2024
全球智慧教育大会
Global Smart Education Conference

Synthesis Report

Global Smart Education Conference 2024

Educational Transformation & International Understanding

18-20 August 2024

全球智慧教育合作联盟
Global Smart Education Network

Beijing Normal University

Beijing Normal University (BNU) grew out of the Education Department of Imperial University of Peking established in 1902, which initiated teacher training in China's higher education. After the development for over a century, BNU has become a comprehensive and research-intensive university with its main characteristics of basic disciplines in sciences and humanities, teacher education and educational science.

UNESCO IITE

The UNESCO Institute for Information Technologies in Education (UNESCO IITE) was established as an integral part of UNESCO by the General Conference of UNESCO at its 29th session (November 1997). IITE is the only UNESCO category 1 Institute that holds a global mandate for ICT in education.

Published in 2024 by Beijing Normal University, Changping Campus, Beijing, China

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Designed and printed by Beijing Normal University & UNESCO IITE

Printed in China

Be in awe of education, for it shapes the soul of human,

Be cautious to technologies, for its adoption has to be effective,

Be entangled with Smart, for the uncertainty tends to be increasing,

Be serious to academies, for the true research needs evidence.

---Ronghuai Huang March 20th, 2017

Foreword

The changes in the world, the era, and history are unfolding in unprecedented ways, driving the adaptation and adjustments in global education. Digitalization in education is a crucial breakthrough for opening new avenues and shaping new advantages in educational development. UNESCO advocates for constructing a new “social contract”, fully leveraging the educational dividends brought by digital technology to demonstrate education as a global public interest better. The UN Transforming Education Summit calls on countries to fully harness the power of the digital revolution to drive global education reform, ensuring the provision of high-quality education and lifelong learning as a common interest for everyone. China has proposed advancing educational digitalization, constructing a learning society, and becoming a learning-oriented nation with lifelong learning for all.

As a new form of education in the digital era, smart education is an inevitable choice for advancing equitable, inclusive, and high-quality education. The initiative for the Global Smart Education Network (GSENet) was launched during GSE2022. The aim is to establish a partnership comprising researchers, practitioners, technology experts, and policymakers, to support the rethinking and redesign of education systems at the national, regional, and school levels. This initiative seeks to formulate strategic solutions and approaches to reshape and innovate education and establish an equitable, inclusive, and high-quality smart education system.

GSE2024 is organized by Beijing Normal University (BNU) and co-organized by UNESCO Institute for Information Technologies in Education (UNESCO IITE), Arab League Educational, Cultural and Scientific Organization (ALECSO), Commonwealth of Learning (COL), International Society for Technology in Education (ISTE), and The Southeast Asian Ministers of Education Organization (SEAMEO). GSE2024 serves as the annual conference of GSENet, with the theme of "Educational Transformation & International Understanding". The event shared new trends, new theories, and new technologies in the field of smart education through plenary sessions, high-level dialogues, thematic forums, roundtable discussions, and workshops on smart education policies, technologies, and practices. It aims to release research findings and collaboration plans, showcase exemplary cases and solutions, and facilitate in-depth exchanges and collaboration to collectively pave the way for a brighter future in smart education.

We look forward to the concerted efforts of policymakers, technological innovators, and all frontline educators to truly empower education with intelligent technology, and to allow smart education to assist learners and educators worldwide, thus bringing us a better future.

ZHOU Zuoyu	**ZHAN Tao**	**HUANG Ronghuai**
Vice-president, BNU	Director, UNESCO IITE	Co-Dean, SLIBNU

Co-Chairs of GSE2024 Program Committee

Acknowledgements

This synthesis report has been developed by the Organizing Committee of Global Smart Education Conference, drawing on the Global Smart Education Conference 2024 (GSE2024) held at BNU from 18 to 20 August 2024. The conference featured over 400 distinguished speakers from 62 countries, attracted over 1800 on-site attendees and over 5 million online viewers.

We would like to thank the co-chairs of GSE2024, Mr CHENG Jianping, the Secretary of the Party Committee of BNU, and Mr ZHAO Qinping, Academician of the Chinese Academy of Engineering. Thanks also to the co-chairs of the program committee of GSE2024, Mr ZHOU Zuoyu, Vice President of BNU, Mr ZHAN Tao, Director of UNESCO IITE, and Mr HUANG Ronghuai, Co-Dean of Smart Learning Institute of BNU. Special thanks to Ms. Asha S. Kanwar, Chair of Governing Board of UNESCO IITE and Chair Professor of Smart Learning Institute of BNU, Mr. CHEN Guangju, Deputy Director of the Council of BNU, and Mr. LIU Dejian, Co-Dean of the Smart Learning Institute of BNU, for their visionary planning, invaluable guidance, and unwavering support, particularly for their monumental contributions to the successful launch of the inaugural Global Smart Education Innovation Prize.

We express profound gratitude to the esteemed Members of the Program Committee for their pivotal roles in orchestrating the conference's success. Their dedication encompassed hosting, delivering opening addresses, presenting insightful speeches, and actively participating in sessions, among numerous other contributions. Special recognition goes to H.E. Mr. WANG Jiayi, Vice Minister of Education of the People's Republic of China, Ms. YU Jihong, President of BNU, and Ms. Stefania Giannini, UNESCO Assistant Director-General for Education, whose inspiring speeches not only set the tone but also laid the foundation for the triumphant outcome of this year's conference, fostering a dynamic environment for intellectual discourse and collaboration. Gratitude is also extended to all the speakers, moderators, and participants from across the globe, including representatives from governments and international organizations, as well as academic experts and industry practitioners in the field of smart education. And we would like to express our heartfelt thanks to the participating delegates and students for their invaluable presence. With their engagement and participation, the conference has become a vibrant platform for knowledge sharing, idea exchange, and collaborative growth.

We benefit immensely from the invaluable inputs and collaboration of a diverse array of partners, each contributing their unique expertise and resources to enrich our endeavors. Firstly, we are deeply grateful to the prestigious institutions including BNU, UNESCO IITE, ALECSO, COL, ISTE, and SEAMEO, whose strategic alliances have provided a robust global platform for exchange and collaboration in the field of education.

Secondly, we acknowledge with profound appreciation the significant contributions of our hosts, including the Smart Learning Institute, Faculty of Education and Faculty of Psychology of BNU, China Institute of Education and Social Development (CIESD), and the National Engineering Research Center of Cyberlearning and Intelligent Technology. These entities have been instrumental in advancing innovative pedagogies and research in the realm of smart learning.

Thirdly, we express our heartfelt thanks to the organizations and enterprises that have extended their support in various capacities, including UNESCO International Research and Training Centre for Rural Education (UNESCO INRULED), Collaborative Innovation Centre of Assessment for Basic Education Quality,

China, State Key Laboratory of Virtual Reality Technology and Systems, China, Educational Informatization Strategy Research Base, Ministry of Education, P.R.China, Higher Education Press, China, China Information Technology Education Magazine, New Reading Magazine, China, Virtual Simulation Experiment Teaching Innovation Alliance, China, and NetDragon Websoft Inc., China. Their partnerships have not only bolstered our initiatives but also facilitated the dissemination of knowledge and best practices across diverse sectors, fostering a vibrant and inclusive educational ecosystem.

We are also deeply grateful to our esteemed enterprise, media, and supporting partners who have played a pivotal role in advancing our initiatives. Specifically, we extend our sincere appreciation to the supporting organization, The Hong Kong Jockey Club Charities Trust. Moreover, we recognize with the utmost respect our Elite Partners, including NetDragon Websoft Inc., iFLYTEK, China Reform Culture Holdings Co. Ltd., and Jingshi Ruidao. We are also profoundly thankful to our Excellent Partners, comprising TSINGHUA UNIGROUP, Onion Academy, HAILIANG Technology, Tencent Education, KingSha, Education & Technology Group Inc., Pearson, and Our School, etc.

Finally, we would like to express our sincere thanks to the colleagues from Secretarial Group, International Group, Publicity Group, Technical Group, and Finance Group of the Organizing Committee of GSE2024. Together, we have achieved the great success of this conference through our collective efforts, teamwork, and dedication. Each group played a crucial role in ensuring the smooth operation and the high quality of the event, making it a resounding success.

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Table of contents

Executive Summary

Changes in the world, the times, and history are unfolding in unprecedented ways, driving the adaptation and adjustment of global education. The 2024 Global Smart Education Conference (GSE2024) opened in Beijing on August 18 (GMT+8). The conference, under the theme of “Educational Transformation & International Understanding,” brought together experts, scholars, and frontline teachers from educational, sci-tech, and business circles from across the globe to discuss ways to digitalize and transform education, follow digital strategies and plans in the international community, explore approaches to the digital transformation of education, reflect on issues and challenges at hand, and share new theories, technologies, views, and results regarding smart education. The conference has attracted more than 400 guests from across the globe and over 1,800 participants on the spot. The conference consisted of 16 forums and 11 thematic activities.

During the Opening Ceremony, GSENet report titled "Global Understanding of Smart Education in Digital Transformation" was unveiled, which is crucial for enhancing international understanding, deepening global education's digital transformation, and marking the start of the smart education era. At the Closing Ceremony, the "Global Smart Education Innovation Prize" was announced. Its establishment is significant for leading trends, strengthening international cooperation, and fostering sustainable development, recognizing outstanding contributions and injecting new vitality into global smart education.

Jointly Devise Forward-Looking Strategies and Policy Planning, Sketching an Ideal Blueprint for Smart Education

The development of smart education necessitates systematic planning, scientific foresight, and mutual exchange among nations. It requires the establishment of policy dialogue and exchange platforms to delve into new concepts, experiences, strategies, as well as regulatory issues such as data governance standards, security, and ethics in smart education. Through collaboration, we aim to explore feasible paths, scientific methodologies, and effective policies for advancing smart education. From the perspective of digital transformation in education, smart education's new characteristics encompass two aspects: firstly, the key expressive features of a national or regional smart education ecosystem, or the "developmental goals" of smart education, encompass student-centered teaching, comprehensive learning assessment, ubiquitous smart learning environments, a continuously improving educational culture, and unwavering commitment to educational inclusivity and equity. Secondly, the supporting constructive features of smart education systems, or the "practical approaches" to smart education, encompass the fostering of active student social communities, priority support programs for teacher development, ethical technology applications, sustainable educational reform planning, and effective cross-sectoral and cross-domain collaboration.

Smart Education as a Shared Vision Among Nations to Address AI Challenges and Achieve Quality Education

Digital technologies are emerging as the driving force behind educational transformation. The United

Nations Education Transformation Summit has listed digital transformation in education as one of its five key action areas, reflecting a global consensus and a trend of the times. Vice Minister of Education, P.R.China, **H.E. Mr. WANG Jiayi** noted in his opening remarks at the Summit that the Chinese government attaches great importance to the pivotal role of digitalization in driving educational change. China has implemented the National Education Digitization Strategic Action for three consecutive years, focusing on: integrating high-quality resources to build a national education digitization public service system; strengthening AI applications to advance AI-empowered education initiatives; and enhancing international exchanges and cooperation to contribute wisdom and strength to the global digital transformation of education. **Ms. Stefania Giannini**, UNESCO Assistant Director-General for Education, emphasized that the theme of educational transformation and international understanding is timely for the international education community, with UNESCO leveraging the potential of digital technologies in education to address their ethical, social, and economic implications. **Prof. Mohamed Jemni**, Director of the Information and Communication Technology Department at the Arab League Educational, Cultural and Scientific Organization (ALECSO), mentioned that ALECSO places great emphasis on the digital transformation process, which is central to achieving sustainable development in the Arab world and ensuring that education keeps pace with the latest technological and innovative developments in the field.

While digital transformation presents immense opportunities for education, it also poses numerous challenges. H.E. Ms. Maryam Mariya, Minister of Higher Education, Labour and Skills Development of Maldives, underscored the importance of ethical considerations in the pursuit of digital technologies, including digital and data privacy, data well-being, and ensuring universal access to the education system. **Mr. Adnan Husić**, Assistant to Minister of the Ministry of Civil Affairs, Bosnia and Herzegovina, echoed concerns about inadequate digital infrastructure, data privacy issues, and the digital divide as challenges to realizing smart education. **H.E. Mr. Justin Valentin**, Minister of Education of Seychelles, mentioned challenges related to shifts in educational intent and context, the urgency of rapid technological development, digital divides and internet access issues, the need for teacher training and technology integration, and cross-sectoral collaboration in Seychelles' pursuit of smart education. **Datuk Dr. Habibah Abdul Rahim**, Director of the Southeast Asian Ministers of Education Organization (SEAMEO) Secretariat, posed several thought-provoking questions: whether edtech aligns with local learning environments, whether edtech's power risks leaving learners behind, whether edtech utilization is scalable, and whether edtech usage supports sustainable future education.

Smart education emerges as a pivotal response to these challenges. Prof. YU Jihong, President of Beijing Normal University, highlighted three strategies in the face of this historic opportunity: firstly, adhering to the principle of education for people's all-round and free development, fostering digital competencies adapted to the age of intelligence; secondly, addressing practical challenges with a problem-oriented approach, facilitating the orderly integration of intelligent technologies into the educational ecosystem; and thirdly, upholding integrity and innovation to promote the reconstruction of teachers' competencies in the intelligent era, making them the core driving force adapting to and advancing smart educational innovations. **H.E. Mr. WANG Jiayi** also proposed three initiatives in his speech: strengthening policy dialogue to jointly advance smart education; enhancing resource sharing to promote more equitable and inclusive education; and bolstering capacity-building to jointly forge a new landscape for smart education. **H.E. Ms. KILO Vivian ASHERI**, Secretary of State of Ministry of Basic Education of Cameroon, discussed key elements such as developing open resource platforms, creating

national knowledge repositories and open educational materials, and deploying educational fiber optic networks to streamline management processes, safeguard data security, and improve communication among users.

Digital Transformation: A Crucial Pathway to Achieving Sustainable Education Development

Policies serve as the cornerstone in driving the digital transformation of education. The development of smart education, a monumental endeavor in educational reform, necessitates systematic planning and scientific layout. It is imperative to ensure the normative and orderly integration of technologies such as artificial intelligence into the educational ecosystem while leveraging these new technologies to foster precise and efficient educational applications and governance mechanisms. **H.E. Ms. KILO Vivian ASHERI** highlighted that Cameroon has formulated various policy documents related to the transformation of its education system, encompassing national development strategies, education and training sector strategies, ICT policies, higher education regulatory laws, inclusive education policies, preschool education policies, and reforms across all levels of the education system to adapt to emerging societal needs**. Mr. Janko Samardžić**, Assistant Minister for Higher Education of Serbia, noted that Serbia has outlined a national strategy for 2030, delving into the potential of digital applications to enhance teaching quality, student performance, and student development. **Mr. YU Weiliang**, member of Education Work Committee of the Hunan Provincial Party Committee, emphasized the development of a specialized action plan for educational digitalization at the top-level design, optimizing and improving the digital literacy training system, and regularly promoting efforts to enhance digital literacy. **Mr. GAN Changfu**, Deputy Director of the Qinghai Provincial Department of Education, disclosed that Qinghai is drafting the "Qinghai Education Digitalization Development Plan (2024-2027)" to set clear timelines, roadmaps, and provide an overall blueprint for digital education in the province.

Technical conditions underpin the collaborative construction of a digital education system by diverse stakeholders. The complexity of new technologies necessitates a comprehensive understanding and implementation of public policies promoting sustainable development through intelligent technologies, relying on the concerted efforts and broad participation of stakeholders and the general public. **Prof. ZHAO Qinping**, Academician of Chinese Academy of Engineering, elaborated on the impact of virtual reality technology, encompassing its progression beyond VR1.0 into the 6I-featured VR2.0 era and the influence of internet technology on future education, emphasizing the need for the integration of the physical and virtual worlds, including AI integration. **Prof. Poon Wai-yin**, Vice Rector of The Chinese University of Hong Kong, mentioned virtual learning environments, particularly for students with special needs, advocating for the creation of inclusive virtual learning environments where teachers can adjust to specific requirements to help students overcome learning barriers.

Digital transformation represents not merely a technological upgrade but a profound shift in educational models and philosophies. It is a continuous process leveraging digital, networked, and intelligent technologies and methods to transform the education system, requiring digitalization across all educational stages, elements, processes, and domains. As **Prof. HU Qintai** from Guangdong University of Technology observed, while fundamental changes are taking place in the field of education, the true realization of educational digital transformation remains a formidable task. He outlined four paths for this transformation: firstly, systematically constructing new models, frameworks, methods, and systems for educational digital teaching reform; secondly, driving teaching innovation through the evolution of

educational ideologies; thirdly, creating visualized learning and teaching resources to facilitate advantage sharing; and fourthly, building a multi-type digital collaboration service community. **Prof. YU Shengquan**, Executive Director of Advanced Innovation Center for Future Education of Beijing Normal University, emphasized that talent cultivation should prioritize human-machine collaborative distributed educational intelligence, while curriculum systems should incorporate core content with diverse contexts, dynamically reconfigurable structures, blended real-virtual forms, and knowledge-generative teaching paradigms. Evaluation mechanisms should shift towards data-driven developmental assessment, and governance structures should become open, flexible, and adaptable, fostering dynamic and open school organizations that support personalized, differentiated, and collaborative education.

Promoting Comprehensive Digital Transformation and Creating a High-Quality, Inclusive, and Sustainable Smart Education Ecosystem

The comprehensive digital transformation encompasses various sectors of education, including basic education, higher education, vocational education, adult and continuing education, as well as social training, while also ensuring equitable geographical balance between urban and rural areas. With the accelerating pace of digital transformation globally, countries have successively introduced digital development strategies, with education digitalization serving as a vital component of national digital strategies. Driving this comprehensive digital transformation will facilitate the creation of a high-quality, inclusive, and sustainable smart education ecosystem.

Developing Preschool Digital-Intelligent Education for a Happy Childhood

Leveraging digital technology offers numerous opportunities for children's learning, development, and growth. Prof. LI Xiaowei from the Faculty of Education of Beijing Normal University, highlighted the practices of digital parenting, emphasizing both media utilization and intervention to help children follow media usage rules, correct unhealthy media habits, and select appropriate media products. **Ms. LV Hong**, Principal of Yahe Kindergarten affiliated with Boya Primary School in Chongqing Liangjiang New Area effectively utilizes intelligent technology to integrate education and entertainment, transcending spatial, temporal, age, and class boundaries through an indoor-outdoor integrated resource-sharing approach. This fosters personalized and hierarchical learning opportunities, enabling children to develop their unique potential through autonomous choices, play, and creativity.

To diversify, personalize, and intelligentize preschool education**, Mr. ZHANG Jianping**, Director of the Education Bureau of Xiaoshan District, Hangzhou, outlined three steps: establishing a digital-intelligent kindergarten system, connecting individual kindergartens to form a district-wide digital application path, and establishing a digital-intelligent early childhood education community for collaborative and inclusive development. **Mr. FANG Xuejian**, Director of the Education Bureau of Yangzhong City, Jiangsu Province, shared two experiences: sharing digital information resources across the region, including diverse learning materials for children, teacher training resources, and family-school interactive educational resources; and adhering to digital ethics to respect children, parents, and laws. **Ms. LV Hong** of Yahe Kindergarten elaborated on measures such as introducing smart teaching equipment, leveraging nearby primary school resources to build intelligent learning platforms and campus management systems, constructing a growth curriculum system rooted in kindergarten culture, and exploring immersive learning experiences with VR/AR technologies.

To drive innovation across the entire teaching process, achieve resource sharing, and support multi-level teaching needs, **Mr. LIN Mingxiang**, Chancellor of EIS International Pre-school, Hong Kong, underscored the importance of deep learning for young children, which fosters critical thinking and problem-solving skills in complex situations. Teachers play a pivotal role in supporting children's deep learning by providing meaningful opportunities, encouraging independent exploration, and providing timely feedback. **Ms. TIAN Hui**, Principal of the Yinchuan Kindergarten of Beijing Normal University, shared project-based learning cases, illustrating the use of AI in designing learning objectives, tasks, and outcomes.

▪ Strengthening Future School Development and Promoting Digital Transformation in Basic Education

Artificial intelligence (AI) is transforming not only how we create knowledge but also how we perceive and adapt to the world. Prof. YU Shengquan, Executive Director of Advanced Innovation Center for Future Education of Beijing Normal University, introduced the concept of cognitive outsourcing, which, when viewed holistically, involves a human-machine integrated approach to balance internal and external cognition. In basic education, overly relying on AI for cognitive processes risks creating imbalances and disconnections, potentially leading to pitfalls. **H.E. Dr. Randa Shaheen**, First Undersecretary of the Ministry of Education of Egypt, noted that while technology and AI bring development, they also pose challenges and risks to human existence, necessitating collective action to ensure human survival, independence, and a balanced development trajectory.

Future schools focus on talent cultivation planning and educational development strategies, innovating educational practices. Mr. CHEN Hong, Senior Vice President and CTO of NetDragon Websoft Inc., showcased AI-based educational spaces, including Innovation Hubs leveraging AR/VR for immersive assistance, Vocational Hubs simulating practical training environments, and Exam Hubs enabling ubiquitous testing. **Mr. GONG Weidong**, Principal of Shenzhen Welkin School, described how the school's "1+N" model, involving 13 schools across 10 districts, has transformed traditional school structures and facilitated collaborative development, leveraging citywide teacher resources to break down "elite school" isolation and achieve resource interconnectivity. **Prof. CAO Peijie**, Deputy Director of the Institute of Digital Education, China National Academy of Educational Sciences, envisioned future schools as integrating "cloud education" and "practice fields," where online and offline education intertwine with social practice and real-life experiences.

▪ Restructuring Talent Cultivation Systems and Forging a More Resilient Higher Education System

AI is reshaping higher education, enabling intelligent content generation, personalized learning analysis, smart research data processing, and precise educational management decisions. Mr. XU Xiaofei, Deputy Director of the Steering Committee on Teaching Informatization and Teaching Method Innovation for Higher Education Institutions of the Ministry of Education, P.R.China, foresees new modalities such as agile, smart, service-oriented, and metaverse-based education, culminating in AI+Metaverse+Higher Education+Services. **Prof. ZHENG Qinghua**, Academician of the Chinese Academy of Engineering and President of Tongji University, discussed how AI is empowering scientific research, integrating the four scientific paradigms (empirical, theoretical, computational, and data-driven) into a

comprehensive research paradigm that enhances humanity's capacity to explore and understand nature. **Mr. GUO Xinli**, Vice President of China Association of Higher Education, proposed three strategies for higher education digital transformation: strengthening international policy dialogue and cooperation, promoting sharing and openness of quality educational resources, and enhancing teachers' capacity for smart education to drive teaching methodology innovation.

To balance change and continuity in digital transformation, focusing on cultivating virtues, higher education must restructure talent cultivation systems for resilience. Prof. YANG Zongkai, President of Wuhan University of Technology, advocated for cultivating a new generation of talents prioritizing values, knowledge, and abilities. He suggested five strategies: leading with a forward-thinking mindset, emphasizing human-centered resilience, driving with data and knowledge, fostering collaboration and sharing, and establishing policies, guidelines, and norms to ensure secure transformation. **Mr. XU Xiaofei**, Deputy Director, Steering Committee on Teaching Informatization and Teaching Method Innovation for Higher Education Institutions, Ministry of Education, P.R.China, distinguished among I-type (specialized), T-type (specialized with broad capabilities), and π-type (specialized with a second expertise and industrial experience) talents, emphasizing the industry's preference for π-type individuals. **Prof. Lee Chi-kin**, President of The Education University of Hong Kong, emphasized the importance of dynamic, interactive, and personalized learning environments in smart education to empower students for a rapidly evolving world, with a particular focus on computational and critical thinking skills.

Leveraging Digital Technology to Build an Open, Collaborative, and Trustworthy Lifelong Learning Environment

The development of digital teaching provides robust support for lifelong learning, integrating learning into careers and daily lives. Ms. Torunn Gjelsvik, Secretary-General of the International Council for Open and Distance Education (ICDE), noted that rapid societal changes necessitate continuous skill acquisition for emerging careers, leveraging AI and other digital tools to promote personalized learning and alleviate teacher burdens. She advocated for global cooperation to ensure education's inclusivity, scalability, and sustainability. **Mr. LI Song**, Vice President of the Open University of China, outlined six strategies: strengthening system coordination, deepening educational reform, accelerating digital empowerment, enhancing practical applications, addressing aging societal challenges, and fostering international cooperation. **Prof. Maria Cecília Calani Baranauskas** from the State University of Campinas, Brazil introduced the concept of Social Activity Systems (SAS), integrating social, physical, and digital environments, advocating for technology's integration into daily life as a cognitive tool to support ubiquitous learning.

Digital technology iterations necessitate addressing challenges in lifelong learning. Dr. Rajni Chand, Director of the Centre for Flexible Learning and PACFOLD, The University of the South Pacific, highlighted challenges in some regions due to geographic dispersion, natural disasters, limited infrastructure, and the digital divide, impeding equitable education and teacher availability. **Dr. Teng Waninga**, Vice Chancellor of the University of Goroka, Papua New Guinea, noted opportunities amidst challenges, particularly for developing countries, citing infrastructure, teacher training, resources, funding, language barriers, and policy instability as hindrances. **Prof. Elijah I. Omwenga**, Vice Chancellor of Open University of Kenya, discussed strategies to overcome these challenges, including offering flexible learning opportunities, leveraging digital tools, bridging the digital divide, and providing personalized and immersive learning

experiences through AI, VR, and AR, thereby promoting educational equity and personal development.

Emphasizing Full-Factor Digital Transformation to Foster Comprehensive and Free Human Development

The full-factor digital transformation encompasses all elements involved in the teaching and learning process, encompassing training objectives, educational content, teaching models, evaluation methods, teacher capabilities, and learning environments. This transformation will profoundly impact the way we teach, learn, and shape societal development. Establishing effective educational environments, nurturing future-oriented students and educators, innovating digital teaching methodologies, reforming digital management and evaluation feedback mechanisms, constructing resilient smart education systems, and implementing comprehensive digital policies and planning are all essential prerequisites for promoting comprehensive and free human development.

Reshaping Teachers' Roles and Leveraging AI for Enhanced Services

Teachers are the primary resource for educational development, and every technological shift influences their roles. Mr. ZHANG Zhi, Director of the Education Bureau of Baoshan District, Shanghai, unveiled "The Intelligent Transformation of Educational Resources: The Most Beautiful 'Photosynthesis' of Teaching Resources Granules," a product developed by the "Future Lab" team at NetDragon using 3D education engine technology and AI automation tools. This intelligent companion evolves alongside students, adapting its form and delivering tailored resources or tasks based on their characteristics, personalities, and learning progress. The emergence of new teaching resources underscores the urgency of reshaping teachers' roles. **Mr. LU Xuzhong**, Director of the Department of Teacher Education at the Ministry of Education, P.R.China, shared several suggestions: firstly, increasing policy support to open new avenues for teacher development; secondly, strengthening digital literacy to shape future teachers; thirdly, leveraging smart platforms to explore new models for teachers' professional growth; and fourthly, enhancing international exchanges to share best practices in intelligent teacher training. **Prof. ZHU Zhiting** from East China Normal University, emphasized the importance of educational wisdom in smart education, comprising data wisdom, teaching wisdom, and cultural wisdom, which should interact synergistically. He introduced a new educational model, the "Integrated Intelligence Classroom," aimed at integrating AI into classroom teaching to facilitate multi-directional interactions between teachers and students. **Prof. Margarida Romero** from the University of Côte d'Azur, France, stressed that teachers' roles would not be replaced by AI but rather enhanced through it, fostering a complementary relationship between humans and AI.

Future teachers must continuously learn and adapt, innovating teaching methods to fully leverage technology to enhance educational outcomes. According to **Prof. Kong Siu Cheung**, Director of the Artificial Intelligence and Digital Competency Education Centre at The Education University of Hong Kong, problem-solving skills are paramount. Teachers should guide students to solve problems independently rather than merely follow instructions, preserving human wisdom and independent thinking to ensure AI augments rather than replaces human capabilities. **Dr. Quentin Wodon**, Director of UNESCO's International Institute for Capacity Building in Africa, noted significant disparities in African teachers' use

of digital tools, highlighting the importance of free internet access and training in digital technology. **Mr. YANG Hui**, General Manager of Tencent Cloud's Education Industry Business, shared how AI supports project-based learning, writing guidance, and effective learning plan design, inspiring students' creativity while alleviating teachers' workload.

Expanding Technological Applications for Holistic Youth Development

The application of intelligent technologies in children and adolescents' mental health is expanding both deeply and broadly, demonstrating immense potential. Mr. NAN Hao, CEO of Beijing Normal University · Jingshi Ruidao, highlighted their collaboration with BNU's Faculty of Psychology, pioneering multi-modal fusion in mental health. This application leverages a large model as a core controller, emphasizing dynamic interactions, reasoning, planning, memory, reflection, tool utilization, and continuous evolution in external interactions. **Prof. MAO Lijuan**, President of Shanghai University of Sport, shared the experience in developing a platform for student sports literacy monitoring, analysis, and intelligent services, including a 3D intelligent training system that monitors athletes' brain activity to optimize mental states for various sports and skill levels. **Dr. YE Zhenzhen**, Chairman of People's Daily Online, discussed the People's Daily Youth Client, a platform providing mental health assessments for parents, teachers, and students, enabling early identification and screening.

Focusing on youth's physical and mental health, we must uphold independent innovation, strengthen foundational theoretical and technological applications, and guide holistic youth development. Prof. Obijiofor Aginam, Director of UNESCO MGIEP, elaborated on the interconnectedness of Sustainable Development Goals (SDGs), emphasizing the need for educational systems to address mental health issues through programs, counseling, and life skills courses. **Prof. Didier Jourdan**, Head of the WHO Collaborating Centre for Research in Education & Health, underscored the importance of creating supportive living environments and healthy learning pathways, advocating for coordinated cross-sectoral action to improve health outcomes and reduce inequalities.

Smart reading is crucial for nurturing youth's core competencies and fostering national rejuvenation. Prof. BIAN Yufang from Beijing Normal University stressed the importance of fostering a love for reading among youth, emphasizing the joy, life lessons, and growth derived from reading. **Mr. WEI Yushan**, Dean of the China Academy of Press and Publication, noted the rapid development of digital and smart reading, fueled by digital technologies, networks, and AI, making it a prevalent reading mode. International competition increasingly hinges on technological, human, and intellectual capital, underlining the significance of reading, especially among youth, in driving innovation and development. **Mr. FAN Rulai**, Director of the Department of Library and Reading, National Resource Center for Basic Education, Ministry of Education, P.R.China, shared the impact of digital platforms like the Chinese Language and Character Digital Museum and the National Smart Education Reading Platform in promoting youth reading.

Adhering to Comprehensive Quality Evaluation for Scientific Education

Educational evaluation serves as a vital benchmark for assessing quality and guiding direction. Ms. SHU Hua, Deputy Director of the Department of Science, Technology and Informatization at the Ministry of Education, P.R.China, emphasized that talent is the core of national competition, and evaluation is crucial

for talent development. Evaluation also directly impacts education's high-quality development. **Mr. DONG Cheng**, Deputy Director of the Education Department of Heilongjiang Province, argued that digitizing comprehensive quality evaluation is imperative for advancing educational reform, fostering moral education, and ensuring scientific implementation.

Collective efforts are needed to explore new approaches to evaluating students' comprehensive qualities. Ms. SHU Hua offered four suggestions: strengthen value orientation, enhance scientificity, professionalism, and objectivity in evaluation, encourage localized innovations, and mitigate security and ethical risks. **Prof. LIU Zhijun** from Henan University of Technology focused on three aspects of comprehensive quality evaluation: clarifying evaluation purposes, emphasizing core competencies in evaluation criteria, and leveraging digital and intelligent technologies to improve efficiency, accuracy, and fairness. **Mr. DONG Cheng** shared Heilongjiang's experience in digitalizing comprehensive quality evaluation, highlighting large-scale pilots, administrative and research leadership, integration with education and teaching, and enhanced testing report feedback.

Promoting the Integration of Technology, Education, and Industry to Support Innovative Practices in Smart Education

As the ecosystem of intelligent technologies continues to evolve, both science and education are proactively infiltrating each other, with technology empowering education and education enhancing the value of technology. To strategize digital education, it is imperative to adopt a future-oriented perspective, profoundly grasp the logical underpinnings of digital technology's transformation of education in terms of era, theory, and practice, and serve the adaptive growth of students, facilitate the professional development of teachers, support the intelligent upgrading of learning environments, and comprehensively construct a new digital ecosystem for regional education.

Integration of Technology, Education, and Industry: Vital Pillars for Smart Education

Collaborative innovation platforms among industry, academia, and research represent an innovative and systematic organizational model, serving as a crucial pathway for implementing strategies of rejuvenating the country through science and education, strengthening the nation with talent, and driving development through innovation. **Mr. WANG Jianhua**, President of the China Industry-University-Research Institute Collaboration Association, highlighted the "China Smart Education Industry-University-Research Collaborative Innovation Platform," emphasizing its commitment to openness and sharing to facilitate data accessibility and collaboration across relevant sectors of smart education, offering open-access services through consultation, joint development, and application popularization, and accelerating the transformation of scientific achievements into real-world productivity. Similarly, **Prof. Saoussen KRICHEN**, General Manager CCK (Centre de Calcul El-Khawarizmi) of the Ministry of Higher Education and Scientific Research, Tunisia, underscored the importance of fostering exchanges between academia and industry, noting that Tunisia's three telecom operators provide infrastructural support enabling free access to online educational resources for students and the general public. **Mr. WANG Shunbing**, Deputy Director of the Department of Social Affairs of The Administrative Center for China’s Agenda 21,

elaborated on the Chinese government's emphasis on technology's enabling and innovative role in education, citing the inclusion of an education sector in the National Key R&D Program and the Special Program for Social Governance and Smart Society during the 14th Five-Year Plan period, with nine projects deployed, ranging from cross-stage growth tracking of large-scale student cohorts to intelligent evaluation of teachers' instructional capabilities in rural areas and risk monitoring technologies for Internet-based education applications.

The integration of technology and education serves as a driving force for reshaping the talent cultivation system, while the integration of industry and education ensures the resilience of both education and the economy, underpinning and guiding innovative practices in smart education. **Prof. GAO Xiang**, Academician of Chinese Academy of Engineering, noted that countries worldwide are fostering innovative talent through STEM integration and digitalized science-education integration, particularly in energy and carbon neutrality fields. He envisioned integrating AI, energy, and talent cultivation into a new platform for talent development. **Ms. Dorothy Gordon**, Former Chair of the UNESCO Information for All Programme, discussed the promotion of international understanding, emphasizing the importance of education's digital transformation based on interdisciplinary and multi-stakeholder initiatives, advocating a holistic development perspective and interaction among various participants. **Mr. LEI Chaozi**, Executive Vice President of the China Industry-University-Research Institute Collaboration Association, proposed four strategies for strengthening industry-led, deeply integrated collaboration among industry, academia, and research: advancing organized scientific research guided by innovation needs and problem-solving; strengthening organized collaboration between schools and enterprises to overcome key technological bottlenecks; accelerating the rapid industrialization of university research outcomes; and leveraging technology to support the innovative development of smart education.

▪ Upgrading Smart Environments: A Prerequisite for Realizing Smart Education

Enhancing research on intelligent educational equipment and promoting high-quality development in the educational equipment industry are pivotal to achieving smart education. Mr. LI Ying, Secretary-General of the China Educational Equipment Industry Association, emphasized that educational equipment is essential for stimulating educational innovation and driving systemic change in the digital era, playing a critical supporting role in implementing the Party's educational policies, fostering moral character and civic virtue, accelerating the digital transformation of education, and improving the quality of talent cultivation. **Ms. LIU Qiang**, Secretary-General of the National Technical Committee for Standardization of Educational Equipment, defined educational equipment in the digital age as the sum of hardware and software that support and implement educational teaching and management, encompassing everything beyond textbooks and teachers. In the digital transformation of education, deep integration of these technologies and equipment is inevitable, including the construction of smart classrooms, laboratories, libraries, and campuses. **Mr. ZENG Dehua**, Deputy Director of the Education Management Information Center of the Ministry of Education, P.R.China, suggested seizing the opportunity of educational digital transformation to enhance digital user experiences for teachers and students, and further promoting the sharing and exchange of high-quality public teaching resources in digital education, providing digital solutions for equitable basic education, practical training in vocational education, and technological research and innovation in higher education, both domestically and internationally.

Expanding the application scenarios of intelligent equipment and upgrading smart learning environments are crucial for accumulating practical experiences in smart education. Prof. YU Junqing, Vice President of Huazhong University of Science and Technology, emphasized that the essence of digital transformation lies in "transformation" and "evolution," representing a systematic reform project. Digitalization is a prerequisite for digital transformation, necessitating three indispensable systems: curriculum, classroom, and educational platforms, with other platforms serving as their foundations. **Prof. LI Yanyan** from the Faculty of Education at Beijing Normal University and **Prof. PANG Mingyong** from the Faculty of Education Science at Nanjing Normal University released the "Construction Guidelines for Large-Scale Smart Classroom Monitoring Platforms and Three-Dimensional Integrated Teaching Fields," enabling data connectivity across schools, homes, science museums, and other learning environments. The guidelines focus on future education's demands for "intelligent connectivity" services and functions, defining unified interfaces for data, computation, control, coordination, and interaction in three-dimensional integrated teaching fields, providing norms and guidance for the intelligent upgrading and graded evaluation of teaching environments. This achievement is expected to benefit one million students and 20,000 teachers nationwide. **Prof. WU Zhuang**, Director of the Beijing Digital Education Center, explained that the "intelligence" of smart campuses embodies four aspects: intelligent facilities, intelligent transformation, personalized education, and intelligent educational applications and scenarios. He shared five key elements in Beijing's implementation of smart campuses: standards first, service-oriented, demonstration leadership, integrated planning, and multi-party support.

Digital Textbook Development: A Necessity for Educational Digital Transformation

The degree of textbook digitization directly impacts the overall level of educational digitization, making digital textbooks an indispensable element in China's educational reform. Prof. LI Jianjun, Vice President of Central University of Finance and Economics, noted that the integration of digital technology is reshaping textbook formats, transitioning from traditional static content primarily comprising text and images to a dynamic blend of learning content and services. **Prof. WANG Quan** from Xidian University highlighted three characteristics of digital textbooks: inclusiveness, diversity, interdisciplinary integration, flexibility, and adaptability; a multi-format, multi-dimensional aggregation of learning materials tailored to students' varying needs; and a diverse construction approach involving large-scale models, publishers, and enterprises pooling resources.

Experts and scholars have proposed novel insights and ideas for creating high-quality digital and smart textbooks at scale. Mr. LIU Chao, President of Higher Education Press, shared three experiences: solidifying the strategic foundation by targeting integration, intelligence, and internationalization in digital textbook development; restructuring organizational systems to adapt to digital textbook development, editing, publication, promotion, and operational services; and activating technological engines driven by AI, big data, blockchain, and other cutting-edge technologies to forge new paths in digital textbook construction. **Mr. Niels Peter Thomas**, Managing Director at Springer Nature, mentioned AI's potential to support internal management and accelerate publishing processes, enhancing textbooks' interactivity and learning outcomes through AI-generated Q&A and online exams. **Prof. LI Jianjun**, Vice President of Central University of Finance and Economics, outlined a roadmap for high-quality digital textbook development: grasping the contemporary context, scientifically designing an implementation framework, and improving safeguard mechanisms.

Regional Education Digitization: An Optimal Arena for Smart Education Innovation

Regional education is a crucial component of high-quality educational systems. Mr. YANG Yinfu, Vice President and Secretary-General of the Chinese Society of Education, shared China's remarkable achievements in implementing the national educational digitalization strategy, with 100% internet access in schools of all levels, over three-quarters of schools offering wireless internet coverage, and 99.5% of schools equipped with multimedia classrooms. Notably, the National Smart Education Platform has surpassed 40 billion visits, becoming the world's largest educational resource repository. **Mr. HU Weifeng**, Level I Bureau Rank Official, Sichuan Provincial Department of Education, shared three admission criteria for Sichuan's smart education demonstration zones to facilitate digital transformation: a clear smart education development plan for the 14th Five-Year Plan period with over a year of implementation; a solid foundation in teacher information literacy and typical digital application scenarios on the national and provincial smart education platforms; and a comprehensive digital education leadership structure, resource-sharing and modern governance digital platforms, mechanisms for producing high-quality resources akin to national and provincial platforms, and complete educational data systems.

Based on the concepts of educational digital transformation and smart education, actively forging new tracks and models for regional education digitization has become a shared goal among regional administrators. Mr. YANG Yinfu, Vice President and Secretary-General of the Chinese Society of Education, outlined manifestations of educational transformation and progress towards smart education: shifts in educational goals, content, and delivery forms; evolving learning and teaching modalities, with blended online-offline learning emerging; and changes in evaluation and governance models, transforming schools and society. **Prof. GU Xiaoqing**, Director of the Department of Education Information Technology at East China Normal University, emphasized the importance of tracking student learning and intervening intelligently at the knowledge point level, while also focusing on long-term knowledge, ability development, and overall competence enhancement. **Ms. GAO Shuyin**, Deputy Director of the Center for Educational Technology and Informatization Research, Tianjin Academy of Educational Science, and several regional representatives all talked about the importance of deepening the application of the National Smart Education Platform. The "2023 National New Area Smart Education Development Research Report" led by the Ministry of Education Engineering Research Center for Digital Learning and Education Public Services brings together 10 national new areas (Chongqing Liangjiang New Area, Guangzhou Nansha New Area, Nanjing Jiangbei New Area, etc.), presenting the current practices of smart education in these new areas through multi-dimensional depictions of 1+1 cases, as well as regional and school-level case studies.

Enhancing International Understanding, Advancing Education Transformation through the Digital Revolution, and Ushering in the Era of Smart Education

Leveraging the opportunity of advancing educational digitalization and fostering smart education, the new paradigm of smart education aims to accelerate educational reform, narrow the education gap, and

facilitate the global convergence and flow of high-quality educational resources. This endeavor necessitates a concerted effort in infrastructure development, open access to quality resources, platform construction and application, as well as policy and standard alignment. To forge a consensus, we must deepen international cooperation, propel education transformation through the digital revolution, and inaugurate the era of smart education.

To drive effective implementation of smart education globally and ensure inclusive, equitable, and high-quality education, the Global Smart Education Network (GSENet) has dedicated the past two years to bridging smart education initiatives worldwide. By pursuing a shared educational vision and sustainable educational pathways, GSENet has contributed to educational equity through several key initiatives: Firstly, it has organized future-oriented workshops to promote the sharing of quality educational resources. Secondly, it has facilitated smart education through digital education policies, compiling digital education policies from 48 countries and regions across Africa, the Americas, Asia-Pacific, and Europe, encompassing digitization, networking, and intellectualization, as well as the formulation of related plans to enhance education quality. Thirdly, it has observed the state of smart education development from a public dataset perspective, revealing the sustainability of national policies and the impact of effective digital transformation partnerships on overall educational quality, including ubiquitous learning environments and responsible use of digital technology. Fourthly, it has explored inclusivity and equity in smart education, aligning with UNESCO's inclusive education agenda to ensure access to quality education for all.

Smart education is emerging as a shared strategic vision among nations to address key challenges in the era of AI and achieve high-quality educational goals. **Prof. HUANG Ronghuai**, Co-Dean of the Smart Learning Institute of Beijing Normal University, and **Prof. ZHAN Tao**, Director of the UNESCO Institute for Information Technologies in Education, unveiled the "International Understanding of Smart Education in the Context of Digital Transformation" research report on behalf of GSENet at the opening plenary session. The report highlights five core conclusions: Firstly, smart education is becoming a common strategic vision for nations to tackle AI-era challenges and achieve high-quality education. Secondly, the expressive characteristics (learning, assessment, infrastructure, sustainability, equity) and constructive features (students, teachers, digital technology, policies, partnerships) of smart education outline an ideal blueprint for high-quality education. Thirdly, global digital education policies should emphasize the continuous advancement of digital infrastructure and prioritize digital human resource development to create a high-quality, inclusive, and sustainable digital education ecosystem. Fourthly, based on the global smart education dataset, sustainable education reform planning, effective cross-sector and cross-domain collaboration, ubiquitous learning environments, and commitments to inclusivity significantly impact overall education quality. Fifthly, sufficient attention should be given to out-of-school digital technology access, school digital leadership training, adaptive learning resource development, and forward-thinking reform mindsets to achieve Education 2030 goals. This report underscores the increasing recognition of smart education among government officials, policymakers, school administrators, experts, and scholars worldwide.

GSE2024 is organized by BNU, co-organized by UNESCO IITE, ALECSO, COL, ISTE, SEAMEO, and co-hosted by the Smart Learning Institute, Faculty of Education, and Faculty of Psychology of BNU, China Institute of Education and Social Development (CIESD) and the National Engineering Research Center of Cyberlearning and Intelligent Technology, China.

Finally, we are pleased to announce that the Global Smart Education Conference 2025 will be held on August 18th - 20th, 2025. We are already looking forward to next year together, and having the opportunity to connect with our friends again.

Group Photo of Guests at Opening Ceremony at BNU

Introduction

Since its inception in 2020, the Global Smart Education Conference has served as a crucial platform for international collaboration and exchange in smart education. The 2020 edition, held on August 20th-22rd, explored the theme *AI and Futures of Education*. It aims to further understand the latest achievements and development trends in smart education, fully grasp the influences of AI on the futures of education, and discuss the factors, features, plans, and potential problems in IT-driven educational development.

With a focus on identifying the promise of futures of education, the Global Smart Education Conference 2021 was held on August 18th-20th, 2021, with the theme of *Smart Learning and Futures of Education*. The plural form of “Futures” emphasized multiple dimensions of the future and appealed to reimagine how education and knowledge shall shape the future of humanity in a context of complexity, uncertainty, and precarity.

The Global Smart Education Conference 2022 was held on August 18th-20th, exploring the theme *Intelligent Technology and Digital Transformation in Education*. It put emphasis on how intelligent technologies empower smart education, digital transformation in regional and rural education, the futures of education in the eyes of teachers and students, how digital governance of education can be enhanced to direct intelligent technologies to the common good for education and humanity.

The Global Smart Education Conference 2023, convened from August 18 to 20, delved into the theme of *Education Transformation and Data Governance*. It underscored the relentless global march towards digital transformation in education, emphasizing the ever-growing prowess of technology in empowering educational advancements. It highlighted the mounting urgency for effective data governance, fueled by the rising need for accountability and efficiency.

Held on 18th-20th August 2024, this Global Smart Education Conference 2024, which is the focus of this report, involved 400 speakers from 62 countries, including experts from international organizations, academic institutions, and private sectors. The conference included 1 plenary session, 15 thematic forums, 11 thematic activities and released International research outcomes. This series of forums has aimed to become a sustainable platform to promote knowledge sharing and the achievement of international agreements in the field of smart education.

Let us seize the opportunity of this conference to deepen exchanges and cooperation by joining hands, and together forge a bright future for smart education that benefits all humanity. Let us strive diligently to achieve the global sustainable development goals and build a better world.

Photo of Guests at Opening Ceremony at BNU

Forum Structure

The 2024 Global Smart Education Conference was structured around the following thematic forums:

Date	Beijing Time	Sports Hall	Lecture Hall 1	Lecture Hall 2
18 August Sunday	8:30-12:00	**Opening Ceremony& Plenary Session on Futures of Education and the Role of Digital Transformation**		
	14:00-18:30	Forum on Digital Transformation through Smart Education	Forum on Mental & Physical Health: Supporting Personal Development of Adolescents	Forum on Smart Reading
19 August Monday	8:30-12:00	Forum on Digital Transformation of K-12 Education	Forum on Smart Learning Environments and Digital Infrastructure	Forum on AI for Comprehensive Assessment and Evaluation
	14:00-18:00	Forum on Digitalization for Regional Educational Development	Forum on Development and Use of Digital Textbooks	Forum on Smart Learning in Early Childhood Care and Education
20 August Tuesday	8:30-12:00	Forum on AI-driven Innovation in Higher Education	Forum on AI and the Future of Teaching	Forum on Smart Villages and Education for Rural Transformation
	14:00-17:00	Forum on Integration of Education, Technology and Industry	Forum on Digital Education and Lifelong Learning	Forum on Innovation, Research and Best Practices in Smart Education
	17:00-18:30	**Closing Ceremony**		

Plenary Session on Futures of Education and the Role of Digital Transformation

The plenary session focused on collaborating on visionary strategic and policy blueprints to steer sustainable smart education growth, enhancing global understanding and catalyzing educational transformation via digital revolution, and fostering science-education integration and industry-education fusion to bolster innovative practices in smart education.

Forum on Digital Transformation through Smart Education

This forum highlighted the issues on strengthening national smart education strategies for SDG4; digital transformation of regional and school education; construction and application of public digital learning platforms; and regional collaborative innovation mechanisms for smart education.

Forum on Mental & Physical Health Supporting Personal Development of Adolescents

This forum highlighted the issues on the growth patterns and talent development mechanisms of the digital generation; assessment and intervention of adolescents' physical and mental health; psychological health education and counseling services; cognitive safety, special education, digital moral education, labor education, smart physical education, and smart aesthetic education.

Forum on Smart Reading

This forum highlighted the issues on the new ways of smart reading and reading education; the application of technology in reading and publishing; the construction and application of smart reading platforms; digital reading spaces and smart libraries; new trends and new ecosystems in the digital reading era.

Forum on Digital Transformation of K-12 Education

This forum highlighted the issues on the challenges and opportunities that digital transformation brings to K-12 education; new teaching and learning models integrating information technology; the evolution of future learning spaces and school structures; innovative solutions such as cloud schools and smart campuses.

Forum on Smart Learning Environments and Digital Infrastructure

This forum highlighted the issues on the standards and application schemes for the construction of smart campuses; smart educational equipment and technological solutions; evaluation of smart educational products; the construction and application of smart learning environments; the establishment of educational big data centers and school management platforms.

Forum on AI for Comprehensive Assessment and Evaluation

This forum highlighted the issues on reviewing the development history of comprehensive quality evaluation; exploring the future direction of comprehensive quality evaluation; and sharing innovative experiences in theory and practice reform of comprehensive quality evaluation supported by information technology.

