UNESCO-ICHEI are currently in the process of co-constructing other modules on digital pedagogical skills for a broader target of African teachers.

Learning Mall: A Lifelong Learning Platform for All



Project: Learning Mall - a lifelong learning platform for all **Organisation:** Xi'an Jiaotong-Liverpool University **Country:** China

The jury's comment: The platform integrates a mix of technologies and content, all serving the purpose of learning, and also provides a good amount of teacher support, capacity building, and sandboxes that provide a secure, safe, trustworthy environment for teaching and learning innovation.





Founded in 2006, Xi'an Jiaotong-Liverpool University (XJTLU) is a unique joint-venture exploration inheriting strengths from both parent universities (Xi'an Jiaotong University in China and the University of Liverpool in the UK). Throughout XJTLU's education, research, collaboration and operation activities, technology has supported and facilitated this growth. XJTLU both practices and exemplifies the UN SDG goal 4: ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

The blended and HyFlex teaching technology solutions, diverse learning resource pools, and campus space and facilities of XJTLU have developed into an ecosystem called the Learning Mall (learningmall.cn). XJTLU Learning Mall is not only the university's innovation, research, and development centre but also the university's centre of knowledge production, communication, and business partners.

Project Objectives

XJTLU aims to build an accessible university for all, driven by campus and technology. In line with this vision, the Learning Mall emerges as an open community for knowledge and best practice exchange. Based on a learning management system (LMS) and linked technical tools, the Learning Mall began sharing and exporting knowledge and education resources from the University to society, creating a continuous practice of UN SDG 4. The University, society, and industry are connected via the Learning Mall platform.

The mission of the Learning Mall encompasses four key aspects:

- Provide learners with an interest-oriented lifelong learning platform and high-quality courses to boost their personal development.
- Provide organisations with solutions for educational needs, create a convenient and collaborative learning environment, and improve performance.
- Provide educators with efficient instructional technologies and educational support to meet new challenges in the era of digital intelligence.
- Explore the boundaries of future universities and create an integrative education ecosystem.



Innovative design

One Band, Two Components, Three Education Models

Sixteen years since its establishment, XJTLU has developed three education models coined XJTLU 1.0, 2.0 and 3.0 respectively, with efforts grounded in the University's characteristics and future development trends, to radiate meaningful impacts on education in both China and around the world. To support the effective running of XJTLU education philosophy, on 22 May 2020, the University launched the XJTLU Learning Mall, a support platform that draws on first-rate global educational resources and integrates online and offline operations, creating a multi-faceted learning environment that spans across regions, age groups, level of education, and interests.

Dual Platforms for All Learners:

In July 2022, Learning Mall transformed into two platforms - Learning Mall Core and Learning Mall Premium.

Learning Mall Core serves as the XJTLU online learning and teaching platform, contains degree modules, supports and enhances learning and teaching for XJTLU students and staff.

Beyond degree programmes for XJTLU students, Learning Mall Premium provides non-degree learning content and services for everyone. Within Learning Mall Premium, XJTLU students, staff, and external users can enjoy added-value learning resources from world-leading education providers and industry leaders.

Online-Onsite Learning Ecosystem:

The online space of XJTLU Learning Mall is an online community platform that gathers educational products and resources created by the University, schools, and top global partners.

The onsite XJTLU Learning Mall facility is integrated with the University's facilities, including both the Suzhou Industrial Park (SIP) campus and Taicang campuses, and more locations with the development of XJTLU.

XJTLU Learning Mall develops it into an ecosystem involving learners, internal and external resources, mixed learning styles, and a university-level determination to have it running, with resources allocated cross-borders.

Project outcomes

In addition to providing learning resources, Learning Mall organises multiple online and onsite learning camps that combine learning and certification for global learners. It aims to create a learner-centred and vibrant learning community and explore new lifelong learning models. In this positive learning community, learners can embark on an enriched learning journey with in-depth guidance from instructors. Over 1,300 learners gave a remarkable 9.4 out of 10 satisfaction score, with over 30% obtaining completion certificates.

Learning Mall is characterised by top-level design, excellent implementation, and a commitment to open sharing. Over three years, the project has kept the

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university community ahead of developments, launching initiatives like the GPT platform for GenAl-era learning. External resources prepare students for the future, and university knowledge is shared locally for sustainable talent development.

Learning Mall conducted over 60 training sessions for government and enterprises and attracted over 4000 participants in more than 10 cities nationwide. It delivered 9 sessions of "Talented Artisan" industry talent training and supported continuous learning and skill development for more than 900 industry professionals.

Impact and Sustainability

As a leading department within the University for internal EdTech research and development, the Learning Mall benefits from robust support at the management level. The project has reached a notable level of self-funding and is actively exploring additional opportunities for new business collaborations. Simultaneously, Learning Mall has earned recognition as a training provider and talent development partner for the local government. The sustained operation of externally-oriented lifelong learning projects is made possible through public funds, commercial training income, and other avenues.

Additionally, it represents a unique opportunity for education-focused businesses to showcase resources through the XJTLU Learning Mall, which links to internal and external stakeholders, particularly those who offer content and services. By fostering an inviting space and leveraging premier partners' strengths, the XJTLU Learning Mall will forge a 21st-century alliance of likeminded entrepreneurs to make better contributions to the development of higher education and social progress in China and the world.

> Data and Facts of LM Premium in 2023 Premium平台数据总览



Data and Facts of LM Core in 2023 Core 平台数据总览

DeepClaw: Design and Learn Robotics through a Soft, Digital Touch



Project: DeepClaw: Design and Learn Robotics through a Soft, Digital Touch **Organisation:** Southern University of Science and Technology **Country:** China

The jury's comment: The DeepClaw system is an affordable, shareable, and accessible hardware that bridges the gap between simulation and real-world applications in robotics instruction, providing practical and rich learning resources and learning pathways for students' robotics education.



Learning robotics is essential for developing countries like China due to its potential for economic growth, technological advancement, and addressing societal challenges. Digital learning is a key enabler, providing access to resources, online courses, virtual labs, and global collaboration. It bridges gaps in access to quality robotics education, empowering students to acquire the knowledge and skills needed to contribute to the country's technological development and competitiveness on a global scale.

A low-cost, portable system for teaching robotics through tactile sensing and machine learning with soft robotics has the potential to democratise education, empower students with practical skills, and drive innovation. It aligns with the evolving landscape of robotics and fosters inclusivity, ultimately contributing to the advancement of the field.

Project Objectives

- Developing a system with various design factors, including Cost-Effectiveness, Portability, User-Friendly Interface, and Safety.
- Gaining proficiency in constructing real-world robotic systems employing vision-based machine learning and AI;
- Developing insights into the technical hurdles that arise when crafting learning-based robotic manipulation systems;
- Acquiring familiarity with a spectrum of modal-driven and data-driven principles and algorithms integral to robot learning;
- Cultivating the ability to assess, communicate, and apply AI-based techniques to problem-solving within robotics.

