Proceedings

2023 TVET Leadership Programme on Digital Transformation

UNESCO Chair on Digitalization in TVET
Shenzhen Polytechnic University, China
13–18 November 2023

2023 TVET Leadership Programme on Digital Transformation

- Organizer: UNESCO Chair on Digitalization in TVET, Shenzhen Polytechnic University, China
- Dates: 13–18 November 2023

Overview

Inaugurated in 2022 at Shenzhen Polytechnic University (SZPU), the UNESCO Chair on Digitalization in TVET stands as a vital player in driving the digital transformation of global technical and vocational education and training (TVET) sectors. Each year, the Chair organizes the TVET Leadership Programme on Digital Transformation. This Programme aims at equipping TVET leaders worldwide with the latest insights and strategies necessary to effectively promote and execute digital transformation in their respective institutions.

The 2023 TVET Leadership Programme on Digital Transformation took place in Shenzhen, China for six days (Nov 13–18) and consisted of seminars and site visits to different venues at SZPU and Huawei Company. The Programme featured seven thematic sessions, namely (1) Background and Strategies of Digital Transformation in TVET, (2) Digital Application Scenarios in TVET, (3) Trends and Methodologies of Digital Transformation in TVET, (4) Digital Transformation of TVET Programmes and Curricula, (5) Digital Transformation Practices via Public-Private Partnerships, (6) Development of Digital Learning Resources, and (7) Sharing of Institutional Digital Transformation Strategies. These themes were carefully selected based on the priorities and needs of major TVET stakeholders.

Participants in this Programme included 23 TVET leaders and professionals hailing from 17 countries in East Asia, Southeast Asia, the Middle East, Africa, and the South Pacific. A wide array of institutions were represented, including the UNESCO Regional Office, national education authorities, TVET and higher education institutions, research institutes, and NGOs. Harnessing the collective wisdom of these global leaders, this Programme endeavoured to build a dynamic platform for the exchange and integration of ideas, strategies, and best practices of digital transformation in TVET.

14th November 2023

Opening Remarks

- Mr. Robert Parua, Education Programme Specialist at UNESCO Multisectoral Regional Office for East Asia

At the Opening Ceremony of the 2023 TVET Leadership Programme on Digital Transformation, Mr. Parua acknowledged the profound contribution of the UNESCO Chair on Digitalization in TVET at SZPU and all participants towards making this event a reality. He stated that embracing digital transformation was essential to the evolution and modernization of TVET. Mr. Parua articulated UNESCO's commitment to fostering digital literacy and reinforcing TVET systems worldwide. He stressed that this Programme stood as a testament to those efforts, creating collaborative links and serving as a catalyst for innovation in TVET.

Opening Remarks

- Prof. LI Yue, Vice President of Shenzhen Polytechnic University

As the representative of the host institution, Prof. LI warmly welcomed all participants and expressed her enthusiasm about the collaboration of such diverse minds at the 2023 TVET Leadership Programme. She introduced SZPU's long-standing engagement in international cooperation and its global network of partnerships. Stressing the importance of innovating TVET in response to the latest wave of the digital revolution, Prof. LI highlighted SZPU's systematic efforts in driving digital transformation. She expressed hope that this event would promote discussions on innovative solutions for digital transformation in TVET, enhance digital governance, and contribute to global sustainable development.

2

Session 1: Background and Strategies of Digital Transformation in TVET

(1) UNESCO TVET Strategy and Digital Transformation

- Mr. Robert Parua, Education Programme Specialist at UNESCO Multisectoral Regional Office for East Asia

Mr. Parua introduced the UNESCO Strategy for TVET 2022–2029 and its role in driving digital transformation. He highlighted the alignment of the Strategy with the 2030 Agenda and sustainable development goals (SDGs), particularly focusing on Quality Education (SDG 4) and Decent Work and Economic Growth (SDG 8). Mr. Parua emphasized the impact of digitalization on skills demand, the complexities of labour markets, and the prevalence of informal economies. Detailing the strategic action axes and types of interventions, he further delved into TVET strategies and policies in countries like China, Germany, and Nigeria, and their implications for global TVET transformation. He concluded with a set of recommendations for TVET institutions, urging them to align institutional strategies with national SDGs

and policies, align TVET programmes with labour market needs, and enhance partnerships with the private sector to achieve key SDG targets.

(2) Global TVET Digital Transformation: Definitions, Drivers, Methodologies and Leadership

- Prof. YANG Wenming, Coordinator of UNESCO Chair on Digitalization in TVET

Prof. YANG thoroughly explored the socio-economic backdrops and methodologies of TVET digital transformation, underscoring the crucial role of leadership. He pointed out that digital transformation entails the renewal of mindset, culture, organization, and modes of operation, and the key to its success lies with talents. He analysed the driving factors of digital transformation, including the UNESCO and national strategies, technological and social evolvement, shifting job families, and emerging needs for digital skills. On this basis, Prof. YANG introduced the methodologies for digital transformation, which can be useful for TVET policymaking and administration, programme and curriculum development, teachers' capacity building, and pedagogical design. The final part of Prof. YANG's presentation focused on leadership roles in digital transformation. He introduced the 'Digital Leadership Framework', mapping out the essential dimensions and specific digital skills required for effective leadership. He also offered a 3-phase roadmap for leading digital transformation in TVET institutions. Through his comprehensive exploration, Prof. YANG shed light on the complexity of digital transformation in TVET and highlighted the need for innovation, strategic planning, and strong leadership in guiding this transformative process.