Forum on Digitalization for Regional Educational Development

This forum highlighted the issues on the integrated, intelligent, and international development pathways for regional education; digital governance models; and innovative practices in the digital transformation of regional education.

Forum on Development and Use of Digital Textbooks

This forum highlighted the issues on how digital technology aids in the planning and management of textbooks; the future development direction of new types of textbooks; the construction path and technical solutions for digital textbooks; application scenarios of digital textbooks; standards and evaluation of digital textbooks; and new types of textbooks based on knowledge graphs.

Forum on Smart Learning in Early Childhood Care and Education

This forum highlighted the issues on the regional practice paths for the high-quality development of digital intelligence in preschool education; the construction of digital resource environments; the training of preschool education professionals in the context of digitalization; the assessment of the quality of care and education in kindergartens; and the public service system for inclusive and beneficial preschool education.

Forum on AI-driven Innovation in Higher Education

This forum highlighted the issues on the challenges and responses of the digital transformation of higher education; the empowerment of digital technology for the sustainable development of higher education; digital pedagogy and the cultivation of innovative talents; the open and shared model of education; and the transformation of the learning environment driven by smart technology.

Forum on AI and the Future of Teaching

This forum highlighted the issues on the challenges generative AI poses to the professional capabilities of teachers; the pathways and methods for AI to empower the high-quality training of pre-service teachers; and the paths, models, and methods for smart educational research to promote teacher development.

Forum on Smart Villages and Education for Rural Transformation

This forum highlighted the issues on the rural education revitalization and education revitalization for rural development; digital technology empowering high-quality development of rural education; digital technology empowering rural teachers and teacher professional development; STEM education in the rural settings; digital transformation of TVET and higher education; learning, skills transformation and innovative talent cultivation for promoting rural revitalization; learning villages in the digital era.

Forum on Integration of Education, Technology and Industry

This forum highlighted the issues on key technologies and application scenarios for technology to empower educational transformation; implementation paths for the innovative development of the integration of technology and education; collaborative innovation models for the integration of industry and education; the application of scientific and technological project achievements in education; and the technological revolution and new quality of productive forces.

Forum on Digital Education and Lifelong Learning

This forum highlighted the issues on the evolving role of new technologies in smart learning environments; the innovative application of digital resources, learning patterns and pedagogies in the digital era; digital resources for experimental teaching; and the construction of a lifelong learning society.

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Forum on Innovation, Research and Best Practices in Smart Education

This forum highlighted the issues on the new forms of smart education empowered by technology, sustainable development, and open cooperation; digital leadership and innovative school development; the collaborative education by families, schools, and society; new models of deep integration between intelligent technology and teaching and education; and smart teaching and collaborative teaching research.

Student Forum on Smart Learning and Design for Future Education

This forum highlighted the issues on how to design and implement ubiquitous smart learning spaces; how to design and distribute high-quality educational resources; how to design innovative human-computer collaborative learning activities; and how to design and implement teaching models with multi-stakeholder participation.

Student Forum on Youth Intelligence Inspiring Future Education Innovation

This forum highlighted the issues on the application of AI in education; the application of smart physical education in schools; the digitalization of ideological and political courses in colleges and universities; and the interdisciplinary thematic learning with AI. Others such as smart education, learning environments, digital transformation in education, family education, mental health education for adolescents, and teacher education were also be discussed.

Opening Ceremony & Plenary Session on Futures of Education and the Role of Digital Transformation

The transformations of the world, the times, and history are unfolding in unprecedented ways, as rapid technological advancements are reshaping the landscape of education. The digitalization of education represents not only a new frontier in educational development but also a crucial path to fostering new advantages in digital education. UNESCO advocates for the establishment of a new social contract, leveraging digital technology to deliver benefits to education and underscore its status as a global public interest. The United Nations Transforming Education Summit calls on all countries to fully harness the power of the digital revolution to drive global educational change, ensuring that quality education and lifelong learning become common interests and shared values for all humanity. As a new form of education in the digital era, smart education is an inevitable choice for promoting equity, inclusivity, and high-quality development in education.

Collaborating on forward-looking strategic and policy planning, leading the sustainable development of smart education

Policies are the key guarantee for driving the digital transformation of education, which was listed by the UN Transforming Education Summit as one of the five areas that require greater attention and action. Educational digitalization has become a global consensus and a trend of the times. Diverse actors, including governments, policymakers, schools, and researchers, need to work together to promote the development of digital educational systems and design forward-looking strategies and plans, with a view to leading the sustainable development of smart education.

SPEAKERS

Prof. YU Jihong
President, Beijing Normal University, China

H.E. Mr. WANG Jiayi
Vice Minister of Education, P.R.China

Ms. Stefania Giannini
UNESCO Assistant Director-General for Education

Mr. Lester G Huang
Steward, Hong Kong Jockey Club

H.E. Ms. Maryam Mariya
Minister of Higher Education, Labour and Skills Development, Maldives

H.E. Mr. Justin Valentin
Minister of Education, Seychelles

H.E. Mr. Lucas Dawa Dekena
Minister for Education, Papua New Guinea

H.E. Ms. KILO Vivian ASHERI
Secretary of State, Ministry of Basic Education, Cameroon

H.E. Ms. Bo Chankoulika
Under Secretary of State, Ministry of Education, Youth and Sport, Cambodia

Mr. Adnan Husić
Assistant to Minister, Ministry of Civil Affairs, Bosnia and Herzegovina

Prof. Mohamed Ould Amar
Director General, ALECSO

Prof. ZHAO Qinping
Academician of the Chinese Academy of Engineering

Prof. Amal El Fallah Seghrouchni
Executive President, Moroccan International Center for Artificial Intelligence

Prof. YANG Zongkai
President, Wuhan University of Technology, China

Mr. Marc Prensky
Speaker, Author, Consultant, Proponent of the concepts “Digital Natives” and “Digital Immigrants”

Mr. GAN Changfu
Deputy Director-General, Qinghai Provincial Department of Education, China

Prof. HUANG Ronghuai
Co-Dean, Smart Learning Institute of Beijing Normal University, China

Prof. ZHAN Tao
Director, UNESCO IITE

MODERATOR

Prof. ZHOU Zuoyu
Vice President, Beijing Normal University, China

Prof. Asha S. Kanwar
Chair of Governing Board, UNESCO IITE; Former President, Commonwealth of Learning; Chair Professor, SLIBNU, China

Prof. YU Jihong, President of Beijing Normal University, delivered the openning remarks. She emphasized AI's pivotal role in driving educational innovation and transformation, noting BNU's leadership in implementing digital strategies and fostering a global digital education partnership. She urged the education community to adopt a people-centered approach, emphasizing the development of student qualities suited to the intelligent era and fostering collaboration for global education transformation.

It is a great honor to gather here with all of you at Beijing Normal University for the 2024 Global Smart Education Conference. On behalf of Beijing Normal University, I would like to express my sincerest gratitude for your presence and pay high tribute to all researchers and practitioners who are dedicated to the transformation of education in the intelligent era. I also extend my heartfelt thanks to all of you for your long-standing concern and support for Beijing Normal University.

Artificial Intelligence (AI) serves as a pivotal driving force in the new round of technological revolution and industrial transformation, reshaping the production, lifestyle, and even the existential state of human society. It continually expands the boundaries of human knowledge and, through the

interconnectedness of digital intelligence networks, empowers billions of people to become potential creators of knowledge, problem solvers, and innovators. As a new form of education in the AI era, Smart Education is a crucial lever for advancing equitable, inclusive, and high-quality education. By leveraging the opportunity of advancing education digitalization and intelligence and developing Smart Education, we can accelerate educational transformation, narrow the education gap, and facilitate the global convergence and flow of various high-quality educational resources. This endeavor necessitates comprehensive efforts in infrastructure construction, opening up high-quality resources, platform development and application, as well as policy and standard alignment. It also requires us to deepen international cooperation, engage in joint consultation, construction, and sharing, continuously injecting new momentum into the building of a community with a shared future for mankind.

Currently, China, grounded in its fundamental national conditions, systematically plans for digital intelligence in education from a national strategic perspective. The Decision of the Communist Party of China Central Committee on Further Advancing Comprehensive Reforms and Promoting Chinese-style Modernization, adopted at the Third Plenary Session of the 20th CPC Central Committee, explicitly puts forward the promotion of education digitalization and intelligence to empower the construction of a learning society and strengthen lifelong education guarantees in the context of deepening comprehensive education reform.

Toward the goal of building China into a major power in education by 2035, President Xi Jinping has emphasized that education digitalization and intelligence are crucial breakthroughs for China to open up new avenues for educational development and reshape new drivers for educational progress. On one hand, we must leverage education digitalization and intelligence to support the balanced and high-quality development of education, providing effective support for personalized learning, lifelong learning, and the modernization of education, thereby contributing to the building of an education power. On the other hand, we should actively build an open and inclusive ecosystem of Smart Education, contributing Chinese solutions to the sustainable development of global education. Adapting to the new landscape of Smart Education and advancing educational transformation and talent cultivation innovation, universities must take proactive actions. The foundation for building a powerful nation in education lies in basic education, while the leading force resides in higher education. Universities bear significant responsibilities in deepening the digitalization and intelligence of education, enhancing people's digital intelligence literacy, and serving their all-round development. As a pacesetter among normal universities nationwide, Beijing Normal University (BNU), with the support and guidance of the Ministry of Education, has made a series of new explorations and practices centered on AI-empowered educational innovation in recent years.

Firstly, BNU has implemented demonstration projects for the digitalization and intelligence of education, intensified the development and popularization of high-quality educational resources, promoted universal access to the achievements of digitalization and intelligence development, and contributed to the construction of a public service system for lifelong learning at the societal level.

Secondly, it has implemented the "Internet Plus Education" reform and innovation action plan, deepened the integration of traditional teaching methods and AI technologies, actively developed digital and intelligent teaching materials, enhanced the digital intelligence literacy of teachers and students, and promoted the transformation of Smart Education concepts, methodologies, and models.

Thirdly, it has embraced the mission and responsibility of "building a strong nation through education, and strengthening education through teachers." Leveraging its leading position in teacher education, BNU has vigorously implemented the "Strong Teacher" project in underdeveloped regions in central and western China, promoting digital intelligence training and in-service training for future educators, leading the practice of education digitalization and intelligence in these regions, and contributing to the optimization of their educational ecosystems.

Lastly, as the Secretariat of the World Digital Education Alliance, BNU has actively promoted the sharing of digital intelligence educational resources, interconnectivity, and established global partnerships in digital intelligence education.

Ladies and gentlemen, dear friends, as technology and education mutually empower and deeply integrate, the innovative development of smart education is at a crucial juncture. Facing this historic opportunity, I believe that:

Firstly, we must adhere to the principle of education for all-round and free development of individuals. We should cater to the teaching realities and talent cultivation requirements of different educational stages and types, continuously stimulate learners' potential, and nurture digital competencies that are adaptive to the development of the intelligent era.

Secondly, we must be problem-oriented, tackle practical challenges, iterate application models, drive scenario innovation, enrich and optimize the supply of digital and intelligent educational resources, and facilitate the orderly integration of intelligent technologies into the educational ecosystem. This will equip education modernization with wings to soar.

Thirdly, we must uphold integrity and innovation, foster the reconstruction of teachers' capabilities and qualities in the intelligent era, and chart a new path for their professional development. This will serve as the core driving force for adapting to and promoting smart education reforms, thereby enhancing the quality of education. The Global Smart Education Conference, now in its ninth year, has become a high-level platform for international dialogue and exchange on digital and smart education. We anticipate that through the exchanges and discussions at this conference, we can ignite more sparks of innovation, introduce more high-quality achievements, and provide new ideas, methods, and breakthroughs for the future development of smart education. Beijing Normal University is willing to join hands with educational peers worldwide to strengthen dialogue and exchanges, deepen pragmatic cooperation, jointly propel global educational transformation, and create a brighter future for human society.

Lastly, I wish this conference a complete success.

H.E. Mr. WANG Jiayi, Vice Minister of Education of P.R.China, addressed the conference, emphasizing China's commitment to digitalization in driving educational transformation through the National Strategic Action for Educational Digitalization and promoting a national smart education platform. He proposed three initiatives: enhancing policy dialogue for smart education, increasing resource sharing for equitable education, and strengthening capacity building to draw a new vision of smart education in the era of intelligence and human-machine collaboration.

I am very pleased to attend the 2024 Global Smart Education Conference and meet with you at Beijing Normal University to discuss educational reform and cooperation in the intelligent era. This year's conference, themed "Educational Reform and International Understanding," responds to the demands of the times and provides a platform for global exchange and cooperation on digital transformation in education. On behalf of the Ministry of Education of the People's Republic of China, I would like to extend warm congratulations on the successful convening of this conference! I also offer a sincere welcome to the distinguished guests from various countries attending the conference! I would like to express heartfelt thanks to the host institution, Beijing Normal University, the UNESCO Institute for Information Technologies in Education, and the friends who have long supported and cared about the reform and development of education in China.

Ladies and gentlemen, friends, Currently, a new round of technological revolution and industrial transformation is accelerating, and digital technology is becoming a leading force in driving educational change. The United Nations Education Transformation Summit has identified educational digital transformation as one of its five key action areas, and this transformation has become a global consensus and trend. The Chinese government attaches great importance to the critical role of digitalization in advancing educational reform. For three consecutive years, China has implemented the National Education Digitalization Strategy Action Plan, adhering to the principle of application-first and embracing an integrated, intelligent, and international approach. We are fully committed to building a national smart education platform to provide effective support for the modernization of education.

First, integrating high-quality resources to build a national education digital public service system.

Pooling and Sharing High-Quality Resources: In March 2022, the Chinese Ministry of Education launched the National Smart Education Platform, developing and integrating high-quality, diverse, and systematic digital education resources. To date, the platform has made available 89,000 high-quality primary and secondary school resources, over 10,400 vocational education online courses, and 27,000 high-quality MOOCs in higher education, greatly promoting the equitable sharing of quality educational resources.

Emphasizing Application and Service Orientation: The platform provides 35 services across five categories: employment, exams, academic records and degrees, studying abroad, and language. These services support university students' entrepreneurship and employment, as well as teacher professional development. This year, the National Smart Education Platform for Primary and Secondary Schools has launched a full-scale application pilot, continuously enhancing the

utilization of quality resources and promoting educational equity and quality improvement.

Launching the International Version of the Platform: The platform has been released in six official languages of the United Nations, providing learners from various countries with course resources, international information, and study-abroad services. As of now, the platform has registered over 120 million users from more than 200 countries and regions across six continents, sharing quality educational resources worldwide. In 2023, the platform has been awarded *the 2022 edition of the UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of Information and Communication Technologies (ICTs) in Education* for promoting more widespread teaching and learning through digital technology.

Second, enhancing the application of artificial intelligence (AI) and advancing the AI-powered education action plan.

Promoting AI General Education: The National Smart Education Platform has launched an "AI Learning" section, featuring over 100 high-quality AI courses, inviting experts to discuss AI, and organizing top educators to teach AI, encouraging both teachers and students to learn about AI.

Advancing Intelligent Upgrades of the Smart Education Platform: We are promoting intelligent analysis based on comprehensive big data from the national platform, introducing intelligent tools to increase classroom interaction, enabling personalized resource recommendations and intelligent search, and supporting personalized lifelong learning for everyone.

Developing a Chinese AI Education Model: We have initiated a demonstration action for AI large models in the education system, aiming to create a generative AI education model with stronger algorithms, better data, and superior services.

Third, strengthening international exchange and cooperation to contribute wisdom and strength to the global digital transformation of education.

Deepening Global Education Reform Participation: China is one of the earliest countries to commit to education reform globally and actively responds to summit initiatives, using digitalization as a key platform and breakthrough for educational transformation. Minister HUAI Jinpeng serves as a member of the 2030 Education High-Level Steering Committee, actively participating in global education governance and implementing summit outcomes.

Building International Exchange and Cooperation Platforms: We have co-hosted four international AI and education conferences with UNESCO and two World Digital Education Conferences, compiled digital education case studies, established journals, and issued initiatives to deepen dialogue and exchange on digital education.

Supporting the Establishment of the World Digital Education Alliance: We have established a long-term mechanism for exchange and cooperation, with 104 universities, international education organizations, research institutions, and companies from 41 countries and regions joining the alliance. This conference is one of the alliance's key annual events. Additionally, Chinese universities and enterprises have actively engaged in international cooperation projects, achieving significant results.

Ladies and gentlemen, friends, Today, we have entered the intelligence era, and particularly with the rapid development of generative AI in recent years, we are witnessing the tremendous potential of AI to transform human production, life, and education. Humanity is on the brink of a new civilization characterized by human-machine collaboration. Advancing educational reform with AI in the digital age is a major challenge faced by countries worldwide. As early as 2019, President Xi Jinping pointed out, “China is willing to work with countries around the world to focus on cutting-edge issues in AI development, explore innovative ideas and measures for educational development under rapid AI advancement, build consensus, deepen cooperation, and expand sharing.” China is eager to join hands with all parties to explore new paths for smart education development, build an open, cooperative, and trustworthy environment for smart education, and ensure that people worldwide benefit from digital civilization.

Here, I would like to propose three initiatives:

- **Firstly of all, Strengthen Policy Dialogue and Jointly Promote Smart Education Development.** Developing smart education requires systematic planning, scientific strategies, and effective policies, necessitating mutual exchange and learning among countries. China is willing to collaborate with governments and international organizations to establish platforms for policy dialogue and exchange, sharing new concepts, experiences, and strategies in smart education, as well as discussing issues related to planning, standards, data governance, and ethical considerations, to explore feasible paths, scientific methods, and effective policies for smart education.
- **Secondly, Enhance Resource Sharing and Promote Fair and Inclusive Education.** To ensure that digital education transformation benefits all learners, it is crucial to facilitate the flow and aggregation of high-quality educational resources globally. China is willing to deepen cooperation with other countries to jointly build a smart education public service system that serves global learners, leveraging the international version of the smart education platform to provide global public goods and encourage more countries and individuals to participate in building high-quality educational resources, allowing smart education to cross borders and serve the world, and ensuring all children share in quality educational resources.
- **Thirdly, Strengthen Capacity Building and Jointly Create a New Vision for Smart Education.** Education in the intelligent era relies on the crucial role of teachers. We should respect the agency of teachers in human-machine collaboration models, aiming for student growth and development, and enabling technology to serve and empower teachers. China is willing to actively support capacity building for teachers in developing countries, support teachers, especially young teachers, in applying new technologies, engaging in collaborative research and teaching, and continually exploring new teaching methods and forms to enhance educational effectiveness with a people-centered, intrinsic-driven approach.

Ladies and gentlemen, friends, Success comes to those who act, and progress is made by those who advance. Let us use this conference as an opportunity to build a consensus on reform, deepen practical cooperation, and jointly create a grand blueprint for educational transformation in the intelligent era. We believe that through our collective efforts, we can make smart education a bridge connecting the world, contributing to the building of a shared human future and achieving the United Nations' 2030 Sustainable Development Goals. Finally, I wish the conference a great success!

Strengthening international understanding and driving education transformation through digital revolution

UNESCO advocates for constructing a New Social Contract, fully leveraging the educational dividends brought by digital technologies to better demonstrate education as a global public interest. Education transformation desperately needs the mobilization and pooling of global forces to forge an international consensus to build a global community of shared future and “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (SDG4), and to increase communication and cooperation in this regard.

Ms. Stefania Giannini, UNESCO Assistant Director-General for Education, attended the conference via video and addressed the audience. She expressed that it's a great pleasure to join the GSE2024, addressing timely topics on educational transformation and international understanding, while highlighting UNESCO's pioneering role in harnessing digital technologies for peaceful, equitable, and sustainable societies.

Ladies and gentlemen, it's my great pleasure to join you and to participate in the 2024 Global Smart Education Conference organized by Beijing Normal University in partnership with the UNESCO Institute for Information Technologies in Education, along with other global partner organizations. In recent years, the topic "Educational Transformation and International Understanding" could not be more timely or significant for our international education community. Over the years, UNESCO has been a pioneering global force at the forefront of harnessing the potential of digital technologies in education.

We have also been deeply committed to addressing the ethical, social, and economic impacts that these technologies bring. This conference offers a remarkable platform for us to engage in meaningful dialogue about adopting advanced technology and artificial intelligence. Our collective goal is to foster peaceful, equitable, and sustainable societies. And I am delighted to see such a strong representation from UNESCO, including directors from UNESCO IBE, IESALC, IICBA, UIL, and IITE, among others.

Let's seize this opportunity, as the UNESCO family, to collaborate, to innovate, and, most importantly, to inspire each other. We wish for productive discussions and a successful conference!

Mr. Lester G Huang, Steward of the Hong Kong Jockey Club, Chairman of the Institute of Philanthropy, and Council Chairman of the City University of Hong Kong, attended the conference and addressed the audience. He said that the Hong Kong Jockey Club would firmly support and facilitate the transformation of global education and technology, work closely with educators and schools across Hong Kong to develop resources for quality education, and implement the AI for the Future programme, with a focus on the needs of special education by applying technologies to enable students with learning disabilities, ensuring access to high-quality education for all students. He expected to see the combination of Asian practices and wisdom with the global philanthropic ecosystem to facilitate cross-border academic exchange, talent development and create best practices together.

H.E. Ms. Maryam Mariya, Minister of Higher Education, Labour and Skills Development, Maldives, stressed that the integration of AI and education would have profound impacts on educational and social development. She noted that despite geographical dispersion and other challenges facing the Maldives, the country would actively embrace the future of education, and the Maldives was driving educational inclusion and innovation by devising plans and expanding e-learning platforms, among other actions, in an effort to make each island a learning center and facilitate global cooperation and sharing in education.

H.E. Mr. Justin Valentin, Minister of Education, Republic of Seychelles, shared his country's experiments and challenges in smart education. He emphasized that Seychelles took seriously the incorporation of technology into education management and classroom practices, and worked towards better access to education through cross-department support for remote and open teaching and learning. He expected to see more cooperation and support for making the shared and great dream of education come true.

H.E. Mr. Lucas Dawa Dekena , Minister for Education, Independent State of Papua New Guinea, underlined that smart education was critical to closing the technological gap and promoting the equity and inclusiveness of education. He noted that Papua New Guinea was improving its quality of education by developing digital infrastructure, updating syllabuses, and developing distance education and STEM education.

H.E. Ms. KILO Vivian ASHERI , Secretary of State, Ministry of Basic Education, the Republic of Cameroon, briefed on the practices and challenges of the country's reform and transformation in educational digitalization, and indicated that Cameroon would adopt multiple strategies to prioritize the development of digital competencies and drive educational change, adapting to the needs of a digital society.

H.E. Ms. Bo Chankoulika , Under Secretary of State, Ministry of Education, Youth and Sport, The Kingdom of Cambodia, stressed that the educational system had to change to adapt to fast-changing technological and social development, and that it was critical to cultivate students with strong adaptability, teamwork ability, critical thinking and digital skills. She noted that Cambodia sought cooperation with global partners to promote the development of smart education.

Mr. Adnan Husić , Assistant to Minister, Ministry of Civil Affairs, Bosnia and Herzegovina, pointed out that the application of digital technologies to education could boost the quality and equity of education and help students develop required skills. He called for efforts to bridge the digital divide by beefing up the development of digital infrastructure, continuously investing in and establishing partnerships, and overcoming challenges at hand. Husić expected to see a more resilient, future-proof educational system.

The authorized representative of Prof. Mohamed Ould Amar, Director General of ALECSO, Prof. Mohamed Jemni, Director of ICT Department of ALECSO, attended the High-level Dialogue. He said that ALECSO placed great emphasis on the digital transformation process, and was working to enhance the use of digital tools in classrooms to facilitate access to knowledge and stimulate innovation in teaching methods, and integrate AI technologies into educational systems in the Arab world. He mentioned that ALECSO

partnered with the Smart Learning Institute at Beijing Normal University to publish a significant number of books, an effort that has effectively promoted the integration of education and technology, and proposed to increase cooperation between Arab countries and China in various fields of scientific research and cultural exchange, among other fields.

Prof. ZHOU Zuoyu, Vice President of Beijing Normal University, was the moderator of Opening Remarks and High-level Dialogue. He stated that education concerns everyone's well-being and the future of the world. Challenges faced by education are global challenges, and vice versa. Education is the responsibility of the entire society.

Unveiling GSENet's Groundbreaking Report: Global Understanding of Smart Education in the Context of Digital Transformation

At the Opening Ceremony & Plenary Session, **Prof. HUANG Ronghuai**, Co-Dean of SLIBNU, and **Prof. ZHAN Tao**, Director of UNESCO IITE, jointly unveiled the research report titled *Global Understanding of Smart Education in the Context of Digital Transformation* on behalf of the Global Smart Education Network (GSENet).

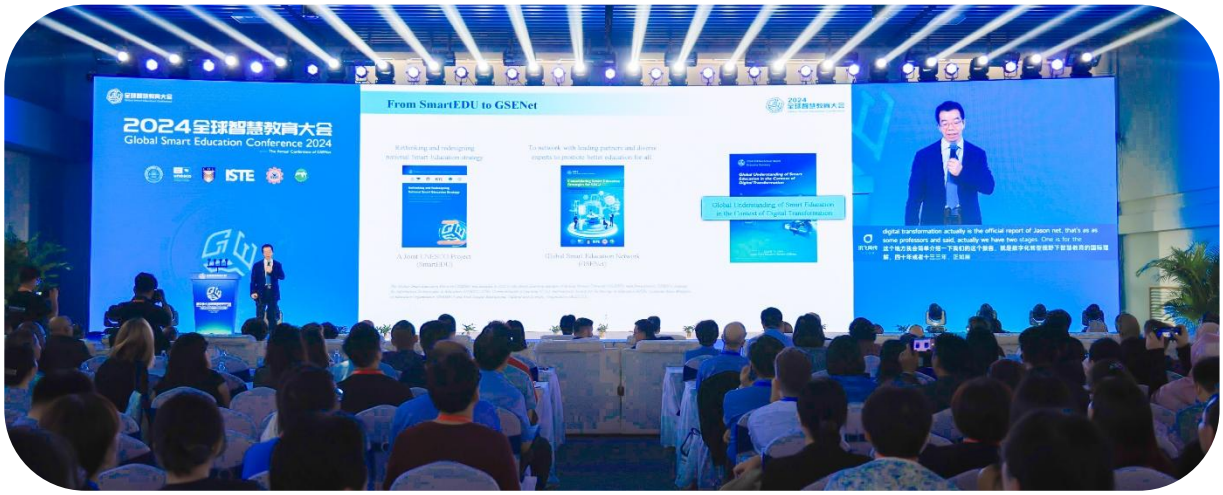


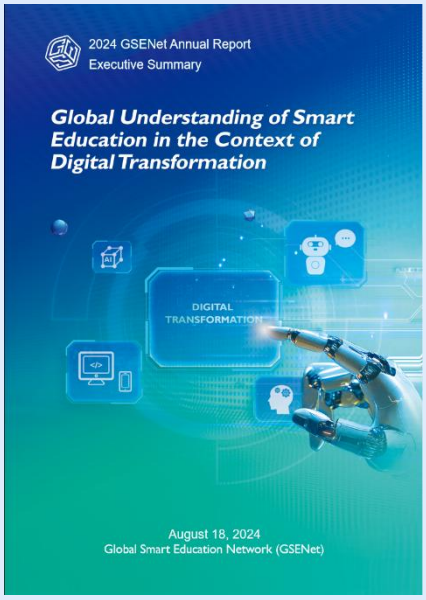
Photo of Releasing *Global Understanding of Smart Education in the Context of Digital Transformation*

Prof. ZHAN noted that since its inception two years ago, GSENet had brought together 15 members from across the world, and would continue to be open to all. He expected to see concerted efforts toward the vision of sustainable development and to create a new world.

According to **Prof. HUANG**, the research team extensively surveyed educators, policymakers, and scholars from across the world for their insights into smart education, analyzed the policies of 48 countries on digital education and the contributions of smart education to the quality of education, invited more than 10 countries to discussions on the inclusive and equitable smart education, and continuously conducted relevant case studies.

As the latest key outcome of GSENet's "Joint Research Program on National Smart Education Strategies," the report aims to enhance international understanding of Smart Education and drive the global digital transformation of education. It holds significant importance in marking the inaugural year of Smart Education.

Unique Features of the Report



1. Provided a comprehensive analysis of perspectives from educators, policymakers, and scholars across the globe on the concept and characteristics of Smart Education, Highlighting the common understanding, main features and regional adoption of Smart Education from a global perspective.

2. Conducted a comprehensive textual analysis of digital education policies across 48 countries and organizations, grounded in the 6 key concerns of the Smart Education Framework. The analysis revealed that policy planning of Smart Education encompasses three distinct stages: digitization, demonstrating the deep integration of digital technology; cyberization, showcasing the full utilization of data elements; and intelligentization, reflecting the effective adoption of intelligent technologies.

3. Established a global observation framework for the development of Smart Education, consisting of 10 primary indicators and 30 sub-indicators, and developed a global Smart Education dataset with 58 observation points, aimed at analyzing the contribution of key Smart Education characteristics to improving the quality of education.

4. Invited global experts to participate in a series of webinars focused on the inclusivity and equity of Smart Education, and continues to conduct relevant case studies to further explore these areas.

Key Highlights of the Report

1. The concept of smart education is gradually being demystified across several countries and regions in the perspective of diverse culture, technological adoption, and pedagogical context.

2. Performative features (learning, assessment, infrastructure, sustainability, equity) and constructive features (students, teachers, digital technology, policy, partnership) of smart education depict the ideal blueprint for quality education.

3. Digital education policies to attain smart education should emphasize robust infrastructure, prioritize capacity building, and create a high-quality, inclusive, sustainable digital education ecosystem.

4. National policy sustainability, effective partnerships, ubiquitous learning environments, and commitment to inclusion significantly impact the overall quality of education according to current public datasets worldwide.

5. Across different countries and regions, access to digital technology beyond schools, E-leadership training in schools, adaptive learning resources and forward-responsible thinking should be fully emphasized to achieve Education Agenda 2030.

Promoting the integration of science and education as well as the fusion of industry and education to support innovative practices in smart education

The integration of science and education is the driving force for reshaping the talent cultivation system. The ongoing upgrade of the intelligent technology ecology will serve the adaptive growth of students, boost the professional development of teachers, and support and lead innovative practices in smart education.

Prof. ZHAO Qinping , an Academician of the Chinese Academy of Engineering, gave a keynote speech titled Innovating VR 2.0 and Developing Internet 3.0 to Deeply Support the Digital Advancement of Education. He pointed out that sustained progress in the educational sector had not only facilitated the application of technologies, but also fueled continuous innovation and iteration of technologies, especially in meeting the core requirements of the integration of virtual and physical spaces. Prof. ZHAO emphasized that to meet this need, we must go beyond the existing capacity of virtual reality (VR) 1.0 and move toward VR 2.0 characterized by 6Is, i.e., Immersion, Interaction, Imagination, Intelligentize, Interconnection, and Iteration. This would require breakthroughs in such technologies as the Internet, augmented reality (AR), and extended reality (XR), as well as continuous advances in technological innovation and system development. He called for cooperation between technical experts and educators on jointly driving progress in this technology to support the further development of educational informatization, providing a solid technical pillar for the digital transformation of education.

Prof. Amal El Fallah Seghrouchni, Executive President of the Moroccan International Center for Artificial Intelligence, delivered a keynote speech titled Trustworthy Artificial Intelligence for Education: Benefits and Challenges. She noted that if we want to apply AI in education, we can adopt four approaches: systems that understand and think like humans, systems that can reason, systems that behave like humans, and systems that act rationally. These AI approaches must suit educational scenarios, ensuring they cater to different learners and teachers, enabling students to learn independently while serving educators and learners. She underscored that AI in education has four functions: substitution, augmentation, modification, and creation of new functions, impacting parents, students, teachers, and policymakers. To maximize AI's benefits in education while ensuring safety and protecting human rights and freedoms, we must balance innovation and regulation. She also talked about key drivers for AI in education, including technological, organizational, and environmental factors. Trust is a significant challenge, requiring governance (regulations, ethics, norms, standards) and technical (data, algorithms) requirements.

Prof. YANG Zongkai, President of Wuhan University of Technology, gave a keynote speech online titled Promoting the Digitalization of Education and Open Up a New Track for Education. He said that educational transformation in the AI era was rising as a topic of broad consensus, but it was necessary to properly handle the relationship between the changeable and unchangeable in the process of digital transformation, which requires sticking to the fundamental task of fostering virtue while educating people and a further shift from the

educational model of the Industrial Age towards that of the age of digital intelligence. He believed that the key to reshaping higher education lay in educational environments, teachers' competencies, teaching and learning methods, provision of resources, and assessment methods, among other factors. According to Prof. YANG, Wuhan University of Technology has implemented a new talent development plan called Program "5·30", which means 30 actions under five categories, i.e., new standards, new drivers, new model, new system, and new culture.

Mr. Marc Prensky is an American speaker, author, consultant, and proponent of the concepts "Digital Natives" and "Digital Immigrants". He presented a report titled *THIRD MILLENNIUM KIDS: A Hell Yes! Low Stress Guide for Everyone*. He put forward seven basics for the Third Millennium, i.e., Real-World Accomplishment; Get to the Essence or Truth; L.E.G.O. (LOVE, EMPATHY, GRATITUDE, and OPTIMISM); T.R.I.C.K. (TRUST, RESPECT, INDEPENDENCE, COLLABORATION, and KINDNESS); Be Adaptable to Continuous Change; Self-Educate for your own uniqueness and individuality; Be an Earthling (be a citizen of the world); Become a SYMBIOTIC HUMAN HYBRID. He also gave suggestions on how to meet the needs of young people: By unleashing their imagination, we encourage young individuals to pursue their dreams and harness technologies like AI to bring their visions to life. Additionally, fostering self-awareness and direction involves guiding them to discover what they are truly skilled at and passionate about, enabling them to find their own path. Lastly, transforming education from early, premeditated learning to ongoing, real-world projects allows young people to achieve success through practical experience.

Mr. GAN Changfu, Deputy Director-General of the Qinghai Provincial Department of Education, presented a report titled Further Implement the Pilot of the National Smart Education Platform for Primary and Secondary Schools to Effectively Support and Promote High-Quality Development of Basic Education in Qinghai Province. He noted that the development of Qinghai needed the introduction of new digital, intelligent means of production. Mr. GAN pointed out that over recent years, the province had actively promoted the application of the Smart Education of China platform for primary and secondary schools through high-level coordination, high-quality execution, high-level planning, and full guarantee. Going forward, he said, Qinghai would establish a national experimental zone for educational digitalization to promote province-wide application and pilot, boost the use of digital tools by teachers, and solidly carry out pilot projects.

Prof. Asha S. Kanwar, Chair of the Governing Board of UNESCO IITE and Chair Professor of SLIBNU, was the moderator of Keynote Speech. She stated that smart education is not only about intelligence, but also about achieving deeper teaching more transparently and effectively, while recognizing diverse student populations, from young learners to older students and even adults.

*The Opening Ceremony & Plenary Session on Futures of Education and the Role of Digital Transformation is organized by BNU and co-organized by UNESCO IITE, ALECSO, COL, ISTE, SEAMEO. For more information, the video is available at **https://wx.vzan.com/live/page/924486580**

Key takeaways

- The concept of smart education is gradually being demystified across several countries and regions in the perspective of diverse culture, technological adoption, and pedagogical context.
- AI continually expands the boundaries of human knowledge and, through the interconnectedness of digital intelligence networks, empowers billions of people to become potential creators of knowledge, problem solvers, and innovators.
- Developing smart education requires systematic planning, scientific strategies, and effective policies, necessitating mutual exchange and learning among countries.
- We have also been deeply committed to addressing the ethical, social, economic impacts these technologies bring. This conference offers a remarkable platform for us to engage in meaningful dialogue about adopting advanced technology and artificial Intelligence. Our collective goal is actually to foster peaceful, equitable and sustainable societies.
- Smart education emerges as a pivotal force in advancing equitable, inclusive, and high-quality education. Leveraging the digitization and intellectualization of education, we aim to accelerate educational transformation, bridge the educational divide, and facilitate the global convergence and circulation of premium educational resources.
- It is imperative to equip our students with the necessary skills to harness emerging technologies. This includes integrating AI literacy into our curricula, educating teachers on AI competencies, fostering an innovative culture, and addressing ethical considerations.
- Smart education entails providing adaptive educational systems that customize content and learning pathways. This adaptability aligns our educational systems with digital advancements, bridging gaps across communities, societies, and individuals, ensuring equitable access to inclusive, high-quality education.
- As policymakers, we aspire for our youth to enhance productivity, particularly in problem-solving and open-mindedness, transforming them into global, digital citizens. This transformation necessitates educational reforms, including innovative teaching methods, curriculum redesign, and assessment systems.

Forum on Digital Transformation through Smart Education

As a new form of education in the digital era, smart education represents an inevitable choice for driving educational equity and quality education, fostering profound and systematic transformations within the educational system, and ultimately leading to holistic innovation. To facilitate the digital transformation and intelligent upgrading of China's education sector, comprehensively build a new smart education ecosystem, and contribute to the construction of a powerful educational nation, it is imperative to explore the academic value of smart education, showcase and refine practical experiences of artificial intelligence in education and its digital transformation, thereby enhancing its explanatory power and guidance for future education.

This gathering aims to delve into how to strengthen the national smart education strategy towards STG4, the construction and application of public digital learning platforms for the digital transformation of regional and school education, as well as the collaborative innovation mechanisms for regional smart education.

Group Photo of Guests from Forum on Digital Transformation through Smart Education

SPEAKERS

Mr. REN Changshan
Director, Education Informatization and Network Security Division, Department of Science, Technology and Information, Ministry of Education, P.R.China

H.E. Mr. Justin Valentin
Minister of Education, Seychelles

Mr. YU Weiliang
Member of the Education Work Committee, Hunan Provincial Committee, China

Prof. HU Qintai
Guangdong University of Technology, China

Mr. Janko Samardžić
Assistant Minister of Education for Higher Education, Serbia

Ms. WANG Yan
Director, Bureau of Education of Changsha Municipality, China

Mr. NIE Xiaolin
Director & Senior Vice President, iFLYTEK

Prof. Poon Wai-yin
Vice President, The Chinese University of Hong Kong, China

Mr. TENG Sio Hong
Deputy Director, Education and Youth Development Bureau, Government of the Macao Special Administrative Region

Mr. ZHOU Wenyang
Director, Public Service Bureau of Chongqing High-tech Zone, China

Mr. HE Meilong
Director, Education Bureau of Minhang District, Shanghai City, China

Mr. SHEN Baowei
Deputy Director, Zhuji City Education and Sports Bureau, Zhejiang Province, China

Ms. QU Fei
Director, Education Bureau of Dadong District, Shenyang City, Liaoning Province, China

Mr. CUI Guohua
Director, Education and Sports Bureau of Linzi District, Zibo City, Shandong Province, China

Mr. LI Bing
Deputy Director, Education Bureau of Wuhu City, Anhui Province, China

Mr. MA Jianwei
Deputy Director, Education Bureau of Tianjin City, China

Mr. LIU Jianquan
Director, Education and Sports Bureau of Shizhong District, Zaozhuang City, Shandong Province, China

Ms. WU Yinghui
Dean, Haidian Institute of Education Science, Beijing, China

Ms. YANG Hong
Deputy Director, Education Bureau of Furong District, Changsha City, Hunan Province, China

MODERATORS

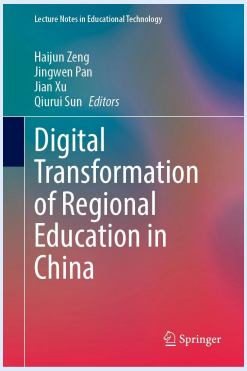
Prof. YANG Junfeng
Vice Director, Educational Informatization Strategy Research Base (Beijing), Ministry of Education, P.R. China

Mr. HUANG Junshan
Dean, Changsha Municipal Institute of Education Science, Hunan Province, China

Mr. Emil Chen
Vice President, NetDragon Websoft Inc.

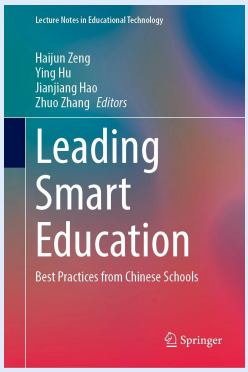
Mr. ZHANG Zhi
Director, Education Bureau of Baoshan District, Shanghai, China

Mr. REN Changshan, Director of Education Informatization and Network Security Division, Department of Science, Technology and Information of the Ministry of Education, emphasized in his speech that advancing educational digitalization is key for China to speed up the growth in education. He called for the thorough implementation of the education digitalization strategy, and continuous aggregation of high-quality digital education resources to promote data integration and enhance public services. He also announced the Smart Education Excellence Case 2024 List and 2023 Casebook.



This book presents the best practices of smart education in different regions across China. Each chapter addresses one or more of the following topics: smart learning environments, new education and teaching models, teaching platforms and digital tool applications, teacher professional development, smart education evaluation, education governance, and education digitization. This edited collection promotes digital integration and innovative development of education, improves regional education levels, and ultimately forms a new model to support and lead the modernization of education in China.

Available at:
https://link.springer.com/book/9789819781430



This book focuses on best practices in smart education in Chinese schools. It showcases the achievements of Chinese schools in smart education since the comprehensive implementation of the educational digital transformation in China. These selected case studies explore smart education practices from various perspectives, such as innovative practices in teaching and learning, the construction and application of digital platforms, resources, and tools, smart educational and teaching evaluation, and the construction of smart campuses. It enriches understanding of the current status of smart education in Chinese schools and is a useful reference for researchers, teachers, policymakers, and school administrators across the globe.

Available at:
https://link.springer.com/book/9789819781478

H.E. Mr. Justin Valentin, Minister of Education of the Republic of Seychelles, stressed that exploring smart education is a commitment to the future of education, which must adapt to the demands of the digital age by fostering digital literacy among teachers and students. Besides, teaching methods should also be improved to meshared successful cases where Seychelles integrated education into the national economic development plan.

Mr. YU Weiliang, a member of the Education Work Committee of the Hunan Provincial Committee, introduced the progress and achievements of educational digital transformation and smart education in

He announced that efforts will focus on developing a special action plan for educational digitalization and building a forward-looking new educational infrastructure. It will strengthen bidirectional collaboration with the national smart education platform, optimize the supply and application of digital education resources, and improve the digital literacy of teachers and students to achieve high-quality educational development.

In the Keynote Speeches, **Prof. HU Qintai**, a leading talent under the National Special Support Plan for High-Level Talents, delivered a report titled *Enhance Awareness of Educational Digital Transformation, Deepen Technology-Enabled Teaching Reform*. He emphasized that the core of educational digital transformation lies in fundamental change rather than the application of technology. He suggested that the transformation should be carried out from thinking, elements, and governance, outlining four approaches: 1) Systematic construction of new models, structures, methods, and systems for educational digital teaching reform; 2) Promoting teaching innovation guided by changes in educational philosophy and concepts; 3) Creating visualized learning and teaching resources to facilitate the sharing of high-quality resources; 4) Building multi-type digital collaborative service communities.

Mr. Janko Samardžić, Assistant Minister of Education for Higher Education of the Ministry of Education of Serbia, discussed Serbia's strategies and implementations in promoting educational digital transformation in his speech "Digital Transformation and Smart Education in Serbia." This includes developing digital content and learning materials, enhancing online and hybrid learning capabilities in schools, improving the digital literacy of teachers and students, advancing computer science education, and procuring necessary equipment for digital classrooms.

Ms. WANG Yan, Director of the Bureau of Education of Changsha Municipality, shared in her speech titled *Digital Empowerment to Advance High-Quality Regional Education Development* how Changsha, on the leverage of the Ministry of Education's first batch of smart education demonstration zone projects, has been constructing new smart scenarios for the Five Educations (moral, intellectual, physical, aesthetic and labor education), new mechanisms for smart evaluation, and new models for smart governance. These efforts aim to promote the construction of smart campuses, optimize educational governance, and drive comprehensive reforms in teaching, management, and evaluation, ultimately leading to high-quality regional basic education.

Mr. NIE Xiaolin, Director and Senior Vice President of iFLYTEK, in his speech *Practical Applications of Next-Generation AI Technology in Driving the Digital Transformation of Education*, highlighted the significant potential of new technologies in empowering teachers, supporting personalized learning for students, and enhancing intelligent governance for administrators. He elaborated on how teaching design tools and classroom interaction technologies can improve teaching efficiency,

Hunan. while intelligent Q&A systems and virtual practice partners enhance students' learning experiences. Additionally, he emphasized that emotion recognition technology and psychological support contribute to students' all-round development.

Prof. Poon Wai-yin, Vice President of The Chinese University of Hong Kong, in her speech *Policies and Strategies to Facilitate Education Paradigm Transform*, outlined the university's focus on five key goals to ensure the quality of virtual teaching and learning. These include redesigning core curricula, developing online courses, adopting AI tools to support teaching and assessment, and addressing the needs of students with special requirements, providing equal learning opportunities for every student.

During the Invited Speeches session, distinguished guests shared their practical experiences in educational digitalization and transformation from various regional perspectives, discussing new insights and practices to promote high-quality educational development, including:

- **Mr. TENG Sio Hong,** Deputy Director of the Education and Youth Development Bureau, Government of the Macao Special Administrative Region, emphasized that the Macao is actively exploring the path of smart education, empowering education through digital technology, supporting the upgrading of hardware and software, building a digital teacher team, promoting personalized and precise teaching, and integrating into national development to cultivate technological talents, comprehensively facilitating the digital transformation and modernization of education.

- **Mr. ZHOU Wenyang,** Director of the Public Service Bureau of Chongqing High-tech Zone, shared the practice of Chongqing High-tech Zone in advancing the high-quality development of the "Western Basic Education Special Zone" through "New Smart Education." They have constructed an overall intelligent governance system, implemented the S2C digital education reform, promoted the expansion and quality improvement of regional education, created a new ecosystem of smart education, achieved remarkable results, and looked forward to working with peers to promote the construction of a powerful nation in education.

- **Mr. HE Meilong,** Director of the Education Bureau of Minhang District of Shanghai, discussed the practice of Minhang education in digital transformation, emphasizing the use of digitalized homework and other means to address issues such as educational equity, burden reduction, and efficiency enhancement. They have built a smart education ecosystem, improved teaching quality and personalized education, achieved notable results, and expressed eagerness for further exchanges with peers.

- **Mr. SHEN Baowei,** Deputy Director of the Education and Sports Bureau of Zhuji, Zhejiang Province, talked about how Zhuji City has promoted educational common prosperity through digital educational reform, constructed educational communities,

achieved high-quality balance, focused on implementing smart homework and AI-powered innovative education, elevated education quality and students' innovation ability, and envisioned the future direction of scientific education.

- **Ms. QU Fei,** Director of the Education Bureau of Dadong District of Shenyang, Liaoning Province, presented the practice of smart education in Dadong District, Shenyang, covering system construction, smart scenario applications, and resource sharing platforms. They have achieved educational digital transformation, enhanced teaching quality and teacher competence, facilitated students' all-round development, and planned to continuously drive the high-quality development of smart education.

- **Mr. CUI Guohua,** Director of the Education and Sports Bureau of Linzi District of Zibo, Shandong Province, shared Linzi District's exploration of smart education: anchoring digital development, building cloud platforms, gigabit networks, and ubiquitous connectivity, strengthening digital literacy training for teachers and students, innovating teaching modes, achieving subject breakthroughs and new evaluations in education, yielding remarkable outcomes, and committing to further deepening digital transformation to empower high-quality educational development.

- **Mr. LI Bing,** Deputy Director of the Education Bureau of Wuhu, Anhui Province, discussed how Wuhu City has empowered the professional development of primary and secondary school teachers through digitization. They have constructed a digital education environment, embedded digital technology to promote autonomous learning, leveraged systematic resources to enhance teaching capabilities, provided professional teams to ensure technology application, utilized digital portraits for precise evaluation, planned a 1+3+N training system, built the "Perfect Education, Quality Learning without Worries" brand, and contributed to high-quality educational development.

- **Mr. MA Jianwei,** Deputy Director of the Education Bureau of Hexi District of Tianjin, talked about Hexi District's practice in the digital transformation of education, which has spanned four stages and constructed a smart education ecosystem. They have focused on infrastructure, data governance, and application systems, improved teaching quality and information literacy among teachers and students, and planned to deepen and expand in areas such as data governance, comprehensive quality evaluation, and intelligent sports spaces, jointly exploring the future of digital education.

- **Mr. LIU Jianquan,** Director of the Education and Sports Bureau of Shizhong District of Zaozhuang, Shandong Province, shared the strategy of advancing educational digitization in Shizhong District, Zaozhuang City, aimed at narrowing the urban-rural education gap and building a high-quality and balanced public education service system. Through the construction of digital infrastructure, new application models, and operational support, they have achieved balanced allocation of educational resources, enhanced teachers' digital literacy, promoted smart teaching and personalized development, paid attention to special education, and driven high-quality educational development.

- **Ms. WU Yinghui,** Dean of the Haidian Institute of Education Science of Beijing, emphasized the importance of leveraging AI technology in education to improve teaching quality, create intelligent learning environments, and promote teaching reforms. Haidian District has optimized resource allocation, constructed

a new ecosystem of smart education, and widely applied intelligent devices in teaching. Simultaneously, they attach great importance to the early cultivation of AI talents, ensuring children's all-round development, avoiding cognitive outsourcing, and making education empower children to become smarter and wiser.

- **Ms. YANG Hong,** Deputy Director of the Education Bureau of Furong District of Changsha, Hunan Province, underscored the significance of digital transformation in education, pointing out that teachers are the core and must enhance their digital literacy. She shared the experience of Furong District, Changsha, by building digital environments, application platforms, continuing new models, and evaluation systems, promoting teacher transformation and growth, embracing the challenges of the AI era, and achieving high-quality educational development.

Outcome Release: The Fantastic Particle of the "Photosynthesis"

In the Outcome Release, **Mr. ZHANG Zhi**, Director of the Education Bureau of Baoshan District, Shanghai, presented the *Intelligent Transformation of Educational Resources – The Fantastic Particle of the "Photosynthesis".* Developed by the "Future Laboratory" team from NetDragon Websoft Smart Education, the "Fantastic Particles" is produced with 3D educational engine technology and AI automation tools. With the assistance of experts and teachers, the design focuses on "interactive teaching and immersive learning," constructing a universal teaching strategy model. The particle serves as a smart entity that grows with students, presenting different forms based on their characteristics, personalities, and learning progress, and delivering appropriate resources or tasks.