Innovative design

Resolving the key challenge through innovative hardware

One of the primary challenges in teaching robotics lies in the limited access to hardware for hands-on learning, which can be costly, resource-intensive, and technically demanding. DeepClaw, developed by the SUSTechDL group, was

created to enhance robot learning, focusing on integrating robotic hardware as a central component in the educational process.

Engaging Students in DeepClaw Toolkit Evolution

Initially designed as a reconfigurable workstation for vision-based robotics picking a conceptual iseersity, DeepClaw underwent significant evolution upon transitioning to SUSTech. The system was refined to include APIs for seamless communication with various robotic hardware and streamlined mechanical design using standard aluminium extrusion systems. Notably, students actively participated in the iterative development of DeepClaw, cementing their role at the forefront of the system's evolution.

Promoting the integration of tactile sensation

The toolkit offers students hands-on experience translating unstructured environmental data into meaningful information for robotic manipulation and machine learning. The simplicity and affordability of modified kitchen tongs make them accessible and easy to comprehend for students. Equipped with soft robotic fingers and vision-based sensing, these tongs become potent tools for data-driven research. The flexibility of the toolkit provides ample room for experimentation in various project-based learning activities.







Project outcomes

In essence, the digital transformation of this course has empowered students to achieve remarkable success, from academic publications to competition victories and the co-development of innovative toolkits, thus fostering a rich learning environment.

Project Presentations and Publications: Students have presented over 30 projects, showcasing their creativity, innovation, and practical skills. Their efforts have culminated in publishing more than ten papers in prestigious journals and conferences dedicated to robotics and artificial intelligence.

• **Award-Winning Endeavors:** The students' remarkable achievements extend to various competitions and accolades, with several notable accomplishments. They have clinched multiple awards at university and national levels, distinguishing themselves through their problem-solving capabilities and innovative projects.

Theme-Based Integrated Projects: In 2020, the course piloted a
pioneering international collaboration with MIT to introduce theme-based
integrated projects centred on the concept of "wasteless." This initiative aimed
to educate students in designing and constructing machines for autonomous
waste sorting. Besides, students participated in cross-semester and crosscourse projects such as Mechanical Design, Collaborative Robot Learning and
Engineering Practice.

Open-Sourced Learning Resources: All course materials are accessible

online via a dedicated website, available to the general public without restriction to enrolled students. This open access allows students to preview course content before the semester, aiding in their decision-making process to align their learning interests with the course.





Project Impact and Sustainability

The DeepClaw system represents a pioneering digital technology that has revolutionised teaching and learning in robotics, successfully navigating through three development iterations. It addresses a key challenge in robotics education by providing affordable, shareable, and accessible hardware for hands-on practice, bridging the gap between simulation and real-world applications in teaching and learning robotics.

The DeepClaw system supports remote learning, offering a consistent educational experience even in challenging circumstances like the COVID-19 pandemic. Students can engage in robotics interactions from the comfort of their homes, ensuring that learning continues seamlessly regardless of location.

The DeepClaw project is a testament to the dedication, innovation, and adaptability of SUSTech's teaching initiatives. It not only enriches students' educational experience but also contributes to the global dissemination of knowledge in robotics and machine learning.



Other materials:

An overview of the overall development of this teaching initiative can be found at the following link: https://bionicdl.ancorasir.com/?page_id=602.

The official course website for ME336: https://me336.ancorasir.com/.

A video summary of ME336 offered for the first time in 2019 is accessible through this link: https://bionicdl.ancorasir.com/wp-content/uploads/2023/10/Teaching-ME336-2019.mp4.

A video demonstration of DeepClaw Toolkit based on a Conference Paper submitted to ICRA2024 regarding the latest implementation for ME336: https://bionicdl.ancorasir.com/wpcontent/uploads/2023/09/BionicDL-Publications-2023-C-ICRA2024-SoftRoboticTong. is 4



Construction and Practice of a Digital Intelligence-Driven HyFlex Instructional Support System



Project: Construction and Practice of a Digital Intelligence-Driven HyFlex Instructional Support System **Organisation:** Information Technology Center, Zhejiang University **Country:** China

The jury's comment: The case develops a Digital Intelligence-Driven HyFlex Instructional Support System (DIDHISS), which offers digital educational resources across all educational elements and fields and addresses an urgent need for digital education reform at ZJU.





Digital transformation in education (DTE) has become a globally recognised goal for educational reform. Leading universities worldwide are creating hybrid flexible (HyFlex) learning environments through digital platforms to reform existing teaching concepts and paradigms. According to the 2023 EDUCAUSE Horizon Report Teaching and Learning Edition, HyFlex teaching has become an essential direction for higher education reform across institutions because it ensures the stability and continuity of education. In China, the 2022 National Education Work Conference proposed the "implementation of educational digitalisation strategic actions". It The conference required informatisation to provide educational services that are "higher quality, fairer, with more choices, more convenient, open, and flexible" to satisfy citizens' needs for high-quality, personalised learning.

Zhejiang University (ZJU) is a large-scale university with seven campuses, 70,000 students from 149 countries and regions, including nearly 6,000 international students, and 9,746 faculty and staff. Therefore, ZJU has experienced a burgeoning demand for HyFlex learning models that allow instructors and students to break through the limitations of time and space. Thus, the Digital Intelligence-Driven HyFlex Instructional Support System (DIDHISS), which offers digital educational resources across all educational elements and fields, addresses an urgent need for digital education reform at ZJU.

Innovative Design

An innovative teaching support model

DIDHISS breaks through temporal and spatial limitations as well as resource barriers associated with traditional teaching. It accomplishes large-scale, integrated online and offline educational practices that span the entire educational journey. This system seamlessly connects on-campus classroom instruction, practical experiences, domestic and international off-campus learning, and global learning practices, thus establishing a new pathway for borderless access to teaching. Furthermore, it has constructed a multifaceted intelligent teaching evaluation framework centred on student development, which fosters innovation in multimodal blended teaching methods.

Innovative technology design concepts

DIDHISS has built a K-CPS technology framework with a knowledge graph at its core that connects smart classrooms, learning platforms, and cloud services. It achieves digital integration across the entire teaching process



through core system platforms like Learning at ZJU, ZJU DingTalk, and Smart Cloud Classroom, which support full-terminal access to multiple systems. In addition, DIDHISS promotes the reconstruction of the teaching support system by building a data centre that integrates decision data streams, execution streams, and business flows.

Multi-stakeholder partnerships within the system

DIDHISS has established a five-dimensional integrated teaching support system of "Institution, Honor, Service, Technology, and Communication." This comprehensive system aims to ignite teachers ' enthusiasm for educational reform, enhance information literacy among faculty and students, and promote innovations in teaching. Moreover, DIDHISS collaborates with top digital enterprises in industry and universities around the globe to integrate resources from both within and outside the university, thus forming a new ecosystem among government, industry, academia, research, and application.

Project Outcomes

Significant Enhancement of Students' Learning Competencies

With over 70,000 students active online and a daily average of more than 220,000 visits, the platform has recorded 330,000-course interactions and has garnered 278,000 views of course replays. It supports over 60,000 online exams and defences each semester, making digital learning a regular practice.



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Significant Enhancement of Teaching Skills among Faculty

The project has also supported the development of over 1,000 first-class MOOCs within the university, more than 240 national-level open courses, and over 330 high-quality MOOCs. Research findings indicate that the utilisation rate of platforms such as Learning at ZJU and Smart Cloud Classroom among teachers has reached 100%.

Top Worldwide Resource Aggregation and Application

With students and faculty spanning 149 countries and regions, the platform enables borderless resource-sharing. Compared to similar platforms at universities worldwide, the resource aggregation and interactive application rate of DIDHISS stands at the forefront of international standards.

Abundant and Far-reaching Educational Research Achievements

It has contributed to developing three national standards, earned 16 teaching honours, facilitated the publication of 15 specialised books, undertaken more than 40 national-level research projects, and published over 100 papers in the SSCI roster.

Impact and Sustainability

The instructional support system has created a layered and multidimensional innovation ecosystem. It has collaborated with over a hundred educational and research institutions within and outside the university, top-tier companies, and sister institutions. Not only does DIDHISS address the "isolated island" issue of redundant teaching platforms and physical space constraints in higher education institutions, but it can also serve as a model for disseminating practical experiences in DTE to universities worldwide.

Currently DIDHISS has attracted widespread attention from universities worldwide. In line with the concept of a global community of a shared future for all people, ZJU has provided digital education solutions and received more than 160 institutions worldwide for observation and exchange. It has conducted over 500 exchanges and training sessions for universities worldwide, successfully implemented the ZJU model in more than 30 higher education institutions, and has benefitted hundreds of thousands of teachers and students. In the future, ZJU will continue to shoulder its social responsibility, contributing to the continuous development of higher education teaching, open and fair education, and the progress of human civilisation.

Design and Implementation of the Blended Course of Informationized Instructional Design and Practice



Project: Design and Implementation of the Blended Course of Informationized Instructional Design and Practice

Organization: East China Normal University(ECNU)

Country: China

The jury's comment: The blended learning course helps students become familiar with a series of informatisation technology tools, understand the philosophy of informatisation education, master strategies for integrating informatisation technology into their teaching, enhance their awareness of using technology for educational innovation, and develop the ability to engage in lifelong learning using these technologies.





Education informatisation promotes educational equity, deepens educational reform, and enhances academic quality. Pre-service teachers, who represent the future teaching workforce, must be proficient in informatisation technology, as this directly impacts the quality of education. This has been an emphasis of attention for the Chinese government. In 2015, the Ministry of Education initiated the "Teacher Education Students' Informatisation Technology Teaching Ability Standards and Training Model Empirical Research" project under the China Mobile Research Fund. This project involved extensive research conducted across 20 normal universities in China. It aimed to clarify the overall status of informatisation technology teaching abilities among teacher education students and develop competency standards based on these findings. A total of 16,439 responses from undergraduate and specialised teacher education students were collected during the research. The results indicated that teacher education students generally exhibit low informatisation technology teaching abilities and struggle to meet the new demands placed on educators in the digital age.

In response to this issue, East China Normal University has actively engaged in educational reform by establishing the course "Informatisation Technology in Teaching Design and Practice." This course utilises a project-based teaching model and a blended learning approach to cultivate the informatisation of technology teaching abilities of teacher education students.

Overall Design & Variability Consideration: The course is based on the everyday needs of normal students for conducting informatisation education and encompasses an overall design. It focuses on exploring the modes and methods of informatisation education, teaching environments, blended

learning environments, and intelligent learning environments, enabling students to master pedagogical strategies that informatisation education.

Competency Estimation & Practice Oriented: This competency-based and practice-oriented approach deepens students' understanding of informatisation education and fosters the development of their informatisation technology teaching abilities.

Task Driven & Group Collaboration: It stimulates students' interest in active learning, nurtures their awareness of teamwork and communication skills, enhances learning efficiency, and encourages diverse thinking through the completion of these tasks and the generation of related work.

Pedagogics Demonstration & Experiences Enhancement: The course adopts a blended teaching approach and projectisation learning, seamlessly integrating teaching with technology. The course is a typical demonstration of informatisation education, providing students with valuable references for their informatisation education and their designs.

Innovative Design

Since its inception in 2001, the course has been offered once every academic year. It has now been established as a foundational and general education course for all normal students at East China Normal University. The course consists of 27 hours (18 hours in-person and 9 hours online) and covers approximately 1000 normal students per academic year. The course covers various majors, such as early child education, special education, psychological health education, etc. Since September 2015, the teaching team has adopted a mixed learning mode of "in-person intensive lectures + online independent learning + individual online guidance" instead of "comprehensive teaching".





Providing high-quality learning resources based on online learning platforms and engaging in blended learning practices.

On the one hand, the video of each offline course is uploaded to the platform for students to study and watch repeatedly, which supports students' flexible learning needs. On the other hand, the course uploads many extended learning resources, including classroom records of information technology applications, outstanding student work, methods and strategies for using information technology tools, etc. Students can flexibly arrange their time and choose topics for in-depth study.

Collecting evaluation data based on online learning platforms.

The platform can record traces of students' independent learning, such as the length of online learning, the number of online discussions, etc. Furthermore, it can promptly analyse the results of quizzes, offering educators instantaneous insight into the student's learning status. Moreover, teachers can peruse and score students' micro-credential assignments directly on the platform. Adhering to specific weightings, the platform seamlessly computes the students' scores. This streamlined approach negates challenges traditionally associated with continuous assessment and cumbersome performance calculation work, enhancing pedagogical efficiency.

Focusing on the improvement of students' practical abilities based on micro-credentials.

Setting itself apart from conventional written assessments, micro-credentials specifically target the formative evaluation of skills in professional settings, going beyond mere factual recall. Such an approach is pivotal in cultivating high-quality teachers who better meet the needs of schools and improve the employment competitiveness of normal students.

Project Outcomes

The evaluation of learning outcomes comprises course assessments, satisfaction surveys, and evaluations of digital teaching capabilities. The

course assessment is divided into formative assessments (40%) and summative assessments (60%). Formative assessments include timely and full participation in intensive face-to-face sessions, duration of online course engagement, scores from in-class quizzes, and frequency of classroom interactions. Summative assessments primarily focus on students' microcredential works.

As an illustration, for the Autumn 2022 course, over 75% of students excelled in the formative assessments. Additionally, over 70% secured scores of 85 or higher in the summative assessments, showcasing their robust academic foundations and applied capabilities. The cumulative student satisfaction was an impressive 90%. There was also a marked elevation in students' digital teaching proficiencies post-course, compared to pre-course (p<0.05). This data affirms the course's exceptional efficacy in promoting learning outcomes and addressing student requirements.