Photo of The Fantastic Particle of the "Photosynthesis"

Panel Discussion

Prof. XUE Gui of the State Key Laboratory of Cognitive Neuroscience and Learning of Beijing Normal University, **Mr. YAN Baiyang**, Vice Principal, Professor-Level & Special-Grade Senior Teacher of Xingzhi High School in Baoshan District, Shanghai, and **Mr. ZHANG Chunlei**, Associate Professor of the School of Life Sciences of East China Normal University looked into the future intelligent transformation of educational resources centered on "The Fantastic Particle."

Photo of Panel Discussion

Q1: What are your thoughts on the ideal educational resources, and what characteristics should they possess?

Prof. XUE Gui: Educational resources should align with cognitive principles, stimulate learning motivation, offer personalized learning pathways, and provide timely feedback.

Mr. YAN Baiyang: The most ideal resources should be engaging, efficient, personalized, and flexible, capable of capturing students' interests and enhancing learning outcomes.

Mr. ZHANG Chunlei: Educational resources should authentically reflect the world, support high-quality learning, and facilitate students' autonomous construction of cognitive models.

Q2: How do you envision educational resources profoundly transforming educational models and reshaping future teaching?

Prof. XUE Gui: Educational resources will revolutionize traditional approaches, driving a shift from passive learning to active inquiry, enabling deep knowledge construction and flexible application, in line with cognitive laws of the brain.

Mr. YAN Baiyang: Dynamic and immersive educational resources will enhance interest and memory depth, while personalized learning paths will boost efficiency. Teachers' roles will evolve into facilitators, multiplying classroom efficiency.

Mr. ZHANG Chunlei: The independence of resources promotes active learning. Integrated pedagogies support inquiry-based, guided, and project-based learning, transforming one-way teaching into interactive learning that enhances students' initiative.

Q3: What are your new expectations for the intelligent transformation of future educational resources?

Prof. XUE Gui: I anticipate educational resources integrating the latest technologies to form an open, collaborative educational intelligence entity that can self-evolve and continually optimize the learning experience.

Mr. YAN Baiyang: I envision educational resources integrating seamlessly with unobtrusive monitoring to alleviate examination pressures and linking with knowledge graphs to elevate personalization and intelligence.

Mr. ZHANG Chunlei: I hope that future educational resources can transcend device limitations, achieving seamless integration of virtual and real worlds, engaging all senses and enhancing learning outcomes.

*The Forum on Digital Transformation through Smart Education is co-hosted by the Education Informatization Strategy Research Bases (Beijing, Central China, and Northwestern China) of the Ministry of Education, Bureau of Education of Changsha Municipality, the Arab League Educational, Cultural and Scientific Organization (ALECSO), iFLYTEK, and NetDragon Websoft Inc. For more information, the video is available at **https://wx.vzan.com/live/page/2142025710**

Key takeaways

- Realizing 'New Smart Education': We strive to achieve a student-centric approach, leveraging the Internet and big data to comprehensively collect, deeply integrate, and precisely analyze students' learning progress, individual development, and educator support methods. This forms personalized curriculum plans, empowering balanced and high-quality education.

- Schools as Pioneers: Schools are tasked with pioneering this transformation, often driven by the positive intentions of teachers and students. Success hinges on commitment, grassroots adaptation, and unified embrace of change, ultimately shaping a new paradigm for smart education.

- Establishing a citywide education big data decision-making and command center enables intelligent analysis of dynamic data on degree offerings, teaching quality, and other aspects, providing a data matrix for informed educational policymaking.

- Developing homework management systems facilitates intelligent correction and big data analysis, while a one-stop after-school service system enhances service quality, freeing up educational resources. An off-campus training supervision system ensures 100% regulatory coverage of such institutions.

- Digital Innovation in Intelligent Teaching: Based on comprehensive learning analytics, we explore the deep integration of digital technology with curriculum teaching using smart mobile devices. This three-stage model (pre-class, in-class, post-class) involves resource push and self-assessment for precise targeting of teaching points; in-class deep learning and real-time monitoring for strategy adjustment; and post-class personalized reinforcement exercises based on diagnostic differences, fostering a shift from experience-based to data-driven teaching.

Forum on Mental & Physical Health Supporting Personal Development of Adolescents

Educational Transformation from a Global Perspective for Jointly Promoting the Physical and Mental Health of Adolescents

The issue of physical and mental health among adolescents has garnered widespread concern from schools, families, and society. The cultivation of students' ideals and beliefs, moral character, intellectual and knowledge capabilities, as well as physical and psychological qualities, is indispensable. The application of intelligent technology helps in perceiving the physical and mental health status of students, exploring the laws of student growth, and promoting the personalized and comprehensive development of adolescents. This forum brought together experts, scholars, and frontline teachers from home and abroad to discuss the growth patterns and talent development mechanisms of the digital generation; the assessment and intervention of adolescents' physical and mental health; psychological health education and counseling services; cognitive safety, special education, digital moral education, labor education, smart physical education, and smart aesthetic education, among other topics.

Photo of Forum on Mental & Physical Health Supporting Personal Development of Adolescents

SPEAKERS

Mr. YANG Dayan
Deputy Director, Department of Physical, Health and Arts Education, Ministry of Education, P. R. China

H.E. Ms. KILO Vivian ASHERI
Secretary of State, Ministry of Basic Education, Cameroon

Ms. Dorothy Gordon
Former Chair, Information for All Programme (IFAP), UNESCO

Prof. Obijiofor Aginam
Director, UNESCO MGIEP

Prof. QIAO Zhihong
Beijing Normal University, China

Prof. Didier Jourdan
Head, WHO Collaborating Center for Research in Education & Health

Prof. MAO Lijuan
President, Shanghai University of Sport, China

Mr. ZHANG Xiaodong
Deputy Dean, Jiangsu Academy of Educational Sciences, China

Mr. NAN Hao
CEO, BNU · Jingshi Ruidao,

Prof. Srdjan Dusanic
Dean, Faculty of Philosophy, University of Banja Luka, Bosnia and Herzegovina

Prof. ZHOU Mingming
Associate Dean, Faculty of Education, University of Macau

Mr. WANG Shenglong
Director, Educational Science Research Office, Jiangning District, Nanjing, China

Mr. FAN Lianwei
Deputy Chief Engineer, Institute of Dataspace, Hefei Comprehensive National Science Center, China

Prof. FANG Haiguang
Capital Normal University, China

Ms. ZHENG Lanqin
Associate Professor, Beijing Normal University, China

Ms. TAO Meiyu
Head, Art Teaching and Research Group at Beijing Emerald City Primary School, China

Mr. HUANG Chao
Shuangliu Middle School, China

MODERATORS

Mr. Tigran Epovan
Chief of the Unit of ICT in Health Education, UNESCO IITE

Prof. CHENG Li
Beijing Normal University, China

Mr. YANG Dayan, Deputy Director of the Department of Physical, Health and Arts Education, Ministry of Education, P. R. China, noted that the Report to the 20th National Congress of the Communist Party of China explicitly set the objective of becoming a leading country in education and health by 2035, an objective that highlights the importance of psychological and mental health. The year 2024 was designated the Year for Promoting Student Physical and Mental Health. This was a major move by the Chinese government to become a leading country in education. To empower mental health services for adolescents, the Ministry of Education (MOE) adopted a range of policies and actions, including the nationwide Mental Health Awareness Month campaign, the diffusion of knowledge about mental wellbeing, the offering of the National Student Mental Health Lectures and the application of intelligent

technologies. Mr. YANG said that the MOE would take further the idea that health comes first, and advocate the health concept of "body and mind as one" by taking digital means to boost the coverage and quality of mental health education, improving the Smart Education of China platform, expanding the provision of resources for physical, arts and health education, and leveraging big data and AI technologies to strengthen research on and early intervention in the psychological health issues of students.

In the speech, **H.E. Ms. KILO Vivian ASHERI**, Secretary of State of the Ministry of Basic Education, The Republic of Cameroon, stressed the impacts of cultural diversity on adolescent mental health education. She noted that Cameroon had rich cultural and racial backgrounds, which posed distinct challenges to the educational system, especially in addressing the psychological issues of adolescents. Ms. ASHERI briefed the audience on Cameroon's initiatives to improve the physical and mental health of students, including adjusting the curriculum structure, providing nutrition support, and reinforcing mental health education. She emphasized that games and sports played an important role in boosting student mental health, and called for more attention and support from the international community to efforts made by African countries in education and mental health.

Ms. Dorothy Gordon, Former Chair of the Information for All Programme (IFAP), UNESCO, pointed out in her speech that developments in global digitalization had far-reaching impacts on adolescent mental health. She called on the international community, especially communities and families, to make concerted efforts to prioritize considerations regarding the physical and psychological well-being of adolescents when promoting digital solutions.

International Approaches to Mental Health of Adolescents Discussed from a Global Perspective

At the Keynote Speeches session, **Prof. Obijiofor Aginam**, Director of UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP), gave a speech titled Supporting Personal Development of Adolescents In the Digital Age—Lessons Learnt from COVID-19. He suggested that the educational system build its capacity in addressing students' psychological issues, and help make adolescents more resilient psychologically through mental health education, on-campus counseling services, and courses on life skills.

Prof. QIAO Zhihong from Faculty of Psychology, Beijing Normal University, delivered a speech titled *Challenges and Countermeasures for Student Mental Health in China*. Prof. QIAO noted that a two-pronged approach should be adopted to boost the mental health of primary and middle school students: one is to improve their living environments so that they meet the essential needs of mental health; the other is to strengthen mental health education to enable students to better cope with stress. He underlined that schools, families, and society should work together to create loving and supportive growth environments for students,

and help them gather positive growth experiences and reduce negative emotions.

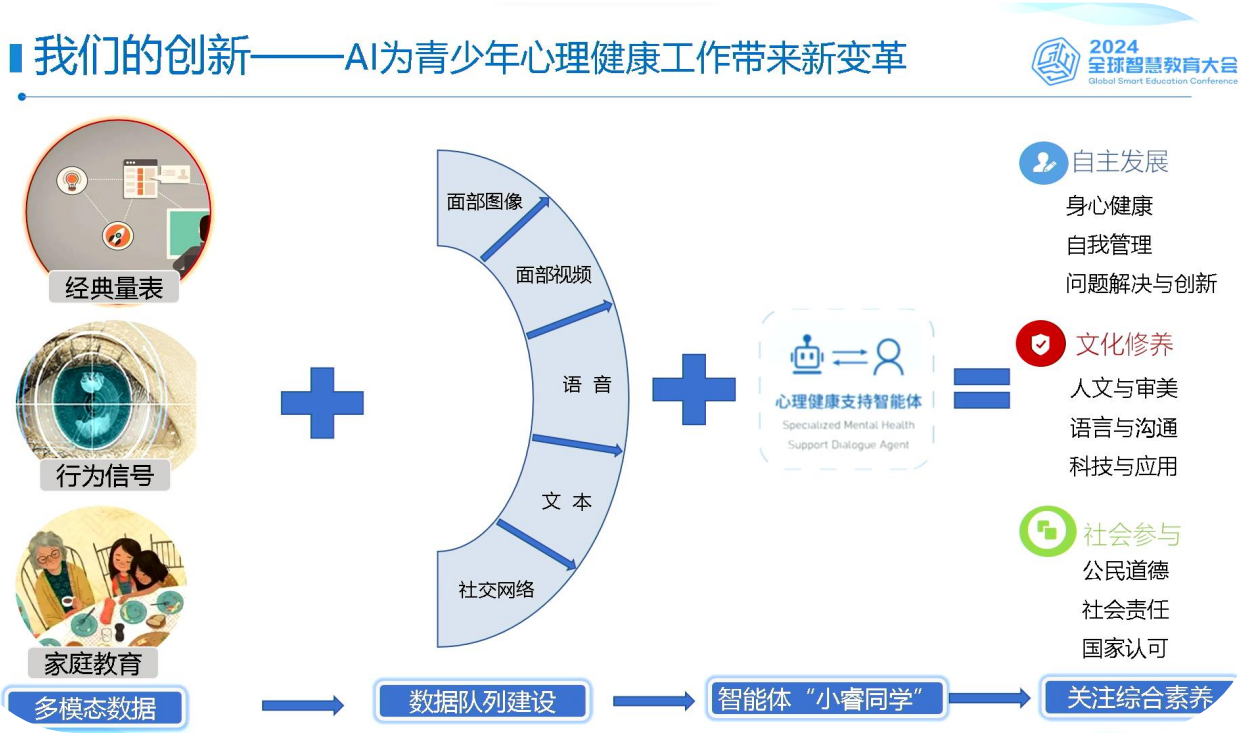
Prof. Didier Jourdan, Head of the WHO Collaborating Center for Research in Education & Health, held that smart learning had mixed impacts on the development of children and adolescents, so due attention should be given to the positive role of relevant technologies in cultivating values and social morality. He noted that adolescents were a key force in meeting such challenges, so we must create supportive living environments and build health learning pathways through education, community services, and cross-department collaboration, as well as ensure that policies are inclusive and sustainable, thus effectively enhancing the wellbeing and health of adolescents.

Prof. MAO Lijuan, President of Shanghai University of Sport, gave a speech titled Exploration and Practice of Smart Sports on Promoting Adolescent Physical and Mental Health. She talked about how smart sports improve the physical and mental health of adolescents through the application of digital and intelligent technologies. She emphasized that smart sports could not only improve the physical activity levels of adolescents, but also provide personalized health guidance via smart wearables and virtual training systems. Prof. MAO expected that, in the future, smart sports could play a key role in promoting physical education for and mental health of adolescents.

Mr. ZHANG Xiaodong, Deputy Dean of Jiangsu Academy of Educational Sciences, presented a report titled Nurturing the Mind Campaign—A Novel Practice of Jiangsu in Mental Health Education. He shared the innovative initiatives taken and results achieved by Jiangsu Province in mental health education for adolescents, especially the five major strategies under the Nurturing the Mind Campaign, i.e., target-setting, specialized team building, a focus on key students, a sound four-in-one working system, and policy implementation for effectiveness.

Intelligent Technology for All-round Development of Adolescents

At the Outcome Release session, **Mr. NAN Hao**, CEO of Beijing Normal University · Jingshi Ruidao, released a report on the latest practice results titled Practice of Building a Tiered Intervention System for Adolescent Mental Health Based on Multimodal Integration. He said that Jingshi Ruidao, a state-owned tech company incubated at Beijing Normal University (BNU), had presented Xiaorui, a first-of-its-kind application of a multimodal intelligent agent in the vertical field of mental health, after three years of research in partnership with the Faculty of Psychology and Faculty of Education at BNU and the Institute of Computing Technology, Chinese Academy of Sciences (ICT), among other institutions. Mr. NAN noted that this app values interaction and collaboration with external environments, people, and other intelligent agents, which makes it more human-like in decision-making, giving it the ability to understand and analyze the environments where it operates. He predicted that the app was likely to make breakthroughs in high-order capabilities, including virtual counseling, aided assessment, and emotional companionship.



Our innovation, AI, brings a new transformation to the work of adolescent mental health.

Prof. Srdjan Dusanic, Dean of the Faculty of Philosophy, University of Banja Luka, Bosnia and Herzegovina, delivered a speech titled Advancing Holistic Adolescent Development through Smart Technologies. He briefed the audience on the positive and negative impacts of smart technologies on adolescents, and analyzed how such technologies could be used for health assessment and intervention and mental health education in a way that advances the holistic development of adolescents.

Prof. ZHOU Mingming, Associate Dean of the Faculty of Education, University of Macau, presented a report titled Growing Up Digital: Empowering the Young Generation. Prof. ZHOU shared her views on how digital technologies empower the young generation. Her speech underscored the importance of a digital competence framework. She held that digital technologies should be applied throughout the course of education, from kindergarten to college, to support student learning and development.

Prof. CHEN Liangying from the Central China Normal University gave a speech titled Personalized Intelligent Intervention for Children with Autism Spectrum Disorder. She presented smart education interventions for kids with autism, with a focus on how intelligent technologies can be used to improve the social skills and quality of life of children with autism.

Mr. WANG Shenglong, Director of Educational Science Research Office, Jiangning District, Nanjing, China, gave a report titled Nurturing the Mind, Guiding the Heart: Sharing Work Experience in Mental Health Education from the Jiangning District of Nanjing. Mr. WANG briefed the audience on novel initiatives adopted by Jiangning District in mental health education, and stressed the important role of family-school-society collaboration in promoting student mental health.

Mr. FAN Lianwei, Deputy Chief Engineer of the Institute of Dataspace, Hefei Comprehensive

National Science Center, delivered a speech titled AI+: Helping Us Better Understand Children — Continuous Monitoring and Care for Adolescent Mental Health. He explained how AI technologies could be leveraged to realize continuous monitoring for adolescent mental health, and help parents and teachers better understand and care for kids.

Prof. FANG Haiguang from Capital Normal University, China, gave a speech titled Development and Practice of Curriculum Projects for Elite Youth Talent in Artificial Intelligence Education. He analyzed how the development and practice of AI courses could be used to develop the creativity and comprehensive quality of adolescents, and presented the specific achievements of and challenges facing AI curriculum development at the K12 stage of education.

Ms. ZHENG Lanqin, Associate Professor at Beijing Normal University, presented a report titled Collaborative Learning Empowering the Physical and Mental Development of Adolescents. She emphasized the importance of collaborative learning in improving adolescent mental health, and put forward ways to boost the emotional management and psychological resilience of adolescents through collaborative learning.

Ms. TAO Meiyu, Head of the Art Teaching and Research Group at Beijing Emerald City Primary School, gave a speech titled Digital Technology Expanding New Horizons in Aesthetic Education: A Study on the Application of Digital Aesthetic Education at Beijing Emerald City Primary School. She shared the effects of leveraging digital technology to improve aesthetic education, and adopting innovative practices in music, art, and other courses to help students better understand and experience art education.

Mr. HUANG Chao from Shuangliu Middle School delivered a speech titled Digital Empowerment in Middle School Mental Health Education: The Practice of Shuangliu Middle School. He described how Shuangliu Middle School enhanced the effectiveness of mental health education through digital platforms and smart campus development.

*The Forum on Mental & Physical Health Supporting Personal Development of Adolescents is co-hosted by the Faculty of Psychology at BNU, the Smart Learning Institute of BNU, and Jingshi Ruidao. For more information, the video is available at https://wx.vzan.com/live/page/2024108066

Key takeaways

- The application of digital technology facilitates the perception of students' physical and mental well-being, uncovering growth patterns that promote personalized development and holistic education. Personalized education aims to provide tailored guidance and opportunities, while mental health plays a pivotal role in enhancing students' resilience against learning pressures and challenges.

- Leveraging the latest digital technologies, including simulation algorithms and data mining, we will establish a data-driven research paradigm. This will deepen our understanding of student development patterns, uncover the root causes of emerging mental health issues among younger age groups, accurately identify trends in adolescent mental health status, and explore predictive and early warning mechanisms for timely intervention.

- Mental health efforts focus on fostering a supportive environment and enhancing resilience. For minors, emphasis lies not solely on strengthening individual resilience but on adults and educators improving their growth environments, rather than merely enhancing stress-coping abilities. College students require stronger resilience training, while primary and secondary students benefit more from optimized growth environments.

- Health literacy and civic health concepts can be integrated into youth learning curricula. Through universal learning pathways, execution mechanisms, and evaluations of learning materials, staffing, and funding, we aim to optimize resource allocation, fostering equitable and inclusive health policy application in education, facilitated by digital tools.

- Smart sports for adolescent physical and mental health necessitates collaborative efforts between families, schools, and communities. Leveraging school sports, competitions, community, and home-based exercise, we offer cross-domain, diverse sports engagement. Implementing full-cycle, omni-temporal smart services, personalized health assessments, and integrated guidance, innovative teaching, and scientific evaluation, integrating resources from all sectors.

Forum on Smart Reading

Reading is an important avenue for humans to acquire knowledge, expand wisdom and cultivate virtues. It enlightens us and helps us aim high and stand upright. Smart reading offers richer content, more convenient methods, and a more diverse reading environment, which helps to promote national reading and foster a nation of avid readers. Therefore, it is crucial for each of us to embrace reading with enthusiasm, dedication, and discrimination. Be a good reader, read good books, and be good at reading.

Photo of Forum on Smart Reading

SPEAKERS

Mr. WEI Yushan
Dean, Chinese Academy of Press and Publication

Mr. XI Chuan
Poet & Distinguished Professor at Beijing Normal University

Mr. XIONG Yuanming
Chairman, Library Society of China

Prof. XIE Youru
Vice Dean, School of Information Technology in Education, South China Normal University

Prof. BIAN Yufang
Director, Academic Committee of the Collaborative Innovation Center of Assessment for Basic Education Quality in China

Mr. FAN Rulai
Director, Department of Library and Reading at the National Resource Center for Basic Education

Prof. LI Hongyan
Member, Anchor Professional Committee of the China Television Artists Association

Mr. XU Shengguo
Director, Publishing Research Institute at the Chinese Academy of Press and Publication

Mr. XU Haifeng
President, Reading and Publishing Sub-branch, Foreign Language Teaching and Research Press

Mr. WANG Lin
Director, Children's Editorial Department, People's Education Press

Mr. LIANG Xuequan
Vice Chairman, School Book Equipment Branch, China Educational Equipment Industry Association

Prof. TAN Xudong
Doctoral Supervisor, School of Literature, Shanghai University, China

Ms. SONG Haiying
Deputy Director, Student Work Department, Soochow University, China

Ms. YANG Na
Principal, Yuxin Primary School in Yuhua District, Changsha, China

Ms. XUE Xiaoping
Dean, Yinling Academy

Mr. LU Yuan
Associate Senior Editor, Chinese Writers Magazine

WU Lingyu
Grade 5 Student, First Primary School of Ziyun Autonomous County

HAO Xinyue
Doctoral Student, Moscow State Pedagogical University

Ms. LI Xiaoxiao
Young Author, Critic

MODERATORS

Mr. CUI Haijiao
Vice Dean, Chinese Academy of Press and Publication

Prof. REN Mengshan
Dean, Graduate School, Communication University of China

Ms. LIAO Shuyuan
Director, Retail Department at the Newspaper and Periodicals Distribution Bureau of China Post Group Corporation Limited.

In his speech, **Mr. WEI Yushan**, Dean of the Chinese Academy of Press and Publication, outlined the government's strong commitment to national reading, which has now elevated to a national strategic level. This initiative has seen enhanced regulations, policy support, and financial backing, establishing a robust foundation for its continuous and comprehensive advancement. Since 2008, the Chinese Academy of Press and Publication has included digital reading in national surveys. The rate of digital reading has grown from a mere 24.5% in 2008 to over 80% today, signifying a major shift towards digital reading. He advocated for proactive engagement in reading to fully harness these advancements without becoming overly reliant on technology.

Mr. XI Chuan, poet and distinguished professor at Beijing Normal University, reflected on the transformative power of reading, whether purposeful or leisurely, in shaping worldviews. He expressed that "smart reading" differs from his understanding of "wisdom" and is instead related to the concept of smart. Although he is not an expert in this field, he believes that reading modes are being shaped by online reading, digital reading, and other forms, which in turn influence people's perceptions of the world and their modes of expression. He proposed that while reading purposes may vary, they all contribute to forming one's views on the world. Reading has the power to challenge inert thinking and open up a broader world.

Six experts shared their insights at the Keynote Speeches session**. Mr. XIONG Yuanming**, Former Director of the National Library of China and Chairman of the Library Society of China, stressed the pivotal role of libraries in national reading promotion and the essential trend towards smart libraries to support high-quality development.

Prof. XIE Youru, Vice Dean of the School of Information Technology in Education at South China Normal University and Deputy Director of the Educational Technology Center for Higher Education in Guangdong Province, discussed the application of smart reading in classrooms, from theoretical approaches to practical implementations, showcasing examples in deep, generative, and interdisciplinary reading.

Prof. BIAN Yufang from Beijing Normal University, Director of the Academic Committee of the Collaborative Innovation Center of Assessment for Basic Education Quality in China, suggested age-appropriate, cognitive, and social considerations in graded reading programs to optimize children's reading experiences and place them at the heart of their reading development.

Mr. FAN Rulai, Director of the Department of Library and Reading at the National Resource Center for Basic Education (National Center for Educational Technology) under the Ministry of Education, shared insights on the operational strategies of three significant smart reading platforms: the Chinese Language and Characters Digital Museum, the National Smart Education Platform for Reading, and the Primary and Secondary School Reading Service Platform.

Prof. LI Hongyan from the Broadcasting and Anchoring School at the Communication University of China and Member of the Anchor Professional Committee of the China Television Artists Association, noted that we are entering a novel environment. Emerging smart media technologies are creating new contexts for communication, reading, and technological platforms. It is vital to effectively communicate cultural values and ensure these communications aid in the dissemination and preservation of cultural heritage.

Mr. XU Shengguo, Director of the Publishing Research Institute at the Chinese Academy of Press and Publication and Director of the National Reading Research and Promotion Center, observed that while the methods of reading may evolve, the essence of reading persists. Reading fundamentally involves acquiring knowledge and wisdom, enhancing abilities, and improving one's life quality, spiritual depth, and overall well-being. In the digital age, effective reading is increasingly becoming a critical competitive skill for everyone Reading will become indispensable in everyone's life, fostering personal development and helping individuals achieve their fullest potential.

The Invited Speeches session discussed various topics including home-school reading, graded reading, smart reading, and mental growth during this session. The guests include:

- **Mr. XU Haifeng**, President of the Reading and Publishing Sub-branch at the Foreign Language Teaching and Research Press: The Press has built a reading empowerment system for homes and schools through the integration of paper and digital media, promoted reading with graded standards and abundant products, and addressed the pain points of

parents and teachers through online and offline services, enabling in-depth reading and growth. The reading services have contributed to the double-digit growth of the Press's reading business, bucking the trend of the declining book market, especially in children's books.

- **Mr. WANG Lin**, Director of the Children's Editorial Department at the People's Education Press: Emphasizing the significance of graded reading, Wang shared his experiences and the need for a standardized system to evaluate text difficulty. With computer science collaboration, his team developed a comprehensive approach, including a large corpus and advanced algorithms, to make reading more scientific and suitable for diverse students. Their tool can aid textbook compilation, test development, and guide publishers in accurately labeling reading materials.

- **Mr. LIANG Xuequan**, Vice Chairman of the School Book Equipment Branch of the China Educational Equipment Industry Association: As a seasoned reading promoter, he shared the advancements in whole-discipline graded reading, particularly the simplification of editing work after collaborating with Peking University Press. He emphasized the significance of intelligent reading and proposed promoting high-quality educational equity through professional recommended booklists, reading guidance, assessments, and effective home-school collaboration.

- **Prof. TAN Xudong**, Doctoral Supervisor at the School of Literature of Shanghai University: Advocates for high-quality children's reading to foster spiritual growth, emphasizing the importance of combining scientific and experiential reading. Proposes establishing a reading system that includes legislation, professional training, home-school-community collaboration, theoretical research, and AI technology application to comprehensively promote children's reading development.

- **Ms. SONG Haiying**, Deputy Director of the Student Work Department at Soochow University: Soochow University has established a scholarly campus by implementing a compulsory reading system, holding annual reading festivals, and launching reading initiatives. These efforts have significantly promoted comprehensive reading among students, enhanced their literacy, and fostered a new cultural trend on campus.

- **Ms. YANG Na**, Principal of Yuxin Primary School in Yuhua District, Changsha, Hunan Province: Yuxin Primary School has leveraged a digital reading platform to achieve intelligent, systematic, digital-intelligent, and contextualized reading, significantly enhancing students' reading literacy and fostering a strong home-school reading atmosphere. As a result, we have garnered numerous accolades. Looking ahead, we will continue to optimize our platform and strive towards building a digitally-enhanced, scholarly campus, always centered on our students and embracing the future.

Panel Discussion

Ms. LIAO Shuyuan, Director of the Retail Department at the Newspaper and Periodicals Distribution Bureau of China Post Group Corporation Limited, moderated the Reader Dialogue session. During this session, **Ms. XUE Xiaoping**, Dean of Yinling Academy; **Mr. LU Yuan**, Associate Senior Editor of Chinese Writers

Magazine; **WU Lingyu**, a Grade 5 student from Class 10 at the First Primary School of Ziyun Autonomous County, Anshun, Guizhou Province; **HAO Xinyue**, a doctoral student in education at Moscow State Pedagogical University; and young author and critic **Ms. LI Xiaoxiao** shared their favorite books and reading experiences.

Photo of Reader Dialogue

- **Ms. XUE Xiaoping**: with a dedication spanning two decades to promoting public reading, has underscored the profound role of ancient Chinese poetry in providing spiritual healing for the elderly. Through concrete examples, he illuminated how reading can serve as a pillar of strength amidst adversity, conveying the power and warmth inherent in the act of reading.

- **Mr. LU Yuan** shared his ardent love for reading and writing, asserting that reading has become an integral part of his lifestyle. He touched upon the tumultuous journey of writing, fraught with self-doubt and external skepticism, particularly highlighting the conflicts arising from parents' expectations versus the realities of one's career choices within the parent-child relationship. Despite these real-world challenges, he remains steadfast in his commitment to reading and writing, regarding them as the vessel that ferries him through life and the distant vistas that inspire him.

- **WU Lingyu** likened reading to an evergreen tree, one that enlightens and guides. From picture books to classic literature, books have accompanied her growth, broadening her horizons and fostering resilience and curiosity. Reading, she says, is the nourishment for her soul and a treasure trove of growth, promising to continue exploring the gateways of wisdom in the future.

- **HAO Xinyue** introduced the Russian-Chinese poet Bereleshen, whose itinerant life across multiple countries was marked by a profound love for Chinese culture. As a significant representative of Russian-Chinese literature, he translated works such as "Li Sao," and his poetry profoundly expressed his deep affection for China.

- **Ms. LI Xiaoxiao** discussed the value of literature in modern life, emphasizing its necessity as a source of nourishment. Literature, she argues, is not merely a lesson to be taught but a journey that requires one

to delve in and emerge from, confronting the contradictions of life and using literature as a voice for public affairs, standing against nihilism.

*The Forum on Smart Reading is orchestrated under the auspices of the Chinese Academy of Press and Publication and co-hosted by New Reading Magazine, the International Writing Center, and the Smart Learning Institute, both of Beijing Normal University. For more information, the video is available at **https://wx.vzan.com/live/page/570024207**

Key takeaways

- Books embody the essence of human civilization, and reading is a fundamental mode of learning and living. The evolution of new media technologies has transformed reading habits and practices. Smart reading enriches content, streamlines access, and diversifies reading spaces, fostering a culture of reading among all citizens.

- Smart libraries harness cutting-edge technologies to enhance management and service efficiency, enabling readers to access information seamlessly. This includes optimizing library operations, integrating big data management, and introducing smart devices to enhance both online and offline knowledge interaction, thereby enhancing spatial functionality and service experiences.

- High-quality smart reading classrooms are characterized by: robust value orientation, a focus on reading literacy, technological empowerment, and demonstrating high educational standards, efficiency, and stability.

- Digital platforms empower youth reading initiatives, enhancing both quantity and quality through technology. This fosters a love for reading, promotes quality literature, and cultivates good reading habits among adolescents, contributing to lifelong learning, learning societies, and a learning nation, underpinned by reading education and digital support.

- While digitalization underpins reading in primary and secondary education, the essence remains unchanged: the interaction between the reader and the text. Deeper interactions yield greater reading efficiency and depth. Digitalization and intelligence strengthen this interaction, enhancing students' engagement with recommended reading materials.

Forum on Digital Transformation of K-12 Education

This forum assembled a distinguished gathering of education officials, experts, scholars, and industry leaders to explore the myriad challenges and opportunities presented by digital transformation in K-12 education. Discussions focused on innovative teaching and learning models that integrate information technology, the evolution of future learning spaces and school structures, and solutions like cloud schools and smart campuses.

Group Photo of Guests from Forum on Digital Transformation of K-12 Education

SPEAKERS

Prof. CHEN Guangju
Former Vice President, Beijing Normal University, China

Mr. ZHAO Li
Deputy Director, Bureau of Education of Shenzhen Municipality

Mr. ZHANG Quan
Director, Department of Teaching and Equipment Informatization under the Department of Basic Education, Ministry of Education, P.R.China

H.E. Dr. Randa Ahmad Hafez Shaheen
First Undersecretary, Ministry of Education, Egypt

H.E. Mr. Susil Premajayanth
Minister of Education, Sri Lanka

Datuk Dr. Habibah Abdul Rahim
Director, SEAMEO Secretariat

Prof. YU Shengquan
Executive Director, Advanced Innovation Center for Future Education, Beijing Normal University, China

Mr. GONG Weidong
Principal, Shenzhen Welkin School, China

Ms. Kristina Ishmael
Founder, Ishmael Consulting and Former Deputy Director, Office of Educational Technology, U.S. Department of Education

MODERATORS

Ms. WANG Zhuzhu
Expert, Smart Education Demonstration Zone Project, Ministry of Education, P.R. China

Mr. FAN Yongquan
Head, Basic Education Division, Bureau of Education of Shenzhen Municipality, China

Prof. FENG Xiaoying
Beijing Normal University, China

Ms. ZHAO Yingping
Director of the Office, Shenzhen Welkin School, China

In his opening remarks, **Prof. CHEN Guangju**, former Vice President of Beijing Normal University, stressed the importance of navigating new technological trends and directions for school transformation in an era filled with both challenges and opportunities towards a leading country in education and the rejuvenation of the Chinese nation. He highlighted that digitalization is a pivotal force driving transformative changes and innovations across all facets of K-12 education, including teaching, management, and evaluation. He emphasized that modern school transformation is not just about technological upgrades but also involves a comprehensive shift in educational philosophies, teaching models, and administrative practices.

Mr. ZHAO Li, Deputy Director of the Bureau of Education of Shenzhen Municipality, in his speech, noted that Shenzhen is capitalizing on the historic opportunity to establish itself as a "Comprehensive Reform Experimental Zone for K-12 Education," a "Smart Education Demonstration Zone," and an "Experimental Zone for New Teaching and Learning Models Integrating Information Technology Based on Teaching Reform," with the aim to advance the in-depth application and demonstration of smart education in K-12 education. He detailed the city's commitment to spearheading the advanced implementation and innovative practices of digital strategies and digital transformation in education.

In his video address, **Mr. ZHANG Quan**, Director of the Department of Teaching and Equipment Informatization under the Department of Basic Education at the Ministry of Education, highlighted that China's K-12 education is advancing into a new era of high-quality development. He underscored the crucial need to embrace the vast opportunities offered by educational digitalization to promote extensive digital applications and transformations involving all factors, processes, services, and fields, thereby enabling China to lead the global educational digital transformation.

H.E. Mr. Susil Premajayanth, Minister of Education of the Democratic Socialist Republic of Sri Lanka, presented a keynote report titled *Digital Transformation in K-12 Education*. He outlined Sri Lanka's strategy for digitizing K-12 education, which includes adopting a smart education digital transformation strategy, implementing new reforms in educational institutions, and promoting digital platforms. He also discussed how national infrastructure reforms are bolstering their K-12 education system.

Datuk Dr. Habibah Abdul Rahim, Director of the Southeast Asian Ministers of Education Organization (SEAMEO) Secretariat, delivered a keynote report titled *Digital Transformation in K-12 Education: Understanding the Landscape of Education Technology in Southeast Asia*. She elaborated on SEAMEO's vision and core initiatives within the Southeast Asia region, stressing the importance of equity, appropriateness, and sustainability in the digital transformation process. She also highlighted how digital technology should enhance interaction and communication in education.

Prof. YU Shengquan, Executive Director of the Advanced Innovation Center for Future Education at Beijing Normal University, China, gave a keynote report titled *Innovation in Talent Development Models for the Smart Era*. He underscored that talent cultivation models in the smart era must evolve their goals through human-machine integrated and distributed educational intelligence. This evolution involves developing a multimodal, multi-scenario, and cross-domain curriculum system, implementing a data-driven developmental evaluation mechanism, and adopting an open, flexible, and adaptive school management system. He highlighted the necessity of creating a talent development model that effectively balances scalability with personalization.

H.E. Dr. Randa Ahmad Hafez Shaheen, First Undersecretary of the Ministry of Education, the Arab Republic of Egypt, delivered a keynote report titled *Digital Transformation in Education Towards an Innovative Educational Future in the Arab Republic of Egypt*. She emphasized the objective of digital transformation in education as enhancing students' analytical and critical thinking skills and improving the overall learning and teaching experience for all stakeholders, including students and educators. Additionally, Dr. Shaheen shared insights into Egypt's Vision 2030 and the significant strides made by the Egyptian Ministry of Education towards achieving digital transformation.

Mr. GONG Weidong, Principal of Shenzhen Welkin School, China, presented a keynote report titled *Shenzhen Welkin School Design Research Practice - The Road to Digital Transformation for the Future*. He discussed innovations achieved through design-based research practice at Welkin School, covering various aspects including school organization, teaching paradigms, teacher development, student learning methods, and educational supply.

Ms. Kristina Ishmael, Founder of Ishmael Consulting and Former Deputy Director of Office of Educational Technology, U.S. Department of Education, delivered a keynote report titled *AI Unleashed: Shaping the Future of Education*. She emphasized that the application of AI in education should prioritize students and teachers, ensuring they remain central throughout the decision-making process.

In the Invited Speeches session, the discussion encompassed regional educational digital transformation, the practice and experience for the new ecosystem of digital education, and the paths of reshaping smart campuses into future schools. The guests include:

- **Mr. ZHANG Yingxun**, Director of Karamay Education Bureau, Xinjiang Uygur Autonomous Region, China: Taking education and culture as its foundation, Karamay City has actively explored digital transformation, achieving remarkable results despite being in its infancy. Facing challenges, we rely on the guidance of education and culture to implement practices such as precision teaching and low-code development, thereby enhancing educational quality and management efficiency. We look forward to deepening cooperation and jointly promoting high-quality education development.

- **Mr. WANG Hao**, Deputy Director of the Education and Sports Bureau of Honggutan District, Nanchang City, China: Honggutan District leverages its VR industry strengths to advance the digital transformation of education, fostering a smart education model that achieves scientific management, personalized teaching, and holistic education, contributing to the high-quality development of regional education.

- **Ms. ZHANG Huimin**, Director of Shenzhen Education Information Technology Center, China: Shenzhen is actively constructing a digital education ecosystem, leveraging data-driven and human-machine collaborative education to address the challenges of digital transformation. This endeavor aims to promote high-quality development in basic education and explore new paradigms for future schools.

- **Mr. ZHANG Shaohua**, President of UNISEDU, China: As a technical solution provider for cloud-based schools, Ziguang Modu optimizes technology to reduce costs, enabling cross-temporal teaching, self-service teaching and research, academic performance tracking, and personalized tutoring. These efforts facilitate the replication and promotion of the cloud-based school model, empowering the future of education through technology.

- **Prof. CAO Peijie**, Deputy Director of the Institute of Digital Education at the China National Academy of Educational Sciences, shared their insights in terms of concepts and practices: Smart education will reshape the form of schools, transitioning from resource sharing to data-driven practices. Future schools will center around cloud education and practice fields, achieving high-quality educational transformation through spatial redesign, curriculum reconstruction, and learning reform.

Panel Discussion

In the Panel Discussion, guests engaged in a discussion on the “design-based research” methodology implemented at Welkin School. They delved into practical insights and evolving frameworks within the digital transformation of K-12 education, including:

Photo of Panel Discussion

- **Ms. ZHANG Lina** from Fenghuangcheng Experimental School in Guangming District, Shenzhen City, China: Leveraging cutting-edge technologies such as AI, Welkin School has achieved cross-school connectivity and transformed teaching models, benefiting the children of migrant workers. Its personalized learning model fosters students' self-confidence and growth. The teacher community model accelerates teachers' professional development and enhances their expertise, fostering a robust research atmosphere within the school and earning numerous accolades for its teachers.

- **Mr. TANG Xingchu**, Chief Consultant at Shenzhen Welkin School, China: Welkin School emphasizes tapping into local resources to avoid replicating models; the "big student circle" encourages student autonomy; and limiting daily cloud classes to no more than three sessions prevents burnout. The Smart Learning Companion facilitates review and sharing, fostering a networked learning community. The "Three-Together Model" (co-training, co-research, and co-teaching) integrates educational resources, with master teachers and instructional researchers collaborating on lesson planning, enhancing teachers' digital literacy and optimizing teaching.

- **Mr. ZHANG Yueying**, a member of the Technical Teaching Guidance Professional Committee of the Basic Education Steering Committee of China's Ministry of Education: Welkin School addresses educational pain points through technology, achieving resource equalization and empowering basic education. Its model positively impacts young teacher training and student learning, providing a definitive path for basic education amidst uncertain societal landscapes. Technology empowers teaching, enhances lesson preparation efficiency, and promotes innovative classroom practices, making it worthy of emulation and promotion.

- **Mr. SHANG Junjie**, Tenured Associate Professor and Executive Director of the

- Graduate School of Education at Peking University, China: Welkin School leverages information technology to promote educational equity and innovation, enabling multi-teacher collaboration in research and teaching, and facilitating cross-school student grouping. He suggested clarifying future goals, exploring diverse Cloud School models, and encouraging research into the effectiveness of cloud education, thereby supporting practical implementation with theoretical foundations.

Signing Ceremony

During the signing ceremony, Shenzhen Welkin School and the Education Bureau of Kashgar City, Xinjiang, formalized a memorandum of cooperation. Additionally, Shenzhen Welkin School and the National Engineering Research Center of Cyberlearning and Intelligent Technology entered into agreements with the Education Bureaus of Bayingol Mongolian Autonomous Prefecture, Karamay City, and Urumqi County, as well as the Education, Science and Technology Bureau of Hoboksar Mongolian Autonomous County. The goal of these partnerships is to harness each entity's strengths to continually develop innovative and leading educational models akin to those at Welkin School. The cooperation aims to advance the application of next-generation information technologies in cloud classrooms, remote teaching, and AI-assisted education, and to establish benchmark demonstrations and constructions. These efforts are expected to inject new momentum into and create new pathways for high-quality development in China's K-12 education sector.

Photos of Signing Ceremony

*The Forum on Digital Transformation of K-12 Education is co-hosted by the National Engineering Research Center of Cyberlearning and Intelligent Technology, the Bureau of Education of Shenzhen Municipality, the Southeast Asian Ministers of Education Organization (SEAMEO), and the Advanced Innovation Center for Future Education at Beijing Normal University, with additional support from Shenzhen Welkin School, UNISEDU, and NetDragon Websoft Inc. For more information, the video is available at **https://wx.vzan.com/live/page/1915999139**

Key takeaways

- We necessitate a practice-oriented approach to future-facing school transformation, encompassing not merely technological upgrades but a comprehensive shift in educational philosophy, teaching methodologies, and school management. This transformation aims to achieve more efficient, precise, and humanized administration. We must explore schools of the future that transcend mere knowledge transmission, prioritizing efficient allocation of educational resources, fostering personalized learning and independent inquiry, and emphasizing the cultivation of core competencies and comprehensive abilities to meet the evolving needs of students in the new era, empowering them with skills for societal adaptation and lifelong learning.

- To achieve equitable and inclusive education, digital technology serves as a vital tool. Its interconnected, timely, efficient, and dynamically shared nature rapidly aggregates dispersed high-quality resources, transcending temporal and spatial barriers to disseminate and share knowledge across schools, regions, and nations. This ensures equal access to educational resources for individuals from diverse backgrounds.

- The digital transformation of education involves leveraging modern technology and solutions in the educational process, enhancing the learning and teaching experiences of all stakeholders, including students and teachers. It fosters a better work environment, simplifies communication, and facilitates collaboration between teachers and students, thereby optimizing internal management processes.

- Artificial intelligence (AI) technology poses multifaceted risks, infiltrating areas such as analysis, judgment, reasoning, and emotional expression, potentially influencing individual perspectives and choices. While facilitating content generation, it can also breed mental laziness and weaken independent thinking. Recommendation algorithms, based on user preferences, create "filter bubbles" that exacerbate information isolation and cognitive disparities.

- The intelligent era demands not specialists in a single field but interdisciplinary talents with a blend of multiple skills. Education must emphasize cultivating cross-disciplinary problem-solving abilities, advocating for holistic consideration, multidimensional analysis, and systematic resolution of issues. Students should be encouraged to transcend disciplinary boundaries, adopting a comprehensive mindset to comprehend problems, integrating tools and methodologies from various disciplines to analyze them, and fusing knowledge and skills from diverse fields to create holistic, innovative solutions.

Forum on Smart Learning Environments and Digital Infrastructure

Smart campus is the representative of smart learning environments, while intelligent educational equipment is foundational to modern teaching. They directly influence the educational process, playing a crucial role in deepening curriculum reform, improving education quality, and fostering students' core competencies and innovative abilities. Experts, scholars, and industry leaders from around the world gathered to explore new concepts and solutions for smart schools and intelligent educational equipment, contributing to education transformation and data governance with their expertise.

Photo of Forum on Smart Learning Environments and Digital Infrastructure

SPEAKERS

Mr. ZENG Dehua
Deputy Director, Education Management Information Center, Ministry of Education, P.R.China

Mr. LI Ying
Secretary General, CEEIA

Mr. Cosmas Zavazava
Chief of Department, ITU

Prof. YU Junqing
Vice President, Huazhong University of Science and Technology

Mr. Daniel Lai
Programme Director, CoolThink@Jockey Club

Prof. Ahmed Ansary
Founder President & Group Managing Director, Asia e-Learning Pvt Ltd.

Prof. HU Xiang'en
Director, Institute for Higher Education Research and Development, The Hong Kong Polytechnic University

Ms. LIU Qiang
Secretary-General, National Technical Committee for Standardization of Educational Equipment, China

Dr. Pavan Duggal
Chairman, International Commission on Cyber Security Law

Prof. LI Yanyan
Beijing Normal University, China

Prof. PANG Mingyong
Nanjing Normal University, China

Prof. WU Zhuang
Director, Beijing Digital Education Center

Mr. ZHANG Xiaoping
Director, Information Office of Tsinghua University, China

Mr. WU Jiaoyu
President, Guangdong Polytechnic, China

Mr. CHEN Hong
Senior Vice President & Chief Technology Officer, NetDragon Websoft Inc.

Mr. LI Ziming
Director, Education and Sports Bureau of Nancheng County, Fuzhou, China

Mr. LI Feng
Director, Operation and Maintenance Center, Sichuan Provincial Education Informationization and Big Data Center

Mr. LI Bin
Principal, Chongguang Primary School, Chongqing, China

Mr. RUAN Jipeng
Chief Executive Officer, Kingsha, China

MODERATORS

Ms. Seng Sineth
Deputy Director, Information Technology Department of the Ministry of Education, Youth, and Sports of Cambodia

Mr. SUN Qiurui
Vice Director, Center of Information & Network Technology, Beijing Normal University, China

In the opening remarks, **Mr. ZENG Dehua**, Deputy Director of the Education Management Information Center of the Ministry of Education, emphasized our shared mission to promote educational digitalization and transformation. He suggested we leverage the opportunities for digital transformation of education to provide better digital experiences for teachers and students. Additionally, he called for further promoting the sharing and exchange of high-quality public teaching resources in digital education, using digital means to achieve equity in basic education, practical training in vocational education, and technological innovation in higher education at national and international levels.

Mr. LI Ying, Secretary General of CEEIA, noted in his speech that the rapid development of technologies such as AI, big data, and large models boosts the widespread application of intelligent educational equipment and the rapid construction of smart schools. It will drive educational reform worldwide and create a more equitable, inclusive, and quality education environment. He stressed that educational equipment is necessary for sparking educational innovation and driving systemic change in the digital era. It follows national educational policies and provides crucial support to moral education, digital transformation of education, and the quality of talent cultivation.

Mr. Cosmas Zavazava, Chief of Department, International Telecommunication Union (ITU), delivered a video speech, highlighting the importance of achieving universal, affordable, and meaningful connectivity. He introduced the efforts of the International Telecommunication Union in promoting infrastructure development and bridging the digital divide.

Prof. YU Junqing, Vice President of Huazhong University of Science and Technology, presented a keynote speech titled Strategic Reflections on the Digital Transformation of Higher Education. He emphasized the current lack of a high-quality information ecosystem and advanced teaching methods in the education system and advocated for the construction of a learner-centered teaching model and personalized education with information technology. He also proposed that digital transformation should focus on management service levels, informed decision-making, and the development of disciplines. Through deeper integration of information technology with education and teaching across all dimensions, processes, elements, and chains, significant improvements in education quality can be achieved. To reach this goal, he emphasized the construction of a simplified and reasonably loaded information system to allow teachers and students to focus on teaching and learning.

Mr. Daniel Lai, Programme Director, CoolThink@Jockey Club, Hong Kong, China, delivered a keynote speech titled Inspiring Digital Creativity – A Computational Thinking Education for Primary Students in Hong Kong. He introduced the successful implementation of the CoolThink@Jockey Club's computational thinking education initiative. Through innovative teaching methods and infrastructure, students' digital skills and autonomous learning abilities were greatly improved, demonstrating the significance of educational innovation in cultivating future talents.

Prof. Ahmed Ansary, Founder President and the Group Managing Director of Asia e-Learning Pvt Ltd., presented a keynote speech titled Smart Learning and Infrastructure. He shared the smart learning framework, emphasizing a student-centered approach that integrates AI, VR, and other technologies. The frame will promote inclusive, flexible, and personalized educational development. He also forecasted future trends in intelligent education and pointed out the challenges of cost, skills, and legal frameworks.

Prof. HU Xiang'en, Director of the Institute for Higher Education Research and Development of The Hong Kong Polytechnic University, delivered a keynote speech titled LLM and CBITS: Applications and Prospects. Prof. HU advocated for smart education to promote deep thinking and innovation among students. He provided an in-depth analysis of large language models and intelligent tutoring systems, emphasizing the core role of dialogue in teaching, and envisioning a bright future for AI-assisted education. He also cautioned against the risks of the misuse of technology.