Impact and Sustainability

The course has trained more than 4,000 students and was successfully selected as one of the first national-level first-rate undergraduate courses in October 2020. The blended learning mode initiated by the course provides references and examples for schools to set up blended learning. The team summed up the experience and published the textbook "Design and Practice of Informatization Teaching" on this basis. Furthermore, the course team collaborates remotely with underprivileged normal colleges. This cooperation is implemented for three semesters, with 17 classes from 17 teacher-training colleges, including Lijiang Normal University, Aba Teachers University, and Tianshui Normal University, participating in synchronous classroom learning. A total of 124 teachers observe live teaching sessions. In May 2023, China Education News, the most authoritative and influential educational news media in China, published a special report on the work done by the course team with the theme of "Digital Technology Serves the High-quality Development of Teachers".

Digital Teaching Resource Building and Application of **Zhixueyun**



Project: Digital Teaching Resource Building and Application of Zhixueyun **Organisation:** Zhixueyun (Beijing) Technology Co., LTD **Country:** China

The jury's comment: Boasting well-developed technologies, Zhixueyun adapts to the unique educational situation of China, empowering students to engage in blended learning courses and providing them with personalized educational resources.



About ZhiXueYun

ZhiXueYun (Beijing) Technology Co., Ltd., an Al-powered knowledge service provider, is a leading provider of learning and knowledge services for governments and enterprises. Leveraging artificial intelligence-generated content (AIGC), Zhixueyun offers intelligent learning and intellectual services to governments and enterprises. Currently, Zhixueyun has provided services to over 2,000 enterprises, benefiting more than 30 million users.



According to A Plan for the Overall Layout of the Country's Digital Development, National Plan for Vocational Education Reform, and other documents issued by the Chinese ministries, to digital transformation and advancing vocational education, Zhixueyun has long been dedicated to digital learning, teaching, and application technologies . Consequently, it has developed a comprehensive digital learning platform along with robust technical support.. Equipped with professional teaching staff and course developers, Zhixueyun provides integrated services to support vocational education.



Project Objectives

Digital technology, represented by big data, artificial intelligence, cloud computing, and mobile Internet, is booming, and the form of corporate learning is undergoing profound changes. Zhixueyun carries outthis project to support the "Digital China" strategy, promote the digital transformation of enterprise education and training, and develop enterprise talent training to digital, network, and intelligent direction. Based on the students' demand for knowledge and ability improvement, Zhixueyun redesigned and constructed the course system based on the O2O application scenario to meet enterprise trainees' large-scale, prompt, and personalized learning requirements. The content of the course attaches importance to the summary and learning of ideas and experiences. The teaching design is unique by integrating the research results like learning motivation and cognitive law from pedagogical theories.



Innovative Design

Learning design: Beyond routine, Embracing innovation. Zhixueyun emphasizes both the flexible learning spirit and effect. For learning designers, only by continuously pursuing excellence, can they achieve a mutual promotion of teaching and learning.

PPT Course Transformation: Enables teachers to efficiently convert PPT courseware into online courses.

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• **E-book Evolution:** Crafted from paper books and digital teaching materials, the E-book guarantees comprehensive learning content tailored to students' habits and traits.

Animation Integration: Our courses in graphic and scene animation integrate textual and multimedia materials, fostering dynamic student interactions.

Three-Screen Synergy: Leveraging PPT and teacher recordings, swiftly convert traditional courses into interactive online courses.

 Micro-Animation Courses: Utilize graphic and scene-based micro-animations to address the issue of fragmented learning.

Project Outcomes

As of August 2023, over 2,000 enterprises and 10 million students are using Zhixueyun for course learning. There are six categories of online courses on Zhixueyun, covering more than 300 topics and over 4,000 online courses. Combined with enterprise online training content, it offers various course forms including text, graphics, pictures, animation, interpretation, audio, video, and human-computer interaction so as to realise the organic integration of various information elements and improve the learning effect.

Compared with previous E-learning courses, Zhixueyun online courses have significant advantages in experiences, which are mainly reflected in the following four aspects:

 Systematic course content to meet the learning needs of enterprise trainees from different background and competency level.

 Select and integrate professional teachers in different disciplines to ensure the quality of the course content; Well-designed courses enable students to fully immerse themselves in the learning experience.

From course selection to exams, Zhixueyun provides students with the whole process of learning services.



Impact and Sustainability

In the Internet era, Chinese enterprise training has gradually developed in the direction of personalised training objects, marketisation of training resources, diversification of training carriers, diversification of training methods and standardisation of training management. Given full play to the subjectivity and autonomy of enterprises in training activities, it is difficult for traditional education and training methods to adapt to this development. Technology is rapidly evolving, but confronted with the digital transformation of enterprises, business upgrading and the shortage of relevant excellent talents, digital enterprise training platforms have become the key to the "skill upgrading" of enterprises and individuals. Integrating high-tech, digital services and enterprise training may lead to immersive and interactive learning experiences. Enterprises are adopting digital solutions not only for their ondemand accessibility and blended learning capabilities but also for their ability to seamlessly integrate training into corporate talent development frameworks, ensuring a close alignment between workforce development and business needs. With the emerging trends of "Intelligent +" education and training, digital learning and other new information ecology and business models, the enterprise training and talent training mode will be more diversified, personalised, intelligent. Therefore, big data empowers enterprise talent training.

Camino21: EdTech to Empower Educators through Teacher iLabs to Ignite Digital Innovation in Higher Education Courses across Latin America



Project: EdTech to Empower Educators through Teacher iLabs to Ignite Digital Innovation in Higher Education Courses across Latin America **Organisation:** Camino21

Country: Mexico

The jury's comment: This project focuses on the pressing issue of inadequate initial and ongoing teacher training in higher education within Mexico, and seamlessly integrates teacher professional development with technology, providing users with a rich learning experience.





About Camino21

Camino21 is a Mexican & Peruvian-based EdTech organization that provides a blended learning platform for faculty professional development in higher education institutions in Latin America. Their mission is to enhance teaching at the higher education level in support of educational transformation. Camino21 offers various products and services, such as the Educators' Bootcamp, an asynchronous on-demand program, to the Teaching iLab, a hybrid program which combines synchronous engagement through virtual sessions. All programs and services are based on Active Learning and Learning by Doing, so that teachers can experience first-hand different pedagogical strategies of active learning.

Project Background

Camino21 addresses the pressing issue of inadequate initial and ongoing teacher training in higher education within Mexico and LATAM with an emphasis on the use of technology and blended learning. The paramount factor in improving the classroom learning experience is the quality of instruction enhanced by technology. However, today, few university faculty receive the necessary support to transform and innovate their teaching practices. Specifically, educators in higher education across Latin America lack the knowledge about how to deliver instructions that enable students to acquire these essential competencies.

This stems from several key challenges:

- A lack of initial and ongoing pedagogical training in higher education in the region.
- A discrepancy between conventional curriculum and the evolving needs of the labor market.
- A limited culture of professional support and community-building within educational institutions.
- Existing offerings that do not cater to the specific needs of higher

education educators.

Camino21 provides an EdTech faculty professional development platform that uses blended learning for higher education institutions. The platform includes teacher professional development programs offering both synchronous and asynchronous options, alongside features such as communities of practice and 1-on-1 instructional coaching. Camino21 empowers educators, who play a pivotal role in institutions, to expand their pedagogical repertoire and transform their teaching methods to nurture students' 21st-Century skills and competencies.

Project Objectives

Camino21 offered two distinct programs to meet the diverse needs of Higher Education Institutions:

- Educators' Bootcamp: This asynchronous, on-demand program allowed educators to progress at their own pace and was based on micro-competencies that led to a micro-credential. It also featured optional 1-on-1 sessions with experts to provide a hybrid learning experience.
- Teaching iLab: A hybrid program, the Faculty Innovation Lab, combined synchronous engagement through virtual sessions with asynchronous



access to supplementary materials and assessments. This flexible approach empowered educators to embrace innovation according to their schedules and learning preferences.

Innovative Design

Camino21 programs are distinguished by their user-friendly low-code approach, but the most significant innovation lies in the **adept integration of diverse technologies**, all aimed at enriching the active learning experience. This impressive synergy is the result of formidable partnerships focused on learning and implementing state-of-the-art teaching strategies.

Another example is the collaboration with Class Technologies, which facilitates synchronous learning experiences and leverages their AI capabilities for indepth analysis of participant engagement and other essential indicators. Additionally, Camino21 seamlessly integrates a suite of cutting-edge tools, including Thinkific, Menti, Padlet, Vocaroo, Perusall, and Google Workspace, all working harmoniously to create an enriched **educational ecosystem**.

In Camino21's commitment to empowering educators to tailor their own learning journey, the **microcredential system** offers them the freedom to customize their program engagement according to their unique needs and preferences. Micro-credentials are a strategic response to the diverse needs of educators, offering flexibility and adaptability to navigate the ever-evolving educational landscape.

Project Outcomes

Camino21 has reached over 25 Higher Education Institutions, private companies, and public organizations in Mexico, Peru, Colombia, and Chile, benefiting more than 8,500 educators. The outcomes include better-prepared and more confident faculty who promote active learning with technology. Faculty have gained the tools to develop 21st-century skills in their classrooms, positively impacting the academic and socio-emotional outcomes of thousands of students. The specific outcomes of Camino21's programs encompass providing resources, building a community of practice, presenting pedagogical strategies and technological tools, supporting reflection, and catering to the unique needs of each discipline while addressing educational challenges and trends. The project's highlights are underscored by its consolidation of legal entities in both Mexico and Peru, its extensive network of partnerships as described above.

Program outcomes were evaluated through the aforementioned learning assessments from question 3 (Peer Collaboration Assessment, Individual Reflection Assessment, and Skill Application Assessment), supplemented by two self-perception questionnaires, one administered at the program's commencement and the other upon completion. The evaluation of the project shows the improvement in faculty performance, digital competence, as well as positive feedback from educators. Survey responses reveal a notable transformation in teaching approaches. Interactions in the classroom underwent a significant shift.

Impact and Sustainability

Camino21 is uniquely positioned to bring a Micro-credential and educator's micro-competency system focused on blended learning skills; high impact and effective easy to implement teaching strategies; low cost but high





Camino21 is uniquely positioned to bring a Micro-credential and educator's micro-competency system focused on blended learning skills; high impact and effective easy to implement teaching strategies; low cost but high access programs; a learning-bydoing experience; highly personal learning journeys with constant feedback from the expert-team of Camino21; and, the development of communities of practice. All of these have been through the provision of paid-programs which ensure Camino21's sustainability, continuous improvement and scalability.

The ongoing impact of the project is multifaceted, benefiting various stakeholders:

• Universities and Higher Education Institutions: Camino21 provides comprehensive faculty development programs aimed at transforming teaching practices by integrating pedagogical and technological strategies. This impact transcends the traditional classroom setup and adapts to the evolving landscape of education, be it in-person, online, or hybrid.

Faculty and Educators: Camino21 offers programs for

blended learning at scale through a user-friendly but academically rigorous experience. The program equips educators with powerful yet easy-to-implement strategies in their teaching. Coupled with dynamic sessions led by experts and peers, educators can practice and refine these new tools.

• Educational Ecosystem: Camino21's status as the only certified consulting partner for the Class Technologies digital learning platform in the region ensures that educators experience live sessions on the most attractive platform available. This partnership enhances the quality of digital learning, benefiting both educators and students.

Broader Societal Impact: By fostering a systemic change in education and equipping educators with the tools to prepare students for the 21st century, Camino21's impact extends to society at large. Graduates from institutions influenced by Camino21's programs are better equipped to contribute to their communities, excel in their careers, and drive positive change.

JWL Post-Secondary Academically Accredited Professional Courses: Peace Leader



Project: JWL Post-Secondary Academically Accredited Professional Courses: Peace Leader

Organisation: Jesuit Worldwide Learning

Country: Kenya

The jury's comment: The Peace Leader program in Kakuma Refugee Camp is a response to the critical need for peace and intercultural understanding in a diverse community characterized by multiple nationalities, tribes, and religions prone to intercultural tensions. It equips learners with the knowledge and skills they require to become catalysts for peace and harmony in such a context.



About Jesuit Worldwide Learning (JWL)

Jesuit Worldwide Learning (JWL) is a collaborative global partnership comprised of organizations, institutions, companies and, above all, people, to provide equitable high-quality tertiary learning to people and communities at the margins of societies – be it through poverty, location, lack of opportunity, conflict or forced displacement – so all can contribute their knowledge and voices to a global community of learners and together foster hope to create a more peaceful and humane world.

Project Background

The Peace Leader program, offered by Jesuit Worldwide Learning/Kenya (JWL) and accredited by the Hekima Institute of Peace Studies and International Relations at Hekima University College (Nairobi, Kenya), was first launched in 2019 as a 24-week blended learning course centered on peace and leadership studies.

JWL's engagement in Kenya's Kakuma Refugee Camp dates back to 2010 when its first blended learning program was introduced. The Camp, located in northern Kenya, was established in 1992. It hosts over 200,000 refugees (predominantly from South Sudan and Somalia), making it Kenya's secondlargest refugee camp and one of the world's oldest. Over the next decade, Kakuma gradually became JWL's largest learning center, hosting over 1,500 students since 2020 across different programs, including English language and higher education professional and degree-bound academic programs.

The Peace Leader program was introduced in Kakuma in March 2021, in line with JWL's vision of promoting peace and empowerment through higher education. To date, 117 students in Kakuma have benefited from this program, gaining essential knowledge and skills to drive positive change in their communities.