Ms. LIU Qiang, Secretary-General of the National Technical Committee for Standardization of Educational Equipment, China, presented a keynote speech titled Digital Transformation of Education and Innovation in Educational Equipment. She stated that the digital transformation of education is imperative, with innovation in smart educational equipment being

the key. By optimizing the educational environment with new technologies such as AI, future education should focus on cultivating students' core competencies and enhancing their all-round development and innovation capabilities.

Dr. Pavan Duggal, Chairman of the International Commission on Cyber Security Law, shared his insights via video. He emphasized the need to leverage the positive aspects of AI in smart education and internet information security within the education system. At the end of the video speech, he called for all parties to participate in the transformation of the education ecosystem to ensure the security of the education system and ecosystem.

Prof. LI Yanyan of the Faculty of Education of Beijing Normal University and **Prof. PANG Mingyong**, Faculty of Education Science, Nanjing Normal University released the Large-Scale Smart Classroom Monitoring Platform & Comprehensive Three-Dimensional Teaching Field Construction Guide. This Guide, a phased research outcome of the Ministry of Science and Technology's next-generation AI major technology project, brought together the research and development strengths of Tsinghua University, Zhejiang University, Beihang University, and relevant enterprises. It aims to create a large-scale application demonstration of AI-assisted education and teaching for the future. The large-scale smart classroom monitoring platform connects data across different learningenvironments, such as schools, homes, and science and technology museums. The integrated teaching spaces focus on the future educational needs for "intelligent connectivity," aiming to coordinate the unified data, computing, control, collaboration, and interaction for integrated teaching spaces. It provides standards and guidance for the smart upgrading and tiered evaluation of teaching environments. This outcome is expected to benefit one million students and 20,000 teachers nationwide.

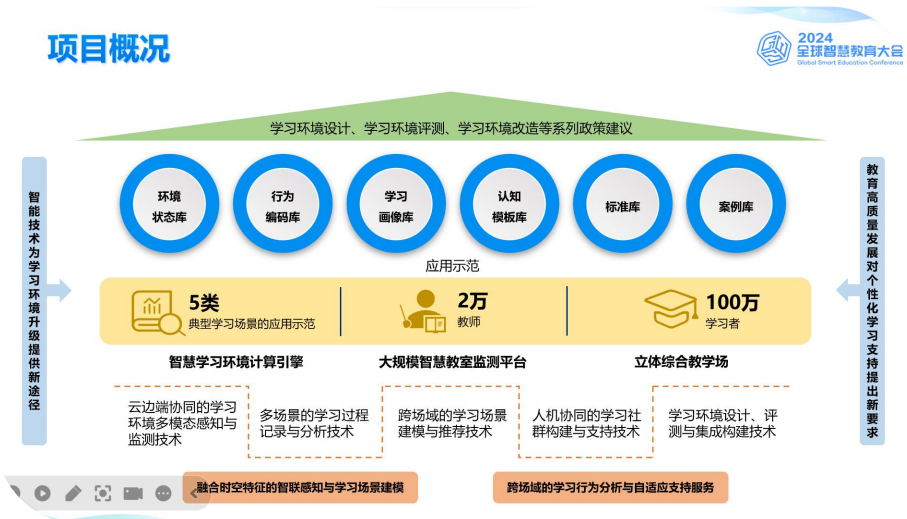


Photo of Large-Scale Smart Classroom Monitoring Platform

Prof. WU Zhuang, Director of the Beijing Digital Education Center; **Mr. ZHANG Xiaoping**, Director of the Information Office of Tsinghua University; **Mr. WU Jiaoyu**, President of Guangdong Polytechnic; **Mr. CHEN Hong**, Senior Vice President and Chief Technology Officer of NetDragon Websoft Inc.; **Mr. LI Ziming**, Director of the Education and Sports Bureau of Nancheng County, Fuzhou, Jiangxi Province; **Mr. LI Feng**, Director of the Operation and Maintenance Center of the Sichuan Provincial Education Informationization and Big Data Center**; Mr. LI Bin**, Principal of Chongguang Primary School in Liangjiang New Area, Chongqing; and **Mr. RUAN Jipeng**, Chief Executive Officer of Kingsha, China shared their practical experiences from different perspectives on the standards and application schemes of smart school construction, intelligent educational equipment and technology solutions, intelligent education product evaluation, the construction and application of smart learning environments, and educational big data centers and school management platforms. These insights set the direction for transforming educational environments.

Following the keynote speech, Kingsha, China signed cooperation agreements with three companies on-site, looking forward to bringing more efficient, convenient, and personalized smart experiences to global learners in the future.

Photos of Signing Ceremony

*The Forum on Smart Learning Environments and Digital Infrastructure is guided by the China Educational Equipment Industry Association (CEEIA), hosted by the Center of Information & Network Technology, Beijing Normal University, and National Engineering Research Center of Cyberlearning and Intelligent Technology, and co-organized by Kingsha , China and NetDragon Websoft Inc. For more information, the video is available at **https://wx.vzan.com/live/page/170184442**

Key takeaways

- Amidst the rapid advancements in AI, big data, and large models, the widespread adoption of smart educational equipment and the swift construction of smart campuses will significantly propel educational reforms globally, fostering more equitable, inclusive, and high-quality educational environments. Educational equipment serves as a necessary condition for spurring educational innovation and driving systemic change in the digital era.

- In the digital transformation of education, given humans' reliance on sensory input to construct cognition, technology and smart devices become crucial when sensory access is limited. Educational scenarios should integrate light, sound, and temperature sensors, as well as aerospace and deep-sea exploration technologies, to enrich teaching resources and broaden students' cognitive horizons. The construction of smart classrooms, laboratories, libraries, and entire smart campuses necessitates the deep application of these technologies and equipment, aiming to elevate educational quality and propel human cognitive capabilities.

- In the interconnected education era, device security is paramount. As education shifts towards smart platforms and mobile devices, schools and educational institutions must prioritize cyber risks associated with these devices. Besides enhancing protection measures, they should also establish a smart digital teaching ecosystem, optimize teaching methodologies around devices, and strengthen cybersecurity systems. Uniform device security standards and enhanced self-protection capabilities among teachers and students ensure stable operation of educational devices, safeguarding the digital transformation of education.

- Among smart educational equipment, smart classrooms are the most frequently utilized in smart campuses. They provide comprehensive technical support for teaching, offering interactive feedback, high-definition recording and broadcasting, catering to both teaching and learning needs while supporting remote learning and home-school interaction.

- It is recommended that the construction of educational informatization adhere to a three-tier architecture: the infrastructure layer should comply with national standards, encompassing physical systems, sensors, networks, storage, and other devices; the system service layer focuses on software control for localized infrastructure management; and the data interface layer unifies interfaces to facilitate platform integration. Based on the current teaching environment, a three-level plan (basic, extended, and advanced) should be implemented, gradually enhancing interconnectivity, intelligent computing, and future adaptability.

Forum on AI for Comprehensive Assessment and Evaluation

This forum is a dedicated event organized by the GSE Conference as a pilot project for the Ministry of Education, P.R.China. The Ministry has initiated a pilot program on information technology-supported comprehensive quality evaluation of students since 2022, jointly supported and promoted by the Department of Science, Technology, and Informatization, and the Department of Basic Education. This pilot program has been underway for over two years and is about to enter its third year. Over the past two years, the pilot has progressed smoothly, and today, representatives from most of the pilot regions are here to participate in this forum. Therefore, our forum today serves as a platform for exchanging insights, a phased summary of our preliminary pilot work, and a joint planning and deployment for the next stage of the pilot.

Photo of Forum on AI for Comprehensive Assessment and Evaluation

SPEAKERS

Ms. SHU Hua
Deputy Director, Department of Science, Technology and Informatization, Ministry of Education, P.R.China

Prof. CHEN Li
Beijing Normal University, China

Prof. LIU Zhijun
Henan University of Technology , China

Prof. ZHENG Qinhua
Beijing Normal University, China

Mr. DONG Cheng
Deputy Director, Education Department of Heilongjiang Province

Mr. NIE Tingfang
Deputy Director, Bureau of Education of Changsha, Hunan Province

Mr. SHEN Jian
Director, Suzhou Industrial Park Education Bureau, Jiangsu Province

Ms. YANG Jun
Director, Nanshan District Education Bureau, Shenzhen, Guangdong Province

Mr. ZHONG Wenchuan
Director, Nanhai District Education Bureau, Foshan, Guangdong Province

Mr. MING Jianping
Director, Heping District Education Bureau, Tianjin

Mr. ZHANG Xuezheng
Deputy Director, Xigong District Education Bureau, Luoyang, Henan Province

Mr. ZHANG Youcai
Dean, Jinniu District Institute of Educational Science Research, Chengdu, Sichuan Province

Mr. CHEN Rongxian
Deputy Director, Ziyun Miao and Buyei Autonomous County, Anshun, Guizhou Province

Mr. TANG Chao
Director, Laoshan District Education and Sports Bureau, Qingdao, Shandong Province

Prof. LI Shuang
Beijing Normal University, China

MODERATORS

Prof. CHEN Li
Beijing Normal University, China

Prof. LI Shuang
Beijing Normal University, China

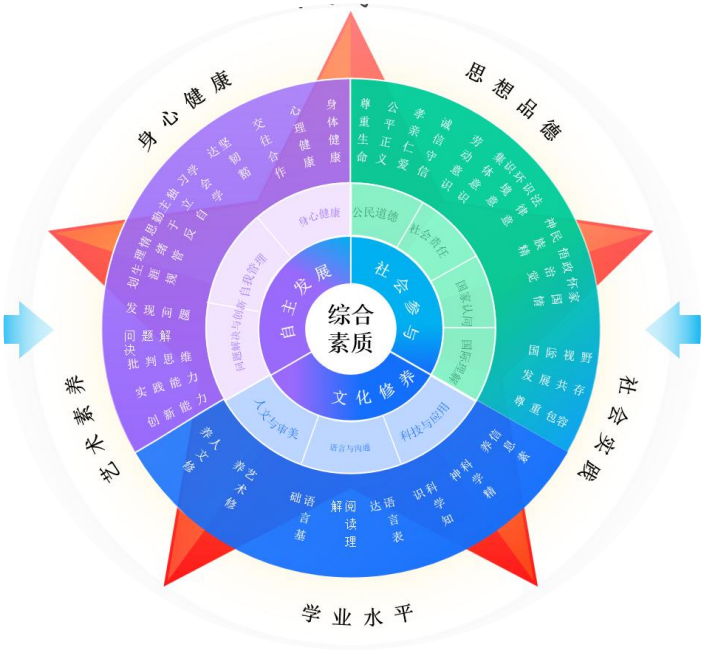
Enhancing Diagnosis-Oriented Comprehensive Quality Assessment Reform and Innovation Supported by Artificial Intelligence Technology

Ms. SHU Hua, Deputy Director of the Department of Science, Technology and Informatization at the Ministry of Education attended the conference and delivered a speech. Deputy Director Shu underscored the vital role of educational assessment reforms in national development, talent cultivation, and education quality enhancement. She highlighted the transformative impact of integrating advanced technologies such as AI into the education assessment frameworks, steering them towards a more scientific, professional, and objective orientation. Over the past two years, the Ministry of Education's pilot project "Student Comprehensive Quality Assessment Supported by Information Technology" has pioneered a theoretical model for comprehensive quality assessments, crafted a diagnostic-focused performance assessment technical system, amassed extensive data on student development, and produced four levels of evaluative feedback reports, all of which have received wide recognition. These achievements have solidified the groundwork for boosting regional innovative assessment capacities and furthering educational reform. Looking forward, there is a pressing need to deepen the commitment to core educational values, refine assessment models, foster localized innovations, and prioritize data security and ethical considerations to ensure that reforms advance in the right direction and contribute robustly to the development of a leading education system.

Prof. CHEN Li from Beijing Normal University, who leads the expert group on the pilot project of "Student Comprehensive Quality Assessment Supported by Information Technology", provided a detailed overview of the initiative's significance, innovative approaches, and current achievements. She also outlined potential future directions for the project.

In the keynote address titled Student Comprehensive Quality Assessment: Development History and Future Directions, **Prof. LIU Zhijun** from Henan University of Technology explored the evolution of comprehensive quality evaluations, current challenges, and prospective trends. He advocated for a clearer distinction between education-driven and selection-oriented assessments moving forward and called for an enriched comprehensive quality assessment framework centered on core competencies. Professor Liu also encouraged the proactive integration of digital and intelligent technologies to ensure the effective application of comprehensive quality assessments in educational settings.

Prof. ZHENG Qinhua of Beijing Normal University gave a keynote report titled Diagnosis-Oriented Comprehensive Quality Assessment Supported by Intelligent Technology. He emphasized the importance of horizontal diagnostic assessments for effectively selecting and nurturing talent through comprehensive quality assessment. Supported by intelligent technology, diagnosis-oriented comprehensive quality assessments have seen significant progress in developing theoretical frameworks, refining assessment methodologies, and enhancing feedback mechanisms. Looking ahead, the goal is to collaborate with various regions to expand the impact of intelligent performance-based assessments, integrate the Student Evaluation Enhancing Development (SEED) system with regional educational assessment frameworks more deeply, explore mechanisms for identifying and nurturing top innovative talents, promote the scientific development of regional education, and advance the digital transformation of comprehensive quality assessment.



Comprehensive quality refers to the cross-disciplinary values, essential character traits, and key abilities that students develop during the process of education.

Mr. DONG Cheng, Deputy Director of the Education Department of Heilongjiang Province; **Mr. NIE Tingfang**, Deputy Director of the Bureau of Education of Changsha, Hunan Province; **Mr. SHEN Jian**, Director of the Suzhou Industrial Park Education Bureau, Jiangsu Province; **Ms. YANG Jun**, Director of the Nanshan District Education Bureau, Shenzhen, Guangdong Province; **Mr. ZHONG Wenchuan**, Director of the Nanhai District Education Bureau, Foshan, Guangdong Province; **Mr. MING Jianping**, Director of the Heping District Education Bureau, Tianjin; **Mr. ZHANG Xuezheng**, Deputy Director of the Xigong District Education Bureau, Luoyang, Henan Province; **Mr. ZHANG Youcai**, Dean of the Jinniu District Institute of Educational Science Research, Chengdu, Sichuan Province; **Mr. CHEN Rongxian**, Deputy Director of the Ziyun Miao and Buyei Autonomous County, Anshun, Guizhou Province; and **Mr. TANG Chao**, Director of the Laoshan District Education and Sports Bureau, Qingdao, Shandong Province, shared insights into their regional innovations in employing technology for educational assessment reform. They detailed their successful efforts in integrating regional process evaluations with diagnostic results from the SEED platform, merging regional educational data systems with the SEED data systems, and deploying strategies to effectively allocate educational resources and optimize teaching practices based on insights from SEED reports.

In the closing remarks, **Prof. LI Shuang** from Beijing Normal University reiterated the pivotal role of artificial intelligence in advancing educational assessment reform. She expressed anticipation for the innovative assessment solutions powered by technology from all regions and extended her gratitude to all participants for their passionate contributions and engagement.

Based on assessment data, feedback reports are generated at four levels: regional, school, class, and individual.
The comprehensive development evaluation report for a region (or school) measures the level of development within a group.

*The Forum on AI for Comprehensive Assessment and Evaluation is co-hosted by the National Engineering Research Center of Cyberlearning and Intelligent Technology and the Research Institute of K-12 Educational Big Data Application at Beijing Normal University. For more information, the video is available at**https://wx.vzan.com/live/page/916652619**

Key takeaways

- Empowering Educational Evaluation Reform with Digitization: By leveraging digital technologies to enhance the professionalism, scientific rigor, and objectivity of evaluation reforms, we can more accurately pinpoint educational needs, optimize the allocation of educational resources, and thus nurture more top-tier innovative talents who align with the demands of the era. This, in turn, provides human capital and intellectual support for national economic and social development.

- Advocating for a Digital-Driven, Diversified Evaluation System: It is recommended to drive educational evaluation innovation through digitization, abandoning the sole reliance on grades and constructing a diversified evaluation system that comprehensively assesses students' innovation, practical abilities, teamwork, and other comprehensive qualities. This system aims to stimulate students' potential and interests, promoting their individualized growth and holistic development, ultimately achieving fairness and efficiency in educational evaluation.

- Addressing Challenges in Digital and Intelligence-Enabled Comprehensive Evaluation: While digital and intelligence empowerment offers advantages in comprehensive quality evaluation, it is crucial to prioritize data security, privacy protection, and vigilance against technological biases and limitations. Avoiding technological dependency and focusing on students' actual performance and developmental needs is essential. Different algorithms embody distinct value judgments; hence, leveraging digital and intelligence capabilities is a pivotal means to tackle current evaluation challenges.

- Ensuring Fairness and Objectivity in Comprehensive Evaluation: The fairness of students' comprehensive quality evaluation, the authenticity of digital evaluation data, the diversity of application tools, the intelligence of data tools, and the transparency of evaluation processes all contribute to the objectivity and impartiality of the evaluation. This, in turn, reinforces the motivating role of evaluation in students' development.

- Upgrading Smart Evaluation Technology and Optimizing Strategies: It is advisable to upgrade smart evaluation technologies and optimize implementation plans. Under the guidance of the Ministry of Education, introduce performance-based evaluations to enhance accuracy. Strengthen multi-dimensional, multi-context data collection for continuous record-keeping. Select key data, standardize the processing of heterogeneous information, and achieve efficient data integration, thereby facilitating precise and efficient comprehensive quality evaluation.

Forum on Digitalization for Regional Educational Development

The forum brought together university representatives, regional bureau directors, tech company representatives, experts, scholars, and industry elites from home and abroad to discuss topics such as integrated, intelligent, and international development pathways for regional education, digital governance models for regional education, and innovative practices in the digital transformation of regional education.

Group Photo of Guests from Forum on Digitalization for Regional Educational Development

SPEAKERS

Mr. YANG Yinfu
Vice President & Secretary General, Chinese Society of Education

Datuk Dr. Habibah Abdul Rahim
Director, SEAMEO Secretariat

Mr. Svein Oesttveit
A.I. Director, UNESCO

Dr. YE Zhenzhen
Chairman, People's Daily Online, China

Ms. Nikole Canatella Blanchard
Co-President of the Board of Directors, ISTE

Mr. HU Weifeng
Level I Bureau Rank Official, Sichuan Provincial Department of Education, China

Prof. GU Xiaoqing
East China Normal University, China

Mr. WANG Dong
Deputy Director, Chongqing Smart Education Innovation Center, China

Prof. ZHANG Qi
Huaibei Normal University, China

Ms. XIONG Qiuju
Director, Changning District Education Bureau, Shanghai, China

Mr. XIAO Fangming
Director, Yuzhong District Education Commission, Chongqing, China

Ms. MENG Ying
Director, Longhua District Education Bureau, Shenzhen, China

Mr. YANG Linfeng
Chairman, Board of Onion Academy, China

Mr. WANG Benbin
Chief County-Level Inspector, Education Supervision Office, People's Government of Zunyi City, Guizhou Province, China

Mr. ZHENG Minfeng
Chief Expert, Hailiang Technology Group, China

Ms. HUANG Xi
Deputy Director, Shuangliu District Education Bureau, Chengdu, China

Ms. GAO Shuyin
Deputy Director, Center for Educational Technology and Informatization Research, Tianjin Academy of Educational Science, China

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MODERATORS

Prof. WU Fati
Beijing Normal University, China,

Ms. HUANG Lulu
Editor, Special Issue on Informatization and Smart Education, China Education Daily

In his remarks, **Mr. YANG Yinfu**, Vice President and Secretary General of the Chinese Society of Education, emphasized the importance of education digitalization in building a leading country in education and reviewed China's remarkable achievements in education digitalization. He stated that with the progress of information technology, China's education is transitioning from the philosophy of "Connection, Content, and Cooperation" to an "3I" approach of "Integration, Intelligence, and Internationalization", which highlights application-oriented services, expands the sharing of quality resources, promotes educational reform and innovation, and moves towards smart education. He believed that regional education is vital, requiring collaborative efforts, innovative models, and enhanced digital literacy. This forum showcases China's and international experiences in digital education, fostering new momentum for educationally strong nation building. The Chinese Society of Education is committed to exploring new ideas and models for regional education digitalization.

Datuk Dr. Habibah Abdul Rahim, Director of the Southeast Asian Ministers of Education Organization (SEAMEO) Secretariat, emphasized that the integration of technology and education presents new opportunities, particularly in Southeast Asia and China, where the convergence of tradition and innovation brings forth new possibilities. The fusion of education and technology has the potential to transform educational systems, fostering regional growth and global competitiveness. It is imperative to have a clear understanding of the impact of digitization on education, adopting a comprehensive approach that takes into account regional contexts. She also noted the crucial role of international cooperation in promoting regional educational development and emphasized the importance of balancing local demands with global standards, meeting students' diverse needs through technology-education integration, improving digital governance to increase transparency and accountability in education systems, and addressing the digital divide to promote educational fairness.

During the Keynote Speeches, **Mr. Svein Oesttveit**, A.I. Director of UNESCO International Bureau of Education (UNESCO IBE), presented a keynote speech titled *Empowering Educators in the Digital Age: A Vision for Teacher Education and Digital Literacy*. He underscored the importance of the digital transformation of education and advocated for smart education and attention to teachers' digital literacy and professional development. He shared the successful experiences of various countries in improving digital literacy and called for cooperation between policymakers and stakeholders to ensure educational fairness and inclusiveness, improve teaching practice and student performance with technology, and create a better future.

Dr. YE Zhenzhen, Chairman of People's Daily Online, China, and Director of the National Key Laboratory for Media Content Cognition, China, delivered a keynote speech titled Educational Reform and Innovation in the Age of Intelligent Internet. He stated that education is media in a deep sense, while media is education in a broad sense. He noted that People's Daily Online takes education as part of its work and is committed to promoting educational progress through spiritual education, digital education, and a diversified curriculum system built with AI technology, and proposed a five-value framework of ethical, emotional, cultural, social, and technological values.

In her keynote speech titled *Charting a Path: A Roadmap for Lifelong Learning*, **Ms. Nikole Canatella Blanchard**, Co-President of the Board of Directors, International Society for Technology in Education (ISTE), emphasized the importance of lifelong learning, advocated for the use of technology as a tool to promote educational progress and personal ability improvement, and recommended corresponding resource platforms. She stated that educators should utilize existing platforms and resources to keep improving their abilities and student experiences.

In his keynote speech titled *Leading Regional Education Digitalization Development through Exploration and Practice in Smart Education,* **Mr. HU Weifeng**, Level I Bureau Rank Official of the Sichuan Provincial Department of Education, China, presented the exploration and practices of various cities and districts in Sichuan Province, China, in advancing education digitalization and achieving quality and balanced regional educational development, and emphasized the role of smart education demonstration zone construction in promoting educational resource sharing and innovation and improving Sichuan Province's education quality.

In her keynote speech titled *School Solutions for Digital Transformation*, **Prof. GU Xiaoqing**, Director of the Department of Education Information Technology, East China Normal University, China, elaborated on the journey and challenges of digital transformation of education, emphasized the importance of establishing data foundations, mining data value, and developing data literacy, showed the potential of intelligent personalized learning, and called on researchers, education authorities, and enterprises to jointly promote the digitalization of education.

Mr. WANG Dong, Deputy Director of the Chongqing Smart Education Innovation Center, China, delivered a keynote speech titled *TAC Digital Education New Momentum Powered by New Quality Educational Productive Forces*. He

introduced the "644" ecosystem formed in the digital education of Liangjiang New Area and the practical experience thereof in promoting the digital transformation of education through the "TAC" model, and emphasized the key roles of precision operation, high efficiency, and crossover collaboration in driving new momentum for education.

During the Invited Speeches, **Ms. XIONG Qiuju**, Director of the Changning District Education Bureau, Shanghai, China, presented a speech titled *Charting a New Path: District-Wide Promotion of Education Digital Transformation*. She shared how Changning District has broken the previous education model with the school as the unit through data connectivity and standardization, to promote rational allocation of educational resources within the district and cross-school collaboration for teachers' career development.

She mentioned that Changning District has achieved personalized learning and comprehensive literacy improvement for students through digital technology, which strongly supports the district's high-quality educational development and the fundamental task of moral education.

Mr. XIAO Fangming, Director of the Yuzhong District Education Commission, Chongqing, China, delivered a speech titled *Building a Regional Digital New Ecosystem to Empower High-Quality Educational Development in Yuzhong District*. He mentioned that adhering to the concept of "Quality Education in Cultural Yuzhong," Yuzhong District has created a "Yuzhong Model" that comprehensively enhances education quality through five actions of creating a smart environment, improving digital literacy, empowering in classroom, innovating resources, and optimizing governance.

Ms. MENG Ying, Director of the Longhua District Education Bureau, Shenzhen, China, presented a speech titled *Basic Education in the Age of Intelligence: Building a Digital Ecosystem for Education*. She introduced that Longhua District, based on the "demand-based, application-oriented, and innovation-driven" principles, has built a "four-all" digital ecosystem for education, i.e., all-field reconstruction of learning spaces, all-element coordination of learning processes, all-chain building of educational effectiveness, and all-data empowerment of educational decision-making. She noted that Longhua District has optimized teaching infrastructure, promoted family-school-society collaboration education, improved students' learning efficiency and quality, and strengthened educational management and services by utilizing artificial intelligence, big data, and other technological means.

Mr. YANG Linfeng, Chairman of the Board of Onion Academy, China, delivered a speech titled *Innovative Pathways for Digital Empowerment in High-Quality Educational Development*. He pointed out that in the context of reforms involving new curriculum standards, new textbooks, and new evaluation criteria, it is necessary to construct a "human-machine collaborative" digital teaching model around the needs of teachers and students, to accelerate the building of a system for high-quality development of education.

In his speech titled *Teaching Based on Information Technology Transformation, Targeting Precision in Innovative Courses*, **Mr. WANG Benbin**, Chief County-Level Inspector of the Education Supervision Office, People's Government of Zunyi City, Guizhou Province, China, shared how Zunyi City's six strategies of precision pre-class preparation, precision lesson planning, precision teaching, etc. have advanced classroom teaching reform and improved teaching quality and efficiency. He noted that this model has been selected multiple times by the Ministry of Education, P.R. China, as an excellent case of successful experience in

achieving educational inclusiveness through information technology in an environment with limited resources.

In his speech titled *Hailiang's Solution for Digital Empowerment of Rural Education Revitalization,* **Mr. ZHENG Minfeng**, Chief Expert of Hailiang Technology Group, China, introduced how Hailiang Education has expanded through digital means and comprehensive service management to 777 counties in 21 provinces of China in just three years to benefit over 240,000 teachers and students. He explained that Hailiang Education's specific measures in the four aspects of talent strategy, systematic solutions, application scenarios, and ecosystem co-building have attracted the return of high-quality students, stimulated teachers' intrinsic drive, improved students' behavioral habits, and enhanced their senior high school and college entrance examination results. Hailiang Education has also established a foundation for rural education revitalization, which integrates county-level resources and provides stable financial support for rural education revitalization.

In her speech titled *Building a Smart Education Platform by District and Schools and Empowering District Education Transformation and Upgrading with Digital Technology,* **Ms. HUANG Xi**, Deputy Director of the Shuangliu District Education Bureau, Chengdu, China, introduced that Shuangliu District has deployed a smart education platform covering 256 schools to serve 20,000 teachers and 200,000 parents, with 13,800 daily visits on average. She explained that the district-school integrated "1+7+N" model covers comprehensive applications, literacy improvement for teachers and students, and personalized scenarios, which has promoted the comprehensive implementation of education digitalization.

In her speech titled *Advancing Regional Education Digital Transformation and Deepening Comprehensive Educational Reform*, **Ms. GAO Shuyin**, Deputy Director of the Center for Educational Technology and Informatization Research, Tianjin Academy of Educational Science, China, shared how Tianjin has promoted comprehensive educational reform through measures such as building public service platforms, integrating quality resources, improving the digital literacy of teachers and students, and promoting smart education demonstration zones. She stated that Tianjin would continue to deepen the integration of digitalization and education and contribute to the high-quality development of education through six actions, including data interconnection, resource coordination, and teaching model innovation.

Outcome Release

In the Outcome Release session, **Prof. ZHANG Qi** from Huaibei Normal University, China, Researcher of the Engineering Research Center of Digital Learning and Educational Public Service, Ministry of Education, P.R.China, released the *National New Area Smart Education Development Research Report* on behalf of the project team. Jointly compiled by the Education Management Information Center, Ministry of Education, P.R.China, Chongqing Smart Education Innovation Center, China, and Chongqing Liangjiang New Area Education Bureau, China, the report covers 10 state-level new areas, presents the practice patterns of smart education, and proposes five features of smart education in the new areas: firstly, showing overall planning; secondly, constructing differentiated paths; thirdly, building scenario-oriented education systems; fourthly, creating data connectivity for public services; and, fifthly, increasing the role of data elements in management and evaluation.

Photo of Releasing the *National New Area Smart Education Development Research Report*

At the forum, representatives from People's Daily Information Technology Co., Ltd., the Bureau of Education of Chongqing Liangjiang New Area, Hailiang Education Technology, and Onion Academy jointly announced the establishment of the Educational Resources Quality and Equity Technology Innovation Alliance.

Photo of the Establishment of the Educational Resources Quality and Equity Technology Innovation Alliance

Vision of "Educational Resources Quality and Equity Technology Innovation Alliance":

- Firstly, we aspire to harness genuinely intelligent means to empower children to enhance their learning efficiency. Recognizing that we have embarked on the era of intelligent internet, we are committed to leveraging these advanced tools to facilitate their learning processes, enabling them to achieve their academic goals in a shorter span of time. We envision leaving ample space for children to ponder and explore the vast universe of knowledge and dreams that reside in their hearts.
- Secondly, we focus on employing intelligent educational methodologies to foster children's interest in learning. As we transition from being mere observers of education to half-practitioners within the industry, we have come to understand that no motivation surpasses the love for learning. Therefore, we hope that with better and intelligent tools, we can ignite their passion for learning, making it a joyful and fulfilling journey.
- Thirdly, should our future endeavors yield even the slightest of accomplishments, we aspire to extend our reach to the rural children of China, dedicating ourselves to serving them more effectively. We aim to empower those who are in greater need, ensuring they too can enjoy the equity of education and contribute to the achievement of a more quality-oriented and balanced education system in our country.

*The Forum on Digitalization for Regional Educational Development is co-hosted by the Smart Learning Institute of Beijing Normal University, China, the International Society for Technology in Education (ISTE), the Southeast Asian Ministers of Education Organization (SEAMEO), the Bureau of Education of Chongqing Liangjiang New Area, China, People's Daily Information Technology Co., Ltd., China, Hailiang Education Technology, China, and Onion Academy, China. For more information, the video is available at **https://wx.vzan.com/live/page/542475826**

Key takeaways

- Vitality of Regional Education in High-Quality Education Systems: Regional education constitutes a critical component in the construction of high-quality education systems. Digital empowerment for high-quality regional education necessitates ideological guidance, strategic planning, model innovation, exemplary demonstrations, digital literacy among teachers and students, and collaboration among all stakeholders.

- Collaborative Networks for Sharing Best Practices and Sparking Innovation: Establishing a collaborative network among educators, policymakers, and stakeholders is key to sharing best practices and fostering innovation. Utilizing community platforms to facilitate peer-to-peer learning and professional exchanges can significantly advance educational innovation. Encouraging innovative research and pilot projects in digital education, coupled with rigorous evaluations and the expansion of successful models, is crucial for continuously optimizing teaching practices, thereby promoting the continuous progress and development of the education system.

- Synergy as a New Productivity Form: Synergy can unleash immense potential by transcending boundaries and levels to integrate the strengths of various resources and build a robust support system. Collaborating with advanced regions, industries, and internal teams can access high-quality, complementary, and pilot resources. For instance, partnering with universities to formulate smart education development plans leads the digital transformation of education. Collaborating with new districts, enterprises, and research institutions explores demonstration paths for smart education, fostering institutional innovation and policy support. Deepening collaboration comprehensively accelerates the process of educational intelligence.

- Government-Industry-University Collaboration: Governments can focus on policy guidance, proactively formulating policies to encourage enterprises, schools, and research institutions to participate in collaborative projects. Enterprises can focus on establishing cooperation mechanisms, actively showcasing information, technologies, and resources available for exchange and collaboration, and providing useful and effective cooperation schemes. Schools can select those projects that, through collaboration, can cultivate talents with innovative spirits and practical abilities while attracting outstanding domestic and international talent.

- Bridging the Gap in Quality Education: High-quality education should not be confined to specific regions or schools but should be accessible to every student. Quality educational resources are a vital tool for narrowing the urban-rural education gap, compensating for the shortage of teachers in rural schools, breaking through spatio-temporal constraints, addressing resource supply-demand bottlenecks, and achieving equitable and high-quality education development.

Forum on Development and Use of Digital Textbooks

Domestic and foreign experts in digital education and digital textbook research and development are invited to discuss topics, including how digital technologies aid in the planning and management of textbooks, the future development direction of new types of textbooks, the construction path and technical solutions for digital textbooks, application scenarios of digital textbooks, standards and evaluation of digital textbooks, and new types of textbooks based on knowledge graphs.

Group Photo of Guests from Forum on Development and Use of Digital Textbooks

SPEAKERS

Mr. LIU Chao
President, Higher Education Press, China

H.E. Ms. Maryam Mariya
Minister, Higher Education, Labour and Skills Development, Maldives

Mr. TAN Fangzheng
Chief Editor, Higher Education Press, China

Mr. Niels Peter Thomas
Managing Director of Books, Springer Nature

Prof. LI Jianjun
Vice President, Central University of Finance and Economics, China

Mr. Joe Lam
Executive Director, Pearson China

Mr. Michael Cahill
Senior Director, ELT Asia, National Geographic Learning, Cengage Group

Prof. WANG Quan
Vice President, Xidian University, China

Ms. Natalia Amelina
Chief of Unit, Unit of Teacher Professional Development and Networking, UNESCO IITE

Dr. Darcy Sperlich
Associate Professor, Xi'an Jiaotong-Liverpool University, China

Mr. LI Hong
Deputy Secretary-General, China Audio-Video and Digital Publishing Association

Prof. WANG Haixiao
Nanjing University, China

Prof. CHEN Wenzhi
Zhejiang University, China

MODERATORS

Ms. LONG Jie
Deputy Editor-in-Chief, Higher Education Press, China

Mr. ZHANG Ze
Deputy Editor-in-Chief, Higher Education Press, China

Prof. WU Longkai
Central China Normal University, China

Mr. LIU Chao, President of the Higher Education Press, China, stated that as the core of talent cultivation, digital textbooks directly impact the overall level and quality of educational digitalization. The Higher Education Press has laid foundations for digital textbook development in terms of concepts, organization, and technology, focusing on three areas: strategic planning, organizational restructuring, and technological advancement. The Higher Education Press has been committed to the innovative development of digital textbooks in the era of educational digitalization. To grow into an integrated, intellectual, and international press, and promote the paradigm transformation of educational publishing, driven by cutting-edge technologies such as artificial intelligence, big data, and blockchain, Higher Education Press will constantly strengthen multi-dimensional cooperation with counterparts in education and publishing at home and abroad to foster an ecosystem for digital textbooks and contribute ideas for the inclusive development and smart innovation of education.

H.E. Ms. Maryam Mariya, Minister of Higher Education, Labour and Skills Development, Maldives, underscores the evolving landscape of education, with digital textbooks and classrooms revolutionizing learning. Beyond traditional paper textbooks, we've entered an era of interactive digital materials, revolutionizing student-knowledge interaction. Digital divide threats educational equity. As we innovate, we must ensure accessibility and inclusivity for all students, regardless of socio-economic status or geography. Technologies like VR/AR transform learning experiences, challenging us to rethink content presentation and adapt materials for diverse environments. Digital materials are crucial for learning continuity, complementing online and offline education. Standards and assessments for digital textbooks are vital to ensure educational goals are met. Integrating tech and knowledge maps fosters deeper understanding and critical thinking. As leaders in education, we must set standards, innovate, and collaborate to empower students for a better world, aligning with SDGs for equitable education.

Mr. TAN Fangzheng, Chief Editor of the Higher Education Press, China, discussed the Chinese characteristics of digital textbooks from human, work, intelligence, and ability, and presented the Higher Education Press's practice in the creation, compilation, use, and management of digital textbooks. Digital textbooks serve as a vital vehicle for realizing the vision of digital education. Looking ahead, digital textbooks are poised to forge an integrated ecosystem, facilitating seamless integration with other digital segments of education. There will be a comprehensive enhancement of artificial intelligence's role in empowering the development of digital textbook systems. Efforts will also be intensified in international cooperation and policy coordination to create high-quality global public education service products.

Mr. Niels Peter Thomas, Managing Director of Books, Springer Nature, primarily delved into his professional experiences at Springer-Nature Publishing, providing a comprehensive overview of the publisher's pioneering endeavors and practical implementations in digital publishing and AI-generated content. Springer-Nature stands at the forefront of digital publishing, boasting a vast electronic library and online learning platforms. The expert underscored the significance of personalization and interactivity in digital textbooks, advocating that AI technology can facilitate tailored adjustments to textbooks, thereby enhancing students' learning experiences and outcomes. Additionally, he mentioned the potential for improvements in the development and planning of digital textbooks in the future. As AI technology continues to advance, digital textbooks are poised to become increasingly personalized, interactive, and efficient.

Prof. LI Jianjun, Vice President of the Central University of Finance and Economics, China, gave his viewpoint that the development of high-quality digital textbooks is pivotal to educational innovation in the digital era. It necessitates a focus on fostering students' "aptitude for learning," reinforcing their status as learning subjects, nurturing their learning abilities, and satisfying teachers' individualized instructional needs. By harnessing technologies such as big data and artificial intelligence, we can transform the form of textbooks and foster multidimensional interactions.

Mr. Joe Lam, Executive Director of Pearson China, focused on the critical role of digital textbooks and the quantification of language learning processes in educational innovation within the digital era. Future digital textbooks will necessitate not just content but also quantifiable assessment standards, aided by AI. Pearson's efforts in this realm aim to transform learning outcomes and deepen understanding of the learning process, setting a precedent for educational innovation in the digital age.

Mr. Michael Cahill, Senior Director of ELT Asia, National Geographic Learning, Cengage Group, discussed the development of task-driven, research-oriented smart teaching resources aimed at enhancing the teaching ecosystem. Representing Cengage Learning and National

Geographic Learning, he emphasized the importance of making education engaging, global, and technology-driven. Their platform integrates resources, simplifies access, and leverages AI for tasks like speech practice and assessment feedback, aiming to optimize teacher workflows and student outcomes.

Prof. WANG Quan, Vice President of Xidian University, China, shared his comprehensive vision for the development of digital textbooks under the context of smart education emphasizes personalized, intelligent, and interactive learning. The future of digital textbooks will be more diverse and interdisciplinary, with AI empowering the entire process from creation to usage, enhancing learning experiences and creating an accessible learning environment anywhere, anytime.

Ms. Natalia Amelina, Senior National Project Officer in Education, Chief of Unit, Unit of Teacher Professional Development and Networking, UNESCO IITE, shared the work of UNESCO related to digital textbooks and teacher e-libraries, emphasizing their role in providing abundant resources and communication platforms for educators worldwide, promoting innovation and quality improvement in teaching content, and encouraging the enhancement of teachers' digital teaching skills through competitions, forums, and other activities, thereby driving the global development of smart education.

Panel Discussion: Challenges and Opportunities of Digital Textbooks

The forum also featured a Panel Discussion on the Challenges and Opportunities of Digital Textbooks moderated by **Prof. WU Longkai**, Faculty of Artificial Intelligence in Education, Central China Normal University, China, where **Dr. Darcy Sperlich**, Associate Professor of Xi'an Jiaotong-Liverpool University, China, **Mr. LI Hong**, Deputy Secretary-General of China Audio-Video and Digital Publishing Association, **Prof. WANG Haixiao**, the Department of Applied Foreign Language Studies, Nanjing University, China, and **Prof. CHEN Wenzhi**, Zhejiang University, China, shared their profound insights into the transformation of digital textbooks from different perspectives:

1. Digital textbooks are witnessing rapid growth, boasting advantages such as strong interactivity and personalized learning, yet confronting innovation bottlenecks. AI may serve as the key to breakthroughs, with future digital textbooks potentially featuring dynamic updates and intelligent tutoring capabilities, thereby enhancing learning experiences and outcomes.

2. The development of digital textbooks faces challenges including inadequate mechanisms, difficulties in copyright protection, lack of uniform standards, and limited application scenarios. Policy-wise, it necessitates the improvement of evaluation and recognition standards. Strategically, clear measuresfor copyright data protection should be outlined, industry standards unified, and application scenarios expanded.

3. Digital textbooks have revolutionized foreign language teaching by emphasizing student-centeredness, fostering competencies through task- and process-oriented approaches, promoting personalized learning, leveraging AI tools to enhance teaching quality, and empowering students' holistic development.

4. Enhancing the intelligence level through digitalization technology confronts challenges in copyright protection, privacy safeguarding, and value alignment. Integration with 5G, cloud computing, large models, and other technological supports is essential, while considering the transformation of future learning spaces and publishing ecosystems.

5. Universities must ensure equitable access to digital textbooks, address issues of inconvenient off-campus network access, and provide a fair learning environment for all students. Measures such as affordable internet access and device support should be considered.

6. The development of digital textbooks necessitates the improvement of mechanisms, the establishment of standards and catalog databases, a clear definition of digital textbooks, the promotion of collaboration among government, industry, academia, research, and application sectors, the construction of collaborative innovation scenarios, and the refinement of the digital textbook ecosystem.

7. Digital textbooks should clarify the relationship between textbooks and platforms, emphasizing the authority and stability of instructional materials. Attention should be paid to the content design taught by teachers, and a digital textbook development system encompassing norms, platforms, users, and ontologies should be constructed.

8. While driven by technology, a rational perspective on the role of AI is crucial. The development of textbooks must strike a balance between personalization and scalability, leveraging AI to empower education, and integrating learning, teaching, and management through data-driven approaches to elevate the quality of education.

Photo of Panel Discussion

*The Forum on Development and Use of Digital Textbooks is co-hosted by Higher Education Press, Higher Education Electronic Audio-Visual Press, Higher Education Digital Textbooks Innovation and Development Alliance, and the National Engineering Research Center of Cyberlearning and Intelligent Technology, China. For more information, the video is available at **https://wx.vzan.com/live/page/1543706364**

Key takeaways

- Accessibility and Inclusivity in Digital Textbook Development: When developing new digital textbooks, it is imperative to ensure their universal accessibility regardless of students' economic or geographical backgrounds, reflecting both ethical and educational imperatives. Incorporating accessible design to benefit students with disabilities and considering the needs of remote areas, such as text-to-speech functionalities, aligns with inclusive education and sustainable development goals, aiming to bridge rather than widen the educational divide.

- Leveraging Digital Platforms for Content Diversity: Textbook creation should harness digital platforms to diversify content expression. Beyond traditional text and graphics, integrating animations, audio-visual elements, and virtual simulations offers numerous options for presenting knowledge points, effectively addressing teaching challenges like inaccessible situations, invisible details, impractical experiments, and phenomena difficult to replicate. Moreover, flexibly combining subject-specific features fosters teaching innovation and personalized learning.

- Student-Centered Learning with High-Quality Digital Textbooks: High-quality digital textbooks must prioritize student learning, adhering to cognitive development principles and focusing on nurturing contemporary college students' core competencies. They should facilitate learning activities by providing abundant resources, personalized reading tools, and timely guidance, transforming passive learning into active engagement.

- Organizational Transformation for Digital Textbook Growth: Responding to the rise of digital textbooks, Higher Education Press has restructured its organization to focus on the transformation of educational publishing models. It has established an organizational system, processes, and talent pool dedicated to the full lifecycle of digital textbooks. Continuous deepening of AI and digital publishing training enhances digital skills and literacy across the board, laying a solid foundation for rapid growth.

- Expanding Beyond Knowledge Transmission to Capability Building and Value Guidance: Digital textbooks should embrace an open mindset, extending education from knowledge imparting to capability development and value leadership. They should be tailored for different students, offering targeted resources to enhance classroom instruction. Emphasizing applicability and practicality, these textbooks innovate content and format to ensure cutting-edge relevance. Flexible integration with teaching platforms facilitates quick course development and efficient use of digital textbooks.

Forum on Smart Learning in Early Childhood Care and Education

This forum was organized to foster the integration and innovation of preschool education concepts with digital technology, encourage shifts in educational paradigms, enhance regional cooperation and exchange, and improve preschool education quality. Experts, scholars, and leading educators from both domestic and international early childhood education sectors are invited to discuss critical topics such as regional practices for high-quality digital intelligence development in preschool education, constructing digital resource environments, training professionals for preschool education in the digital era, assessing the quality of care and education in kindergartens, and enhancing the public service system for inclusive and beneficial preschool education.

Group Photo of Guests from Forum on Smart Learning in Early Childhood Care and Education

SPEAKERS

Prof. CHEN Guangju
Former Vice President, Beijing Normal University, China

Mr. Marc Prensky
Speaker, author, and consultant

Mr. ZHANG Jianping
Director, Education Bureau of Xiaoshan District, Hangzhou City, Zhejiang Province, China

Mr. FANG Xuejian
Director , Education Bureau of Yangzhong City, Jiangsu Province, China

Ms. Tone Lisbeth Mork
Chair, Commission on Education of Rehabilitation International

Prof. LI Xiaowei
Beijing Normal University, China

Mr. LIN Mingxiang
Chancellor, EIS International Pre-school, Hong Kong, China

Ms. Natalia Amelina
Chief of the Teacher Professional Development and Networking Unit, UNESCO IITE

Ms. WANG Lan
Principal, Xicheng Sanjiaosi Kindergarten, Beijing, China

Ms. TIAN Hui
Principal, Yinchuan Kindergarten at Beijing Normal University, China

Ms. ZHANG Cui
Principal, Second Kindergarten in Beijing Economic-Technological Development Area

Ms. GAO Min
Deputy Director, Training and Research Center of Nursery School, China

Ms. SHAO Lifang
Principal, Central Kindergarten in Heshang, Xiaoshan District, Hangzhou, China

Ms. WU Jingqing
Preschool Education Researcher, Education Development Institute in Wenling, Zhejiang, China

Ms. LI A'hui
Principal, Hangzhou Kaiyue Kindergarten in Xiaoshan District, China

Ms. HU Yan
Principal, Hangzhou TianShui Kindergarten in Zhejiang, China

Ms. LV Hong
Principal, Ya He Kindergarten of Bo Ya Primary School in Liangjiang New Area, Chongqing, China

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MODERATORS

Mr. ZHU Shengying
Dean, School of Continuing Education and Teacher Training, Beijing Normal University, China

Ms. YU Benyun
Director, Center for Child Education and Psychological Development

Mr. LUO Ronghai
Assistant to the Dean, School of Continuing Education and Teacher Training, Beijing Normal University, China

Prof. CHEN Guangju, former Vice President of Beijing Normal University, emphasized the crucial role of digitalization in establishing a robust education system, and advocated for child-centered approaches that integrate digital technology with educational innovation to foster a more distinctive and effective teaching mode and a healthy ecosystem for early childhood education.

Mr. Marc Prensky, an American speaker, author, consultant, and Proponent of the concepts “Digital Natives” and “Digital Immigrants” shared his insight into the future of education, and urged educators to embrace innovative teaching methods to enhance children's learning experiences and meet the challenges of the digital age.

The deep integration of digital technology with preschool education is set to revolutionize traditional practices, values, content, and methods in this field. In the keynote session, five distinguished guests shared their research outcomes and practical experience, covering a wide range of topics around the digital technology and the empowerment of digital intelligence including regional preschool education practices, inclusive education, family parenting, and deep learning for young children, offering a rich exchange of research outcomes and practical experiences.

Mr. ZHANG Jianping, Director of the Education Bureau of Xiaoshan District, Hangzhou City, Zhejiang Province, China, outlined Xiaoshan's efforts in enhancing preschool education. Xiaoshan leverages digital empowerment to build a digital kindergarten system and an intelligent preschool education community platform, achieving overall improvement in regional preschool education. Through practice, Xiaoshan has achieved inclusive urban-rural integrated development, collaborative education within kindergartens, and regional educational prosperity. In the future, Xiaoshan will further improve the public service system for intelligent preschool education to achieve educational prosperity.

Mr. FANG Xuejian, Director of the Education Bureau of Yangzhong City, Jiangsu Province, China, shared the practice and achievements of high-quality development of preschool education in Yangzhong City. Yangzhong has been promoting digital and intelligent empowerment of preschool education earlier, including concept upgrading, practical creation and future outlook. Practice includes digital support for administrative decision-making, precise guidance for teacher development data, and comprehensive analysis of business development data. Digital sharing promotes the quality of education and focuses on digital ethics. Digital intelligence is isomorphic to empower scenario innovation, with full coverage of cloud services. In the future, Yangzhong will strive to take the lead in the new track of digital education, anchor the new ecosystem of education decision-making, governance, and innovation, and benefit a wide range of people.

Ms. Tone Lisbeth Mork, Chair of the Commission on Education of Rehabilitation International, emphasized that inclusive education is closely linked to an inclusive society, aiming to meet the educational needs of all children. Inclusive education is not only about personalized education but also crucial for the future of society. She also shared the definitions, visions, and implementation challenges of inclusive education, and mentioned the roles of technology, design, and policy in promoting inclusive education. She called for strengthened planning and action at the national level, leveraging technology to foster inclusivity,

improving school design, and enhancing teacher capacity building.

Prof. LI Xiaowei, Deputy Secretary General of the China Preschool Education Research Association, redefined the definition of digital parenting and proposed the adoption of machine learning to investigate the full spectrum and transformations of digital parenting. By analyzing data from Xiaohongshu (a social media platform), she found that media utilization and media intervention are equally important. However, parents face issues such as limited practical wisdom and strong utilitarianism in digital parenting, necessitating professional support. She called on researchers and practitioners to prioritize guidance in family digital parenting and work together to cultivate future citizens who can adapt to the digital era.

Mr. LIN Mingxiang, Chancellor of EIS International Pre-school, Hong Kong, China, emphasized the importance of integrating early childhood education with technology. Through sharing specific cases, he proposed that inquiry-based learning should be utilized to guide children into deep learning, cultivating their autonomy, creativity, and problem-solving abilities. Teachers need to skillfully integrate resources and guide students to discover and solve problems in real-life situations. He called for attention to children's physical and mental health, encouraging them to gain a sense of achievement in the real world and to grow bravely.