Project Objectives

The inception of the Peace Leader program in Kakuma Refugee Camp was a response to the critical need for peace and intercultural understanding in a diverse community characterized by multiple nationalities, tribes, and religions prone to intercultural tensions. This initiative aims to equip learners with the knowledge and skills necessary for them to become catalysts for peace and harmony in such a context.

Delivered in a blended learning format, the program caters to learners' unique needs, including in terms of flexibility and accessibility, and support. The program spanned a total of 480 hours over 24 weeks, thoughtfully balancing face-to-face interactions, self-directed study, and online learning. This structure allows students to engage in 6 hours of in-person classes each week, facilitating peer interactions and mentorship.

Innovative Design

The Peace Leader program at JWL presents an innovative teaching design that effectively addresses the challenges of limited internet access in marginalized contexts like the Kakuma Refugee Camp.

One of the key features of this program is the **JWL Learning Management System (LMS)** and the accompanying **JWL app**, both designed for marginalized learners in low-resource contexts. The JWL LMS offers a userfriendly interface that allows students to access course content, engage in discussions, and submit assignments in low bandwidth settings. The JWL app has the specific option to download materials for offline use, which is crucial in Kakuma, where internet connectivity can be unreliable and data bundles are often inaccessible. Students can download course materials while at a local community center, often equipped with tablets for their convenience.

Moreover, the program utilizes **the Standalone Access Point for Infrastructure Networking and Transmission (SAINT)**, acting as a hotspot for easy content downloads without the need for an internet connection.



SAINT addresses the issue of low or unreliable internet access in Kakuma, ensuring that students can access course materials regardless of connectivity issues.

In addition to technological advancements, **the comprehensive student support system** in Kakuma offers students an enriching and supportive learning environment. Onsite facilitators and student services staff in Kakuma play a crucial role in introducing students, including those with limited or no digital literacy, to these platforms. They provide hands-on guidance, ensuring that all students can navigate digital tools effectively. Additionally, there is a dedicated IT team, comprised of graduates or students, which offers constant IT support to ensure a smooth learning experience.

Project Outcomes

The Peace Leader program, delivered in a blended learning format, stands as a compelling testament to the achievement of clear and measurable learning outcomes via digital education. The program aims to empower students with the knowledge, skills, and values needed to become compassionate and proficient Peace Leaders in their diverse and often challenging contexts.

According to Kakuma Peace Leader students' course evaluation responses, the program made significant strides in attaining teaching objectives:

 Cultural Context in Conflict: 88% of students reported substantial improvements in their ability to assess and identify the cultural context in which conflicts manifest.

 Articulating Peace Leader Values: 94% of students acknowledged that they had gained a profound understanding of the values intrinsic to a Peace Leader.

Self-awareness in Peace Leadership: The program excels in nurturing selfawareness among students, with 96% attesting to significant advancements in self-awareness skills linked to peace leadership.

 Conflict Analysis and Resolution: 89% of students lauded the program for substantially enhancing their capacity to identify issues within conflicts, discern potential resolutions, and apply models for change.



Conflict Analysis Tools and Skills: 93% of students acknowledged that the program had successfully equipped them with practical conflict analysis tools and skills.

Impact and Sustainability

The Peace Leader program delivered in Kenya's Kakuma Refugee Camp is a remarkable example of the transformative power of digital technology in education. A pivotal aspect of the program is its global reach, which enables students from diverse backgrounds to converge both in onsite and virtual classrooms. This convergence fosters a deep understanding and respect for each other's cultures, beliefs, and experiences.

Additionally, the program acts as an empowering force for women in the community, challenging deeply entrenched gender disparities. Graduates, particularly women, emerge as champions of gender equality, tirelessly advocating for women's rights and safety and actively engaging in dialogues and awareness campaigns.

In conclusion, the Peace Leader program's unique blend of digital technology and the distinctive regional context of Kakuma Refugee Camp yields a profound and far-reaching impact. The course enhances employability, nurtures self-confidence, fosters intercultural and interreligious appreciation, and promotes gender equality advocacy efforts. Graduates emerge as catalysts for peace and positive change within their communities, utilizing their acquired knowledge and skills to promote understanding, respect, and peaceful coexistence among diverse populations.

Baidu's Al Talent Development Program: Empowering Five Million Al Talents with Universities

Project: Baidu's AI Talent Development Program: Empowering Five Million AI Talents with Universities **Organisation:** Baidu

Country: China

The jury's comment: The Program leverages online platforms and cloud resources to provide studetns with hands-on experience and helps to cultivate interdisciplinary AI talent through industry courses, experiences, projects, competitions, and career guidance.





About Baidu

Baidu, with its mission of 'Making the Complicated World Simpler through Technology,' remains committed to technological innovation. The company aspires to be the foremost global high-tech enterprise, distinguished by its deep understanding of users and its ability to foster their growth. Baidu's investments span advanced areas including deep learning, conversational AI operating systems, autonomous driving, and AI chip technology. These endeavours have solidified its position as a leading AI entity, underpinned by a robust internet infrastructure.

Project Background

In July 2017, the State Council of China issued the "Development Plan for the New Generation of Artificial Intelligence," emphasizing the significance of cultivating versatile talents. This policy focuses on nurturing individuals who possess both theoretical knowledge and practical application skills, particularly in the field of artificial intelligence, to meet the diverse demands of this industry. Subsequently, in March 2020, the Ministry of Science and Technology, among other departments, released the "Strengthening Basic Research from 0 to 1 Program", underlining the importance of demand-driven and forward-looking cross-disciplinary research. These policy documents have shaped the trend of cultivating multifaceted talents and fostered collaborations between universities and industries to prepare individuals for the challenges of the new era.

Project Objectives

The rapid evolution of artificial intelligence has spurred a collaboration between prestigious educational institutions and industry leaders. This partnership seeks to unearth new models for talent development in the age of AI. The mission is to cultivate students with comprehensive attributes, encompassing self-management, effective communication, and sound career planning. The goal of the Baidu's AI Talent Development Program is to cultivate multifaceted talents, with a particular focus on the field of artificial intelligence and its related interdisciplinary domains. This objective is realized by designing exclusive training programs, raising the standards of education, and implementing flexible teaching methods. The program places a strong emphasis on equipping students with both theoretical understanding and practical competencies, aligning with the current needs of the industry for innovation and growth.

Innovative Design

Innovation takes centre stage as the teaching model is revamped, merging theoretical knowledge with practical applications and leveraging corporate resources to expand the educational enterprise. The project homes in on core frontiers and essential core technologies, advocating interdisciplinary research. Practical case-based instruction is prioritized, enabling students to grapple with real-world scenarios.

The curriculum encompasses an engineer's learning roadmap, technical research and development, campus career planning, and a pedagogical approach based on practical case studies. An extensive question bank is in place to provide students with programming exercises, thus enhancing their coding proficiencies and practical aptitudes. Training for competitions is

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2021年赛题:基于车载影像的实时环境感知 数据集:10类共计2000张图像数据,其 中8类采用股形检测框标注方法,2类采用 分割连通域标注方法;



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comprehensive, including targeted teacher training and a dedicated channel for exceptionally talented students. Cloud-based platforms and resource support are also extended to facilitate this training. Students accrue valuable experience by participating in projects and engaging in research exchanges.





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Project Outcomes

The project's primary thrust centers on talent development, fulfilling market demands by nurturing advanced talents who are equipped to thrive in a dynamic industry. Upon completion of the elite class program, graduates of the elite class program receive an AI Capability Certification, an accreditation officially endorsed by Baidu. Students transition from a traditional knowledgebased approach to a multifaceted, application-oriented, and innovative learning journey. Educators are empowered to tailor their instructional strategies, leading to the formation of unique teaching accomplishments worthy of submission for a diverse array of teaching awards.

Impact and Sustainability

The symbiotic collaboration between Jinan University and Baidu offers an exemplary model of academic-industry integration, congruent with national policies and objectives. The cultivation of multifaceted talents serves to meet the high-end demands of the industry, conferring substantial benefits upon Baidu and its students. Baidu's provision of an expansive question bank, course resources, competition training, and auxiliary assets is poised to exert a positive influence on the comprehensive attributes and employability prospects of students.

The project features a well-defined set of collaboration stipulations, encompassing the appointment of a class supervisor by the educational institution, prescribed student majors, and stipulated capabilities. These elements collectively ensure a sustainable course of action. Ongoing cooperation between academia and industry engenders a sustainable, mutually beneficial framework, endowing students with practical experiences and empowering enterprises with high-level talents. Students accrue invaluable experiences through research exchanges, participation in practical projects, and related endeavors. This augments their employability and establishes a robust foundation for sustained success. By nurturing prospective multifaceted talents, the project endeavors to meet the demands of emerging industries and technologies, carrying the potential for enduring, positive impact.
Digital Twin Hybrid Experimental Teaching Space Project at Sun Yat sen University



Project: Digital Twin Hybrid Experimental Teaching Space Project at Sun Yat sen University **Organisation:** OS-easy Group Holding Ltd.

Country: China

The jury's comment: This project is a leadership-led initiative to upgrade the current institutional infrastructure. The idea of connected space and remote access breaks the physical constraint of going to digital labs and has a good impact on the students of SUN Yat Sen University.

About OS-EASY

OS-EASY is a professional cloud desktop solution provider, dedicated to the R& D of cutting-edge technology such as cloud computing, desktop cloud service, and IoT, providing cloud computer office, smart education, desktop cloud and other products for users in education, government, enterprise, medical care, finance, energy and other industries at home and abroad, as well as full-scenario integrated solutions that are deeply integrated into the industry.



Project Background

Currently, with the release of national policies such as the "Guiding Opinions on Promoting the Construction of New Education Infrastructure and Building a High Quality Education Support System" by six departments, including the Ministry of Education, the country has taken a deep promotion of education digitization strategic action, and coordinated the construction of education digitization, a learning oriented society, and a learning oriented country as the main goal and key task. At the same time, the country is deeply promoting the digital education strategy, accelerating the construction of an education powerhouse, continuously improving the national smart education platform, empowering students to learn, teachers to teach, school governance, educational innovation, and international exchanges.

As a first-class and internationally renowned modern comprehensive university in China, Sun Yat sen University deeply integrates information technology and intelligent technology in education and teaching reform. It collaborates with OS-easy Group Holding Ltd. to jointly build the "Digital Twin Hybrid Experimental Teaching Space" project, promoting the digital transformation and intelligent upgrading of experimental teaching, and improving the quality of talent cultivation in the school.

Project Objectives

The core goal of the "Digital Twin Hybrid Experimental Teaching Space Project" is to achieve deep integration of computer experimental teaching, digital twin, cloud desktop and cloud technology, provide an efficient, innovative, and intelligent digital teaching environment and platform for teachers and students, reconstruct student internship and training models, enrich university talent cultivation models, and create a new teaching model and mechanism with domestic leading level. The specific objectives are as follows:

Creating a Digital Twin Hybrid Experimental Space: By leveraging digital twins, cloud servers, and virtualization technologies, we aim to build a fusion service center that provides resource services for offline physics laboratories. We can quickly publish physical laboratories (such as public computer rooms, language laboratories, 3D training rooms, etc.) to the cloud anytime and anywhere, quickly building virtual classrooms and effectively integrating experimental resources through digital spatial expansion. OS-EASY expanded the application scenarios and modes of experimental resources, achieved online and offline ubiquitous teaching access, and enabled the experimental environment to empower experimental teaching better.

Enriching talent cultivation models in universities through new generation information technology: By supporting humanized teaching and learning under network conditions through a digital twin hybrid teaching space, professional experimental teaching can better match talent cultivation plans. Students can apply for training resources according to their personal needs, and senior teachers can flexibly allocate the use of training resources based on students' learning situations, The teaching relationship has shifted from traditional "teacher led teaching" to "student proactive exploratory learning", giving teaching and learning more personalized choices.

Innovative Design

Under the "Digital Twin Hybrid Experimental Teaching Space Project", the blended teaching at the Experimental Teaching Center of Sun Yat sen University has undergone a series of innovative design practices, from teaching design to learning activities to the application of digital technology, all of which reflect a breakthrough and reshaping of traditional educational methods.

Empowering the construction of "digital transformation" and enriching talent cultivation models: Experimental teaching has transformed from a traditional single offline education mode to an integrated online and offline education mode (OMO). During the transformation process, the experimental learning space, learning resources, and learning methods have become more diverse, and personalized learning has been integrated on the basis of standardized learning, enriching the talent cultivation models of universities.

Open and shared resource service model, improving input-output efficiency: fully utilize existing laboratory terminal and server resources, open online virtual classrooms, no need to repeatedly purchase equipment, effectively integrate experimental resources, expand the application scenarios and models of experimental resources, and promote the output of teaching results.

Expanding the Digital Experimental Teaching Space in the Laboratory: Through digital space expansion, effective integration of experimental resources has been achieved, expanding the application scenarios and modes of experimental resources, achieving online and offline ubiquitous teaching access, and enabling the experimental environment to better empower experimental teaching.



Diversified teaching methods and innovative experimental teaching models: resource scheduling and allocation will become more flexible, and teaching experimental methods will also become more diverse. The model of IT resource service and usage has been changed, fully leveraging the value of resources in the output of teaching outcomes.

Project Outcomes

With the gradual advancement of the innovative design of blended teaching under the "Digital Twin Hybrid Experimental Teaching Space Project" at Sun Yat sen University, the progress of the project is in full swing. Currently, the deployment of a 3104 point integrated desktop cloud system has been completed, covering three campuses in Guangzhou, Shenzhen, and Zhuhai, meeting the daily teaching and office research needs of over 10000 people from 11 colleges. In terms of teaching training, professional training has been provided to 30% of the school's computer room management teachers. By 2024, 80% of the laboratories will have completed the construction of smart IoT, creating a laboratory space that operates automatically in all scenarios.