During the Invited Speeches session, ten speakers from different regions shared their hands-on experiences in using digital and intelligent tools in early childhood education. They are **Ms. Natalia Amelina**, Senior National Project Officer in Education and Chief of the Teacher Professional Development and Networking Unit at UNESCO IITE; **Ms. WANG Lan**, Principal of Xicheng Sanjiaosi Kindergarten in Beijing; **Ms. TIAN Hui**, Principal of Yinchuan Kindergarten at Beijing Normal University; **Ms. ZHANG Cui**, Principal of the Second Kindergarten in Beijing Economic-Technological Development Area; **Ms. GAO Min**, Deputy Director of the Training and Research Center of Nursery School in Gansu Province; **Ms. WU Jingqing**, Preschool Education Researcher at the Education Development Institute in Wenling, Zhejiang; **Ms. LI A'hui**, Principal of Hangzhou Kaiyue Kindergarten in Xiaoshan District; **Ms. HU Yan**, Principal of Hangzhou TianShui Kindergarten in Zhejiang; **Ms. LV Hong**, Principal of Ya He Kindergarten of Bo Ya Primary School in Liangjiang New Area, Chongqing; and **Ms. SHAO Lifang**, Principal of Central Kindergarten in Heshang, Xiaoshan District, Hangzhou.

The speeches concentrate on three aspects: Firstly, the application of digital intelligence to boost management efficiency in early childhood education settings. Digital tools will bridge educational disparities, improve teacher's capabilities in teaching and research, and promote high-quality development across well-established and newly founded institutions, in urban and rural areas. In addition, digital technology also significantly increases evaluation and management efficacy in regions. Secondly,

digital intelligence presents a distinctive feature of school-based curricula. By expanding the ways children and parents interact with these curricula, digital technology effectively fosters collaboration among home, school, and community, providing deeper learning opportunities for children and remarkably improving the overall quality of preschool education and care. Lastly, the development and practical implementation of digital platforms. Initiatives such as digital evaluation systems for kindergartens and sports assessment systems for early childhood are being launched across various regions. The broad adoption of universal education standards ensures basic norms for utilizing innovative technologies, thus fostering a more equitable, inclusive, and high-quality educational system and laying a strong foundation for every child's future growth.

During the forum, the National Digital Smart and Early Childhood Education Community was officially established, marking a pivotal moment in early childhood education. This significant event was witnessed by **Mr. ZHU Shengying**, Dean of the School of Continuing Education and Teacher Training at Beijing Normal University; **Mr. ZHU Zongshun**, Chairman of the Zhejiang Provincial Society of Early Childhood Education; **and Mr. ZHANG Jianping**, Director of the Education Bureau of Xiaoshan District, Hangzhou, Zhejiang Province. Mr. ZHU Shengying and Mr. ZHANG Jianping, as award presenters, awarded appointment letters to the expert representatives from the newly formed community.

Photo of Launching Ceremony of National Digital Preschool Education Community

*The Forum on Smart Learning in Early Childhood Care and Education is a collaborative effort between the School of Continuing Education and Teacher Training at Beijing Normal University and the Education Bureau of Xiaoshan District in Hangzhou. For more information, the video is available at **https://wx.vzan.com/live/page/1904374291**

Key takeaways

- As the foundation of lifelong learning, preschool education is irreplaceable in shaping children's physical, emotional, and moral development. In the digital era, transformation in preschool education transcends technological upgrades, encompassing educational philosophies, methodologies, and management models. Digital tools offer more personalized, scientific, and efficient learning experiences.

- Implementing "integrated kindergarten-community education" in pilot streets and towns fosters a new educational model involving families, kindergartens, communities, and social forces. Leveraging digital resources, parenting workshops, and parent-child activities, kindergartens can reach more families. Drawing from successful cases, enhancing kindergarten-community partnerships enables online course bookings and virtual tours. Strengthening home-school-community collaboration creates a supportive parenting ecosystem.

- Nations and schools should ensure inclusive education standards and actively implement them on campus. Enhancing teacher capabilities through technology and digital solutions while avoiding tech exclusion is crucial. Mobile technologies can address reading barriers and promote holistic development. Kindergarten designs should be universally accessible. Free educational tools and materials should be encouraged to advance education accessibility, ensuring equal and non-discriminatory opportunities for all children.

- While demonstrating wisdom, parents face challenges in digital parenting: overemphasizing academic gains at the cost of media's role in enhancing thinking skills and media literacy. Additionally, risk prevention often focuses on physical health, neglecting psychological impacts like reduced self-control and increased problematic behaviors. Parents must adjust strategies, recognizing media's holistic value, balancing utilitarianism with growth, and prioritizing children's mental health in digital parenting practices.

- Teachers should play a central role in fostering children's deep learning, providing meaningful learning opportunities that encourage self-exploration and immediate feedback. Learning environments should be carefully designed to support children's autonomous content and path choices. Teachers should observe, listen attentively, and value children's discoveries and understandings. In autonomous exploration, children should lead learning paths, with teachers responding to questions and extending learning designs. Engaging in experimental design and reflection nurtures critical thinking and problem-solving skills. Learning should stem from interest, motivation, and exploration, transcending mere knowledge transmission, significantly enhancing children's growth.

Forum on AI-driven Innovation in Higher Education

The forum focused on the multiple practical challenges faced in the digital transformation of higher education and the core concerns about education digitalization, attracting numerous experts and scholars from home and abroad. During the forum, experts and scholars not only shared their research and practice achievements but also presented many innovative ideas, which served as important references for promoting the high-quality development of global higher education.

Group Photo of Guests from Forum on AI-driven Innovation in Higher Education

SPEAKERS

Mr. GUO Xinli
Vice President, China Association of Higher Education

H.E. Mr. Susil Premajayantha
Minister of Education, Sri Lanka

Mr. GAO Dongfeng
Deputy Director, Department of Higher Education, Ministry of Education, P.R.China

Prof. LEE Chi Kin
President, The Education University of Hong Kong, China

Mr. XU Xiaofei
Deputy Director, Steering Committee on Teaching Informatization and Teaching Method Innovation for Higher Education Institutions, Ministry of Education, P.R.China

Dr. Francesc Pedró
Director, UNESCO IESALC

Prof. Saoussen KRICHEN
General Manager, Centre de Calcul El-Khawarizmi, Ministry of Higher Education and Scientific Research, Tunisia

Dr. Julia Chen
Director, Educational Development Centre, The Hong Kong Polytechnic University, China

Prof. Adam Bridgeman
Pro Vice-Chancellor (Educational Innovation), University of Sydney, Australia

Prof. ZHANG Zhaoguo
Vice President, Shanghai Jiao Tong University, China

Dr. Tangikina Moimoi-Steen
Interim Vice Chancellor, Tonga National University, Tonga

Prof. CHENG Wu
Vice President, Beijing Forestry University, China

Dr. Dmitry Mazarchuk
Vice-Rector, University of National Academy of Sciences of Belarus

Prof. Admasu Tsegaye
Former President, Addis Ababa University, Ethiopia

Ms. Margarita Caballero
Vice President of Economics, University of Havana, Cuba

Prof. Viorel Nicolae
Vice Rector, University of Pitishiti, Romania

MODERATORS

Prof. ZHOU Haitao
Institute of Higher Education, Beijing Normal University, China

Dr. Julia Chen
Director, Educational Development Centre, the Hong Kong Polytechnic University, China

In the Opening Remarks, **Mr. GUO Xinli**, Vice President of the China Association of Higher Education, noted that artificial intelligence (AI) is profoundly reshaping higher education and promoting teaching efficiency and educational fairness. He emphasized that the digital transformation of education is a strategic focus of high-quality development and called for strengthening international policy dialogue, sharing quality educational resources, and enhancing teachers' smart education capabilities to address digital challenges and achieve sustainable education across the world.

H.E. Mr. Susil Premajayantha, Minister of Education, the Democratic Socialist Republic of Sri Lanka, stated that AI has transformed from an innovative technology to the core of education and is reshaping higher education, and with AI algorithms and machine learning, educational institutions can develop personalized learning platforms that meet students' unique needs and improve their learning effects. He also emphasized that higher education institutions should strategically invest in AI technology and maximize its potential to ensure future educational success.

Mr. GAO Dongfeng, Deputy Director of the Department of Higher Education, Ministry of Education, P.R.China, stated that China has been vigorously promoting the education digitalization

strategy in recent years, actively deploying AI in industry-education integration, and developing the national smart education platform of China. He proposed four suggestions: firstly, raising awareness and promoting the transition to educational concepts centered on capability improvement; secondly, innovating forms and accelerating the reshaping of teaching elements; thirdly, integrating science and education and innovating talent training methods; and fourthly, strengthening educational digital infrastructure and governance systems, ensuring that technology is used for good, and promoting the high-quality development of higher education.

In his video speech, **Prof. LEE Chi Kin**, JP, President of The Education University of Hong Kong, China, highlighted the importance of computational thinking education. He noted that smart education is not only about the application of technology but also key to building a fair and efficient educational ecosystem. He shared the practical experience of The Education University of Hong Kong in promoting computational thinking education in the context of widespread AI application and emphasized that computational thinking will be one of the core capabilities required for future students.

During the Keynote Speeches, **Mr. XU Xiaofei**, Deputy Director of the Steering Committee on Teaching Informatization and Teaching Method Innovation for Higher Education Institutions, Ministry of Education, P.R.China, presented a keynote speech titled *New Forms of AI Empowered Competency-Oriented Higher Education Transformation in Digital Era*, discussing China's progress in the digital transformation of higher education and showcasing the application scenarios of AI in metaverse education. He stated that future education will focus more on personalized learning and the construction of smart classrooms, and presented a vision for metaverse education: providing immersive learning experiences for students and achieving educational interaction across time and space through AI and virtual reality (VR) technologies.

Dr. Francesc Pedró, Director of UNESCO International Institute for Higher Education in Latin America and the Caribbean (UNESCO IESALC), in his keynote speech titled *National Policies to Promote AI: The Role of Universitie*, discussed the important role of universities in promoting national AI policies. He pointed out that many countries have taken universities as core nodes in their AI policies, and called on universities to be not only users of AI technology but also active participants in technological innovation and promotion. He particularly emphasized the unique advantages of universities in formulating AI-related ethical norms and policies and called for strengthened cooperation in the international education community to promote responsible AI development.

Prof. Saoussen KRICHEN, General Manager of CCK (Centre de Calcul El-Khawarizmi), Ministry of Higher Education and Scientific Research, Tunisia, shared Tunisia's successful experience in the digital transformation of higher education in her keynote speech titled *Smart Education on Cloud.* She presented details about the construction process of the cloud platform for Tunisian universities' research and

emphasized the important role of cloud computing and AI technologies in improving education quality. She noted that digital transformation is not just about upgrading technology but also requires strategic planning of educational policies to ensure effective resource allocation and equal educational opportunities.

In the Call for Partner session, **Dr. Julia Chen**, Director of the Educational Development Centre, the Hong Kong Polytechnic University, China, presented the project, Social Experiment on AI Transforming Higher Education, which aims to promote the deep transformation of higher education through AI technology. She stated that the project would gather educators from different disciplines and backgrounds via a global collaboration network to explore best practices for AI in education. She called on universities worldwide to actively participate in this project, using AI to improve education quality and students' adaptability, so as to meet future challenges posed by globalization.

Photo of Presenting *Social Experiment on AI Transforming Higher Education*

In the subsequent Keynote Speeches, eight (vice) presidents from domestic and foreign universities shared their universities' practical experiences in AI-empowered education. **Prof. Adam Bridgeman**, Pro Vice-Chancellor (Educational Innovation) of the University of Sydney, Australia, discussed how the University of Sydney is enhancing learning experiences, assessment systems, and AI application ethics through AI technology. **Prof. ZHANG Zhaoguo**, Vice President of Shanghai Jiao Tong University, China, shared Shanghai Jiao Tong University's innovative initiatives in promoting the deep integration of AI and human intelligence (HI) in

his keynote speech titled Exploration and Practice of "AI+HI" Empowered Education and Teaching at Shanghai Jiao Tong University. **Dr. Tangikina Moimoi-Steen**, Interim Vice Chancellor of Tonga National University, Tonga, presented in her keynote speech how Tonga National University promoted the application of AI technology in teaching through international cooperation despite limited resources. **Prof. CHENG Wu**, Vice President of Beijing Forestry University, China, detailed in his keynote speech Beijing Forestry University's innovative practice in ecological civilization education, especially in optimizing eco-environment research and educational resources through AI technology. **Dr. Dmitry Mazarchuk**, Vice-Rector of the University of National Academy of Sciences of Belarus, presented in his keynote speech the efforts of the University of National Academy of Sciences of Belarus in developing AI-assisted learning tools, promoting online education, and enhancing students' digital skills. **Prof. Admasu Tsegaye**, Former President of Addis Ababa University, Ethiopia, detailed in his keynote speech Addis Ababa University's successful cases in developing an AI-driven online education platform and promoting distance learning, and he called for strengthened cooperation among African countries to advance education modernization. **Ms. Margarita Caballero**, Vice President of Economics, University of Havana, Cuba, noted in her keynote speech that higher education in Latin America is faced with challenges of insufficient resources and backward technologies, but AI brings new opportunities for educational reform in the region. **Prof. Viorel Nicolae**, Vice Rector of the University of Pitishiti, Romania, presented via video the latest progress of the university in integrating AI with higher education, emphasized the integration of education and technology as key to the future development of higher education, and called on the education community to pay attention to the ethical and privacy issues brought by technology to ensure the secure and controllable applications of AI in education.

*The Forum on AI-driven Innovation in Higher Education is co-hosted by Beijing Normal University, The Education University of Hong Kong, The Hong Kong Polytechnic University, and The UNESCO International Institute for Higher Education in Latin America and the Caribbean (UNESCO IESALC). For more information, the video is available at **https://wx.vzan.com/live/page/222989682**

Key takeaways

- The digitization of higher education is a strategic issue that significantly impacts and determines its quality development. To advance this transformation, it is imperative to establish a consensus vision, recognize the multifaceted challenges encountered during the process, and profoundly grasp the core concerns of educational digitization, thereby fostering an inclusive, efficient, resilient, and sustainable higher education ecosystem.

- In the AI-driven transformation of educational digitization, it is crucial to recognize that this shift transcends mere technological upgrades; it represents a systemic transformation of educational models. We must adopt a global perspective to envision the future of education, ensure the effective implementation of digitization strategies, facilitate the deep integration of intelligent technologies into teaching and learning, and construct an inclusive, efficient, resilient, and sustainable higher education environment. Throughout this process, the digital divide, data security challenges, and ensuring educational equity are paramount concerns requiring focused attention.

- As the most transformative, catalytic, and empowering strategic technology of our time, AI is profoundly altering the ways in which knowledge is produced and disseminated, scientific discoveries and research paradigms are shaped, and educational organization and evaluation models are structured. It serves as a vital engine driving the transformation of higher education, creating boundless possibilities for the harmonious integration of scientific and cultural education in service of human development.

- We are committed to propelling the development and progress of high-quality higher education and vocational training. Through innovative educational models and equitable learning experiences, we strive to provide students with a solid foundation that not only meets the immediate demands of current job markets and technological advancements but also equips them to transcend these boundaries and contribute to future societal changes and advancements.

- Integrating AI with the core principles of ecological civilization education involves strengthening AI ethics education while simultaneously enhancing ecological civilization and AI literacy. This necessitates six fundamental shifts: fostering students' adaptive learning capabilities, transitioning teaching from teacher-centered to learner-centered, reshaping knowledge acquisition through customized learning; transitioning teaching content from standardized to personalized, leveraging big data analytics; refining teaching methods from extensive to precise, promoting a three-dimensional teaching ecology and digitalized resources, evolving teaching models from two-dimensional to three-dimensional, and constructing smart classroom platforms; shifting teaching timelines from centralized lectures to real-time interactions, implementing diverse and multi-angle evaluation systems, and transitioning grade assessments from rigid criteria to flexible evaluations.

Forum on AI and the Future of Teaching

The current rapid advancements in generative artificial intelligence (AI) technology and the continuous emergence of large models in education are profoundly transforming the way of teaching and learning, thereby exerting significant impacts on teachers' professional qualities and capabilities. This forum delved into the challenges and empowerment of generative AI for teachers' professional development, explored methods and avenues for AI-powered high-quality pre-service teacher training, as well as the pathways and models of intelligent teaching and research that facilitate teachers' development.

Photo of Forum on AI and the Future of Teaching

SPEAKERS

Mr. LU Xuzhong
Level I Division Rank Official, Department of Teacher Education, Ministry of Education, P.R.China

Prof. Amal El Fallah Seghrouchni
Executive President, Moroccan International Center for Artificial Intelligence

Prof. ZHU Xudong
Dean, Faculty of Education, Beijing Normal University, China

Prof. ZHU Zhiting
East China Normal University, China

Prof. Margarida Romero
Université Côte d'Azur, France

Dr. Quentin Wodon
Director, UNESCO IICBA

Mr. YANG Hui
General Manager, Education Industry Business, Tencent Cloud, China

Prof. HU Xiaoyong
South China Normal University, China

Prof. Abtar Darshan Singh
UNESCO Chair on Harnessing Innovations in Technology to Support Teachers & Quality Learning

Prof. KONG Siu Cheung
Director, Artificial Intelligence and Digital Competency Education Centre, The Education University of Hong Kong, China

Mr. ZHOU Zhihua
Founder & CEO, Digital Campus, OUR SCHOOL, China

Ms. Jyoti Rahaman
Senior Project Executive, Asia-Europe Foundation

Mr. YANG Jinyong
Director, Center for Educational Technology and Resource Development, Ministry of Education, P.R.China

Prof. ZHAO Cheng
SDU-ANU Joint Science College, Shandong University, China

Mr. FAN Liang
Principal, Xinpu Central Primary School, China

Mr. JIANG Junbin
Principal, Lijia Experimental Primary School, China

Ms. LI Baiyan
Dean, Shanghai Pudong Institute of Education Development, China

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MODERATORS

Prof. MU Su
Vice Dean, Institute of Artificial Intelligence Education, South China Normal University, China

Ms. Natalia Amelina
Chief of the Teacher Professional Development and Networking Unit, UNESCO IITE

In the Opening Remarks, **Mr. LU Xuzhong**, Level I Division Rank Official of the Department of Teacher Education, Ministry of Education, P.R.China, stated that artificial intelligence (AI) would not replace teachers but will eliminate teachers who cannot use, are not good at using, or are unwilling to use it; **Prof. Amal El Fallah Seghrouchni**, Executive President of the Moroccan International Center for Artificial Intelligence, mentioned that generative AI had changed our educational environment, and by integrating AI with neuroscience to track all activities in the brain, it is possible to explain why people experience post-traumatic stress disorder (PTSD); **Prof. ZHU Xudong**, Dean of the Faculty of Education, Beijing Normal University, China, advocated for applying AI to educational disciplines, emphasizing the importance of applying AI not only to educational technology but also to entire educational disciplines, including teacher training and teacher education.

During the Keynote Speeches, **Mr. ZHU Zhiting**, Tenured Professor from East China Normal University, China, presented a keynote speech titled Data-Intelligence Empowered Fusion Education: An Innovative Framework for Smart Education Practice, in which he mentioned that when it comes to smart education, it is important to have educational wisdom, which mainly consists of data wisdom, teaching wisdom, and cultural wisdom with a multiplicative relationship, and he proposed a new educational model called "Intelligence-Integrated Classroom" which is designed to incorporate AI into classroom teaching to promote multi-directional interaction between teachers and students.

Prof. Margarida Romero from Université Côte d'Azur, France, in her keynote speech titled *Supporting Teachers to Design Artificial Intelligence-Enhanced Learning Activities*, called for cultivating students' and teachers' technological literacy through international cooperation and interdisciplinary projects. She stated that technology is not only a tool for education but also a means to promote learning, innovation, and personalized development. She emphasized that teachers will not be replaced by AI; instead, their abilities will be strengthened through AI, finally achieving complementarity between humans and AI.

Dr. Quentin Wodon, Director of UNESCO's International Institute for Capacity Building in Africa (IICBA), presented a keynote speech titled *Digital Skills, AI, and the African Union Implications for the CESA Process* via video. He discussed the implementation effects of Africa's education strategies and emphasized the importance of ICT in improving education quality and teacher's abilities. He called for policy dialogue and teacher training measures to promote the application of AI and digital technologies in education, thereby achieving the digital transformation of education and enhancing the digital skills of teachers and students.

Mr. YANG Hui, General Manager of the Education Industry Business, Tencent Cloud, China, in his keynote speech titled *Tencent's Exploration of AIGC in Educational Teaching*, introduced the application of AI technology in education and its impact on teachers and students. He noted that AI is used to support project-based learning design and guide students' writing, AI agents can help teachers design effective teaching plans, and AI can spark students' creative inspiration. These applications not only reduce teachers' workload but also promote students' creative thinking and personalized learning experiences.

Prof. HU Xiaoyong, Director of the Center for Faculty Development, South China Normal University, China, presented a keynote speech titled *Infusing New Momentum into the Training of Education Students with Artificial Intelligence*. In response to the prevalent supply, efficiency, and development problems in Chinese normal colleges' training of the basic teaching skills of education students, he systematically expounded on the work of "innovative practice of using AI to assist in the training of basic teaching skills for education students" conducted by the Graduate School in association with the Undergraduate School and the Center for Faculty Development,South China Normal University, China, with the support of university leadership. He also released *The Report on the Development of Intelligent Training of Basic Teaching Skills of Pre-service Teachers* by his team.

Theoretical Framework of Intelligent Educational Literacy:

- The intelligent era demands an enhancement of teachers' information literacy, particularly their digital literacy and intelligent teaching literacy.
- Intelligent educational literacy entails not only mastering AI technologies but also understanding scientific teaching principles and methods, as well as the ability to effectively utilize AI.
- The research team has proposed a theoretical framework for intelligent educational literacy, encompassing comprehensive literacy in knowledge, abilities, thinking, ideology, and values.

Empowering High-Quality Teacher Training with Artificial Intelligence:

- AI technologies are employed to address supply challenges, lack of data alignment, and developmental issues in teacher training.
- An evaluation and observation index system for basic teaching skills is established, and an intelligent diagnostic training system is developed, along with the design of intelligent training scenarios and application modes.
- Digital portrait technology is utilized to provide individual and phased diagnostic assessment reports for teacher candidates, guiding them in skill enhancement.

Research Innovations and Practical Impacts:

- In terms of model innovation, the "guided learning, self-study, and intelligent learning" intelligent training model is formed, alleviating the supply challenges in guiding and serving teacher candidates.
- In practical application, an intelligent training evaluation index system is developed to solve efficiency issues.
- In technological breakthroughs, intelligent training analysis methods and national invention patents are developed to address developmental challenges.

In the Invited Speeches, **Prof. Abtar Darshan Singh**, UNESCO Chair on Harnessing Innovations in Technology to Support Teachers & Quality Learning, delivered a speech titled *Generative AI and the Future of Teaching*, demonstrating how AI technology can promote personalized learning after applying generative AI in education. She stated that teachers should embrace and use generative AI as a tool to enhance students' learning experiences rather than fear being replaced by it. She called for international cooperation and training programs to enhance educators' AI application skills and achieve sustainable education.

Prof. KONG Siu Cheung, Director of the Artificial Intelligence and Digital Competency Education Centre, the Education University of Hong Kong, China, delivered a speech titled *Generative AI Empowering Self-Regulated Learning: From Computational Thinking Development to AI Literacy*, in which he noted that problem-solving ability is the core, and teachers should guide students to learn how to solve problems independently, rather than just following instructions, and he emphasized the importance of maintaining human wisdom and independent thinking, avoiding over-reliance on AI, and ensuring the use of AI as a tool to enhance rather than replace human capabilities.

Mr. ZHOU Zhihua, Founder and CEO of Digital Campus, OUR SCHOOL, China, in his speech titled *AIGC Empowering Education Transformation in the Digital Era*, shared how to use generative AI to assist teachers in teaching and how to develop AI products that are useful and appealing to teachers. He mentioned that generative AI can

help liberate teachers from tedious work and reduce their workload.

Ms. Jyoti Rahaman, Senior Project Executive and Education Innovation Lead of the Asia-Europe Foundation (ASEF), delivered a speech titled *Smart Education in the Era of AI: Empowering Teachers and Teacher Trainers through Peer-to-Peer Collaboration*. She shared how the ASEF project empowers teacher training through peer-to-peer collaboration to track prospective teachers. She noted that teachers should have a better understanding of intelligent education; otherwise, they will find it difficult to solve future tasks.

Mr. YANG Jinyong, Director of the Center for Educational Technology and Resource Development, Ministry of Education, P.R.China, shared in his speech titled *How the National Smart Education Platform Shapes the Teachers of the Future* the achievements and cases related to teacher development since the launch of the national smart education platform of China. He called for the continued support of the national smart education platform of China for teacher development and high-quality educational development, to lay a solid foundation for building a leading country in education.

Prof. ZHAO Cheng from SDU-ANU Joint Science College, Shandong University, China, delivered a speech titled *Teaching and Learning with AI Language Models: From Content Summarization to Interactive Learning*, addressing core issues related to AI's transformation and development and its impact on future education and teacher training. He underscored the importance of the design of scene dialogues in practical teaching.

Mr. FAN Liang, Principal of Xinpu Central Primary School, Mian County, Hanzhong City, Shaanxi Province, China, in his speech titled *Artificial* shared how AI empowers rural education and teaching from the case of a classroom, a concept, and a dream. He emphasized the importance of providing more precise and personalized knowledge for each student through the human-computer collaborative teaching mode, truly teaching students according to their aptitude, and promoting the shift to a learning-centered approach.

Mr. JIANG Junbin, Principal of Lijia Experimental Primary School, Liangjiang New Area, Chongqing, China, in his speech titled *Constructing an AI-based Environment to Foster Teachers' Digital Growth*, shared how AI promotes teachers' growth from aspects of "management," "training," and "research" and how to promote school development through digital and transformation technologies. He stated that in the digital transformation of education, where teachers are managed to frequently use and are trained to become able to use and make good use of AI, people are the key to success.

Ms. LI Baiyan, Dean of Shanghai Pudong Institute of Education Development, China, delivered a speech titled Intelligent Coexistence: The Practice of Cultivating Teachers' Digital Literacy in Pudong via video, sharing the Pudong solution to AI-empowered fostering of teachers' digital literacy. She noted that in the era of AI, we should not rely on AI for everything, and human intelligence and AI should coexist and promote each other.

*The Forum on AI and the Future of Teaching is co-hosted by the UNESCO Institute for Information Technologies in Education (UNESCO IITE), the Faculty of Education, Beijing Normal University, China, the UNESCO Chair on Artificial Intelligence in Education, and the Institute of Artificial Intelligence Education, South China Normal University, China, and co-organized by Tencent Cloud, China. For more information, the video is available at **https://wx.vzan.com/live/page/702750327**

Key takeaways

- Teachers are at the heart of educational reform, and their digital literacy and instructional competence are paramount. It is recommended to implement teacher digital literacy standards, comprehensively enhancing their digital capabilities across teaching design, implementation, evaluation, and management. Teachers should be encouraged to embrace AI technology, update their ideologies and knowledge structures, and elevate their digital literacy. Exploring human-machine collaborative teaching can facilitate the construction of integrated classrooms, driving improvements in both teaching quality and efficiency through technological innovation.

- We must position ourselves as technology co-creators rather than mere consumers. Teachers should guide students beyond mere technology usage towards content creation and deep learning. By optimizing teaching activities with technology, we can harness its advantages. Fostering technical literacy, particularly critical thinking and creativity—traits that AI cannot replicate—alongside enhancing problem-solving skills, is essential for shaping a new educational ecosystem.

- Intelligent teachers must transcend mere technical proficiency, deeply understand teaching principles, and adeptly utilize AI to empower education. Our AI education literacy framework emphasizes competencies as the core, integrating knowledge, abilities, thinking, and values, aiming to cultivate comprehensive talents capable of identifying and solving problems in the era of intelligence. Teachers should prioritize creativity, integrating AI technology into the art of teaching, and jointly creating a new chapter in smart education.

- Practice is the criterion for knowledge. Teachers must translate theory into teaching action. It is advisable to establish a regular mechanism for intelligent training, supporting normal and pre-service teachers' teaching practices through manuals and systematic norms. Utilizing digital portrait techniques in conjunction with national social science fund projects, we can continuously publish research outcomes, providing individual and phased skill diagnostic reports for pre-service teachers, offering precise guidance, and facilitating steady improvements in teaching skills.

- Establishing a collaborative learning environment for teachers involves four steps: 1) fostering an autonomous learning environment to enhance individual foundations; 2) fostering teamwork to strengthen cross-cultural collaboration skills; 3) promoting behavioral learning to enhance digital and instructional literacy through practice; 4) implementing school-level execution and feedback to drive innovative teaching. Additionally, we should build a certified community, collaborate with international institutions, introduce innovative teaching cases, promote open educational resource research, empower teacher training, and share teaching achievements.

Forum on Smart Villages and Education for Rural Transformation

The forum included keynote speeches, country case reports, and panel discussions, where participants delved into topics like smart village development in the digital age, the impact of digital technology on educational transformation, and strategies for promoting sustainable rural development. They shared the latest theoretical research, practical insights, project results, and successful case studies from various countries and fields. Discussions also focused on leveraging digital technology to improve the quality of rural education and facilitate skill transformation within rural communities.

Group Photo of Guests from Forum on Smart Villages and Education for Rural Transformation

SPEAKERS

Prof. ZHOU Zuoyu
Vice President, Beijing Normal University; Director, UNESCO INRULED

Mr. Shahbaz Khan
Director, UNESCO Regional Office for East Asia

H.E. Ms. Bo Chankoulika
Under Secretary of State, Ministry of Education, Youth and Sport, Cambodia

Prof. Vinayagum Chinapah
Stockholm University, Sweden

Prof. WANG Libing
Chief, Section for Education at the UNESCO Regional Office in Bangkok, Thailand

Prof. GUO Jiong
Northwest Normal University, China

Dr. Morn Kritsachai Somsaman
Director, SEAMEO STEM-ED

Mr. Ricaud Auckbur
Acting Chief Technical Officer, Ministry of Education, Mauritius

Mr. SHUAI Jianzhu
Chairman, Federation of Returned Overseas Chinese in Lin'an District, China

Prof. Greg Shaw
Charles Darwin University, Australia

Mr. Risoi Koiyu
Executive Director, Institute of Technical Vocational Education and Training, University of Goroka, Papua New Guinea

Ms. Supriatin Dra
Chairman, SMK Global Technology Vocational Technical High School, Indonesia

Mr. Haji Hamzah Ahmad Fakhrurazi
Dean, Lahad Datu Vocational College, Malaysia

Dr. Carina C. Untalasco
Principal IV, Calasiao Comprehensive National High School, Department of Education, Philippines

Mrs. Puttachard Suphalucksana
Director, Centre for International Education Promotion of Taksina Institute of Business and Technology, Thailand

Prof. Dr. Vu Van Phong
Deputy Director, Office of Science and Technology of University of Science and Technology Education, Ho Chi Minh City, Vietnam

MODERATORS

Dr. ZHAO Yuchi
Executive Director, UNESCO INRULED

Dr. QI Xinjian
Programme Specialist, UNESCO INRULED

Mr. Khat Prumsochetra
Deputy Director, SEAMEO TED

Ms. FANG Yuan'an
Programme Coordinator, UNESCO INRULED

Prof. ZHOU Zuoyu, Vice President of Beijing Normal University and Director of UNESCO INRULED, emphasized the critical need to address disparities in rural education and development. He highlighted that rural revitalization remains a significant challenge worldwide. Prof. ZHOU advocated for closing the "digital divide" between urban and rural areas, utilizing digital technology to enhance high-quality rural education, and supporting skill transformation and innovation to foster rural revitalization in the context of the digital economy and green transformation, aiming to build more inclusive and resilient learning-oriented villages.

Mr. Shahbaz Khan, Director of the UNESCO Regional Office for East Asia, expressed that integrating digital technology into education not only improves learning quality but also promotes skill development among rural youth, fosters decent employment, and stimulates economic growth. He stressed the importance of international collaboration to transform rural education and shape a better future.

H.E. Ms. Bo Chankoulika, Under Secretary of State, Ministry of Education, Youth and Sport, the Kingdom of Cambodia, noted that a significant portion of the world's impoverished population resides in rural areas of developing countries. Smart village construction and smart education

are essential for equipping citizens with the necessary knowledge, skills, and mindset for development in the digital age, and for addressing systemic challenges. The Cambodian government has made notable advances in the digital transformation of rural education and is committed to further enhancing the quality of education in rural areas through capacity building, supporting system development, and international cooperation, thereby advancing national economic development and strengthening social cohesion.

In his keynote address, **Prof. Vinayagum Chinapah**, Emeritus Professor at Stockholm University, Sweden, and an expert on the "Learning Villages in a Digital Era" project, advocated for the development of learning-oriented villages tailored for the digital era. He pointed out the existence of the rural digital divide and called for attention to the everyday needs of rural areas, advocating for the use of digitization to empower rural populations and enhance rural welfare and quality of life. He advocated for a people-centered transformation of rural education, stressing the authenticity and necessity of rural data to make effective decisions. He mentioned successful cases of technology utilization during the pandemic and called for investments in rural areas to ensure that rural people reap the benefits of technological advancements. Finally, he proposed designing a framework that takes into account local conditions, effectively utilizes resources, and achieves sustainable development in rural education.

Prof. WANG Libing, Chief of the Section for Education at the UNESCO Regional Office in Bangkok, Thailand, underscored the pivotal role of Technical and Vocational Education and Training (TVET) in rural transformation. He emphasized that rural transformation serves as vocational and technical education. He proposed six key points: Firstly, rural transformation is a cornerstone; secondly, technological development plays a crucial role in this transformation; thirdly, TVET (Technical and Vocational Education and Training) should be developed based on demand; fourthly, personalized education and micro-credentials facilitate transformation; fifthly, TVET needs to align with market demands; and sixthly, TVET has a broad impact on rural transformation, promoting social inclusivity and sustainable development.

Prof. GUO Jiong, Dean of the School of Educational Technology at Northwest Normal University, China, addressed the pathways for balancing educational resources between urban and rural areas through digital technology in her keynote speech. She emphasized the crucial role of balanced resource allocation in achieving equity and improving quality. This involves societal and individual growth, aligning with rural revitalization and enabling rural children to adapt while preserving local values. China's efforts in achieving equity in starting point, process, and outcome were noted, with strides in internet access and multimedia classrooms. Now, the

focus is on process equity, ensuring teachers use resources effectively. She introduced "Cloud Schools" to aggregate resources, offer personalized learning, and provide virtual experiences, aiming to better meet rural needs and promote integrated urban-rural education development.

During the country reports and case studies session, **Dr. Morn Kritsachai Somsaman**, Director of SEAMEO STEM-ED, shared initiatives aimed at advancing STEM education in rural schools across Southeast Asia. **Mr. Ricaud Auckbur**, Acting Chief Technical Officer at the Ministry of Education, Mauritius, presented cases of overcoming geographic, transportation, and economic challenges on Agalega Island to implement digital education. **Mr. SHUAI Jianzhu**, Chairman of the Federation of Returned Overseas Chinese in Lin'an District, Hangzhou, Zhejiang Province, China, discussed practices in Lin'an that support rural revitalization through the "Overseas Chinese Revitalize Villages" program, focusing on nurturing innovative and entrepreneurial talent within the overseas Chinese community. **Prof. Greg Shaw**, Emeritus Professor at Charles Darwin University, Australia, talked about online professional development for supporting rural education. He provided insights into the evolution and challenges of online learning, highlighted successful case studies, and outlined key principles for success. **Mr. Risoi Koiyu**, Executive Director at the Institute of Technical Vocational Education and Training, University of Goroka, Independent State of Papua New Guinea, spoke about smart villages and the role of education in rural transformation. He detailed efforts in Papua New Guinea towards rural development, expressing hope for a brighter and more equitable future through innovation, technology, and community-driven approaches. transformation and future workforce

Panel Discussion

The panel discussion was participated by 5 national representatives from the TVET Leadership and Management Programme workshop: Ms. Supriatin Dra, Chairman of the SMK Global Technology Vocational Technical High School, Indonesia; Mr. Haji Hamzah Ahmad Fakhrurazi, Dean of the Lahad Datu Vocational College, Malaysia; Dr. Carina C. Untalasco, Principal IV of the Calasiao Comprehensive National High School, Department of Education, Philippines; Mrs. Puttachard Suphalucksana, Director of the Centre for International Education Promotion of Taksina Institute of Business and Technology, Thailand; and Assoc. Prof. Dr. Vu Van Phong, Deputy Director of the Office of Science and Technology of University of Science and Technology Education, Ho Chi Minh City, Vietnam. The discussion focused on the digital transformation in vocational and technical education to support sustainable rural development. Topics addressed included the use of digital technology to empower rural education, bridging skill gaps in rural areas, vocational training and entrepreneurship, digital literacy, and forming partnerships to advance rural education transformation.

Photo of Panel Discussion

The forum emphasized the urgent need to transform rural education in the digital age, highlighting the role of technological advancements and innovation in promoting educational equity and high-quality development. It fostered a consensus on the necessity of enhancing skills education and training to improve learning and employment opportunities for rural populations, enabling them to adapt to the demands of economic digitalization and green transformation. The event ran concurrently with the TVET Leadership and Management Programme (Workshop). Through closed-door discussions, presentations, group discussions, and field visits, participants further honed their leadership and management skills to propel the digital transformation of vocational and technical education and promote sustainable rural development.

*This Forum on Smart Villages and Education for Rural Transformation is co-hosted by the UNESCO International Research and Training Centre for Rural Education (UNESCO INRULED), the Southeast Asian Ministry of Education Organization Regional Center for Technical Education Development (SEAMEO TED), the UNESCO Regional Office for East Asia (UNESCO Beijing), the Southeast Asian Ministry of Education Organization Regional Centre for STEM Education (SEAMEO STEM-ED), and the School of Educational Technology at Northwest Normal University, China. For more information, the video is available at **https://wx.vzan.com/live/page/1691473855**

Key takeaways

- Rural Education as the Core Driver of Rural Development: Rural education stands as the pivotal force driving rural development, crucial for talent cultivation, skills transformation, and social innovation. It serves as the cornerstone and precursor for rural revitalization. Amid technological revolutions and industrial transformations, the wave of digital intelligence innovation presents both opportunities and challenges for rural education and revitalization. It necessitates the profound integration of digital technologies across all sectors of rural development, fostering high-quality educational transformation, empowering rural populations with upgraded skills, and constructing a lifelong learning system that encompasses all rural dwellers, collectively painting a new picture of rural revitalization.

- Eliminating Technophobia Among Rural School Leaders: Advancing rural education requires school leaders to deeply comprehend the value of technology and dispel any resistance. During technology promotion, ensuring the participation and acceptance of all stakeholders is paramount. Demonstrating technology's effectiveness through projects can alleviate doubts. The primary task is to clarify the definition of "learning," avoiding empty talk and laying a solid foundation for educational reform.

- Education as the Foundation for Rural Revitalization: Education underpins rural revitalization, empowering villagers to enhance their quality of life and adapt to the digital era. Promoting new paradigms like smart education fosters educational equity, reaching deep into rural areas. Facing challenges in digital equipment and teacher skills, a sustainable smart education strategy is needed, reinforcing infrastructure and adaptive training to propel rural education's leapfrog development.

- Transforming Rural Areas through TVET: Renewing old projects and developing new ones tailored to rural uniqueness is essential for TVET (Technical and Vocational Education and Training) to impact rural transformation. Micro-credentials, as efficient tools, focus on technical training, offering flexibility and convenience without the need for full-time study. Designed based on actual needs, they emphasize practice and problem-solving, enabling learners to quickly acquire skills and succeed in their local environments.

- Cloud-based Schools for Optimal Resource Allocation: Cloud schools can aggregate quality educational resources: Firstly, through social collaboration, bringing together outstanding teachers from schools, retired educators, researchers, and industry experts to enrich educational services for rural students. Secondly, personalized offerings utilizing intelligent tutors and learning partners cater to students' individual needs through interactive Q&A. Lastly, integrating virtual and physical experiences enables rural students to complete learning tasks in virtual museums and science centers, integrating them into societal development and enjoying quality resources and mentorship.

Forum on Integration of Education, Technology and Industry

Promoting the integration of science and education as well as the fusion of industry and education to support innovative practices in smart education

Education, science and technology, and human resources are the foundational and strategic pillars for building a modern socialist country in all respects. The integration of technology and education is a dynamic engine for reshaping the talent cultivation system, while the integration of industry and education is the mechanism to enhance the resilience of education and the economy, supporting and leading innovative practices in smart education.

Group Photo of Guests from Forum on Integration of Education, Technology and Industry

SPEAKERS

Mr. WANG Jianhua
President, CIUR, China

Prof. Saoussen KRICHEN
General Manager, Centre de Calcul El-Khawarizmi, Ministry of Higher Education and Scientific Research, Tunisia

Mr. WANG Shunbing
Deputy Director (acting), Department of Social Affairs, Administrative Center for China's Agenda 21

Prof. GAO Xiang
Academician of the Chinese Academy of Engineering

Ms. Dorothy Gordon
Former Chair of the Information for All Programme, UNESCO

Mr. LEI Chaozi
Executive Vice President, CIUR, China

Prof. Mohamed Jemni
Director , ICT Department, ALECSO

Prof. TONG Lili
Deputy Director, National Engineering Research Center of Cyberlearning and Intelligent Technology

Prof. QIAN Weining
Dean, School of Data Science and Engineering, East China Normal University

Prof. ZHANG Yuhu
Deputy Director, Department of Science and Technology, Capital Normal University, China

Mr. YU Biao
Senior Vice President, NetDragon Websoft Inc.

Mr. ZHANG Quan
Chief Physician, Tianjin Orthopedic Hospital, China

MODERATORS

Prof. YU Qingchen
Deputy Director, Faculty of Education, Beijing Normal University, China

Prof. WANG Zhichun
Vice Dean, School of Artificial Intelligence, Beijing Normal University, China

It is necessary to coordinate reforms in education, technology, and talent systems and mechanisms. **Mr. WANG Jianhua**, President of the CIUR, China, stated that the industry-university-research collaborative innovation platform represents an innovative systematic organizational model and an important way to implement the strategy for invigorating China through science and education, the workforce development strategy, and the innovation-driven development strategy. He emphasized that Beijing Normal University's establishment of the "China's Smart Education Industry-Academia-Research Collaborative Innovation Platform" in association with related organizations is a vivid example of calling for "coordinating the construction of various innovation platforms and strengthening the coordination of innovation resources and the organization of innovation forces."

Prof. Saoussen KRICHEN, General Manager of CCK (Centre de Calcul El-Khawarizmi), Ministry of Higher Education and Scientific Research, Tunisia, spoke about the importance of promoting exchanges between academia and industry. She explained that Tunisia has three telecom operators that provide infrastructure support to allow students and even the general public to enjoy free online educational resource services; the Ministry of Higher Education and Scientific

Research, Tunisia, supports the El-Khawarizmi Computing Center (CCK) in playing a hub role in converging various information technology tasks at the base level; Tunisia focuses on researching the ethics of artificial intelligence (AI) and uses AI technology to improve the security of personal data protection in the process of advancing the deep integration of digital technology and education.

Technology empowerment is the core value of integrating intelligent technology into education. In the special project managed by it, namely "Social Governance and Smart Society Technology Support" of the National Key Research and Development Programs during the 14th Five-Year Plan period, the Administrative Center for China's Agenda 21 has specially set up a smart education section, focusing research on student growth, teacher development, educational environment, regional governance, and special groups. **Mr. WANG Shunbing**, Deputy Director (acting) of the Department of Social Affairs, the Administrative Center for China's Agenda 21, expressed the hope that by deploying and researching into a series of science-education integration projects, China will explore a path of solving educational challenges through science-education coordination with Chinese characteristics, to support the building of a new system for smart education development.

In his keynote speech titled Reflections and Practices on Cultivating Top Innovative Talent through the Integration of Science, Education, and Technology under the Vision of Carbon Neutrality, **Prof. GAO Xiang**, Academician of the Chinese Academy of Engineering and President of Zhejiang University of Technology, China, shared his understanding of the development trend of talent cultivation through the integration of education and technology and presented the practices of Zhejiang University of Technology and Baima Lake Laboratory in cultivating top-notch innovative talents, which involve measures such as collaborating with high-level sci-tech innovation platforms, co-building science-education integration colleges, and deepening science-education integration mechanisms to cultivate innovative talents on a large scale across the entire chain and explore a talent cultivation system combining AI, energy, and talent training.

Ms. Dorothy Gordon, Former Chair of the Information for All Programme, UNESCO, pointed out that promoting the digital transformation of education should involve interdisciplinary, multi-stakeholder, and multi-faceted actions and exert the interactions of different participants under a global development concept. According to her, smart education brings a more balanced education by focusing on learners' interests and providing confidence and respect. She also underscored the importance of focusing on the implementation of technological solutions, staying vigilant about data abuse and privacy protection, and jointly developing comprehensive assessment tools in the process of contributing to educational development with technology.

Mr. LEI Chaozi, Executive Vice President of the CIUR, China, presented a keynote speech titled Deepening Industry-Academia-Research

Collaboration and Accelerating the Development of New Quality Productive Forces, in which he proposed four points on "strengthening enterprise-led deep integration of industry, academia, and research": firstly, vigorously advancing organized scientific research and strengthening the demand and problem orientation of sci-tech innovation; secondly, strengthening organized in-depth collaboration between universities and enterprises to overcome technological bottlenecks in key areas; thirdly, synergistically promoting rapid industrialization of sci-tech achievements from universities; and fourthly, bringing into play the role of science and technology in supporting the innovative development of smart education.

Prof. Mohamed Jemni, Director of the ICT Department, the League of Arab States Educational, Cultural and Scientific Organization (ALECSO), presented the digital transformation practices in higher education in the Arab region. He explained that the ALECSO attaches great importance to the digital transformation of higher education in the region and actively acts in aspects of digital learning technologies, digital teaching models, policies and planning, teachers and learners, and partnerships, including collaborative projects with the International Centre for Higher Education Innovation under the auspices of UNESCO (UNESCO-ICHEI), to ensure that education in the Arab world keeps pace with the latest technologies and innovative developments in the field of education.

"China's Smart Education Industry-Academia-Research Collaborative Innovation Platform" Officially Launched under the Principle of Co-creation, Co-building, and Sharing

At the forum, the "China's Smart Education Industry-Academia-Research Collaborative Innovation Platform," initiated by Beijing Normal University in association with related organizations with the support of the CIUR, was unveiled. Beijing Normal University is the supporting entity for the platform, and the National Engineering Research Center of Cyberlearning and Intelligent Technology is the operator of the platform, responsible for its daily work. During the platform awarding ceremony, **Mr. LEI Chaozi**, Executive Vice President of the CIUR, China, read out the "Reply on Supporting the Establishment of 'China's Smart Education Industry-Academia-Research Collaborative Innovation Platform'"; **Mr. WANG Jianhua**, President of the CIUR, awarded the plate to **Prof. HUANG Ronghuai** from Beijing Normal University, China, who is mainly responsible for the platform operator. The awarding ceremony was witnessed by **Prof. LI Maoguo** from the University of International Business and Economics, China, on behalf of universities in the first batch of co-creating entities, **Ms. REN Pingping**, Vice President of iFLYTEK Co., Ltd., China, and **Mr. XIA Yingyuan**, Deputy General Manager of China Reform Culture Holdings Co., Ltd., China, on behalf of the co-building entities, **Ms. MIAO Yaqin**, Specially-invited Expert of the Educational Informatization Strategy Research Base (Beijing), Ministry of Education, P.R.China, and Former Deputy Director of the Bureau of Education of Changsha Municipality, Hunan Province, China, on behalf of the sharing entities, together with the two leaders of the CIUR, and **Prof. TONG Lili**, Deputy Director of the National Engineering Research Center of Cyberlearning and Intelligent Technology.

Photos of Platform Awarding Ceremony

"China's Smart Education Industry-Academia-Research Collaborative Innovation Platform" aims to effectively integrate resources from all sides, focus on the frontiers of world science and technology and major educational needs, break through bottlenecks hindering key technologies, and serve the core goal of talent cultivation. The platform will set its sight on national economic development and the requirements of high-quality development, build a sustainable ecosystem for educational hardware and software, implement the national education digitalization strategy, create new paradigms for talent cultivation, strengthen deep industry-academia-research integration in the field of smart education, lead the new round of educational transformation with innovation, and promote the high-quality development of education modernization with new quality productive forces developed through education.

Deepening Industry-Academia-Research Collaborative Innovation to Reshape Talent Cultivation System

During the Invited Speeches, guests from the fields of education, technology, industry, and medicine shared new technologies, theories, and models around topics such as the models of industry-education integration for collaborative innovation, the transformation and application of sci-tech achievements in education, and science-education integration for reshaping talent cultivation.

In her speech titled Digital Education Product Risk Monitoring Technical System and Application Practice, **Prof. TONG Lili** from the Faculty of Education, Beijing Normal University, China, mentioned that digital education products can support teacher development, enhance student understanding, promote resource sharing, and contribute to industry governance, but also face drawbacks such as teachers' over-reliance on technology, students' technology worship, a vast number of mixed developers, and ex-post governance by regulators. She shared her team's research on content review and algorithm diagnosis in the risk monitoring system for digital education products, and invited representatives from Zhangzhou Xiangcheng Experimental Primary School, Hanyang School Affiliated to Shandong University, Shanghai Zhangjiang Hi-tech Experimental Primary School, Harbin Jihong Primary School, and Guangyuan Fanjia Primary School to present their campus practices in digital applications, which involve exploring virtuous ecosystems for regulation, application, and industry through organized scientific research and orderly service applications.

Prof. QIAN Weining, Dean of the School of Data Science and Engineering, East China Normal University, shared his observations and reflections on the development of language education technology from the perspective of a computational scientist. According to him, computer science education is an excellent test bed for exploring data-driven computational education, and a good online learning platformhas advantages in data perception, data collection, interaction and feedback, intelligent learning assessment, and customization and recommendation of learning paths. He noted that in reliance on the Metasequoia Portal platform, East China Normal University has promoted a shift in the positioning of its public computer courses from computer education to computer science education.