Compared with numerous educational cloud computing platforms, OS-easy's digital twin technology is at the forefront of the education field, simulating a material experiment teaching and learning environment, providing students with a completely consistent immersive learning experience online and offline. The platform is not only a technological innovation, but also an integration of local culture and educational traditions, making learning more closely related to students' actual lives, enhancing the practicality and attractiveness of learning.

Impact and Sustainability

Through this project, students can experience more personalized, efficient, and practical learning. It encourages students' active learning and cultivates their innovative thinking and practical abilities. Through training and practice, teachers not only improve their digital skills, but also gain a deeper understanding of the concept and methods of blended learning, enhancing their educational and teaching abilities.

In the long run, the project enables flexible allocation of hardware resources.

In addition to meeting the current teaching needs, the project investment can also meet the teaching usage needs for the next 5-10 years, ensuring the long-term operation and development of the project. Furthermore, it realizes the sharing of educational resources. Through cloud computing platforms, we encourage resource sharing and collaboration among teachers. This not only avoids duplication of effort, but also promotes the optimization and updating of educational resources.



Redefining Education in Rural Schools: Blending XR Innovation, Workforce Readiness, Teacher Development in Digital Education, and Higher Education Reform

Project: Redefining Education in Rural Schools: Blending XR Innovation, Workforce Readiness, Teacher Development in Digital Education, and Higher Education Reform

Organisation: Nudle

Country: South Africa

The jury's comment: Nudle project holds the potential for significant impact, aiming to address the stark educational and digital divide, particularly in disadvantaged areas, and could catalyze positive change, offering hope and opportunities to South African students and contributing significantly to the nation's progress.



About Nudle

Nudle is a South African educational technology company. The aim is to seamlessly integrate or replace conventional training and education methods, providing immersive, engaging, and user-friendly classes and information. Nudle's ultimate goal is to make education a more enjoyable and effective experience for everyone, using the power of cutting-edge technology to bring learning to life like never before.





Project Background

South Africa faces a stark educational divide, particularly in disadvantaged areas, marked by inadequate infrastructure, outdated materials, and a shortage of qualified educators. This results in poor educational outcomes, leaving students ill-prepared for the workforce. Thus, there is a pressing need for digital skills transformation and research and development in digital education technologies in South Africa.

In response to these critical challenges, Nudle emerges as a beacon of innovation, revolutionizing higher education through leveraging cutting-edge technologies like Extended Reality (XR) and Artificial Intelligence (AI). Nudle is actively engaged with the Department of Education in a country where extended reality (XR) is still an emerging field. The primary focus is on aligning XR hardware, including augmented reality (AR), virtual reality (VR), and mixed reality (MR), with the teaching plans and curriculum in various subjects. Nudle is currently collaborating with Chinese VR technology giants, ByteDance and KMAX, to establish additional XR-equipped classrooms. Through technologies and collaboration, Nudle contributes to creating immersive learning environments, providing high-quality educational solutions, personalizing learning experiences and generating valuable data insights, thereby elevating education in South Africa.

Project Objectives

Nudle's mission is to elevate South African and African education by providing high-quality educational resources, backed by rigorous research and development efforts and public-private partnerships. Nudle is leveraging software from KMAX to revolutionize the learning experience in technical subjects.

• Addressing Educational Disparities: The project aims to bridge the educational and digital divide and address current issues in higher education in South Africa, particularly in disadvantaged areas.

• Enhancing Teaching and Learning through XR: The project emphasizes equipping teachers with the necessary skills and knowledge to effectively use XR technology in the classroom, making complex subjects more accessible and engaging for students.

Improving Workforce Readiness: By providing students with hands-on experience in XR simulations related to technical subjects, the project aims to better prepare them for the workforce, aligning their skills with industry demands.

• Collaboration with Government: The project involves active collaboration with government departments, such as the Department of Higher Education and the Department of Basic Education, to support and align with educational initiatives.

Infrastructure and Training Support: The project seeks to bridge infrastructure gaps in rural schools, including providing internet access, power, and water to underserved areas. The project emphasizes equipping teachers with the necessary skills and knowledge to effectively use XR technology in the classroom.





Innovative Design

Nudle works on adapting existing software and developing new applications to meet the specific needs of educational content. To address the challenge of limited digital literacy among both teachers and students, Nudle has taken several proactive steps.

First, Nudle has conducted use cases to identify the extent of this issue and its impact on the effective implementation of XR technology in the classroom. Based on these findings, Nudle is now collaborating with educational partners to create programs aimed at educating teachers about digital transformation.

In addition to teacher training, Nudle is actively promoting XR adoption through school competitions. These competitions encourage both teachers and students to push their boundaries and become more proficient in using XR technology. By creating a competitive and motivating environment, we aim to inspire a deeper engagement with XR-enhanced learning experiences.

In summary, Nudle is committed to integrating XR into education, despite the initial challenges posed by limited digital literacy. These efforts include aligning XR hardware with educational plans, addressing the digital skills gap through teacher training programs, and fostering enthusiasm for XR technology through school competitions.

Project Outcomes

Facilitated Teaching and Learning: The integration of XR into education has yielded substantial evidence of improved learning outcomes, such as increased engagement, interactivity, and concept comprehension facilitated by XR. The improved academic performance, higher retention

rates, and time efficiency gains, further substantiate the positive impact of XR on achieving teaching objectives and requirements.

Revolution in Higher Education: Through collaboration, innovative technologies, and an unwavering commitment to adaptability, Nudle is poised to revolutionise the educational landscape. By supplementing traditional teaching with Alpowered resources, Nudle addresses the dearth of qualified educators and promotes standardized testing and curriculum reform, shifting the focus from rote memorization to critical thinking and problem-solving skills. Moreover, Nudle is planning a cutting-edge WebXR application to revolutionize classroom education by providing students with access to 3D models and animations directly via smartphones, utilising textbook markers for interaction.

Impact and Sustainabilit

Serving as a catalyst for positive change, Nudle offers hope and opportunities to South African students and contributes significantly to the nation's progress. Nudle aims to combat high dropout rates by engaging students with personalized, engaging content, fostering academic success and increasing access to higher education, especially for disadvantaged students facing financial barriers.

Beyond education, Nudle seeks to bridge the digital skills gap and reduce youth unemployment through the integration of cutting-edge technologies like Extended Reality (XR) and Artificial Intelligence (Al). Nudle is leveraging the power of KMAX and other tech partners as well as customplanned software solutions to become accessible to all. This collaborative effort with the public and private sectors ensures a well-rounded approach that aligns with South African educational realities, promising a brighter future for the nation's youth and a more skilled, employable workforce.