In his speech titled Safety and Green Construction of Primary and Secondary School Campuses in the Context of Digitalization, **Prof. ZHANG Yuhu**, Deputy Director of the Department of Science and Technology, Capital Normal University, China, introduced the development history of digital and intelligent technologies and their applications in promoting safety and green development of primary and secondary school campuses, and shared the progress of the social governance project undertaken by him, namely "Research on Key Technologies for Collective Wisdom Pooling and Synergistic Prevention and Control in Safe and Green Campus Construction" during the 14th Five-Year Plan period, which explores the use of big data, the Internet of Things, AI, and other technologies to provide sci-tech support for the safety and green and low-carbon development of primary and secondary school campuses.

Mr. YU Biao, Senior Vice President of NetDragon Websoft Inc., China, delivered a speech titled Vocational Education Cooperation in the Context of Globalization: International Perspectives and Local Practices. He introduced Fuzhou Software Technology Vocational College's cooperation with several international institutions under the international perspective of vocational education cooperation and its emphasis on the importance of local practices through activities related to intangible cultural heritage. He explained that based on its globalization strategy, NetDragon Websoft Inc. actively conducts multilateral and bilateral cooperation with countries and regions participating in the Belt and Road Initiative to output Chinese solutions to vocational education.

Mr. ZHANG Quan, Chief Physician of Tianjin Orthopedic Hospital, China, shared his thoughts on the development of campus health education under the integration of medical education from an interdisciplinary perspective in his speech titled Smart Education, Integration of Medical Education - Integrated Development of Campus Health Education from an Interdisciplinary Perspective. He noted that modern medicine can more thoroughly solve complex health problems through interdisciplinary collaborations, and the integration of medical education can promote the integrated development of campus health education and faculty members' occupational health, improve overall health and professional quality, and promote the sustainable development of modern medicine and education.

*The Forum on Integration of Education, Technology and Industry is guided by the Administrative Center for China's Agenda 21 and the China Industry-University-Research Institute Collaboration Association (CIUR) and co-hosted by the National Engineering Research Center of Cyberlearning and Intelligent Technology, the State Key Laboratory of Virtual Reality Technology and Systems, China, and the UNESCO Institute for Information Technologies in Education (UNESCO IITE). For more information, the video is available at **https://wx.vzan.com/live/page/778738824**

Key takeaways

- Deep integration of technological and industrial innovation is vital. Universities and enterprises must collaborate, with universities providing forward-looking technological insights and enterprises contributing market intelligence and funding. This partnership precisely guides innovation directions, mitigates R&D risks, accelerates technology transfer and product iterations, achieving leapfrog development from innovative ideas to market applications, fostering a win-win innovation ecosystem.

- Smart education innovation platforms should bolster collaboration, integrating talent, technology, data, and industrial chain resources, streamlining innovation pathways, and accelerating the application of research outcomes. Upholding the principles of openness and sharing, they should facilitate data circulation among industry, academia, research, and application, offering open services through consultation, cooperation, and popularization, transforming scientific and technological achievements into real productive forces. Keeping pace with global technological trends, deepening international cooperation will create internationally influential and widely applied smart education innovations.

- Solutions must be explored and optimized to prevent excessive data collection from children. With diverse classroom technologies and teacher skills in global basic education, policymakers are exploring ways to equip students to navigate digital challenges. However, policymakers should avoid blindly following trends out of technological fear without fully understanding their potential. Externally funded projects may yield short-term results but often fail to sustain post-project. Thus, fostering a deep understanding of technology is crucial to ensure the long-term implementation of smart education, avoiding short-lived effects.

- Digitalization's core lies in analog-to-digital conversion, but transformation encompasses a holistic strategic shift in operational culture and value creation. We adopt a specific theoretical framework encompassing seven dimensions: learning technology models, personnel support, organizational policies, teacher development, student growth, partnerships, and integrated strategies. Successful transformation necessitates the strategic fusion of technology, culture, and organizational change, transcending mere infrastructure upgrades into a comprehensive, holistic strategic layout.

- Accurately aligning with foreign demands and studying their industrial policies poses challenges. Addressing misconceptions like "free Chinese products" is also necessary. Private vocational education must avoid formalism, ensuring practical effectiveness. Yet, this presents opportunities: integrating an international perspective, embedding vocational education into Chinese enterprises' overseas industrial chains, empowering them, and achieving mutual benefits. Practical cooperation underscores the value of vocational education.

Forum on Digital Education and Lifelong Learning

The forum explored critical topics such as the iterative evolution of new technologies in smart learning environments, digital transformation and the innovative use of learning resources, evolving learning patterns and pedagogies in the digital age, digital tools, teaching materials and equipment for experimental teaching, and lifelong learning for all and the framework for establishing a lifelong learning society.

Photo of Forum on Digital Education and Lifelong Learning

SPEAKERS

Ms. Torunn Gjelsvik
Secretary General, ICDE

Mr. LI Song
Vice President, Open University of China

Dr. Rajni Chand
Director, Centre for Flexible Learning, University of the South Pacific, Fiji

Prof. Maria Cecília Calani Baranauskas
State University of Campinas, Brazil

Prof. Elijah I. Omwenga
Vice Chancellor, Open University of Kenya

Dr. Teng Waninga
Vice Chancellor, University of Goroka, Papua New Guinea

Prof. Oksana Strutynska
Université Côte d'Azur, France

Mr. LIU Guangquan
Jinan Information Engineering School in China

Dr. FANG Ke
Manager, AgentLand Laboratory, Tsinghua Shenzhen International Graduate School, China

Ms. TAN Ting
Information Technology Department, Hanyang District Teaching Research and Training Center in Wuhan, China

MODERATORS

Ms. Svetlana Kniazeva
Chief of Unit, Digital Pedagogy and Learning Materials, UNESCO IITE

Mr. WANG Hongyu
Executive Secretary General, Virtual Simulation Experiment Teaching Innovation Alliance, China

In the keynote session, **Ms. Torunn Gjelsvik**, Secretary General of the International Council for Open and Distance Education (ICDE), delved into the inclusivity, scalability, and sustainability of digital education and lifelong learning from a global viewpoint. She highlighted the essential role of open and distance education in achieving the United Nations Sustainable Development Goal 4, providing case studies that demonstrated how various countries are utilizing digital technology to promote lifelong learning.

Mr. LI Song, Vice President of the Open University of China, discussed how the digital empowerment of open education advances high-quality lifelong learning development. He stressed the importance of educational digitalization for building a lifelong learning society and detailed the "1234" strategy of the Open University of China, outlining a vision for the future of open education.

Dr. Rajni Chand, Director of the Centre for Flexible Learning and PACFOLD at the University of the South Pacific, Fiji, addressed the digital education challenges unique to the South Pacific region, such as insufficient infrastructure and pervasive digital divides. She illustrated how digital education and open distance learning programs could progressively alleviate educational inequalities and bolster regional educational advancement.

Prof. Maria Cecília Calani Baranauskas from the State University of Campinas, Brazil, explored the avenues to intelligent education facilitated by ubiquitous technology, focusing on "socially interactive learning environments." She emphasized that intelligent education goes beyond mere technological implementation; it also necessitates an understanding of the interactions among humans and technology on social, emotional, and physical levels.

In the case report session, **Prof. Elijah I. Omwenga**, Representative of the Cabinet Secretary, Ministry of Education, Kenya, and Vice Chancellor of the Open University of Kenya, addressed the significant global impact of digital education. He spotlighted the innovative efforts by Africa, particularly Kenya, in overcoming the challenges posed by digital education.

Dr. Teng Waninga, Vice Chancellor of the University of Goroka in the Independent State of Papua New Guinea, highlighted the many challenges faced by Papua New Guinea and the South West Pacific island nations in promoting smart education and lifelong learning. These challenges include insufficient technology and infrastructure, outdated teacher training programs, and inadequate resource allocation.

Prof. Oksana Strutynska from Université Côte d'Azur, France, facilitated a compelling discussion on the topic "Will AI Teachers Replace Human Educators?" AI has wide applications in education but is unlikely to replace human teachers, especially in preschool education. Instead, AI will assist teachers, enhancing teaching quality, and the roles of both will become more balanced in the future.

Mr. LIU Guangquan from Jinan Information Engineering School in China discussed the school's innovative "Internet+ Vocational Education" initiatives. These include leveraging advanced technologies like big data and AI to develop a dynamic, all-scenario smart campus, which significantly enhances both management efficiency and the quality of education.
Dr. FANG Ke, Manager of the AgentLand Laboratory at Tsinghua Shenzhen International Graduate School, China, provided a detailed examination of large model intelligent agents in terms of theory and practice. His presentation covered the definitions, roles, and cutting-edge applications of these agents in the educational sector.

Ms. TAN Ting from the Information Technology Department at the Hanyang District Teaching Research and Training Center in Wuhan, China, detailed how Hanyang District, being one of the pioneering national "Scientific Education Experimental Districts," has effectively utilized a blend of digital and intelligent technologies to foster comprehensive advancements in regional scientific education.

During this forum, participants shared pioneering insights and valuable experiences related to digital teaching and lifelong learning. Their goal was to promote multi-disciplinary collaboration and communication, thereby enhancing innovative practices in digital teaching and supporting the development of a society committed to lifelong learning.

*The Forum on Digital Education and Lifelong Learning is co-hosted by the National Engineering Research Center of Cyberlearning and Intelligent Technology, the UNESCO Institute for Information Technologies in Education (UNESCO IITE), the Commonwealth of Learning (COL), and the Virtual Simulation Experiment Teaching Innovation Alliance, with additional co-organization by NetDragon Websoft Inc. For more information, the video is available at **https://wx.vzan.com/live/page/2000176025**

Key takeaways

- In the context of digital transformation in education and the development of a learning society, we must rethink innovative teaching models and learning approaches to facilitate tailored education, personalized learning, and lifelong learning. Leveraging digital technologies for educational innovation necessitates the fundamental theoretical underpinning of digital pedagogy, focusing on technology-enabled and learner-centered learning within a trusted digital environment.

- To bolster lifelong education, practical applications should be strengthened, and a new credit bank system should be established. Recommendations include: 1) conducting top-down planning, forming expert teams, drawing on international experiences to advance national qualifications frameworks and credit bank systems; 2) refining learning outcomes certification systems and establishing certification standards; 3) fostering "three educations" (teaching content, teaching methods, and educational technology) collaborative innovation, establishing pilot zones to promote certification standards and rules; 4) expanding credit bank applications, nationally recognizing learning outcomes, establishing lifelong learning portfolios, bridging formal and non-formal education, and building bridges for talent development.

- Strengthening lifelong learning and adult education programs, empowering NGOs with ODL (Open and Distance Learning) to support ODFL (Open Digital Flexible Learning), is advised. Implementation can be phased into: 1) engaging NGO partners; 2) launching short-term online courses emphasizing technology, innovation, and leadership; 3) assisting NGOs in empowering youth to complete courses. Addressing the technological education gap in the Pacific region, localized tools should be designed. Teachers should be trained in design and practical skills to propel lifelong learning, fostering positive individual and societal change.

- Schools are encouraged to adopt smart management strategies, leveraging platforms to integrate big data and AI technologies, constructing a unified smart campus management system covering administration, teaching, student management, home-school communication, personnel performance, and intelligent office hardware. This will eliminate information silos, accelerate informatization integration, and enhance management efficiency and digital competencies among teachers and students. Additionally, introducing AI assistants and providing diverse learning tools can motivate continuous learning, fostering a lifelong learning culture.

Forum on Innovation, Research and Best Practices in Smart Education

In the digital era, the new form of education, smart education, is an inevitable choice for advancing equitable, inclusive, and high-quality education. Deepening the digitalization of education and innovating in smart education hinges on cultivating a digital mindset within the educational system, solidifying the capabilities that support digitalization, developing high-quality digital learning content, and constructing a public service system for digital learning accessible to all. Directors, principals, and teachers are the main agents of the “practical approach” to smart education, supporting and leading the innovative practices of smart education.

Group Photo of Guests from Forum on Innovation, Research and Best Practices in Smart Education

SPEAKERS

Mr. Svein Oesttveit
A.I. Director, UNESCO IBE

H.E. Dr. Randa Ahmad Hafez Shaheen
First Undersecretary, Ministry of Education, Egypt

Mr. Chia Hai Siang
Lead Specialist, Educational Technology Division, Ministry of Education, Singapore

Ms. MIAO Yaqin
Former Deputy Director, Bureau of Education of Changsha Municipality, China

Dr. Chin Sam Ath
Deputy Director, Policy Department, Ministry of Education, Youth and Sport, Cambodia

Ms. WANG Qian
Vice Principal of Guanggu No. 1 Primary School, Wuhan City, Hubei Province, China

Ms. LI Xiaotao
Principal of Longhua Central Primary School, Longhua District, Shenzhen City, China

Mr. HUANG Qiang
Vice Principal of Tianfu New District No. 7 Primary School, Chengdu City, Sichuan Province, China

Ms. QIAN Dan
Principal of Tangjiawan Middle and Primary School, Xiling District, Yichang City, Hubei Province, China

Ms. Jeanette Westfall
Author & Consultant, Ishmael Consulting

Ms. ZOU Xianlian
Principal of Xingyuan Primary School of Liangjiang New District, Chongqing City, China

Mr. CAO Jianxin
Principal of Mingda High School, Changsha City, Hunan Province, China

Ms. ZHANG Feiyan
Teacher, Ethnic High School, Guizhou Ziyun Autonomous County, China

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MODERATORS

Prof. LI Yushun
Beijing Normal University, China

Ms. SHEN Yang
Assistant Researcher, Collaborative Innovation Centre of Assessment for Basic Education Quality, China

In the Keynote Speeches, **Mr. Svein Oesttveit**, A.I. Director of the UNESCO International Bureau of Education (UNESCO IBE), spoke about the many influences UNESCO has brought to the international community from aspects of curriculum innovation and development, capacity building, educational fairness and inclusion, partnerships, and evaluation and supervision. He emphasized that the core of the curriculum should reflect a nation's traditions, culture, history, and foundations, and underscored the importance of mother-tongue, bilingual, and multilingual education.

H.E. Dr. Randa Ahmad Hafez Shaheen, First Undersecretary of the Ministry of Education, the Arab Republic of Egypt, mentioned that the Egyptian education system has integrated innovative elements in curriculum development and smart banking etc. into the entire learning process, to enhance innovation in education. Teachers in Egypt could acquire essential technical capabilities through electronic examinations and training, which enable them to master related skills in digital transformation and adapt to new teaching methods. She emphasized that technology and artificial intelligence bring both opportunities and potential threats to

human development, and we must ensure our survival in the new era of artificial intelligence.

During the Policy Dialogues, **Mr. Chia Hai Siang**, Lead Specialist of the Educational Technology Division, Ministry of Education, Singapore, presented the Singapore Student Learning Space (SLS) as a key tool that furnishes learning resources and services at one stop to support students' self-directed learning and teachers' innovation in teaching. He explained that the SLS offers 23,500 course modules co-created by teachers, synchronizes data daily with the information systems of the Ministry of Education, Singapore, guides teachers in course creation, implementation, and evaluation, and supports sharing and collaboration among teachers. He stated that Singapore is strengthening AI-based education capabilities, improving teachers' technological literacy, and ensuring that technology is applied in line with educational principles.

Ms. MIAO Yaqin, Former Deputy Director of the Bureau of Education of Changsha Municipality, Hunan Province, China, shared how to promote the integration of virtual and physical educational environments and the entire processof education and teaching based on the core of moral education, and how to drive the high-quality development of education in Changsha by reconstructing the ecosystem, curriculum content, and models for teaching and research, learning, evaluation, and governance.

Dr. Chin Sam Ath, Deputy Director of the Policy Department, Ministry of Education, Youth and Sport, the Kingdom of Cambodia, stressed the importance of maintaining an open mindset to accept the key role digital education plays in bridging learning gaps, and the importance of ensuring strong financial commitments because only with sufficient investment can digital education be implemented across all grades. He also stated that digital leadership should be enhanced in schools by providing domestic and international opportunities for professional digital learning, and schools should be supported in using models suitable for their environments, so as to accelerate the adoption of digital learning.

In the Case Report session, eight guests, including **Ms. WANG Qian**, Vice Principal of Guanggu No. 1 Primary School, Wuhan City, Hubei Province, China, **Ms. LI Xiaotao**, Principal of Longhua Central Primary School, Longhua District, Shenzhen City, China, **Mr. HUANG Qiang**, Vice Principal of Tianfu New District No. 7 Primary School, Chengdu City, Sichuan Province, China, **Ms. QIAN Dan**, Principal of Tangjiawan Middle and Primary School, Xiling District, Yichang City, Hubei Province, China, **Ms. Jeanette Westfall**, Author and Consultant of Ishmael Consulting, **Ms. ZOU Xianlian**, Principal of Xingyuan Primary School of Liangjiang New District, Chongqing City, China, **Mr. CAO Jianxin**, Principal of Mingda High School, Changsha City, Hunan Province, China, and **Ms. ZHANG Feiyan**, a teacher from the Ethnic High School, Guizhou Ziyun Autonomous County, China, discussed topics such as new forms of smart education empowered by technology, green development, and open cooperation, digital leadership and innovative school development, the collaborative education by families, schools, and society, new

models of deep integration between intelligent technology and teaching and education, and smart teaching and collaborative teaching research, based on their schools' experiences in practical exploration.

*The Forum on Innovation, Research and Best Practices in Smart Education is co-hosted by the National Engineering Research Center of Cyberlearning and Intelligent Technology, the UNESCO Institute for Information Technologies in Education (UNESCO IITE), and the Educational Informatization Strategy Research Base (Beijing, Central China, Northwest) of the Ministry of Education, P.R.China. For more information, the video is available at **https://wx.vzan.com/live/page/842825914**

Key takeaways

- Expanding digital education in the future necessitates an open mindset, recognizing its pivotal role in bridging learning gaps and shifting mindsets. Ensuring robust financial support and strategic investments to promote digital education accessibility at all levels is crucial. Enhancing educators' digital leadership through domestic and international professional learning opportunities, and prioritizing digital content in national curricula are essential.
- The future focus of our efforts lies in personalized learning, resource sharing, technology integration, and an international perspective. We must harness AI and technology to offer individualized learning paths and resources, leveraging online platforms to widely share quality educational resources, thereby narrowing gaps between urban and rural areas, regions, and schools. Furthermore, promoting the internationalization of digital education is vital to cultivate students' global perspectives and cross-cultural communication skills.
- Infrastructure supporting teaching encompasses internet access, computers, and other smart devices, necessitating the development of assessment systems that consider both objective and subjective information goals and materials. Assessments should emphasize comprehensive evaluation, transcending mere evaluation by incorporating other factors. The core challenge now is tackling complex scientific issues, engaging research, teachers, students, schools, and communities to jointly drive the digital transformation of education.
- Advice for new teachers: 1) Active Learning: Utilize high-quality resources from national smart education platforms, converting classroom videos and teaching materials into personal content and implementing "dual-teacher classrooms" for accelerated growth. 2) In-depth Research: Analyze teaching materials in line with school curriculum projects, conducting micro-teaching research. Optimize teaching plans through data evaluation, self-reflection, and peer evaluation. 3) Practical Application: Refine teaching techniques and processes through practice, creating replicable teaching models. This enhances teaching quality, supports classrooms under the "Double Reduction" policy, and gradually forms a unique school teaching style.
- Transform stage assessments into dynamic, generative assessments, emphasizing the long-term and continuous development of children's competencies. Through jointly created guidelines and daily growth data, parents can objectively analyze their children's development, and communication between schools and parents is supported by data. This shift enriches evaluation methods, enhancing the precision and effectiveness of home-school cooperation, jointly promoting children's holistic development.

Concluding Comments and Follow-up Actions

Over the span of three enlightening days, esteemed academics, renowned experts and scholars with international acclaim, delegates from prestigious international organizations and governmental bodies, passionate educators at the forefront, and seasoned professionals from the corporate sector converged to embark on thought-provoking dialogues revolving around the pivotal topics of educational reform and digital stewardship. The mesmerizing presentations delivered by the distinguished academics, coupled with the intellectual sparks flying amidst the exchanges among experts and scholars, imbued us all with a profound appreciation for the innovative frontier and forward-thinking essence of this conference.

Photo of Guests from Closing Ceremony

SPEAKERS

H.E. Mr. Susil Premajayanth
Minister of Education, Sri Lanka

Prof. ZHOU Zuoyu
Vice President, Beijing Normal University, China

Prof. ZHENG Qinghua
Academician of the Chinese Academy of Engineering

H.E. Mr. Justin Valentin
Minister of Education, Seychelles

H.E. Ms. KILO Vivian ASHERI
Secretary of State, Ministry of Basic Education, Cameroon

Dr. LIU Dejian
Chairman of the Board & Executive Director, NetDragon Websoft Inc.

Mr. Svein Oesttveit
A.I. Director, UNESCO IBE

Ms. Nikole Canatella Blanchard
Co-President of the Board of Directors, ISTE

Ms. Torunn Gjelsvik
Secretary General, ICDE

Prof. HUANG Ronghuai
Co-Dean, Smart Learning Institute of Beijing Normal University, China

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MODERATORS

Prof. ZHAN Tao
Director, UNESCO IITE

Prof. WU Yujun
Director, Office of International Exchange and Cooperation, Beijing Normal University, China

H.E. Mr. Susil Premajayanth, Minister of Education of the Democratic Socialist Republic of Sri Lanka, first extended greetings to the participants and emphasized the remarkable progress and achievements made at this year's conference compared to last year. Sharing his observations from the two-day event, he expressed high recognition for the conference's advancements and harbored great expectations for the 2025 Beijing Global Smart Education Conference, anticipating even more splendid successes. Subsequently, he conveyed sincere gratitude and congratulations to the organizers for their efforts and contributions in staging this prestigious gathering. Looking ahead, he expressed his eagerness to reunite in the future to delve deeper into the application and empowerment of Artificial Intelligence (AI) in education, jointly advancing the development of smart education .

Prof. ZHOU Zuoyu, Vice President of Beijing Normal University, announced the successful conclusion of the three-day "2024 Global Smart Education Conference," which brought together political leaders, international organizations, and elites from the education and technology sectors to jointly chart the future of education. Through a myriad of activities, the conference showcased the wisdom and power of technology in empowering education, fostering international exchanges and cooperation. Despite its brevity, the conference forged consensus, ignited the momentum for change, and left an indelible mark on educational reform and innovation. Facing the future, Beijing Normal University called upon all sectors to collaborate in advancing the digital transformation of education, contributing to the achievement of sustainable development goals in education.

Prof. ZHENG Qinghua, Academician of the Chinese Academy of Engineering and President of Tongji University, China, focused on the "Integrated Development of Artificial Intelligence and Science Education," emphasizing the pivotal role of technology and education in the rapid transformation of human civilization. His speech summarized six core insights: (1) The significance of science education: considered one of humanity's greatest inventions, alongside the discoveries of atoms, bits, and electricity, education propels civilization forward by nurturing talent, generating knowledge, and advancing technology. (2) AI as a new form of productivity: providing novel methods for decision-making, prediction, and content generation, it integrates with human intelligence to form hybrid augmented intelligence, empowering education and various sectors. (3) The essence of science: lies in making problems computable and quantifiable, with computing technology profoundly transforming human production, life, thinking, and educational

approaches. (4) AI empowering scientific research: blending empirical, theoretical, computational, and data-driven paradigms, it fosters new scientific research paradigms, enhancing our capacity to explore nature. (5) The new form of future education: AI fosters a ternary model of teachers, machines, and students, driving education towards personalized guidance and intelligent management, shaping a new hybrid educational paradigm. (6) Digital technology ushers in a new era of human civilization: from language, writing, movable type printing to information technology, humanity strides towards an information-based civilization, where education must lead technological and industrial revolutions. Facing the future, higher education must address the challenges posed by technological iterations, bridging the gap between talent cultivation cycles and market demands, grasping the core of STEM education, creating new educational scenarios and applications, fostering the integrated development of AI and STEM education, nurturing talents with innovative thinking and abilities, while avoiding technological alienation and emphasizing holistic development and comprehensive quality assessment.

Report on the Outcomes of Closed-door Meetings

Brief report by **H.E. Mr. Justin Valentin**, Minister of Education, Republic of Seychelles: The cooperation between China and Africa in the field of smart education has witnessed remarkable progress, with the Round Table on China-Africa-SIDS Cooperation in Smart Education clearly outlining the direction of our collaboration. Both sides are committed to technology-driven smart education, aligning the interests of all parties to advance SDG4, enhance educational resilience, and foster private sector partnerships. Emphasis is placed on upskilling teachers and developing AI competencies to facilitate employment. Furthermore, our cooperation encompasses research, capacity building, and policy alignment, aimed at constructing innovative educational models. Additionally, a cooperative network will be established to attract global partners, mobilize resources, and ensure the implementation of our initiatives. Looking ahead, the China-Africa-SIDS Alliance (CASA) will serve as a core group, driving broader collaboration, embracing more partners, and enhancing the efficiency of our endeavors.

Brief report by **H.E. Ms. KILO Vivian ASHERI**, Secretary of State of the Ministry of Basic Education, The Republic of Cameroon: During the Round Table on Women's Leadership in the Age of AI, we delved into the challenges faced by women in this era, including the gender-digital divide, low participation rates, and a lack of leadership. The forum underscored the need to strengthen women's leadership, promote gender equality, and enhance women's digital literacy and AI skills through training. Various initiatives were proposed, such as policy support, scholarships, and improved learning environments, to encourage women's involvement in AI governance and development. A consensus was reached to intensify training, economic support, and leadership training to boost women's participation in STEM and AI fields. The meeting yielded fruitful outcomes, fostering new partnerships dedicated to bridging the digital and gender gaps and advancing gender equality in the digital realm.

Brief report by **Prof. ZHAN Tao**, Director of UNESCO IITE: Prof. ZHAN participated in the GSENet Partners' Meeting, which focused on The Global Smart Education Network. He stated that GSENet is a cooperative network for smart education that we initiated globally two years ago. Initially, GSE Net had six members,

which has now expanded to fifteen. For further development, we established an Advisory Committee and convened this closed-door meeting for this purpose. The Committee comprises representatives from member countries, Chinese experts, and experts from around the globe. During the meeting, one of the significant decisions we made was to continue providing support and deepen our cooperation with Beijing Normal University.

Our conference is an annual event. This year's conference featured the logos of six members, and next year you may see the logos of fifteen members on the screen. We continue to converge efforts from all parties. It is important to emphasize that GSE Net is not a closed network but an open platform. We welcome all institutions to join us and adhere to an open and cooperative attitude.

*For more information on the Closed-door Meetings, please refer to the Thematic Activities section.

Photo of Guests from Closing Ceremony

Awards Ceremony: Global Smart Education Innovation Prize

Dr. LIU Dejian, Co-Dean of Smart Learning Institute of Beijing Normal University, Chairman of the Board and Executive Director of NetDragon Websoft Inc., gave the opening remarks of the Awards Ceremony. The Global Smart Education Innovation Prize was officially launched with the aim of driving educational transformation. Smart technologies are empowering the transition of smart education from theory to practice, and we have established the innovation prize to inspire global intelligence and jointly shape the future of education. As this marks the inaugural year of smart education, we anticipate that the innovation prize will serve as a catalyst, spurring the emergence of numerous achievements and contributing to world peace and development.

Education: Making the World a Better Place! In the era of human-machine collaboration, our work, life, and learning styles have undergone unexpected transformations. It is time to reconsider how to teach more intelligently and how to learn more joyfully. Everyone now envisions new forms of schools, education, and learning ecosystems. With the support of intelligent technology, we are moving from the theory of smart education to the practice of learning on demand.

In pursuit of "ideal education," we have initiated the "Global Smart Education Innovation Prize," which include categories for Research Innovation, Practice Innovation, and Technology Innovation. By pooling global wisdom, we aim to shape the future of education together!

All beginnings are difficult! If we consider this year as the beginning of the smart education era, we hope that the "Global Smart Education Innovation Prize" will serve as the first stepping stone to open the door to smart education. With your support, we anticipate that more innovative achievements will emerge, contributing to global peace and development!

To promote digital transformation in education and to foster international understanding, as well as to innovate and develop smart education, the organizing committee of the Global Smart Education Conference is pleased to announce the "Global Smart Education Innovation Prize." The prize aims to recognize innovative solutions in the field of smart education that use technology to address some of the most pressing challenges in education and training.

Applications are invited from all levels of education, from primary to secondary, to tertiary, including TVET and lifelong learning. Innovations can relate to harnessing technologies for improving pedagogy, reaching the marginalized and persons with disabilities, generating solutions for scaling up TVET training, developing models for employment and entrepreneurship, and promoting cutting-edge research.

Prize Categories

Prof. WU Yujun, Director of Office of International Exchange and Cooperation at Beijing Normal University, announced the list of winners, which included a total of seven nominees and eight award recipients. This announcement marked the culmination of a rigorous selection process and recognized the outstanding contributions and innovations in the field of smart education.

Research Innovation Prize:

This prize recognizes widely influential and empirically verified innovations in the field of smart education by individuals, institutions or organizations. This includes, but is not limited to, theoretical and empirical research. Innovative books, papers, and research reports, which expand the frontiers of knowledge in the field of smart education and intelligent technologies, can be submitted. This prize was presented by Prof. ZHAN Tao, Director of UNESCO IITE.

NO.	Name of the Project	Name of Participants	Institution/Organization/Employe
1	Creative Achievement in Developing Fundamental Theories of 'Internet Plus Education'	Chen Li1, Zheng Qinhua1, Zhang Jingjing1, Wang Zhijun2, Zhao Hong1, Xu Yaqian3, Guo Yujuan1, Wang Huaibo1	1. Beijing Normal University; 2. Jiangnan University; 3. Qingdao University
2	A Sketch of Professor Zhu Zhiting's Academic Thoughts on Educational Informatization	Zhu Zhiting1, Zhong Zhixian2, Yi Kaiyu3	1. East China Normal University; 2. Jiangxi Normal University; 3. Chinese Academy of Educational Sciences

Photos of Awarding Ceremony

Practice Innovation Prize:

This prize recognizes practical innovations in the field of smart education by individuals, institutions or organizations. This includes, but is not limited to, the digital transformation of education at the local, national or regional levels relating to governance or practice, improvements in classroom teaching, developments of innovative pedagogic models, and how technologies can be used in innovative ways to improve the quality of education and reach the unreached. This prize was presented by Prof. ZHOU Zuoyu, Vice President of BNU.

NO.	Name of the Project	Name of Participants	Institution/Organization/Employe
1	Pepper in the Classroom: Enhancing Education through Robotics and AI	Maja Babic, Branka Milicevic, Mirjana Ilic, Ivana Dimitrijević, Danica Nikolić, Danica Simović, Nemanja Segrt, 1-4 grade students	Savremena Primary School
2	Shenzhen Welkin School: A New Paradigm of Smart Education	Gong Weidong, Tang Xingchu, Chen Hao	Shenzhen Welkin School
3	Digital Transformation Empowers High-quality Development of Regional Education	Wang Yan1, Nie Tingfang1, Miao Yaqin1, Zhou Xiaoqing1, Wang Jianye1, Huang Junshan2, Huang Xu3	1. Changsha Municipal Education Bureau; 2. Changsha Institute of Educational Sciences; 3. Changsha Modern Education Technology Center
4	The implementation of digital technologies to enhance mental health education for promoting the holistic development of students in multi-ethnic regions within Qinghai Province	Shen Hongxing, Li Haisheng, Gan Changfu, Luo Haidong, Wang Jie	Qinghai Provincial Department of Education

Photo of Awarding Ceremony

Technology Innovation Prize:

This prize recognizes technological innovations in the field of smart education and enterprise that can help solve some of the key challenges in the education and training sectors. This includes, but is not limited to, educational equipment/tools, software systems, coding/algorithms, and integrated technology solutions. This prize encourages individuals, institutions, or organizations affiliated to a company to explore new ideas, approaches and solutions to providing ethical innovations that can be scaled up for making a difference. This prize was presented by Prof. Asha S. Kanwar, Chair of Governing Board of UNESCO IITE and Chair Professor of SLIBNU.

NO.	Name of the Project	Name of Participants	Institution/Organization/Employe
1	Key technology of identity recognition based on multi-modal image intelligence and large-scale application of educational scenarios	Ruan Ji-peng1, Hu Guo-zhi1, Xiao Jin-sheng2, Yue Xian-chang2, Zhang Qian1, Wang Jian1, Qian Huaqi1	1. Kingsha; 2. Wuhan University
2	iFLYTEK Spark Smart Blackboard	Zhou Jiafeng, Guo Hongjie, Wang Xianmin, Chen Yujue, Zhan Jindong, Shi Nan, Li Shengcai, Li Xiulian	iFLYTEK

Photos of Awarding Ceremony

Acknowledgements to Enterprise Supports

At the Closing Ceremony, in gratitude for the generous support of the enterprises towards the conference, certificates of appreciation were presented to each of them.

Photos of Acknowledgements to Enterprise Supports

Partner Engagement

Mr. Svein Oesttveit, A.I. Director of the UNESCO International Bureau of Education (UNESCO IBE), expressed his profound honor to deliver this impromptu speech, feeling deeply inspired and having had the privilege of meeting numerous distinguished individuals. We are united in our pursuit of fostering a world of peace, equality, and sustainable development, which stands as the ultimate aspiration of quality education. Each of us contributes in our own way, and I am convinced that we are making significant strides towards this noble goal.

Ms. Nikole Canatella Blanchard, Co-President of the Board of Directors, International Society for Technology in Education (ISTE) , urges educators to prepare students for the unpredictable 2038 job market, emphasizing future-ready skills like collaboration, creativity, and AI literacy. With automation eliminating jobs, educators must adapt, prioritizing professional development to integrate these skills. Global connections and collaboration are key to sharing ideas and solutions. Individual contributions matter, but unity drives progress, empowering educators to shape a better future for learners.

Ms. Torunn Gjelsvik, Secretary General of the International Council for Open and Distance Education (ICDE), underscored the significance of educational transformation and international understanding. As the Secretary General of ICDE, she called for the promotion of inclusive education and the application of technology. ICDE is dedicated to advancing the Sustainable Development Goals, creating lifelong learning opportunities for people worldwide, and examining the challenges and opportunities presented by artificial intelligence. Moreover, she mentioned that smart education has evolved over 25 years, with varying definitions, but its development should proceed with caution, mutual respect, and learning, ultimately aiming to benefit all individuals through education.

Photo of GSENet Partners

Prof. HUANG Ronghuai stated that this conference, themed on Educational Transformation and International Understanding, echoes the demands of the times and provides a cooperative platform for the global digital transformation in education. The Chinese government emphasizes the pivotal role of digitalization in driving educational transformation, highlighting three key terms: integration, intelligence, and internationalization. The media has actively reported on this conference, with evaluations primarily focusing on three aspects: the formulation of forward-looking strategic policy plans, the enhancement of international understanding, and the promotion of talent cultivation through the integration of technolugy and education. He summarized the numerous highlights and achievements of this Global Smart Education Conference:

(1) Integrated Diverse Platform

This year, we successfully established an open and inclusive integrated platform, collecting over 4,800 Chinese cases and engaging more than 300 volunteers and 50 partners. We invited 80 media outlets to participate, attracting over 400 guests from 62 countries and welcoming more than 2,500 attendees on-site. Additionally, we held 16 forums and 11 thematic activities, signing eight cooperation agreements at various sub-forums.

(2) Global Understanding of Smart Education

Smart education is a pivotal component of China's Education Informatization 2.0 initiative. Nearly 20 educational demonstration zones in China have embraced the concept of smart education. This idea is increasingly being understood and accepted by the international community, becoming a shared vision for countries to address the challenges of the AI era and achieve high-quality educational goals. Global digital education policies are also advancing digital infrastructure construction and considering digital capacity resource development to create a high-quality, inclusive, and sustainable digital education ecosystem.

(3) Priorities of Inclusion and Equity

This year's forum placed greater emphasis on inclusion and equity issues, including three closed sessions that explored topics such as women's leadership in China and African small island countries, the implementation of the GSENet, and the development of smart learning in industrial sectors. Additionally, the TVET Leadership and Management Programme was held, providing a platform for exchange and cooperation in related fields.

(4) Smart Education from the Students' Perspectives

We increased student participation and explored smart education from a student perspective. We organized two student forums, one on the innovation of future education and another related to a competition. Students were not only participants but also took a more active role in preparing and organizing events, demonstrating their leadership skills. Seventy-five student speakers from ten countries participated in these activities, and we provided a green channel for students through fair lot-drawing, facilitating their involvement.

(5) High-Level Smart Education Collaboration Platform

We established two high-level platforms: the Global Smart Education Network and the China's Smart Education Industry-Academia-Research Collaborative Innovation Platform. The Global Smart Education Network has officially designated its secretariat and advisory committee and has begun operating as a

core entity. The China's Smart Education Industry-Academia-Research Collaborative Innovation Platform brings together innovative forces from universities, enterprises, and research institutions to promote a Chinese-style modern talent cultivation system. Although these two platforms currently operate independently, they engage in some interactions and have achieved notable results.

Photo of Prof. HUANG at the Closing Ceremony

*The Closing Ceremony is hosted by BNU and UNESCO IITE. For more information, the video is available at **https://wx.vzan.com/live/page/1051286068**

Thematic Activities

Event Type	Thematic Event	Date	Venue
Closed-door Meeting	Round Table on Women's Leadership in the Age of AI	18 August 15:00-17:00	CIT Meeting Room
	Round Table on China-Africa-SIDS Cooperation in Smart Education	19 August 15:00-17:00	CIT Meeting Room
	GSENet Partners' Meeting	20 August 11:00-12:00	CIT Meeting Room
Governing Board Meeting	UNESCO IITE Governing Board Meeting	21 August 9:00-18:00	Lecture Hall 2
Work Conference	Regional Leadership Roundtable on the Development of the Educational Technology Industry	19 August 9:00-11:00	CIT Meeting Room
	Work Conference for the Construction and Application of Intelligent Learning Environment in Alliance Schools (Districts)	19 August 14:00-18:00	Lecture Theatre 1
Student Activity	Student Forum on Youth Intelligence Inspiring Future Education Innovation	19 August 14:00-17:00	Lecture Theatre 2
	Student Forum on Smart Learning and Future Education Design	20 August 14:00-17:00	Lecture Theatre 1
Teacher Activity	Final Review of the 7th Global Competition on Design for Future Education (K-12 Track)	20 August 9:00-12:00	Lecture Theatre 1
Workshop	TVET Leadership and Management Programme (Workshop)	18-24 August	Lecture Theatre 1
Exhibition	Smart Education Exhibition	18-20 August	Exhibition Hall

Round Table on Women's Leadership in the Age of AI

The rapid developments in technology are reshaping education and the world of work. In the age of AI, women must play a major role. However, the gender digital divide remains a significant challenge, with women 12% less likely to own a cell phone compared to men. Studies indicate that there are still 2 billion women who struggle to connect to the Internet, and women and girls are 25% less likely than men to know how to leverage digital technology for basic purposes. Furthermore, women are significantly underrepresented in the technology workforce. Currently, only 30% of women work in AI, and they hold a mere 5% of leadership positions in this sector. Generative AI often reflects the gender biases present in patriarchal society. To address this, the Round Table on Women's Leadership in the Age of AI was held on August 18th, 2024 and was moderated by H.E. Ms. KILO Vivian ASHERI, Secretary of State of Ministry of Basic Education of Cameroon. The event convened policymakers, scholars, education practitioners, and private, government sector leaders from around the world.

This meeting aims to convene women and men leaders -- policymakers, experts, renowned scholars, education practitioners, and private sector partners in the field of education to address the following:

1. Challenges and opportunities for women presented by emerging technologies.

2. Examine how more women and girls can be encouraged to study STEM subjects.

3. Share insights on becoming leaders, being leaders and helping other women to become leaders in the age of AI.

4. Strategies for empowering more women to take leadership positions in the field of AI and emerging technologies.

Photo of Round Table on Women's Leadership in the Age of AI

Professor CHEN Li gave a warm welcome to the Round Table on Women's Leadership in the Age of AI. She emphasized that this meeting aimed to discuss strategies to enhance women's leadership in AI and promote gender equality in the digital future. Mr. QIN Changwei, Secretary-General of Chinese National Commission for UNESCO introduced the policy support and research work made by China in gender equality, and girls' and women's education.

The discussion highlighted the complex challenges women face due to systemic biases in technology and AI development. Additionally, opportunities for women in AI are emerging through targeted initiatives that aim to increase female participation in STEM fields and build their confidence by training module. The Round Table emphasized the importance of providing women AI tools and increasing their practices on using AI. Women's perspectives can significantly contribute to creating more equitable AI applications.

The Round Table participants identified several structural and cultural barriers that hinder women from ascending to leadership roles in AI. These include women drop out of STEM fields at various stages of their education and career, and the restrictions on their promotion to senior positions. The discussions also touched on the societal expectations and implicit biases that contribute to these barriers.

The development of specific skills was identified as crucial for women to succeed in AI leadership roles. The Round Table underscored the importance of digital literacy, advanced technical skills in AI, parents' orientation, culture/background, soft skills such as leadership, negotiation, and strategic thinking. Additionally, participants highlighted the need for lifelong learning and continuous professional development, given the rapid pace of technological advancement in AI. Upskilling and reskilling initiatives were recommended as strategies to keep women and girls more competitive in the AI workforce.

The Round Table discussed strategies to encourage more women and girls to pursue STEM education, which is a critical entry point into AI careers. In addition, the discussions emphasized the role of policy in supporting these initiatives. Policies that promote gender equality in education, provide scholarships for women in STEM, and create inclusive learning environments were recommended as essential components of a broader strategy to increase female participation in AI.

This round table achieved rich results, reaching consensus on training and financial support, the importance of scholarships, encouraging women to understand and use AI tools, emphasizing physiological differences and the necessity of retraining for women's leadership enhancement. The round table successfully strengthened networks and collaboration among the participants. New partnerships were established between policymakers, researchers, and private sector leaders, all committed to working towards eliminating the gender digital divide and promoting women's leadership in STEM education and the AI industry. The meeting fostered a sense of solidarity and shared purpose among the attendees, with a collective commitment to advancing gender equality in the digital age.

For the specific actions which should be implemented to support women's leadership in AI:

- **Inclusive AI Development Policies:** Governments and organizations such UNESCO should adopt policies that promote the inclusion of women in AI development teams, ensuring that AI technologies are designed with diverse perspectives.
- **Gender-Sensitive AI Research:** There is a need for more research on the gendered impacts of AI, particularly how AI systems can be biased and the consequences of these biases on different groups. Provide research grant to women in AI.
- **Financial support:** create environment where women lead project on AI.
- **Capacity Building and Professional Development:** Initiatives to build the capacity of women in AI through training, mentorship, and networking opportunities were recommended.

Round Table on China-Africa-SIDS Cooperation in Smart Education

China shares a long history of cooperation in social and economic development with countries in Africa and in Small Island Developing States (SIDS). As part of the Belt and Road initiative, China is committed to promoting south-south and north-south collaboration for the development of smart education for all. Africa Vision 2063, highlights the transformative potential of Information and Communication Technologies in reshaping education on the continent.

However, the digital divide persists in Sub-Saharan Africa with only 40% of the population connected to the internet. Access to quality higher education is a challenge in many countries with Gross Enrolment Ratios less than 10%. Teacher deficit and teacher quality need to be addressed if Sustainable Development Goal 4 (SDG 4) is to be met by 2030. SIDS are increasingly vulnerable as they grapple with the unique challenges posed by the digital divide, climate change and mass migration.

Harnessing appropriate and affordable digital technologies becomes imperative as SIDS strive to make a transition to a low-carbon economy and to green/blue development. The cost for fixed broadband in SIDS is 25% higher than the global average making it unaffordable, especially in rural contexts (UNESCO, 2023). This special meeting convenes policymakers, academics, researchers and representatives of the private sector to identify how appropriate technologies can be used to leapfrog into the future of education through joint action and collaborative effort.

The Round Table on China-Africa-SIDS Cooperation in Smart Education was held on August 19th, 2024 and was moderated by H.E. Mr. Justin Valentin, Minister of Education of the Republic of Seychelles. The purpose of this meeting is to engage a wider group of stakeholders in a focused dialogue to identify the specific challenges African countries and SIDS face and the opportunities that the digital era presents for working together to promote smart education for sustainable development. The meeting will:

1. Identify how and what technologies can effectively contribute to the specific education and training needs of Africa countries and SIDS.
2. Facilitate the exchange of ideas, best practices and innovations that can cater to the diverse needs of teachers and learners.
3. Specify concrete areas of research, capacity building, and resource-sharing.
4. Explore effective partnerships and collaboration for improving access to quality higher education.

Group Photo of China-Africa-SIDS Cooperation in Smart Education

A speech was delivered by Vice President ZHOU Zouyu on behalf of Beijing Normal University, extending a warm welcome to a special meeting on strengthening cooperation between China, Africa, and the Small Island Developing States (SIDS) to achieve the targets of Sustainable Development Goal Four (SDG4). The speech highlighted the university's efforts to strengthen cooperation with South Pacific Island countries, including visits and agreements, as well as its commitment to international development and collaboration with African countries. The speech also emphasized the importance of technology in promoting smart education to address common challenges faced by African countries and SIDS.

The Round Table on China-Africa-SIDS Cooperation on Smart Education brought together a diverse group of stakeholders to discuss the challenges and solutions for enhancing smart education in these regions. The challenges identified included infrastructure limitations, lack of digital tools and devices, cultural preferences, consistency of power supply, and stability of policies and governments. These challenges were discussed by various participants, each offering their own insights and proposed solutions.

One proposed solution was the expansion of higher education and the implementation of open university and online resources. Skill development using AI and personalization of content were also suggested as strategies to address the challenges. Additionally, ongoing staff development programs and the need for a common and robust network were highlighted as potential solutions for SIDS. The importance of prioritizing digital skills development and the availability and adaptability of technology were also emphasized as critical strategies for the cooperation.

It was also suggested that partnerships and

collaborations between governments, schools, and third parties, such as UNESCO and the World Bank, could help address the challenges faced by the private sector. The implementation of hands-on tutorials for teachers and students, as well as the use of cloud-based solutions, were proposed as tangible actions to foster innovation and creativity among learners.

Strategies proposed to address the challenges included making higher education more effective for teaching staff, making publications accessible, upgrading infrastructure, implementing integrated information systems for communities, and mobilizing resources within and outside the African countries. The integration of indigenous knowledge was also highlighted as a strategy to build resilience in the face of increasing disasters.

Recommendations

The participants have made the following consensus:

- Strengthening BNU-SIDS and BNU-Africa cooperation in a range of areas, especially leveraging the power of technologies to advance education development, in alignment with the priorities of each party and under the framework of the south-south cooperation, towards achieving SDG 4, prioritizing the following actions: (1) Developing and deploying appropriate affordable and sustainable technologies; (2) Using AI responsibly to reduce the vulnerability and build the resilience of countries in the faces of increasing disaster risks; (3) Promoting innovation through research and the use of technologies in partnership with private enterprises; (4) Strengthen teacher development, and use AI to develop skills for employment and entrepreneurship.

- Implementing the cooperation through diversified modalities, including joint research and publication, joint conferences, capacity building, policy consultation, sharing of best practices, long-distance education, innovative models and resource-sharing.

- Seeking to establish a network of cooperation and a community of practice among the participating organizations, to institutionalize the future collaborations, engaging the international organizations and private sector as solution providers.

- Mobilizing resources from government, international organizations and the private sector to support joint projects and activities on the ground.

GSENet Partners' Meeting

GSENet Partners' Meeting was held on August 20th, 2024 and was moderated by Prof. Asha S. Kanwar, Chair of Governing Board of UNESCO IITE and Chair Professor of SLIBNU. Prof. Kanwar expressed her gratitude to Prof. Huang Ronghuai and Prof. Zhan Tao for their valuable initiative in establishing GSENet. She provided an overview of the background of smart learning and emphasized the challenges in defining and implementing smart education. Prof. Kanwar underscored the need for a unified approach where diverse experts and institutions collaborate to address the complexities of smart education, thereby contributing collectively to its development.

Prof. Huang Ronghuai, Secretary-General of GSENet, and Prof. Zhan Tao, Founding Member of GSENet, delivered opening remarks, introducing the network's mission and objectives to all participants. Prof. Huang Ronghuai emphasized that the concept of establishing GSENet was driven by the rapid pace of technological advancements and the growing need for a cohesive platform to support smart education. As educational technology evolves swiftly, the necessity for a network that not only connects stakeholders but also fosters collaboration has become increasingly evident. The proposed network is designed to create a space for sharing valuable insights, exchanging best practices, and promoting collective growth. By bringing together educators, institutions, and experts from around the globe, GSENet aims to address the challenges of contemporary education while encouraging innovation and continuous learning across diverse contexts.

Prof. ZHAN Tao expressed his deep appreciation to Prof. Huang Ronghuai for his insightful vision in establishing GSENet and for his team's efforts in organizing the conference, which provided a valuable platform for attendees to exchange insights on smart education. He noted that over the past two years, GSENet has expanded from its initial 6 member organizations to 15, demonstrating the value and relevance of the network. Additionally, an advisory committee has been established, and moving forward, the network is poised to play an even more impactful role in advancing smart education.

Group Photo of GSENet Partners' Meeting

Discussion on Collaborative Activities and Network Development:

The members engaged in a comprehensive discussion regarding joint activities, strengthening collaborations, establishing thematic working groups, membership structure, and potential funding opportunities. They suggested that:

Experts in the field have proposed various strategies to enhance the GSENet network. One suggestion is to organize annual partners' meetings, coupled with regular round table discussions and webinars to facilitate deeper discussions on smart education. To broaden the network's reach, inviting NGOs and potential donors could bring valuable resources and perspectives. Additionally, two annual webinars, each focusing on a specific topic and held every four months, with global participation and led by partner organizations, were proposed. Sharing events and updates within the network was also emphasized to promote collaboration and knowledge exchange. Furthermore, integrating GSENet partners' meetings into the annual ISTE conference could provide opportunities for diverse participation and educational collaboration, while utilizing ISTE's "Connect" platform could facilitate continuous communication and collaboration across time zones. Leadership at both regional and national levels was highlighted as critical, particularly in policy discussions, and a Smart Education Observatory was suggested. Small-scale regional round tables for capacity building and potential partnerships from African and Asian countries were also proposed. Concrete actions to strengthen relationships and reinforce shared goals among members were recommended, and leveraging global partnerships to promote GSENet was mentioned. Enhancing the GSENet brand, utilizing the website as a communication tool, and developing strategies to engage stakeholders and attract new members were also discussed. Finally, fostering South-South and South-North collaborations, involving practitioners in initiatives, and monitoring global developments in smart education were advocated to advance relevant projects.

Introduction of Global Smart Education Network (GSENet)

Background

The rapid and phenomenal developments in technology are reshaping the world of education and work, posing a significant challenge for organizations and institutions to adapt and keep pace. For example, the explosion of Generative AI has highlighted the need for advanced policy and planning so that the education sector is prepared for the uncertainties that lie ahead. A recent UNESCO study showed that of the 450 institutions surveyed globally, less than 10% had any guidance for Generative AI. Organizations and institutions need to work together to pool their resources and expertise to efficiently and effectively harness the potential of existing and emerging technologies to ensure quality education and lifelong learning for all. The Global Smart Education Network (GSENet) was initiated in 2022 by the Smart Learning Institute of Beijing Normal University (SLIBNU) with five partners: UNESCO Institute for Information Technologies in Education (UNESCO IITE), Commonwealth of Learning (COL), International Society for Technology in Education (ISTE), Southeast Asian Ministers of Education Organization (SEAMEO) and Arab League Educational, Cultural and Scientific Organization (ALECSO).

Vision

To 'network with the best for promoting smart education for all'.

Mission

To create a collaborative platform that unites organizations and institutions to leverage smart learning technologies for enhancing educational excellence and innovation for all through research, policy development, and capacity building.

Objectives

GSENet is a network of organizations and institutions that aims to:

- Collaborate on promoting smart learning for all within the framework of SDG4: Quality Education; • Share forward-thinking policies and practices to shape the future of education and lifelong learning at the local, national, regional and global levels;
- Conduct joint open access research, share open educational resources and open source tools for the common good;
- Promote innovation by combining the power of technology with innovative pedagogy and a human-centred approach;
- Build the capacity of teachers to play a leading role in the tripartite matrix of teacher learner-technology.

Expected Outcome

- A respected Global Network of diverse stakeholders for promoting smart education approaches in different contexts;
- Innovative solutions relating to technologies and methodologies;
- Research publications on cutting-edge technologies and education;
- Skilled teachers for the effective implementation of smart education.

Activities

Activities to the Present:

- Conferences: Global Smart Education (GSE) conferences 2022 and 2023, at which annual reports on Smart Education were provided. Research: Joint UNESCO project on 'Rethinking and Redesigning National Smart Education Strategy' developed in 2020 and implemented jointly by BNU, IITE, COL, ISTE and other partners.
- A new project was launched in 2024 on 'Utilizing Intelligent Technology to Transform Teaching and Learning Towards Smart Education'.
- Resources: E-Library for Teachers developed with UNESCO IITE, in partnership with Net Dragon, supported by Members of GSENet and other partners.

Future Activities:

- Promote smart education, develop policies, transform teaching and learning, and build smart learning environments that leave no one behind.
- Build the capacity of teachers and administrators to ethically and effectively harness the potential of AI and emerging technologies for active and personalized learning at all levels.
- Conduct collaborative research on new technologies and smart education.
- Develop models, policy briefs, and guidelines related to smart education.
- Refresh and strengthen the E-Library for teachers.

UNESCO IITE Governing Board Meeting

This year UNESCO IITE Governing Board (GB) held its 24th Session in Beijing, China at the premises of Beijing Normal University on 21 August. Professor Asha Kanwar, Chair of the GB, opened the Meeting and made her statement. Professor Kanwar expressed her thanks and appreciation to the Russian government for continued support and to UNESCO ADG for Education for the leadership. During the opening session, the video statements were made by UNESCO Assistant Director-General (ADG) for Education Ms. Stefania Giannini, and the representatives of the Russian Government namely the Commission of the Russian Federation by Ms. Ksenia Gaverdovskaya and the Ministry of Science and Higher Education of the Russian Federation by Ms. Ksenia Trinchenko, the Director of Department for International Cooperation. Ms. Ksenia Trinchenko is also IITE Governing Board Member from Russia. Ms. Giannini, in her video statement, expressed the appreciation and thanks to Professor Kanwar and all GB members, the Russian government and IITE's team. She believes that IITE has a critical role to play in UNESCO's vision of promoting technology in education, including Artificial Intelligence (AI). All statements included highlights and achievements of the Institute, suggestions to the programme activities and continued support to the Institute.

The session followed with reports by Mr. Tao Zhan, IITE Director, the Chiefs of Units and Head of Administrative office on the activities of the Institute, programme achievements, financial situation and a way forward for the implementation of the ongoing and pipeline projects of IITE. All reports were discussed, recommendations and respective decisions were made during the 24th Session of the Governing Board meeting. IITE GB members stressed that IITE has done impressive work collectively with its global partners in supporting Member States, policy makers, teachers and mobilizing youth. During the Session, GB members also provided further comments on IITE's partnership and fundraising, programme priority and focus, enhancing visibility, collaboration with UNESCO HQs and the Russian Federation – the Host Country and other relevant issues. The statement of the GB Chair and comments of GB members focused on how to seize the momentum and new opportunities that IITE is facing with the rapid development of digital technology, especially Generative AI.

Photos of UNESCO IITE Governing Board Meeting

Regional Leadership Roundtable on the Development of the Educational Technology Industry

Driven by the new wave of technological advancements, the educational technology industry is flourishing and gradually becoming a key force supporting the national education digitalization strategy. It plays a significant role in advancing the integrated reform of education, technology, and talent, and contributes to the development of a strong education nation. The China Educational Technology Association is focusing on research in the educational technology industry, aiming to provide a comprehensive analysis of the macro environment, current development, challenges, and key trends from an international, forward-looking, and systematic perspective, ultimately producing an authoritative report. As the demand side of the educational technology industry, regional education authorities hold a crucial position and play a pivotal role in the development and application of educational technology products. Therefore, regional education leaders are invited to participate in the “Regional Leadership Roundtable on the Development of the Educational Technology Industry”.

Work Conference for the Construction and Application of Intelligent Learning Environment in Alliance Schools (Districts)

The rapid development of new-generation information technologies, such as artificial intelligence and big data, has endowed intelligent learning environments with new meanings and unprecedented opportunities and challenges for educational reform. Intelligent learning environments have become a crucial foundation for promoting the digital transformation of education, empowering education through technology, and fostering changes in teaching and learning. To advance the innovative application of intelligent education under the guidance of China’s new-generation artificial intelligence development plan, and to support the national strategies of “Digital China” and building a strong education system, the Ministry of Education and the Ministry of Science and Technology have recently collaborated. Under the national key project for new-generation artificial intelligence, they have launched the “Research and Application Demonstration on Computing Technologies of Intelligent and Connected Learning Environment” project. This initiative aims to explore innovative solutions that integrate science, technology and education to overcome educational challenges.

Student Forum on Youth Intelligence Inspiring Future Education Innovation

The forum invited 187 outstanding university student representatives from Beijing, Guangzhou, Shenzhen, Xi'an, Henan, and other regions, as well as experts and scholars in related fields, to jointly explore the application of artificial intelligence and other technologies in future education, specifically covering topics such as smart sports, the digitization of ideological and political courses, interdisciplinary thematic learning, family education, mental health education for adolescents, and teacher education.

Group Photo of Student Forum on Smart Learning and Design for Future Education

SPEAKERS

Mr. Marc Prensky
Speaker, Author, Consultant

Mr. CAO Zhaopeng
Ph.D. Student, University of Malaya, Malaysia

Mr. LI Ming
Master's Student, Yunnan Normal University, China

Ms. LI Meiquan
Master's Student, Ludong University, China

Mr. CHEN Zhiming
Ph.D. Student,, Beijing Normal University, China

Ms. WANG Wei
Ph.D. Student,, Zhejiang Normal University, China

Ms. LI Kexin, Ms. XIE Yuwen, Ms. PI Bing
Master's Student, City University of Macau, China

Mr. LUO Fenghao
Master's Student, Beijing Institute of Technology, China

MODERATORS

Ms. HONG Ziyi
Graduate Student, Jiangsu Normal University, China

Mr. ZHONG Ziquan
Undergraduate Student, South China Normal University, China

During the opening remarks, **Mr. Marc Prensky**, an American speaker, author, and consultant, encouraged students to cultivate a habit of asking questions, regarding the forum as an opportunity to express their views and learn the art of inquiry. Following his speech, an interactive session ensued, with students eagerly engaging in one-on-one discussions with him, fostering a lively atmosphere as they shared their perspectives on the future of education.

In the paper presentation segment, **Mr. CAO Zhaopeng**, a Ph.D. Student in Educational Psychology at the University of Malaya, shared his research titled "The Impact of Family Educational Investment on Adolescent Mental Health in China." He advocated for empowering family education in adolescent mental health and offered valuable practical recommendations.

Mr. LI Ming, a master's student in Educational Technology at Yunnan Normal University, presented "The Construction of an Evaluation Index System for Teacher-Student Interaction in Junior High School Smart Classrooms." Addressing the current limitations of single-dimensional evaluation methods and insufficient focus on cognitive, innovative, and emotional interactions, he proposed application-oriented suggestions.

Ms. LI Meiquan, a master's student in Elementary Education at Ludong University, shared her work titled "Design and Implementation of Project-Based Learning for 'Statistics and Probability' in Primary School Mathematics with a Focus on Core Competencies." She presented a practical case study, offering a fresh approach to project-based learning in primary mathematics.

Mr. CHEN Zhiming, a Ph.D. student in School Curriculum and Instruction at Beijing Normal University, presented "The Construction and Practice of Smart Education Classroom Teaching Paradigms in Guangzhou Primary and Secondary Schools." He analyzed the necessity and key elements of such paradigms, outlining corresponding optimization strategies.

Ms. WANG Wei, a Ph.D. student in Educational Technology at Zhejiang Normal University, delivered a paper titled "Research on Chinese Writing Instruction in Primary Schools Based on AIGC." She examined the challenges posed by AIGC in this context, offering countermeasures and future outlooks.

Ms. LI Kexin, Ms. XIE Yuwen, and Ms. PI Bing, master's students in Education at City University of Macau, delved into ethical issues arising from the application of Generative Artificial Intelligence (AIGC) in education through content analysis. They proposed strategies to address ethical challenges such as data privacy protection, algorithm transparency, algorithmic bias and fairness, and content regulation.

Mr. LUO Fenghao, a master's student in Mental Health Education at Beijing Institute of Technology, presented "Digital Technology

Empowering Music Aesthetic Education Evaluation: Forms, Motivations, Issues, and Strategies." Focusing on music aesthetic education, he explored digital technology's role, showcasing a future smart education case and outlining action plans to address weaknesses in the system and technological bottlenecks.

The forum embraced both offline and online participation, facilitating a hybrid model for paper sharing. Through multi-faceted exchanges and presentations across various domains, participants collaboratively explored innovative solutions for the future of education, contributing to the development of humanistic and intelligent educational ecosystems.

Final Review of the 7th Global Competition on Design for Future Education (K-12 Track)

On August 20th, as one of the activities of 2024 Global Smart Education Conference, Finals of the 7th Global Competition on Design for Future Education (K12 Track) and the Award Ceremony, was successfully held at Beijing Normal University (BNU). The Competition was co-organized by BNU and UNESCO Institute for Information Technologies in Education (IITE), receiving invaluable support from Beijing Design Society and Beijing Design Week Organizing Committee as special support organizations. Since its inception on March 1st, the Competition has garnered the enthusiastic participation of thousands of K12 teachers from home and abroad, resulting in the submission of over 420 outstanding case-studies. The participants focused on the core difficulties and key issues in the field of education and actively explored the infinite possibilities of technology empowering education, contributing invaluable insights to the digitalization and modernization of education. After strict selection by the Judging Committee, a total of 89 case-studies of K12 Track were awarded, including 15 first prizes, 32 second prizes, and 42 third prizes.

During the Finals, 20 teachers showcased their case-studies with exceptional brilliance. Guided by educational policies and the latest advancements in educational neuroscience, they proposed innovative educational solutions involving personalized learning, interdisciplinary integration, and cultural heritage inheritance, seamlessly integrating emerging technologies like AIGC and AR. These initiatives have not only significantly enhanced teaching efficiency and quality but also paved more diverse and inclusive learning paths for various student groups, contributing to the advancement of education towards intelligence and equity. Based on the five assessment criteria (problem awareness, innovation spirit, integration of science and education, application prospects, presentation and expression), five judges made professional and detailed comments on the 20 case-studies, including Mr. Shi Jianguo, Executive Deputy Dean of China Educational Equipment Institute; Mr. Wu Fati, Dean of School of Educational Technology, Faculty of Education, BNU; Ms. Zhou Jiaxian, Deputy Director of Center for Educational Neuroscience, East China Normal University; Mr. Ma Tao, Deputy Dean of Beijing Institute of Education Fengtai Branch and Mr. Wang Yunwu, Professor of School of Smart Education, Jiangsu Normal University. Ms. Mao Chengjie, Senior Teacher of Beijing Jingshan School was invited to host the event.

Photo of Student Forum on Smart Learning and Design for Future Education

Prof. Zhou Jiaxian gave a high evaluation of the case-studies. She pointed out that the participators had ingeniously integrated the latest achievements of educational neuroscience into various disciplines, achieving a deep integration and breakthrough between cutting-edge theories and teaching practices. The teachers not only have a profound comprehension of the relevant educational policies but also engage in empirical research utilizing scientific methodologies such as randomized controlled trials, thereby promoting the development of education.

Mr. Ma Tao affirmed the keen problem awareness demonstrated by the participators in their case-studies. The teachers skillfully applied advanced educational concepts and methodologies to design teaching activities, thereby effectively advancing the realization of educational goals on nurturing students. He emphasized that excellent designs should precisely address teaching difficulties while aligning with policy directions, to ensure that technology could truly serve the pain points and needs of education, thereby driving the continuous progress and development of future education.

Prof. Wang Yunwu pointed out that this event not only demonstrated the active attitude and innovative spirit of the teachers, but also reflected their keen awareness of problems, interpreting the proactive adaptation and embrace of change among K12 teachers in the new era. These case-studies showcased the teachers' ability to utilize cutting-edge concepts to precisely address educational challenges, not only verifying the feasibility of these concepts but also enhancing comprehension of their connotations, thereby effectively promoting the exploration and proliferation of new educational concepts.

Prof. Wu Fati pointed out that the participators were able to accurately grasp the pain points of education and skillfully integrate the principles of "learning science" into case-study design, making a positive impact on the current educational system. Prof. Wu suggested that participants should fully consider the characteristics of various AI models and the actual situations when using AIGC tools to solve educational problems, in order to avoid potential risks associated with the use of AI and ensure that technology can accurately satisfy human needs.

Mr. Shi Jianguo believed that the participators focused on the genuine educational issues that need to be solved. From analyzing the essence of problems to building framework of prototype, and then iterating and optimizing, they ultimately presented a series of complete and exquisite case-studies. These case-studies accurately aligned with the new curriculum standards, keenly involved the hot topics in education, and ingeniously integrated cutting-edge technologies such as AIGC, achieving a deep integration of technological innovation and teaching practice.

In conclusion, Prof. Chen Guangju, Former Vice President of BNU and Chairman of the Competition Steering Committee, highly praised the participators for their wonderful performance in the case-study design and presentation. The competition has been successfully held for six sessions since 2018, and this year marks the fourth year for the K12 Track, with the addition of enterprise and vocational education tracks. It is worth mentioning that this year's higher education track established two overseas sub-regions in Central and Eastern Europe and Maldives, which not only promoted the exchange of global smart education but also significantly enhanced the international influence of the Competition. Finally, Prof. Chen expressed his gratitude and aspiration to all the participators, encouraging them to persevere in advancing the spirit of innovation along the journey of future education, and to strive for even greater achievements.

During the Award Ceremony, Mr. Shi Jianguo, Chief Expert of the Competition, announced the annual award-winning list for Call for Posters, Call for Videos and K12 Teachers' Case-study Collection. Mr. Song Weizu, Deputy Director of the Central Cultural Committee of the China Democratic League, Founder of Beijing Design Society and Standing Director of Labor Education Branch, The Chinese Society of Education; along with Mr. Shi Jianguo presented the first and second prizes to the winners in the K12 Track respectively.

Photos of Award Ceremony

Student Forum on Smart Learning and Design for Future Education

The Student Forum invited 14 outstanding college student representatives from China, South Korea, Maldives, Nepal, Iran, Serbia, Croatia, Kazakhstan, and Ghana, as well as experts and scholars in the field of education, design, etc. By the hybrid online and offline approach, the forum focused on core topics including the design of ubiquitous smart learning spaces, the creation of high-quality educational resources, the development of human-computer collaborative learning activities, and the formulation of teaching models with multi-stakeholder participation. Additionally, it explored the application and challenges of Artificial Intelligence Generated Content (AIGC) in teaching and learning processes. The forum aimed to explore how design thinking and digital technologies can collaboratively drive education towards a more intelligent and refined direction.

Group Photo of Student Forum on Smart Learning and Design for Future Education

SPEAKERS

Mr. SONG Weizu
Founder, Beijing Design Society

Ms. Natalia Amelina
Chief of the Teacher Professional Development and Networking Unit, UNESCO IITE

Ms. AN Lili
Deputy Secretary, Youth League Branch Committee, Beijing Normal University

Mr. Divine Edem Kwadzodeh
Policy Advisor on Education Policy and Advocacy, AASU

MODERATORS

Ms. WANG Huanhuan
Beijing Normal University, China

Dr. Usama Kalim
Beijing Normal University, China

Mr. BAO Haogang
The China National Academy of Educational Sciences (CNAES)

Mr. Michael Agyemang Adarkwah
Friedrich Schiller University Jena

STUDENT SPEAKERS

How to design and implement ubiquitous smart learning spaces

Mr. Frederick Oduro
Ph.D. Student, Beijing Normal University, China

Ms. SHEN Peiqing
Postgraduate Student, Tokyo Gakugei University, Japan

Mr. William Edusei-Mensah
Ph.D. Student, Beijing Normal University, China

How to design and supply high-quality educational resources

Ms. Sofija Matovic
Ph.D. Student, University of Belgrade, Serbia

Ms. Lee Gi Young
Postgraduate Student, Sungkyunkwan University, South Korea

Mr. Enoch Sarfo Gyimah
Postgraduate Student in Science, Valley View University, Ghana

How to design innovative human-machine collaborative learning activities

Ms. Samaneh Lahuti
Postgraduate Student, Beijing Normal University, China

Ms. Martina Kolar,
Undergraduate Student, Zagreb University of Applied Sciences, Croatia

Mr. SUN Chendong
Postgraduate Student, China Academy of Art, China

Mr. Yoosuf Sayyid Bin Ahmed Shafeeg
Postgraduate Student, Asia Pacific University, Malaysia

How to design and implement teaching models with multi-stakeholder participation

Mr. Rai, Mahesh Chandra
Ph.D. Student, Beijing Normal University, China

Ms. LIU Yuhuan
Postgraduate Student, Xi'an Jiaotong-Liverpool University, China

Mr. Moldashev Zhandarbek
Ph.D. Student, Beijing Institute of Technology, China

Ms. PAN Ting
Postgraduate Student, Northwestern University, USA

Mr. SONG Weizu, Founder of Beijing Design Society and Deputy Director of the Central Cultural Committee of the China Democratic League, pointed out that design, as a scientific methodology, which integrated human knowledge and innovation, and facilitated development, is the intrinsic driving force for educational transformation. Over the past decade, Beijing Design Society has adhered to the leadership of the Communist Party of China. It has brought together experts and scholars in the field of design from around the world to implement a range of initiatives aimed at fostering balanced educational development, and promoting the deep integration of digital technology, multiculturalism, educational theory, and knowledge systems. He emphasized the necessity for future educational design to prioritize addressing global challenges and constructing a more open and inclusive smart education system.

Ms. Natalia Amelina, Senior National Project Officer in Education at UNESCO Institute for Information Technologies in Education (UNESCO IITE), highlighted that technology is not merely an innovation in teaching methods; it is the key to the comprehensive enhancements to educational concepts, content, and methods. She advocates for the implementation of digital technology to ensure an equitable distribution of educational resources, facilitate innovation in teaching models, and strengthen assessment system reforms. She emphasized the significance of design thinking in educational transformation, advocating for interdisciplinary collaboration in the development of educational solutions that better address student needs. She urged the global education community to jointly explore new pathways for the deep integration of information technology with education, developing a novel educational platform called Education 5.0.

Ms. AN Lili, Deputy Secretary of the Youth League Branch Committee at Beijing Normal University, highlighted that Beijing Normal University, as a model of teacher training institution, undertakes the role of cultivating future educators and actively leading the digital transformation of education. In response to the Third Plenary Session of the 20th Central Committee of the Communist Party of China, Beijing Normal University has taken the initiative to establish AI societies, launch AI tool platforms, and effectively promote the teaching and research powered by digital technologies. She called on global youth to collaborate on the design of ubiquitous learning spaces, the development of high-quality educational resources, striving collectively for the achievement of inclusive and equitable quality education.

Mr. Divine Edem Kwadzodeh, Policy Advisor on Education Policy and Advocacy at the All-African Students Union (AASU), proposed that technology should be leveraged to enhance teaching practices, innovate teaching design, and facilitate evidence-based governance, driving the sustainable development of education. He highlighted that AASU is dedicated to ensuring equitable access to educational resources in Africa and leading educational transformation in the digital age. He introduced a series of collaborative projects undertaken by AASU with variety of partners to promote the development of smart education platforms. Then, he encouraged the participants to consider the potential impacts of smart technologies on creating a more equitable and efficient learning environment for global learners.

How to design and implement ubiquitous smart learning spaces

In the future, ubiquitous smart learning spaces will enable learners to access necessary information anytime and anywhere, thereby promoting effective learning.

Mr. Frederick Oduro, a Ph.D. student in Comparative Education at Beijing Normal University, pointed out that the existing disparity in educational resources is a key issue in the field of science education in Ghana, especially the severe lack of science labs and equipment, which significantly limits the implementation of practical science education. He proposed building ubiquitous learning spaces using virtual reality (VR), augmented reality (AR), and mobile learning devices to provide students with a flexible, immersive, and interactive learning environment.

Ms. SHEN Peiqing, a postgraduate student in Education AI Research at Tokyo Gakugei University, noted that while AI technology is increasingly applied in the field of education, challenges persist, such as the high error rates of tools like ChatGPT in answering professional questions. She proposed using AIGC technology to create interactive intelligent learning companions, enhancing learning efficiency and quality through personalized guidance and real-time feedback while emphasizing the importance of multilingual communication and 24/7 availability.

Mr. William Edusei-Mensah, a Ph.D. student in Educational Technology at Beijing Normal University, pointed out that Ghana and other African countries face bottlenecks in Information and Communication Technology (ICT) development in the fourth industrial revolution wave. He suggested actively promoting the Smart Africa project to enhance the accessibility of devices, networks, and deep integration of emerging technologies with Teacher Professional Development Programs to enhance teachers' digital competence, and to globally build a technology-enhanced learning environment.

How to design and supply high-quality educational resources

In the future, high-quality educational resources

Ms. Sofija Matovic, a Ph.D. student at the Faculty of Education of University of Belgrade, pointed out the challenges in the Serbian educational system, such as lack of educational resources, insufficient teacher digital competence, and lack of necessary support, severely impeding the improvement of education quality and modernization processes. She proposed the " Center for Robotics and Artificial Intelligence in Education (CRAIE)" framework aimed at overcoming various challenges in educational modernization by enhancing teacher digital literacy, optimizing student learning experiences, and integrating advanced educational tools and resources.

Ms. Lee Gi Young, a postgraduate student in Public Administration & Social Entrepreneurship at Sungkyunkwan University, highlighted the severe challenges faced by Korean youth in career and character education. She proposed promoting the "MYOC" (Make Your Own Cube) project, which involves designing and implementing a series of diversified, multilevel self-exploration and character development courses to help young people achieve self-awareness, build confidence, and clarify their directions in a rapidly changing society. She emphasized the collective responsibility of educational transformation, especially the crucial role of communities, schools, and families in jointly designing and providing high-quality educational resources.

Mr. Enoch Sarfo Gyimah, a postgraduate student in Science in Nursing at Valley View University, pointed out the ethical issues in AI learning systems in nursing education, particularly the need for the authenticity of evidence-based information for learning. He proposed selecting and integrating learning resources by expert reviews and AI-aided curation to ensure the quality and reliability of resources; monitoring and evaluating through user tracking and AI-aided analysis to increase transparency and data

privacy in the educational process, thus ensuring the authenticity of learning outcomes in nursing education and providing robust support for learners' clinical practice.

How to design innovative human-machine collaborative learning activities

In the future, learner-centered teaching will enhance creative problem-solving skills through the development of social learning communities and human-machine collaboration.

Ms. Samaneh Lahuti, a postgraduate student in Educational Technology at Beijing Normal University, pointed out that although students widely use generative AI tools to complete assignments and semester projects in higher education, many university teachers still do not fully grasp how to design learning activities to enhance students' human-machine collaboration skills. She suggested universities provide clear guidance to teachers to better integrate AI into classroom teaching, ensuring the effective integration of technology and education.

Ms. Martina Kolar, an undergraduate student in IT Design at Zagreb University of Applied Sciences, emphasized that inadequate teacher preparation and lack of effective assessment data and tools significantly affect the quality of education in Croatia. She advocated enhancing the learning experience through gamification, utilizing generative AI technology for personalized customization, dynamic difficulty adjustment, and intelligent assessments to cater to different learning styles.

Mr. SUN Chendong, a postgraduate student in Product Design Research at China Academy of Art, pointed out the difficulties faced by deaf dancers in traditional dance learning, such as dysrhythmia, low communication efficiency, and great psychological pressure. He and his team developed the "CoDance" project, where hearing disorder can better grasp rhythm with the beats generated by the vibration of the patch, facilitating dance learning anytime, anywhere. The project aims to create an inclusive dance learning space, bridging the music perception gap between the hearing impaired and hearing dancers.

Mr. Yoosuf Sayyid Bin Ahmed Shafeeg, a postgraduate student in Business Administration with Specialism in Digital Leadership at Asia Pacific University, pointed out that excessive reliance on AI tools to complete tasks may weaken learners' critical thinking skills. He proposed using AI to promote collaborative and creative learning by designing personalized learning projects, combining diverse student interests and skills to reshape the education model in a dynamically collaborative learning environment.

How to design and implement teaching models with multi-stakeholder participation

In the future, teaching models with multi-stakeholder participation will position teachers as conveners, engaging local leaders, community workers, expert advisors, and enterprises in collaborative efforts to support collective teaching and resource sharing.

Mr. Rai, Mahesh Chandra, a Ph.D. student in Teacher Education at Beijing Normal University, highlighted challenges in the educational system in Nepal such as lack of practical opportunities and shortage of well-trained teachers. He proposed an effective multi-stakeholder participative teaching model to address the complex educational needs of Nepal by involving policymakers, school administrators, teachers, students, parents, and the broader community to support and facilitate the transfer of teacher training to classroom practices.

Ms. LIU Yuhuan, a postgraduate student in

Digital Education at Xi'an Jiaotong-Liverpool University, pointed out the issue of fragmentation in medical education, where medical students face a gap between learning resources and clinical practice, lacking in-depth practical training periods. She suggested building the "Hellodoc" AI-powered medical education platform, integrating authoritative learning resources with virtual patient simulations to offer comprehensive knowledge and practical training, encouraging continuous improvement of the educational system through a data feedback mechanism.

Mr. Moldashev Zhandarbek, a Ph.D. student in Pedagogy at Beijing Institute of Technology, discussed the future roles of AI as a new stakeholder and its potential impact on the educational system. He proposed leveraging AI technology in the digital intelligent era, combining the participation of government, companies, schools, and students to build an adaptive higher educational system to address challenges such as educational equity, personalized learning, and quality enhancement.

Ms. PAN Ting, a postgraduate student in Learning Sciences at Northwestern University, focused on promoting Project-based Learning (PBL) practices and the involvement of multi-stakeholder. She suggested optimizing the curriculum system, performance assessment, and educational objectives by integrating educational technology tools, designing student-centered, Understanding by Design (UbD) curricula, and involving teachers, students, parents, entrepreneurs, and researchers to drive educational transformation and enhance the literacy of all students across the school.

Roundtable Discussion

A roundtable discussion on "Artificial Intelligence Generated Content (AIGC) and its Deep Integration with Education" was hosted by Michael Agyemang Adarkwah. The discussion extensively explored the multiple potentials and challenges of AIGC in the field of education, with participants contributing their insightful perspectives.

Ms. Martina Kolar emphasized that organizational skills and strategic planning are key to designing efficient AIGC prompts, highlighting the importance of independent thinking in building core concepts.

Mr. William Edusei-Mensah elaborated on the potential of AIGC in enhancing educational personalization and accessibility, suggesting that AI can dynamically adjust content based on students' learning abilities to provide customized learning experiences for all learners, including those with cognitive impairments.

Mr. Moldashev Zhandarbek noted that AIGC can effectively alleviate the shortage of books in resource-limited educational areas, ensuring that every student can access high-quality resources.

Mr. Frederick Oduro discussed the application value of AIGC throughout the various stages of teaching practice, from pre-class preparation to teaching processes and exercise consolidation, including assisting teachers in lesson planning, preparing teaching materials, providing real-time feedback and interactive content, generating personalized practice questions, and simulated scenarios.

TVET Leadership and Management Programme (Workshop)

As a thematic event of the 2024 Global Smart Education Conference (GSE 2024), the TVET Leadership and Management Programme: Promoting Digital Transformation of TVET for Sustainable Rural Development was successfully held on August 17-24, 2024. The workshop was co-organized by UNESCO International Research and Training Centre for Rural Education (UNESCO INRULED), Southeast Asian Ministers of Education Organization Regional Centre for Technical Education Development (SEAMEO TED), UNESCO Chair on AI in Education, UNESCO Regional Office for East Asia (UNESCO Beijing), China Education Association for International Exchange (CEAIE), and Smart Learning Institute of Beijing Normal University (BNU). The programme also received support from partners including China Institute of Education and Social Development and Faculty of Education of BNU, as well as Federation of Returned Overseas Chinese and the Education Bureau of Lin'an District, Hangzhou, as well as Zhejiang Agriculture and Forestry University (ZAFU).

Group Photo of TVET Leadership and Management Programme

TVET is a crucial component of the Southeast Asian education agenda and a key area for China-Southeast Asia international educational cooperation and exchanges. In the digital age, advancing the digital transformation of TVET is essential for achieving balanced allocation of educational resources, promoting educational equity, quality and innovation, facilitating talent cultivation, and supporting rural revitalization. In this context, this workshop takes the theme of "Promoting Digital Transformation of TVET for Sustainable Rural Development" and brought together policymakers, experts, scholars, TVET school principals and representatives from international organizations in Southeast Asia and China to discuss topics including digital technologies to empower TVET, skill transformation in the digital era, cultivation of innovative and entrepreneurial talents, and TVET for sustainable rural development. Through activities including closed-door discussions, presentations and speeches, group discussions,

field exchanges and visits, the programme aims to enhance the leadership of TVET stakeholders in promoting sustainable rural development and to facilitate policy dialogue, practice sharing and theoretical exploration between China and Southeast Asian countries in the field of education development and rural revitalization.

Group Photo of TVET Leadership and Management Programme

In the afternoon of August 18, the Opening Symposium and Partnership Meeting of the TVET Programme was held at the BNU Changping Campus. Dr. ZHAO Yuchi, Executive Director of UNESCO INRULED, Datuk Dr Habibah Abdul Rahim, Director of SEAMEO Secretariat, Mr. Robert Parua, Education Specialist of the UNESCO Beijing and Prof LI Yanyan, Deputy Director of Smart Learning Institute of BNU delivered welcoming remarks. Mr. Khat Prumsochetra, Deputy Director of SEAMEO TED and Prof. WANG Libing, Chief of Section for Education of UNESCO Regional Office in Bangkok delivered keynote speeches.

At the Country Reports session, representatives from China and Southeast Asian countries including Prof BAI Bin, Deputy Director of Institute of Vocational and Adult Education of BNU, Mr. Mom Say, Head of Academic Office of National Polytechnic Institute of Cambodia (NPIC), Prof. Dr. Hj. Ana, Vice Dean of Faculty of Technical and Vocational Education and Dr. Iwan Kustiawan, Head of Electrical Engineering Study Program and Head of TVET Research Centre of University Pendidikan of Indonesia, Mr. Mohd Asyraf Bin Md. Sum, Deputy Director of the Student Intake and Development Division at the Department of Polytechnic And Community College Education of the Ministry of Higher Education of Malaysia, Dr. Pattarada Rungruang, Vice President of Attawit Commercial Technology College of Thailand, Asso. Prof. Dr. Le My Ha, Vice Dean of Faculty of Electrical Electronic Engineering of Ho Chi Minh City of University of Technology and Education of Vietnam, and Dr. Mary Jane M. Gonzales, Principal IV, DepED-Padre Garcia Integrated National High School of the Philippines, shared national policies and good cases of digital transformation of vocational and technical education to promote sustainable rural development and their institution introductions. The delegation also had a discussion and consultation on INRULED's "Learning Village in the Digital Era" programme.

Participants also visited Alibaba Group and Tsinghua University High-tech Hub, exploring issues such as digital technologies to empower rural education and development and university science park's role in promoting entrepreneurship, innovation and industry development.

On August 21-23, the delegation visited Lin'an District of Hangzhou, Zhejiang Province for a field study. They visited locations such as the Lin'an District Vocational Education Center and Rural Revitalization Documentation Hall of ZAFU to learn about the innovative practices in education that promotes sustainable rural development. The delegation also explored new and innovative industry development in places such as the Bainiu Village, the E-commerce Town in Changhua Township and the Rural Homestay and Resort in Xiangjian Village of Longgang Township. Through interactions and group discussions with rural innovation and entrepreneurship leaders, the delegation gained a deeper understanding of Lin'an practices in harnessing overseas innovative and entrepreneurial talents to support rural revitalization. During the visit, issues such as education transformation, talent needs and skill transformation needed for rural revitalization in the digital era, and the role and contribution of TVET for sustainable rural development are reflected and discussed.

In the morning of August 23, the Partnership Meeting for Education for Rural Development and TVET Leadership and Management Programme Closing Ceremony was held in Lin'an, Hangzhou. Prof. ZHOU Zuoyu, Director of UNESCO INRUELD, Mr. Khat Prumsochetra, Deputy Director of SEAMEO TED, Ms. AN Yan, Deputy Secretary General of China Education Association for International Exchange and Ms. QIAN Meixian, Director of the Standing Committee of the Lin'an District People's Congress, delivered welcome remarks. Dr ZHAO Yuchi, Executive Director of UNESCO INRULED, Ms. XU Lingdi, Chairman of the Hangzhou Municipal Federation of Returned Overseas Chinese, and Ms. CHEN Na, Director of the United Front Work of Lin'an District, Hangzhou, attended the meeting. Representatives of Li'an District Agriculture and Rural Affairs Bureau and Education Bureau and ZAFU shared related work on promoting "education for rural development".

At the meeting, representatives from five Southeast Asian countries, including Ms. Sreng Kanha from Cambodia, Ms. Supriatin Dra from Indonesia, Ms. Intan Keristina binti Mohd Yusop from Malaysia, Dr. Jutamanee Kraikunasai from Thailand, and Asso. Prof. Dr. Vu Van Phong from Vietnam shared their reflections and summaries of the programme. At the meeting, the ZAFU, Lin'an District Vocational Education Centre and 2 local enterprises signed memorandums of cooperation with Southeast Asian partners. Mr. Robert Parua, Education Specialist at UNESCO Regional Office for East Asia and Ms. CHEN Na, Representative of Lin'an District Government, concluded the workshop with wishes to promote international exchanges and cooperation between China and Southeast Asian countries in the field of TVET and education for rural revitalization. After the meeting, the delegation also visited local enterprises such as Hangcha Group and Xizi Elevator.

The workshop promoted international exchanges, academic discussions and strategic cooperation between China and Southeast Asian countries in the field of TVET and rural transformation. Through mutual learning and exchanges, capacity development, partnership building and networking, the programme serves to promote collaborative efforts for a brighter future for TVET and rural development and accelerate the realization of the United Nations 2030 Agenda.

Smart Education Exhibition

The conference hosted on-site exhibitions for industries and companies, educational institutions, and research organizations in the field of smart education to showcase intelligent educational equipment, systems and platforms, tools and software, digital resources, integrated solutions, cases, projects, and research achievements.

Photos of Smart Education Exhibition

Partnership

Beijing Normal University

BNU is a National Key University directly under the administration of the Ministry of Education, P.R.China. It is a well-known university characterized by teacher education, educational science and basic disciplines in sciences and humanities.

UNESCO Institute for Information Technologies in Education

UNESCO IITE was established as an integral part of UNESCO by the General Conference of UNESCO at its 29th session (November 1997). IITE is the only UNESCO Category 1 Institute with a global mandate for ICT in education.

Smart Learning Institute of Beijing Normal University

Smart Learning Institute (SLI) is affiliated to BNU, and serves as an experimental platform comprising scientific research, technology development and education, which is jointly constructed by Elernity and its parent firm NetDragon Websoft Inc. SLI focuses on researching learning patterns under ICT environments, designing smart learning environments and building platforms that enable life-long learning and support the various, personalized and differentiated learning styles of digital learners.

Faculty of Education of Beijing Normal University

FOE is an organic teaching and research unit of BNU. The missions of FOE are to improve the quality of educational innovation nationwide, to educate and prepare professional teachers and future educators, to house the think tank in education, to offer opportunities for International educational exchange and to facilitate the building of the educational industry in China.

Faculty of Psychology of Beijing Normal University

The Faculty of Psychology of BNU is a world-class psychology discipline construction unit in China. It is also the only National Key Disciplines unit with a first-class psychology discipline.

China Institute of Education and Social Development

CIESD is a new type of university think tank that focuses on innovation in educational policies and social governance. The Institute adheres to a high-standard orientation and high-quality development. It faces major national strategies, regional development and the academic frontier, aiming to provide consulting and assisting in politics with high-quality achievements.

National Engineering Research Center of Cyberlearning and Intelligent Technology

CIT was constructed according to Notice from the General Office of NDRC in 2017. It is organized by BNU and jointly constructed by Tsinghua University, China Mobile Communications Corporation(CMCC), Elernity and iFLYTEK CO.LTD. In 2021, It has been included in the new sequence management of the National Engineering Research Center.

The Arab League Educational, Cultural and Scientific Organization (ALECSO)

The Arab League Educational, Cultural and Scientific Organization (ALECSO) is a Tunis-based specialized institution working under the umbrella of the League of Arab States. It is essentially concerned with the development and coordination of the activities related to education, culture and sciences in the Arab World. It includes 22 Member States.

Commonwealth of Learning (COL)

Commonwealth of Learning (COL) is an inter governmental organization created by Commonwealth Heads of Government in 1987 to promote the development and sharing of open learning and distance education knowledge, resources and technologies.

International Society for Technology in Education (ISTE)

The International Society for Technology in Education (ISTE) is a nonprofit organization that has global members in the field of Education Technology. It is the home to a passionate community of global educators who believe in the power of technology to transform teaching and learning, accelerate innovation and solve tough problems in education. ISTE's vision is that education innovators are supported in reimagining and redesigning learning with a focus on using technology to create transformational and equitable experiences for learners.

The Southeast Asian Ministers of Education Organization (SEAMEO)

The Southeast Asian Ministers of Education Organization (SEAMEO) is a regional intergovernmental organization established in 1965 among governments of Southeast Asian countries to promote regional cooperation in education, science and culture in the region.

UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC)

IESALC, established as a category I institution under UNESCO in 1997 in Caracas, Venezuela, is dedicated to assisting countries in tackling the challenges associated with the internationalization of higher education.

UNESCO International Research and Training Center for Rural Education (INRULED)

The UNESCO International Research and Training Centre for Rural Education (UNESCO INRULED) was established by UNESCO and the Chinese government in 1994 with a mandate to promote sustainable socio-economic development in rural areas. As a Category II center under the auspices of UNESCO, INRULED's research and training activities concentrate on education for rural transformation.

UNESCO Chair on Artificial Intelligence in Education

The UNESCO Chair is aimed at fostering collaboration and exchange among high-level scholars, experts, and educators from universities and educational institutions in China, as well as in other regions of the world such as Asia, Africa, and Latin America. It strives to advance innovation in artificial intelligence technology and explore effective, ethical applications of AI in education, with a focus on nurturing relevant talent in these areas.

Collaborative Innovation Centre of Assessment for Basic Education Quality

Collaborative Innovation Centre of Assessment for Basic Education Quality was established in July 2012 and was officially recognized by the Ministry of Education in October 2014. It is the only national-level collaborative innovation center in the fields of education and psychology in China.

State Key Laboratory of Virtual Reality Technology and Systems

State Key Laboratory of Virtual Reality Technology and Systems is one of the earliest units in China to conduct research and applications in virtual reality technology. After years of development and construction, it has formed a distinct advantage in interdisciplinary team collaboration, combining military and civilian backgrounds, emphasizing both theoretical research and system development, and bridging technological breakthroughs with industry applications.

Strategic Research Base of Education Informatization, Ministry of Education, P.R.China

Strategic Research Base of Education Informatization (Central China), Ministry of Education, P.R.China, relying on Central China Normal University, undertakes multiple functions such as policy analysis, performance evaluation, decision support, consulting, and training related to educational informatization.

Strategic Research Base of Education Informatization (Beijing), Ministry of Education, P.R.China., relying on Beijing Normal University, focuses on strategic research in the development of smart education, application of artificial intelligence in education, and international comparative studies on educational informatization.

Strategic Research Base of Education Informatization (Northwest), Ministry of Education, P.R.China., relying on Northwest Normal University, concentrates on strategic research in areas like the construction and application of online learning spaces and educational informatization in ethnic regions.

NetDragon Websoft Inc.

Founded in 1999, Netdragon is a leader in China's online game and mobile Internet application industries, as well as a leading force in China's online education and enterprise informatization industries.

The Education University of Hong Kong

The Education University of Hong Kong is the largest higher education institution for teachers in Hong Kong. It is publicly funded and has a number of international partner universities and institutions.

The Hong Kong Polytechnic University

The Hong Kong Polytechnic University (POLYU) is committed to becoming an innovative, world-class university with a commitment to community responsibility

The Administrative Center for China's Agenda 21

The Administrative Center for China's Agenda 21 was established on March 25, 1994 with the approval of the Office of the Central Commission for Public Sector Reform. It is a Class A public institution directly under the National Natural Science Foundation of China.

China Industry-University-Research Institute Collaboration Association

CIUR is approved by The State Council, by the National Development and Reform Commission, the Ministry of Education, the Ministry of Industry and Information Technology and a number of universities, research institutes, central enterprises, private enterprises and other government departments jointly established a national social organization, belonging to the resource integration of high-level collaborative innovation service platform, headquartered in Haidian District, Beijing, founded in November 2007.

Higher Education Press

The Administrative Center for China's Agenda 21 was established on March 25, 1994 with the approval of the Office of the Central Commission for Public Sector Reform. It is a Class A public institution directly under the National Natural Science Foundation of China.

China Information Technology Education Magazine

China Information Technology Education magazine was founded in 2002 and is a central-level publication supervised by the Ministry of Education of the People's Republic of China and organized by the National Center for Educational Technology, among others.

New Reading Magazine

The national periodical, which is supervised by the National Press and Publication Administration and sponsored by the Chinese Academy of Press and Publication, takes "promoting the reading of all people and building a bookish China" as its purpose, and is committed to becoming the first brand periodical read by all people in China.

The Virtual Simulation Experiment Teaching Innovation Alliance (VSE)

The Virtual Simulation Experiment Teaching Innovation Alliance aims to serve the construction and shared application of national first-class virtual simulation experiment teaching courses, and promote the integration and development of school teaching, industry application and technological innovation.

Bureau of Education of Shenzhen Municipality

The higher education in Shenzhen has run out of the “Shenzhen speed”, and the number of colleges and universities in the city has reached 17; High-end development of vocational education, the Ministry supports Shenzhen to build a national vocational education development innovation highland; To expand and improve the quality of basic education, China took the lead in implementing one physical education class per day in compulsory education schools.

Bureau of Education of Changsha Municipality

Changsha takes smart education as the starting point, comprehensively promotes the digital transformation of education, and promotes the innovation and integration of the whole chain of education through new technologies such as artificial intelligence, big data and cloud computing. Empowered by information technology, it has built a new education system featuring all-round development of morality, intelligence, body, and labor, such as smart moral education, smart classroom, smart sports, smart aesthetic education, and smart practice, driving all-round reform in education, teaching, governance, and service.

Bureau of Education of Chongqing Liangjiang New Area

Bureau of Education of Chongqing Liangjiang New Area regards the development of high-quality middle school education as a breakthrough for the high-quality development of Liangjiang education, proposes the goal of “allowing Liangjiang children to complete the whole stage of high-quality education from kindergarten, primary school, junior high school and senior high school in Liangjiang”, adheres to the two legs of external education and internal training at the same time, and comprehensively layout high-quality middle schools.

Bureau of Education of Xiaoshan District, Hangzhou

Xiaoshan District anchors the overall goal of “still learning Xiaoshan brand and running people’s satisfaction education”, focuses on the expectation of the masses that “every door has a good school”, strengthens confidence, faces up to difficulties, and orderly promotes education and has made new progress and new achievements.

School of Continuing Education and Teacher Training, BNU

It is the unified management organization and school-running entity of BNU for adult higher education, network education, teacher education and training, and other forms of continuing education.

Research Institute of K-12 Educational Big Data Application, Beijing Normal University

The Institute focuses on solving the basic supporting problems of the education big data industry and exploring the universal solutions of education big data, which is conducive to proposing innovative models for solving education problems, promoting regional education reform and development, revealing deep-seated education and teaching laws, forming a new industrial ecology, and providing a basis for education governance policies.

Advanced Innovation Center for Future Education, Beijing Normal University

As one of the first sophisticated centers supported by the Beijing Municipal Government, it is a high-level international innovation platform with major educational practice issues as the orientation and educational science and technology innovation as the core direction, providing education public service intelligent platform and education expert think tank services for the whole country, promoting the intelligent transformation of education and helping China's education modernization.

International Writing Center, Beijing Normal University

Founded in 2012, it was unveiled in Beijing on May 13, 2013. Mo Yan, winner of the Nobel Prize in Literature, is the director of the center, Tie Ning, president of the Chinese Writers Association, is the chairman, and Tong Qingbing, Mo Yan's mentor and senior professor of the School of Literature at Beijing Normal University, is the director of the academic committee.

Center of Information & Network Technology, Beijing Normal University

The Information Network Center is a functional organization responsible for the planning, implementation, management and service of school information construction under the leadership of the university Party committee and administration.

School of Educational Technology, Northwest Normal University

The School of Educational Technology of Northwest Normal University, formerly known as the Department of Audio-Visual Education of Northwest Normal University, was established in 2012.

Institute of Artificial Intelligence Education, South China Normal University

Institute of Artificial Intelligence Education, South China Normal University The Institute is a professional school of Educational artificial Intelligence of South China Normal University, dedicated to the theoretical research and applied practice of educational artificial intelligence.

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Smart Education in the Era of Digital Transformation: Blueprint Planning and Key Path ——a summary of the GSE2024

Abstract

Smart education, as an advanced form of education informatization, aligns with the development goals of digital transformation in education. It has also become a target for educational development and a topic of common concern for various sectors of the society in different countries. The Global Smart Education Conference has provided an important platform for exchanging and cooperating on smart education. This paper, based on the vision of the 2024 Global Smart Education Conference, explores the crucial role of smart education in accelerating educational digital transformation, and proposes key paths for establishing sustainable educational ecosystems, promoting holistic human development, and reshaping the educational system, with a focus on the entire process, all fields, and all elements. The aim is to promote effective practices of smart education on a global scale, enhance international understanding and communication, and promote educational reform and innovation.

Keywords: smart education; educational reform; international understanding; digital education.

Changes in the world, the times, and history are unfolding in unprecedented ways, driving the adaptation and adjustment of global education. From August 18th to 20th, the "2024 Global Smart Education Conference," hosted by Beijing Normal University and the UNESCO Institute for Information Technologies in Education, was held in Beijing. With the theme of "Educational Transformation and International Understanding," the conference organized plenary sessions, parallel forums, high-level dialogues, roundtable discussions, workshops, and other activities focusing on smart education policies, technologies, and practices. A total of 16 thematic forums and 11 thematic activities were held, releasing a research report titled "Global Understanding of Smart Education in the Context of Digital Transformation" and the "Global Smart Education Innovation Prize." Additionally, the "Smart Education Exhibition" displayed the latest smart education products and services in the industry. Representatives from more than 60 countries and regions worldwide, as well as multiple international organizations, gathered to discuss the future of human education.

1 Enhancing International Understanding of Smart Education and Drafting an Ideal Blueprint for Smart Education

1.1 The Digital Revolution Ushers in the Beginning of Smart Education Era

The development of smart education requires systematic planning and scientific strategies, as well as mutual exchanges and learning among countries. It necessitates the establishment of policy dialogue and exchange platforms to deeply discuss new concepts, experiences, strategies for smart education, as well as policy issues such as standard data governance, security ethics, and other related aspects. Together, we must explore feasible pathways, scientific methods, and effective policies for the development of smart education.

From a historical perspective, **Prof. ZHENG Qinghua**, President of Tongji University, proposed that

scientific education is the most significant invention for human progress, and artificial intelligence is shaping the new form of future education, forming a ternary model of teachers, machines, and students empowered by AI. **Prof. ZHAO Qinping**, Academician of the Chinese Academy of Engineering and Professor at Beihang University, suggested from a technological development perspective that advancements in information technology continuously drive the digitalization of education, leading to the emergence of smart education with the development of big data, artificial intelligence, and virtual reality technologies. **Prof. YANG Zongkai**, President of Wuhan University of Technology, proposed from the perspective of changes in human needs driven by economic and social development that it is necessary to cultivate innovative talents adapted to the digital age, thus attaching great importance to digital and intelligent education.

The Origin of Smart Education. In 2008, S.J. Palmisano, then CEO of IBM, first proposed the concept of a Smarter Planet in his report titled "Smarter Planet: The Next Leadership Agenda". Subsequently, with the emergence of terms like smart cities and smart transportation, various traditional concepts were endowed with the connotation of "smartness," and smart education gradually became a frontier academic direction in the field of education, showing an increasing trend of development. The "14th Five-Year Plan for Economic and Social Development of the People's Republic of China and Long-Range Objectives through the Year 2035" explicitly requires focusing on key areas such as education and "promoting the inclusive application of digital services," including smart education in the top ten digital application scenarios. The "14th Five-Year Plan for Digital Economic Development" calls for deepening the promotion of smart education, advancing the construction of smart education demonstration zones, and further improving the public service system for digital education resources.

The Definition and Connotation of Smart Education. Smart education can be understood as a smart education system, defined as "a type of educational behavior (system) provided by schools, regions, or countries that offers high learning experiences, high content adaptability, and high teaching efficiency. It utilizes modern science and technology to provide a series of differentiated support and on-demand services for students, teachers, parents, and others. It comprehensively collects and utilizes status data of participant groups and data from the educational and teaching process to promote equity, continuously improve performance, and nurture educational excellence".

From the perspective of educational digital transformation, the new characteristics of smart education are embodied in two aspects. Firstly, the key expressive features of a national or regional smart education ecosystem, namely the "development goals" of smart education, include student-centered teaching, comprehensive learning assessment, ubiquitous smart learning environments, a culture of continuous educational improvement, and adherence to educational inclusivity and equity. Secondly, the auxiliary constructive features of the smart education system, namely the "practical approaches" of smart education, include the construction of active student social communities, priority support plans for teacher development, ethical technology applications, sustainable educational reform planning, and effective cross-sector and cross-domain collaboration.

1.2 Opportunities and Challenges Facing Smart Education

Digital technology is emerging as a leading force driving educational transformation. The United Nations Transforming Education Summit has listed digital transformation in education as one of the five key action areas, and this transformation has become a global consensus and the trend of the times. **H.E. Mr. WANG Jiayi**, Vice Minister of Education of P.R.China, mentioned that the Chinese government attaches great importance to the pivotal role of digitization in driving educational transformation, and has implemented the national digital education strategy for three consecutive years. This is mainly reflected in three aspects: first, integrating high-quality resources to build a national digital education public service system; second, enhancing the application of artificial intelligence to promote AI-enabled education initiatives; and third, strengthening international exchanges and cooperation to contribute wisdom and

strength to the global digital transformation of education. **Ms. Stefania Giannini**, UNESCO Assistant Director-General for Education, pointed out that the theme of educational transformation and international understanding is very timely for the international education community. UNESCO leverages the potential of digital technology in education and has been committed to addressing the ethical, social, and economic impacts of these technologies.

The digital transformation poses numerous challenges to education, primarily manifesting in inadequate digital infrastructure, digital privacy concerns, and the digital divide. **H.E. Ms. Maryam Mariya**, Minister of Higher Education, Labour and Skills Development of Maldives, **Mr. Adnan Husić**, Assistant to Minister, Ministry of Civil Affairs of Bosnia and Herzegovina, and **H.E. Mr. Justin Valentin**, Minister of Education of Seychelles, all mentioned the challenges posed by these issues to the realization of smart education. **Datuk Dr. Habibah Abdul Rahim**, Director of Southeast Asian Ministers of Education Organization (SEAMEO) Secretariat, shared several questions from the perspective of the impact of educational technology on future education: first, whether educational technology aligns with local learning environments; second, whether the power of educational technology will leave learners behind; third, whether the utilization of educational technology is scalable; and fourth, whether the use of educational technology supports sustainable future education.

1.3 Smart Education as a Key Path to Sustainable Educational Development

Prof. YU Jihong, President of Beijing Normal University, mentioned facing this historical opportunity, we must first adhere to the people-oriented approach, aiming at comprehensive and free human development, and cultivate digital competencies suitable for the era of intelligence. Second, we must adhere to a problem-oriented approach, overcome practical challenges, and promote the orderly integration of intelligent technologies into the educational ecosystem. Third, we must adhere to innovation while maintaining traditional values, promote the reconstruction of teachers' competencies in the intelligent era, and make them the core driving force for adapting to and promoting innovations in smart education. **H.E. Mr. WANG Jiayi** also proposed three initiatives: first, strengthening policy dialogue to jointly advance the development of smart education; second, strengthening resource sharing to promote more equitable and inclusive education; and third, strengthening capacity-building to jointly create a new landscape of smart education.

Policy is a crucial guarantee for driving the digital transformation of education. Developing smart education is a major project of educational transformation. It is necessary to ensure the standardization and orderly integration of technologies such as artificial intelligence into the educational ecosystem, and to leverage new technologies to facilitate the formation of precise and efficient educational applications and governance mechanisms. **H.E. Ms. KILO Vivian ASHERI**, Secretary of State of the Ministry of Basic Education of Cameroon, mentioned that Cameroon has formulated several policy documents related to the transformation of the education system, including national development strategies, strategies for the education and training sector, ICT policies, laws governing higher education, inclusive education policies, preschool education policies, and reforms of the education system at all levels to adapt to new social development needs. **Mr. Janko Samardžić**, Assistant Minister of Education for Higher Education of Serbia, pointed out that Serbia has formulated a national strategy for 2030, deeply exploring the potential of digital applications in improving teaching quality, student achievement, and supporting student development. **Mr. GAN Changfu**, Deputy Director-General of Qinghai Provincial Department of Education, stated that they are working on the Qinghai Education Digitalization Development Plan (2024-2027), clarifying timelines and roadmaps, and making overall plans and layouts for digital education in the province.

Technological conditions are important support for multiple stakeholders to jointly build a digital education system. New technologies possess a certain complexity, which requires a comprehensive understanding and implementation of public policies that promote sustainable development through

intelligent technologies, relying on the joint promotion and widespread participation of stakeholders and the public. **Prof. ZHAO Qinping** elaborated on the impact of virtual reality technology, including moving beyond the existing capabilities of VR1.0 towards the VR2.0 era characterized by 6I features, and the impact of the development of Internet technology on future educational development, which requires the integration of the physical and virtual worlds. **Prof. Poon Wai-yin**, Vice President of The Chinese University of Hong Kong, mentioned the learning environment for virtual teaching, especially for students with special needs, by constructing an inclusive virtual teaching environment where teachers can make relevant adjustments according to special needs to help students overcome learning barriers.

Digital transformation is not only an upgrade at the technical level but also a profound transformation of educational models and philosophies. The digital transformation of education is a process of continuously leveraging digital, networked, and intelligent technologies and methods to transform the education system, requiring the implementation of a digital process across all educational stages, elements, processes, and domains within the education system. **Prof. HU Qintai**, Party Secretary and Professor at Guangdong University of Technology, proposed four pathways for the digital transformation of education: first, systematically constructing new modes, frameworks, methods, and systems for digital educational reform; second, using educational thoughts and ideas as a guide to promote teaching innovation; third, creating visual learning and teaching resources to promote the sharing of advantages; and fourth, constructing a multi-type digital collaborative service community. **Prof. YU Shengquan**, Executive Director of the Advanced Innovation Center for Future Education at Beijing Normal University, pointed out that in terms of talent cultivation objectives, emphasis should be placed on distributed educational intelligence combining humans and machines. In terms of the curriculum system, it is necessary to construct curriculum content with one core and multiple contexts, a dynamically reorganized curriculum structure, curriculum forms that integrate virtual and real elements, and a teaching paradigm for knowledge creation. In terms of evaluation mechanisms, there should be a shift to developmental evaluation based on data. In terms of management systems, an open, flexible, and highly adaptable governance structure should be constructed to form dynamic and open school organizations that support personalized, differentiated, and collaborative education.

2 Promoting Digital Transformation Across All Fields to Create a High-Quality, Inclusive, and Sustainable Smart Education Ecosystem

The digital transformation across all fields encompasses educational fields such as basic education, higher education, vocational education, adult and continuing education, and social training, while also taking into account regional equity and balance between urban and rural areas. The pace of digital transformation is accelerating globally, with countries successively introducing digital development strategies and incorporating digitalization in education as a crucial component of their national digital strategies. Promoting digital transformation across all fields will contribute to the creation of a high-quality, inclusive, and sustainable smart education ecosystem.

2.1 Leveraging Digital Technology to Make Children's Learning, Development, and Growth More Vibrant

Digital technology can provide rich and appropriate curriculum resources for early childhood development, create lively and interesting activity situations, enhance engagement in activities and serendipitous encounters with information, and better motivate children. This helps to continuously deepen real-and-virtual integrated educational activities through collaborative inquiry. **Prof. CHEN Guangju**, Former Vice President of Beijing Normal University, pointed out that by introducing digital means, we can provide children with more personalized, scientific, and efficient learning experiences. **Prof. LI Xiaowei** from the Faculty of Education at Beijing Normal University mentioned the practical aspects of digital parenting in families, emphasizing both media utilization and media intervention, teaching children to abide by media usage rules, correcting poor media usage habits, and enabling them to correctly identify and select media products. Regarding professional digital parenting, parents urgently

need professional support. **Ms. LV Hong**, Principal of Ya He Kindergarten of Bo Ya Primary School in Liangjiang New Area, Chongqing, proposed effectively utilizing intelligent technology to integrate education with entertainment, creating smart game classrooms, and achieving shared teachers, classrooms, games, and materials. Children can obtain personalized development through independent choices, play, and creation.

Expanding application scenarios makes preschool education more diverse, personalized, and intelligent. **Mr. ZHANG Jianping**, Director of the Education Bureau of Xiaoshan District, Hangzhou, shared a three-step approach for the digitization of preschool education: first, establishing a smart kindergarten system; second, connecting points to form a digital application path for kindergartens across the district; and third, establishing a smart preschool education community to form a collaborative education model for inclusive development. **Mr. FANG Xuejian**, Director of the Education Bureau of Yangzhong City, Jiangsu Province, shared two experiences: first, sharing digital information resources across the entire region; and second, focusing on adhering to digital ethics across the region to improve education quality and forming a digital ethics convention and supervision mechanism. **Ms. HU Yan**, Principal of Hangzhou TianShui Kindergarten in Zhejiang, established an "Excellent Recording Studio" where children record stories, songs, and dances to create digital resources, which can be shared with the community, while also introducing excellent educational resources from the community into the kindergarten.

Innovating the entire teaching process and sharing resources to meet multi-level teaching needs. **Mr. LIN Mingxiang**, Chancellor of EIS International Pre-school in Hong Kong, emphasized the importance of deep learning for young children, believing it helps them apply critical thinking and problem-solving skills when facing complex issues. Teachers play a crucial role in supporting children's deep learning. **Ms. TIAN Hui**, Principal of Yinchuan Kindergarten of Beijing Normal University, shared cases of project-based learning, including steps, topic selection, preset project network diagrams, preset projects, and design of driving questions. **Ms. LI A'hui**, Principal of Hangzhou Kaiyue Kindergarten in Xiaoshan District, proposed integrating the smart platform with the preschool education community platform for digital practice and educational reform. The kindergarten's educational goals are to cultivate children's intellectual minds, healthy bodies, creative expressions, and overall life skills, with customized modeling for young children.

2.2 Digitizing Basic Education to Create a Flexible and Sustainable New Educational Model for Students

New Orientation of Basic Education Goals in the AI Era. Basic education, as foundational education, is transforming towards intelligence, digitalization, and learning in the AI era. **Prof. YU Shengquan**, Executive Director of the Advanced Innovation Center for Future Education at Beijing Normal University, pointed out that in transforming educational goals, the key is to unleash the distributed educational intelligence of human-machine integration, proposing to cultivate "advanced intelligent agents," individuals with the ability to harness machines and possess wisdom beyond them. **Ms. Kristina Ishmael**, Founder of Ishmael Consulting, believes that the integration of AI and basic education primarily aims at using AI for leadership, policy ethics and regulatory frameworks, learning assessment, vocational learning, scientific and technological training, and innovation among students.

New Insights into Basic Education from AI Technology. **Prof. YU Shengquan** mentioned the concept of cognitive outsourcing, a human-machine integrated way of thinking centered on balancing internal and external cognition. In basic education, if we excessively rely on AI to handle cognitive processes, it can lead to an imbalance and fragmentation between our internal and external cognition, falling into the trap of cognitive outsourcing. **H.E. Dr. Randa Ahmad Hafez Shaheen**, First Undersecretary of the Ministry of Education of Egypt, mentioned that while technology and AI bring development on one hand, they also pose challenges and dangers to human survival. Therefore, we need to integrate human actions to achieve a better development balance. **Ms. ZHANG Huimin**, Director of the Shenzhen Education Information Technology Center, observed from grassroots practices that the main challenges include a low rate of digital normalization in teaching and learning, insufficient talent pools, uneven development,

insufficient depth of application, and inadequate integration between social and school domains. Consequently, the new form of schools based on digital concepts has not yet fully taken shape.

"Cloud Education" Will Become a New Strategy for Future School Development. **Mr. CHEN Hong**, Senior Vice President and CTO of NetDragon Websoft Inc, shared new educational spaces based on AI. One is the Innovation Hub, which can provide real-time assistance to students encountering questions during experiments, like a real person. The second is the Vocational Hub, which can simulate numerous practical training spaces for students to operate. The third is the Exam Hub, allowing exams to be conducted anywhere. **Mr. GONG Weidong**, Principal of Shenzhen Welkin School, mentioned that the first batch of Cloud School initiatives involved 13 participating schools in 10 districts across the city, forming a "1+N" school community and driving collaborative development among all participating schools. This initiative breaks the isolated effect of "famous schools and teachers" and achieves interconnection of resources such as teaching staff, curricula, and teaching research across the entire region and beyond. **Mr. CAO Peijie**, Deputy Director of the Digital Education Research Institute of the China National Academy of Educational Sciences, envisioned the future school model based on the Cloud School model, mentioning two keywords: "cloud education" and "practice field." Cloud education is not just about online and offline; it also carries a ubiquitous meaning, suggesting that school education may closely integrate with social practices and real life.

2.3 AI Reshapes a More Resilient New Paradigm of Higher Education

Artificial intelligence (AI) is reshaping higher education, manifesting in intelligent content generation, personalized learning process analysis, smart handling of research data, and precise educational management decision-making. **Mr. XU Xiaofei**, Deputy Director of the Steering Committee on Teaching Informatization and Teaching Method Innovation for Higher Education Institutions under the Ministry of Education of P.R.China, believes that new forms of higher education, such as agile education, smart education, service-oriented education, and metaverse education, will evolve into AI+metaverse+higher education+services, ushering in new modalities and spaces. **Prof. ZHENG Qinghua**, President of Tongji University, mentioned that AI is empowering scientific research, with AI for Science giving rise to new paradigms in scientific inquiry. Humans have developed four scientific paradigms in understanding and transforming the world: the earliest empirical paradigm, followed by the theoretical paradigm, then the computational paradigm, and most recently, the data-driven paradigm.

The digital transformation of higher education necessitates reconstructing the talent cultivation system and balancing the relationship between "change" and "constancy." Focusing on the fundamental task of improving morality and fostering talent, we should strive to create a more resilient education system. **Mr. GAO Dongfeng**, Deputy Director of the Department of Higher Education of the Ministry of Education of P.R.China, pointed out that higher education bears the glorious mission of supporting and leading national development and contributing to the construction of a community with a shared future for mankind. He provided four suggestions: first, to enhance awareness and actively change the development philosophy of higher education; second, to innovate forms and accelerate the transformation of teaching elements in higher education; third, to integrate science and education and innovate the training of AI talents; and fourth, to take practical actions and substantially transform digital infrastructure and governance systems in higher education. **Prof. YANG Zongkai**, President of Wuhan University of Technology, believes that a new generation of talents should prioritize values, build on knowledge, and emphasize capabilities. He proposed five suggestions for the digital transformation of universities: first, to prioritize conceptual advancements, recognizing that transformation is a comprehensive reform combining human and machine efforts; second, to prioritize people, aiming to create a more resilient education; third, to adhere to a dual drive of data and knowledge; fourth, to pursue collaborative sharing; and fifth, to formulate corresponding policies, guidelines, and norms to ensure the safety of the transformation. **Mr. GUO Xinli**, Vice President of the China Association of Higher Education, offered three suggestions for the digital transformation of higher education: first, to strengthen international policy dialogue and cooperation to

jointly promote the digital transformation of higher education; second, to promote the sharing and openness of quality educational resources to foster equity and inclusiveness in education; and third, to strengthen the capacity-building of teachers in smart education and promote innovation and reform in teaching methods.

Innovative strategies and ideas are necessary to drive the development of higher education through digitization. Accelerating the innovative application of AI in higher education to support the innovation of talent training models, the reform of teaching methods, and the enhancement of educational governance capabilities, and constructing an intelligent, networked, personalized, and lifelong education system are crucial means to promote balanced education development, enhance educational equity, and improve educational quality. **Mr. XU Xiaofei** mentioned three types of talents: I-shaped, T-shaped, and π-shaped. I-shaped talents focus solely on one specialty, while T-shaped talents emphasize comprehensive abilities required by society and industry. π-shaped talents, who are more welcomed by the industry, need to possess an additional expertise and departmental experience. **Prof. LEE Chi Kin**, President of The Education University of Hong Kong, emphasized that smart education should focus on cultivating dynamic, interactive, and personalized learning environments to empower students to navigate a rapidly changing world, with a special emphasis on computational and thinking education. **Prof. ZHANG Zhaoguo**, Vice President of Shanghai Jiao Tong University, shared the university's concept of building future higher education through AI+HI, centered on discipline transformation and upgrading, with ten construction tasks including AI as a major, AI+majors, and AI+micro-majors, to free majors from the shackles of complex general knowledge and focus on their core competitiveness.

2.4 Digital Teaching Integrates Learning into the Entire Career and Daily Life

The development of digital teaching provides strong support for lifelong learning, integrating learning into one's entire career and daily life. The transition from traditional organizations to digital platforms, triggered by the integration of digital technology into the decentralized lifelong learning system, can accelerate the integration, digitization, and collaboration of community education, elderly education, vocational education, and higher education, and thereby promote the fusion and innovation of various types of education, ultimately contributing to the realization of lifelong learning for all and the construction of a learning society. **Ms. Torunn Gjelsvik**, Secretary-General of the International Council for Open and Distance Education (ICDE), pointed out that the rapid changes in today's society require people to continuously learn new skills to adapt to emerging careers, while leveraging digital tools such as AI to promote personalized learning and reduce teachers' workloads. **Mr. LI Song**, Vice President of The Open University of China, shared the university's strategies and actions in six aspects: strengthening system coordination, deepening education and teaching reform, accelerating digital empowerment, enhancing practical application, actively serving the national strategy to address aging, and deepening international cooperation and exchanges.

The iteration of digital technology drives the reconstruction of the education supply system, addressing many challenges faced by lifelong learning. According to the report "Addressing the Learning Crisis: An Urgent Need to Better Finance Education for the Poorest Children" published by UNICEF, children from the world's wealthiest 20% of households receive almost twice as much public education funding as those from the poorest 20%. In low-income countries, 37.6% of public education funding goes to students from the wealthiest 20% of households, while children from the poorest 20% receive only 10.3%. **Dr. Rajni Chand**, Director of Centre for Flexible Learning, University of the South Pacific, mentioned that some regions are facing challenges such as uneven education, teacher shortages, and difficulties in achieving digital education and lifelong learning due to geographical dispersion, frequent natural disasters, limited infrastructure, and the digital divide. **Dr. Teng Waninga**, Vice Chancellor of the University of Goroka in Papua New Guinea, mentioned that digital technology brings opportunities, but many developing countries, especially Pacific island nations, face significant challenges in developing digital technology. Factors such as the lack of appropriate technology and infrastructure, inadequate teacher training

programs, insufficient resources and funding, language and cultural barriers, and policy instability all constrain the development of digital education and the promotion of lifelong learning.

3 Strengthening Comprehensive Digital Transformation of All Elements to Promote Comprehensive and Free Human Development

The comprehensive digital transformation of all elements involves various factors in the process of teaching and learning, including training objectives, educational content, teaching models, evaluation methods, teacher capabilities, and learning environments. The digital transformation of education will influence the ways we teach, learn, and develop as a society. Establishing an effective educational environment, nurturing future-oriented students and teachers, innovating digital teaching models and methods, reforming digital management and evaluation feedback, building resilient smart education systems, and developing digital policies and overall planning are essential prerequisites for promoting comprehensive and free human development.

3.1 Intelligent Teaching for High-Quality Development of Future Teachers

Teachers are the primary resource for educational development, and every technological change affects their roles. The technological intentionality of the digital transformation of education shifts teachers from a "teaching"-centered approach to a "learning"-centered one. Intelligent educational environments shift the human-machine relationship from assistance to collaboration. Teachers need corresponding moral education capabilities in the ternary space survival mode of technological infiltration. The paradigm of knowledge growth in the digital age requires teachers to continuously grow. **Mr. ZHANG Zhi**, Director of the Education Bureau of Baoshan District, Shanghai, released Intelligent Transformation of Educational Resources – The Fantastic Particle of the “Photosynthesis” developed by the "Future Laboratory" team of NetDragon Websoft smart education products using 3D education engine technology and AI automation tools. It is an intelligent agent that grows with students, presenting different forms based on their characteristics, personalities, and learning progress, and pushing suitable resources or tasks. **Mr. LU Xuzhong**, Level I Division Rank Official of the Department of Teacher Education of the Ministry of Education, shared several suggestions for shaping the role of teachers: Firstly, increase policy support to open up new paths for teacher team building; secondly, strengthen digital literacy to shape the new form of future teachers; thirdly, rely on smart platforms to explore new models for teachers' professional development; and fourthly, strengthen international exchanges to share new experiences in intelligent teacher training. **Prof. ZHU Zhiting**, a lifelong professor at East China Normal University, emphasized that smart education requires educational wisdom, mainly including data wisdom, teaching wisdom, and cultural wisdom. He proposed a new educational model, the "Integrated Intelligence Classroom," aiming to integrate AI into classroom teaching and promote multi-directional interaction between teachers and students.

The OECD released the "Digital Education Outlook" in 2021, emphasizing that teachers' digital skills are not just about mastering technology but also about integrating digital technologies, tools, and resources into pedagogy. Future teachers need to continuously learn and adapt, innovating teaching methods and tools to fully leverage these technologies to enhance educational outcomes. Teachers are the primary resource for education and an important guarantee for building a high-quality education system. How to cultivate future teachers for the construction of an educationally powerful country with AI is an important question of our time. **Prof. HU Xiaoyong**, Director of the Teacher Development Center and Executive Deputy Director of the Institute of Educational Artificial Intelligence at South China Normal University, pointed out that to empower the entire process of teacher training, we must grasp future changes and incorporate the cultivation of teachers' intelligent educational literacy into teacher training objectives. Secondly, use AI to optimize new pathways for teacher training, injecting new momentum and opening up new tracks. **Prof. KONG Siu Cheung**, Director of the Artificial Intelligence and Digital Competency Education Centre at The Education University of Hong Kong, believes that problem-solving ability is core.

Teachers need to guide students to learn to solve problems independently rather than just follow instructions. He reminds everyone to maintain human wisdom and independent thinking abilities to avoid over-reliance on AI. **Mr. YANG Hui**, General Manager of Tencent Cloud's Education Industry Business, shared how AI technology in the field of education supports project-based learning design and guides students in writing and other teaching activities, helping teachers design effective learning programs and inspiring students' creative inspiration. These applications not only reduce teachers' workload but also promote students' creative thinking and personalized learning experiences.

3.2 Digital Growth for Comprehensive Physical and Mental Development of Adolescents

Intelligent technology presents new opportunities in the field of mental health for children and adolescents, with significant potential for development in both depth and breadth. **Mr. NAN Hao**, CEO of Beijing Normal University · Jingshi Ruidao, mentioned that vertical applications of multimodal fusion have been pioneeringly realized in the field of mental health. With a large model as the core controller, this application emphasizes dynamic interaction between agents and information, integration of reasoning and planning capabilities, establishment of memory and reflection mechanisms, realization of tool use and task execution abilities, and continuous evolution of abilities during external interactions. **Prof. MAO Lijuan**, President of Shanghai University of Sport, shared that Shanghai University of Sport has established a monitoring, analysis, and smart service platform for sports literacy among Shanghai students for parents and students. They independently developed a 3D intelligent assisted training system to monitor the brain activities of young athletes, establishing optimal psychological state models for athletes of different sports and competitive levels, thereby forming neuro- and psycho-regulatory techniques. **Dr. YE Zhenzhen**, Chairman of People's Daily Online, shared the People's Daily Youth Client built and operated by People's Daily Online, which has built a large mental health model for parents and teachers of primary, middle, and high school students. This model helps teachers and parents identify and screen students' mental health conditions early.

Mental health is a prerequisite for the comprehensive development of adolescents. Oriented towards adolescents' physical and mental health and growth issues, we should adhere to independent innovation, strengthen the application and demonstration of original and fundamental theoretical achievements and technologies, and lead the healthy development of adolescents' bodies and minds. The report of the 20th National Congress of the Communist Party of China proposes the goal of building an educationally powerful country and a healthy China by 2035, emphasizing the importance of mental health and psychiatry. This year's government work report also emphasizes strengthening mental health education for students. **Mr. YANG Dayan**, Deputy Director of the Department of Physical, Health and Arts Education of the Ministry of Education of P.R.China, proposed the scientific use of digital technology to strengthen research on students' mental health issues, develop digital technology intelligently, and empower mental health services for adolescents. **Prof. Obijiofor Aginam**, Director of UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP), stated that the education system must establish the ability to address students' mental health issues. He emphasized that the education system must strengthen mental health support and highlighted the role of new technologies and social-emotional learning (SEL) in addressing mental health challenges. **Prof. Didier Jourdan**, Head of the WHO Collaborating Center for Research in Education & Health, elaborated on the importance of creating supportive living environments and constructing healthy learning paths. He proposed that we must take coordinated and cross-sectoral actions to promote social and environmental change, improve health for all, and reduce health inequalities.

Smart reading is an important path to cultivate the core competencies of adolescents and is the cornerstone for inheriting Chinese civilization and achieving national rejuvenation. **Prof. BIAN Yufang** at Beijing Normal University mentioned that we should guide teenagers to love reading, read good books, and read well, enjoying fun, comprehending life, and growing from reading. **Mr. WEI Yushan**, Dean of the Chinese Academy of Press and Publication, mentioned that due to the impact of digital technology,

network technology, and AI, digital and smart reading have developed rapidly and have become a more common reading method. Internationally, competition among countries increasingly relies on competition in the fields of wisdom, such as technology, talent, and knowledge, with reading as its foundation. Therefore, developed countries such as Europe and the United States also attach great importance to reading, especially among adolescents, to enhance their leading role in innovative development. Fan Rulai, Director of the Educational Technology and Resources Development Center and the Primary and Secondary School Library and Reading Service Division of the Ministry of Education, shared the roles of the Digital Museum of Chinese Language and Characters, the National Smart Education Reading Platform, and the Primary and Secondary School Reading Service Platform, which have achieved significant results in promoting reading among adolescents.

3.3 Scientific Evaluation to Promote Deep Integration of Teaching and Education

Educational evaluation serves as a crucial yardstick for measuring educational quality and guiding educational directions. Comprehensive student evaluation is not only a periodic diagnosis of students' overall abilities but also an important basis for them to engage in self-reflection and self-improvement. Exploring new concepts and methodological systems for comprehensive student evaluation holds significant demonstrative and leading roles in advancing the reform and innovation of basic education evaluation in China. **Ms. SHU Hua**, Deputy Director of the Department of Science, Technology, and Informatization of the Ministry of Education of P.R.China, mentioned in a report that from the perspective of talent development, talent is a core element of national competition, and educational evaluation is a key link in promoting talent growth. From the perspective of educational development, evaluation is a crucial aspect in the field of education, and educational evaluation is directly related to the high-quality development of education. **Mr. DONG Cheng**, Deputy Director of the Education Department of Heilongjiang Province, believes that from the perspective of development, the digitization of comprehensive quality evaluation is an inevitable requirement for advancing the reform of educational evaluation; from the perspective of comprehensive education, the digitization of comprehensive quality evaluation is an inevitable requirement for implementing moral education; and from the perspective of implementation, the digitization of comprehensive quality evaluation is an inevitable requirement for ensuring the scientific implementation of comprehensive evaluation.

Intelligent technology represents a new approach to solving long-standing challenges in educational evaluation. By updating evaluation concepts, reforming evaluation content, innovating evaluation methods, and enriching evaluation tools, we can achieve scientific judgments of the educational process and outcomes, ensuring the realization of educational goals and the improvement of educational quality. **Prof. ZHENG Qinhua** at Beijing Normal University proposed that intelligent technology should focus on breakthroughs in three areas when empowering the evaluation process: first, generating the entire student task scenario based on intelligent technology; second, addressing data collection and processing; and third, fostering a scientific spirit and practical abilities. **Prof. LIU Zhijun**, Secretary of the Party Committee at Henan University of Technology, emphasized three suggestions regarding comprehensive quality evaluation: Firstly, the purpose of evaluation is crucial, and it is necessary to distinguish between different types of comprehensive quality evaluations; secondly, core competency-oriented comprehensive quality evaluation, including curriculum standards and goals, should emphasize core competencies as the foundation; thirdly, digital and intelligent technology should empower comprehensive quality evaluation, using digital and intelligent technologies to enhance efficiency and accuracy in the process of comprehensive quality evaluation, making the evaluation process more scientific, objective, and fair.

4 Promoting the Integration of Technology, Education, Industry, and Teaching to Support Innovative Practices in Smart Education

With the continuous upgrading of the intelligent technology ecosystem, both the fields of technology and education are actively penetrating each other, with technology empowering education and education

enhancing the value of technology. In planning for digital education, it is essential to have a future-oriented perspective on the present, deeply grasp the logical foundations of the digital technology-driven transformation of education in terms of its era, theory, and practice, serve the adaptive growth of students, facilitate the professional development of teachers, support the intelligent upgrading of learning environments, and comprehensively construct a new digital ecosystem for regional education.

4.1 Four Aspects of Deep Integration Between Technology and Education: Demand, Integration, Evolution, and Governance

The demand, pathways, and effectiveness of technology-driven changes in education depend on advancements in various scenarios. Identifying transformational scenarios during social transitions is a prerequisite for defining new educational demands. **Mr. WANG Jianhua**, President of the China Industry-University-Research Institute Collaboration Association, mentioned the "China Smart Education Industry-University-Research Institute Collaborative Innovation Platform." He believes that the platform should adhere to open sharing, provide open shared services to society through diverse methods such as consultation and diagnosis, cooperative development, and application popularization, and continuously promote the transformation of scientific and technological achievements into real productive forces. **Ms. Dorothy Gordon**, Former Chair of the UNESCO Information for All Programme, discussed how to promote international understanding. She believes that the digital transformation of education is crucial and must be based on interdisciplinary and multi-stakeholder actions, with a holistic development perspective and interactions among different participants.

The new round of technological revolution, with artificial intelligence as its core and important driving force, emphasizes technology empowerment as the core value of integrating intelligent technology into education. **Prof. GAO Xiang**, Academician of the Chinese Academy of Engineering and President of Zhejiang University of Technology, pointed out that countries around the world are focusing on technological and industrial innovation, proposing the cultivation of innovative talents, including models such as STEM science-education integration and digitalization of science-education integration. In the future, AI, energy, and talent cultivation need to be integrated to form a new platform for talent cultivation. **Mr. LEI Chaozi**, Executive Vice President of the China Industry-University-Research Institute Collaboration Association, proposed four suggestions for strengthening enterprise-led deep integration of industry, university, and research: first, vigorously promote organized scientific research, emphasizing demand-oriented and problem-oriented technological innovation; second, strengthen organized in-depth collaboration between universities and enterprises to overcome "bottleneck" technologies in key areas; third, collaboratively promote the rapid industrialization of scientific and technological achievements in universities; and fourth, leverage technology to support the innovative development of smart education.

Education is one of the most complex and important social systems, characterized by high variability and uncertainty. Conducting transformation simulations is a concrete manifestation of the value of technology empowerment in education. **Mr. WANG Shunbing**, Deputy Director (acting) of the Department of Social Affairs of Administrative Center for China's Agenda 21, mentioned that new-generation information technology is deeply integrating into all aspects of education, gradually transitioning from a supporting tool to an important force driving educational transformation. Science, technology, and education are forming a pattern of systematic deep integration. **Prof. Mohamed Jemni**, Director of the ICT Department of the Arab League Educational, Cultural and Scientific Organization, defined digital transformation from the perspective of transformation simulations as the strategic adoption of digital technology to improve educational processes and create new models. It involves the integration of technology to transform organizational processes and build new capabilities.

Improper use of intelligent technology in education poses risks related to ethics, privacy protection, and security. Only effective governance of intelligent technology can ensure the orderly advancement of changes in the education system. In 2022, UNESCO published the report "Minding the Data: Protecting

Learners' Privacy and Security," pointing out that data protection is a fundamental human right, and everyone has the right to be free from arbitrary interference with their privacy. **Ms. SHU Hua** mentioned that data-driven algorithms are the foundation and core of digital empowerment in educational evaluation reform and also the greatest risk point. It is necessary to strengthen research on technical security and ethics, ensure the transparency and fairness of algorithms, promptly identify and resolve potential security risks, and ensure compliance with laws and regulations. **Prof. Saoussen KRICHEN**, General Manager of the Centre de Calcul El-Khawarizmi of the Ministry of Higher Education and Scientific Research in Tunisia, mentioned that they are very concerned about the security of personal data. When telecommunications operators in their country provide services to the public free of charge, they consider aspects related to AI ethics and propose relevant optimization measures.

4.2 Two Key Options for the Intelligent Upgrade of Learning Environments: Intelligent Educational Equipment and Smart Campus Construction

Strengthening research on intelligent educational equipment and promoting high-quality development of the educational equipment industry are of great significance for achieving smart education. **Mr. LI Ying**, Secretary-General of the China Education Equipment Industry Association, pointed out that educational equipment is a necessary condition for stimulating educational innovation and promoting systemic changes in the digital era. It plays a crucial supporting role in comprehensively implementing the Party's educational guidelines, fulfilling the fundamental task of fostering virtue through education, accelerating the digital transformation of education, and improving the quality of talent cultivation. **Ms. LIU Qiang**, Secretary-General of the National Technical Committee for Standardization of Educational Equipment, believes that in the digital era, educational equipment refers to the sum of software and hardware that guarantees and implements education, teaching, and management. In the digital transformation of education, we need to deeply utilize these technologies and equipment, including the construction of smart classrooms, smart laboratories, smart libraries, and smart campuses. **Mr. ZENG Dehua**, Deputy Director of the Education Management Information Center of the Ministry of Education of P.R.China, proposed two suggestions: first, seize the opportunity of digital transformation in education to provide better digital user experiences for teachers and students; second, further promote the sharing and exchange of quality public teaching resources in digital education, providing digital means for achieving international and domestic equity in basic education, practical training in vocational education, and technological research and innovation in higher education.

Expanding the application scenarios of smart campuses and upgrading smart learning environments will continuously accumulate practical experience in smart education. **Prof. YU Junqing**, Vice President of Huazhong University of Science and Technology, emphasized that the essence of digital transformation lies in "transformation" and "change." Three systems are indispensable in this process: the curriculum platform, classroom platform, and educational platform. **Prof. LI Yanyan** at the Faculty of Education of Beijing Normal University, and **Prof. PANG Mingyong** at the Faculty of Education Science of Nanjing Normal University, released the "Construction Guidelines for Large-Scale Smart Classroom Monitoring Platforms and Three-Dimensional Integrated Teaching Fields." The large-scale smart classroom monitoring platform enables the interconnection of data from schools, families, science museums, and other learning fields. The construction guide for three-dimensional integrated teaching fields focuses on the service and functional requirements of "intelligent connection" in future education, defining unified interfaces for data, computing, control, collaboration, and interaction in three-dimensional integrated teaching fields, providing norms and guidance for the intelligent upgrade of teaching fields and graded evaluations. **Prof. WU Zhuang**, Director of the Beijing Digital Education Center, explained that the "intelligence" of smart campuses lies in four aspects: intelligent facilities, intelligent transformation, personalized education, and intelligent educational applications and scenarios.

4.3 A Core Element of Digital Resource Development: Digital Textbooks

The degree of digitization of textbooks directly relates to the overall level of educational digitization, and digital textbooks have become an indispensable and enchanting note in China's educational reform. In 2023, the General Office of the Ministry of Education issued the "Implementation Plan for the Construction of Nationally Planned Textbooks for General Higher Education Undergraduates During the 14th Five-Year Plan Period," clearly stating the need to "innovate textbook presentation methods and accelerate the construction of new forms of textbooks led by digital textbooks." Digital textbooks refer to interactive textbooks that utilize the development achievements of advanced digital technology, primarily using various electronic devices as carriers, to digitize and informatize the content of traditional paper-based textbooks. **Prof. LI Jianjun**, Vice President of Central University of Finance and Economics, mentioned that in recent years, the organic integration of digital technology is reconstructing the form of textbooks. Textbooks have shifted from being primarily static content with traditional text and images to a complementarity of learning content and learning services, with dynamic content being the main focus. **Prof. WANG Quan**, Vice President of Xidian University, noted that digital textbooks have three characteristics: first, they are inclusive, diverse, interdisciplinary, integrated, and flexibly adaptable; second, they aggregate multi-modal and multi-dimensional learning materials, capable of catering to different needs based on students' varying levels; third, they adopt diversified construction methods, with resources collectively pooled by large models, publishers, or enterprises.

To develop high-quality digital and smart textbooks on a large scale requires new concepts, ideas, and methods. Digital textbooks can enhance teacher-student interaction, reduce student workload, improve teaching efficiency, and better serve the cultivation of students' new competencies. Schools can promote content and resource construction based on knowledge graphs by developing knowledge graphs that cover knowledge units and points across various disciplines, thereby facilitating the development of digital textbooks. **Mr. LIU Chao**, President of Higher Education Press, shared three points of experience: first, to establish a strategic foundation with integration, intelligence, and internationalization as goals, and take digital textbook construction as an important content and main direction for business integration, development, and transformation and upgrading; second, to reconstruct the organizational system, reshape the digital business segment, and build an organizational system suitable for topic selection, research and development, editing and publishing, dissemination and promotion, and operational services for digital textbooks; third, to activate the technology engine, driven by frontier technologies such as artificial intelligence, big data, and blockchain, to strive for a new track in digital textbook construction. **Prof. LI Jianjun** proposed implementation paths for high-quality textbook construction in his report: first, to grasp the current era of digital textbook construction; second, to scientifically design the implementation framework for digital textbook construction; third, to improve the safeguard mechanism for high-quality digital textbook construction.

4.4 Three Preconditions for the Digital Transformation of Regional Education: Bridging the Digital Divide, Facilitating Multi-party Collaboration, and Innovating Educational Concepts

Regional education is a crucial component in the construction of a high-quality education system and the key to bridging the digital divide and promoting educational equity. The question of "what education is for and where education should go" is not only a global issue but also pertains to regional education. Smart education is on the path of transformation, requiring roots in frontline practice and leveraging demonstration zones as fertile soil for research and practice to address the challenges of digital transformation in education, construct a new ecosystem for smart education, reshape new tracks for regional educational digitization, and forge a path toward Chinese-style educational modernization. **Mr. Svein Oesttveit**, Acting Director of the UNESCO International Bureau of Education (IBE), cited the UNESCO Global Education Monitoring Report 2023 edition, pointing out that 50% of students worldwide do not have access to computers at home, highlighting the urgent need for policies to address digital equity issues and the role of governments in ensuring equal access to digital resources for all students. **Datuk Dr. Habibah Abdul Rahim**, Director of Southeast Asian Ministers of Education Organization (SEAMEO) Secretariat, also mentioned that addressing the digital divide is a critical issue in the integration

of technology and education, so that more equitable education can be promoted across the region, regardless of location or national circumstances.

To digitally empower the high-quality development of regional education requires planning guidance, model innovation, typical demonstrations, and collaboration among all relevant parties. **Mr. YANG Yinfu**, Vice President and Secretary-General of the Chinese Society of Education, shared the significant achievements in vigorously implementing the national education digitization strategic action in China's education sector. Internet access in schools at all levels and types has reached 100%, with over three-quarters of schools having wireless network coverage, and 99.5% of schools equipped with multimedia classrooms. Notably, the integrated construction of the National Smart Education Platform has recorded over 40 billion visits, establishing the world's largest educational resource database. **Mr. HU Weifeng**, Level I Bureau Rank Official of the Sichuan Provincial Department of Education, shared three entry conditions in the construction process of Sichuan's smart education demonstration zones to promote digital transformation: first, the region must have a clear smart education development plan during the "14th Five-Year Plan" period and have implemented the plan for more than a year; second, the region should have a solid foundation in promoting the application of the national and provincial smart education platforms, teachers' information literacy, and typical digital application scenarios; third, the region should have a complete educational digitization leadership body, a digital platform for resource sharing and modern governance, a production mechanism capable of providing high-quality resources like national and provincial platforms, and complete basic educational data.

Based on the concepts of educational digital transformation and smart education, actively creating new tracks and models for regional educational digitization has become a common goal for regional administrators. **Prof. GU Xiaoqing**, Director of the Department of Education Information Technology at East China Normal University, believes that we should focus on learning tracking and intelligent intervention at the knowledge point level while also hoping to track students' learning and growth data around their literacy development, long-term knowledge and ability acquisition, and literacy and ability development. **Ms. GAO Shuyin**, Deputy Director of the Center for Educational Technology and Informatization Research at Tianjin Academy of Educational Science, and several regional representatives discussed the significance of deepening the application of the National Smart Education Platform. The "2023 Report on the Development of Smart Education in National New Areas" released under the leadership of the Ministry of Education's Engineering Research Center for Digital Learning and Educational Public Services, compiled data from ten national new areas (Chongqing Liangjiang New Area, Guangzhou Nansha New Area, Nanjing Jiangbei New Area, etc.), presenting the current practice of smart education in these new areas through multi-dimensional portrayals of 1+1 cases and multi-dimensional cases from regions and schools.

5 Conclusion

The 2024 Global Smart Education Conference marks the dawn of the beginning of smart education era. As a new form of education in the era of artificial intelligence, smart education serves as a crucial lever for promoting equitable, inclusive, and high-quality education. It is an inevitable choice for advancing the high-quality development of education. To facilitate the global convergence and circulation of various high-quality educational resources, comprehensive efforts must be made in infrastructure construction, the opening up of quality resources, platform development and application, and the alignment of policies and standards. Consensus must be forged through deepening international cooperation, engaging in joint discussion, collaboration, and sharing. This will contribute to building a community with a shared future for mankind, continuously injecting new momentum, advancing the digital transformation of education, achieving sustainable development goals in education, and creating a better future for humanity. It is hoped that the new concept of "Educational Transformation and International Understanding" proposed at this conference will provide a reference for the future development of smart education.

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Abbreviations

AI	Artificial Intelligence
AIGC	Artificial Intelligence Generated Content
ALECSO	Arab League Educational, Cultural and Scientific Organization
AR	Augmented Reality
BNU	Beijing Normal University
CEO	Chief Executive Officer
CEEIA	China Educational Equipment Industry Association
CIUR	China Industry-University-Research Institute Collaboration Association
COL	Commonwealth of Learning
COMEST	World Commission on the Ethics of Scientific Knowledge and Technology
COVID-19	Corona Virus Disease of 2019
CTO	Chief Technology Officer
GSE2024	2024 Global Smart Education Conference
GSENet	Global Smart Education Network
K12	Kindergarten through twelfth grade
LLM	Large Language Model
ICDE	International Council for Open and Distance Education
ICT	Information and Communication Technologies
ISTE	International Society for Technology in Education
IT	Information Technology
ITU	International Telecommunication Union
MOE	Ministry of Education
MOOC	Massive Open Online Courses
P.R.China	People’s Republic of China
SDG	Sustainable Development Goal
SEAMEO	Southeast Asian Ministers of Education Organization
SEED	Student Evaluation Enhancing Development
SLIBNU	Smart Learning Institute of Beijing Normal University
STEM	Science, technology, engineering and mathematics
TVET	Technical and vocational education and training

UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO IBE	International Bureau of Education
UNESCO ICHEI	International Centre for Higher Education Innovation under the auspices of UNESCO
UNESCO IESALC	UNESCO International Institute for Higher Education in Latin America and the Caribbean
UNESCO IICBA	UNESCO International Institute for Capacity Building in Africa
UNESCO IITE	UNESCO Institute for Information Technologies in Education
UNESCO INRULED	UNESCO International Research and Training Centre for Rural Education
UNESCO MGIEP	UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development
VR	Virtual Reality
WHO	World Health Organization
XR	Extended Reality

GSE2024 Photos


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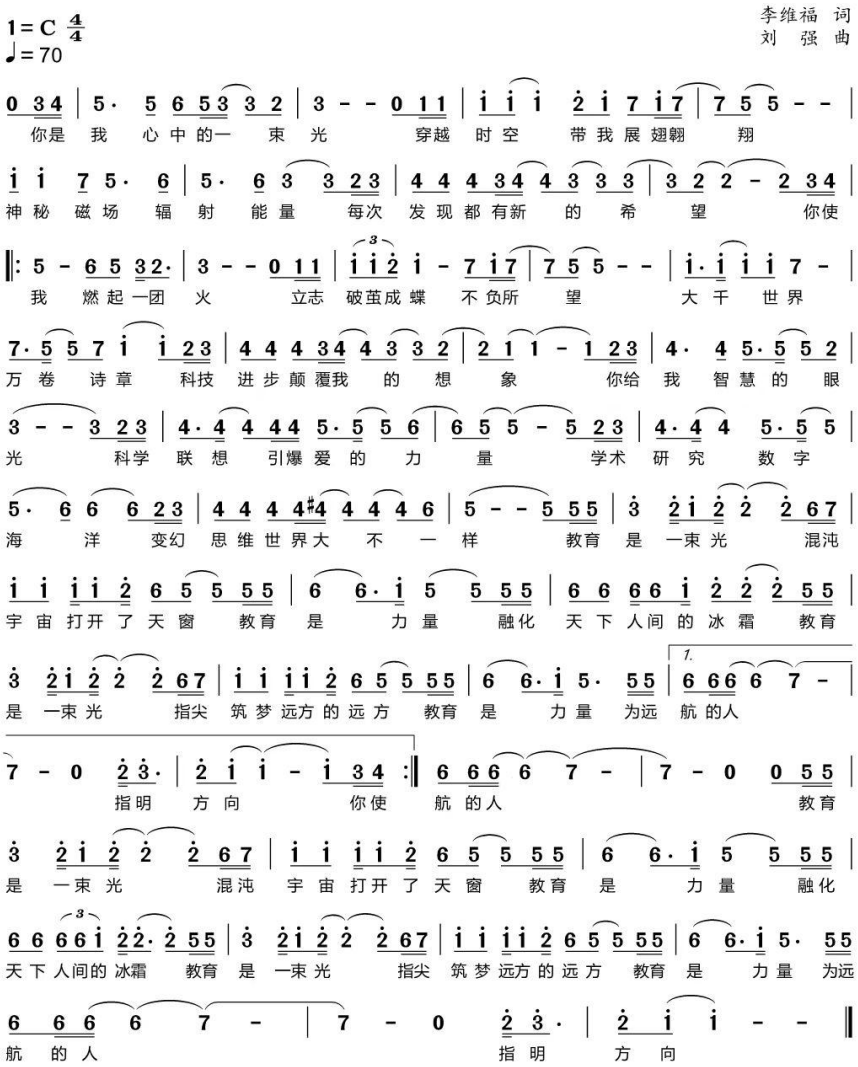
Radiance of Education

教育之光



Be in awe of education, for it shapes the soul of human,
Be cautious to technologies, for its adoption has to be effective.
Be entangled with Smart, for the uncertainty tends to be increasing,
Be serious to academies, for the true research needs evidence.

---Ronghuai Huang March 20th, 2017

Radiance of Education

Within my soul, you're a shining light,
Across the skies, with you, I take flight.
Mysterious realm, empowering might,
Each discovery ignites hope in sight.

You ignite in me a passionate fire,
Resolute to grow and aspire.
In this vast world, with hearts so dire,
Technology's progress fuels my desire.

You grant me a discerning gaze,
Science's wonders, love's powerful blaze.
In scholarly seas, where knowledge plays,
Changing the realm of thought's intricate maze.

Education, a luminous ray,
Unveils the cosmos, opening the way.
Education, a potent display,
Melting Earth's frost, come what may.

Education, an illuminating track,
Guiding dreams forward, never looking back.
Education, strength that we lack,
Navigating adventurers on the right track.

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Contact

Global Smart Education Network:
Network with the Best to for Promoting Smart Education for ALL

The Global Smart Education Network (GSENet) was initiated in 2022 by the Smart Learning Institute of Beijing Normal University (SLIBNU) with five partners: UNESCO Institute for Information Technologies in Education (UNESCO IITE), Commonwealth of Learning (COL), International Society for Technology in Education (ISTE), Southeast Asian Ministers of Education Organization (SEAMEO) and Arab League Educational, Cultural and Scientific Organization (ALECSO).

GSENet aims to (1) Collaborate on promoting smart learning for all within the framework of SDG4: Quality Education; (2) Share forward-thinking policies and practices to shape the future of education and lifelong learning at the local, national, regional and global levels; (3) Conduct joint open access research, share open educational resources and open source tools for the common good; (4) Promote innovation by combining the power of technology with innovative pedagogy and a human-centred approach; and (5) Build the capacity of teachers to play a leading role in the tripartite matrix of teacher learner-technology.

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Synthesis Report

Global Smart Education Conference 2024

Educational Transformation & International Understanding

18-20 August 2024

The Global Smart Education Conference 2024, held on August 18th-20th, explored the theme 'Educational Transformation & International Understanding'. This publication is a synthesis of the key discussions, focusing on expert opinions, thematic activities, research achievements, and collaboration plans. It aims to promote the effective practice of smart education in the global context, strengthen international understanding and international communication, and jointly explore the development direction and practical path of educational reform in the era of intelligence.

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