Session 2: Digital Application Scenarios in TVET

This session consisted of a half-day site visit to several training centres at SZPU, including those in the School of Electronic and Communication Engineering, School of Artificial Intelligence, School of Mechanical and Electrical Engineering, and

School of Automotive and Transportation Engineering. The directors and trainers of the training centres showcased various cutting-edge digital training technologies and modules, and highlighted how they were preparing students for a digitally driven industrial environment through case scenarios and real-world applications. The site visit provided the participants with first-hand insights into the successful digital strategies adopted by SZPU.

15th November 2023

Session 3: Trends and Methodologies of Digital Transformation in TVET

(1) Unlocking the Future of TVET: Empowering Educators Through Generative Artificial Intelligence

- Prof. JIAO Jianli, South China Normal University

  Prof. JIAO outlined the future trajectory of TVET in relation to emerging digital technologies. He introduced the concept of Generative AI, showcased its efficacy in teaching practices, and discussed ways to empower educators to hone their

digital skills to adapt to the compelling trend of AI development. Stressing the urgency for every educator to become 'AI-powered', Prof. JIAO proposed five approaches to achieving this aim, which involve using AI as a learning consultant, using AI as a teaching and research assistant, co-teaching with AI robots, adaptive learning to meet individual needs, and automation to design and develop teaching materials. In closing, Prof. JIAO encouraged everyone to embrace new technologies and become tech-savvy educators. He advocated teaching students to master AI and work with robots as soon as possible, while paying close attention to the ethical issues related to AI.

(2) Promote Quality TVET Development by Leveraging Emerging Opportunities in Digital Transformation

- Prof. YANG Xinbin, Chairholder of UNESCO Chair on Digitalization in TVET, Board Chairman of Shenzhen Polytechnic University

As Chairholder of the UNESCO Chair on Digitalization in TVET, Prof. YANG shared SZPU's digital transformation strategy as part of China's national endeavour to achieve high-quality development of TVET. Prof. YANG began by addressing the broad context of digital transformation, highlighting the rapid development of China's digital economy and diverse digital application scenarios across industries. Next, he outlined China's mission and vision, tasks, and measures, as well as challenges and opportunities for upgrading TVET towards high-quality development in the digital era. In the final section of his presentation, Prof. YANG presented SZPU's solution to digital transformation. This involves serving high-end manufacturing industries by upgrading digital learning environments, strengthening social engagement by applying locally developed digital technologies, enhancing the

attractiveness of TVET by innovating all aspects of teaching and learning, and building global platforms for knowledge transfer and collaboration. Prof. YANG called upon TVET institutions to seize the emerging opportunities in digital transformation. By doing so, TVET can indeed break new grounds in delivering high-quality education and improving career prospects for all students.

(3) SZPU Strategy and Practice of TVET Digital Transformation

- Ms. ZHONG Zhuoya, Programme Specialist of UNESCO Chair on Digitalization in TVET

Following Prof. YANG, Ms. ZHONG provided a closer examination of SZPU's strategy and practice of digital transformation. She began by analysing the background and logic for digital transformation in TVET, considering the evolving digital economy and changing labour market. Ms. ZHONG then introduced SZPU's strategic planning for digital transformation, revealing the institutional objectives, steps for strategy development, and the framework of digital transformation. In the final part of her presentation, Ms. ZHONG elucidated the 10 actions undertaken by SZPU for digital transformation. The 10 actions involve promoting quality skills development, enhancing governance, facilitating public-private partnerships, building teachers' digital competence, promoting pedagogical reform, developing students' digital literacy, strengthening social engagement, facilitating digital innovation, increasing global engagement, and improving digital infrastructures. Ms. ZHONG's comprehensive account of SZPU's strategy and practice of digital transformation offered a useful roadmap for other institutions embarking on a similar journey.

Session 4: Digital Transformation of TVET Programmes and Curricula

(1) Digital Transformation of TVET Programmes

• Prof. WANG Yongxue, Shenzhen Polytechnic University

Prof. WANG introduced the programme development of 'Modern Communication Engineering', a new undergraduate programme at SZPU. Using this programme as a case, he illustrated the key steps and considerations for TVET institutions to develop the knowledge system and course map for an emerging digital programme. The second part of Prof. WANG's presentation focused on the 'Joint ICT Professional Education Model', a cooperative initiative between SZPU and Huawei Company, which integrates Huawei's skills certification into the programme of 'Modern Communication Engineering'. This initiative proved to be an effective model of college-industry partnership that expedites the digital transformation of TVET programmes while equipping students with sought-after skills. In the concluding section of his presentation, Prof. WANG introduced the cutting-edge domain of 5G technologies and applications, and discussed the implications for TVET programme development in communication engineering and related fields.

(2) Digital Transformation of TVET Curriculum

• Assoc. Prof. LI Yingying, Shenzhen Polytechnic University

Assoc. Prof. LI shared insights into the process of digital transformation of TVET curriculum, using the course 'Smart Metropolitan Area Network' at SZPU as a case. She started by introducing the development process of the curriculum syllabus, explaining how it was designed with foresight to incorporate necessary competence for the

ICT industry. Next, Prof. LI discussed the development of teaching & learning resources and introduced the usage of various forms of digital resources, including the simulation VR platform, teaching resource database, online teaching & learning platforms, and e-books. The third part of her talk revolved around the design of course content. Using 'Smart Metropolitan Area Network' as an example, she detailed six steps to carry out a project-based course that allows students not only to comprehend the course materials, but also to collaborate, compete, and create. Lastly, Prof. LI shared the achievements and related technologies of the course. She highlighted how the course has effectively prepared students for the digital age, increasing their digital skills and employability, and contributing to the growth of the digital economy.

16th November 2023

Session 5: Digital Transformation Practices via Public-Private Partnerships

This session consisted of a site visit to Huawei Company, one of the world's leading ICT companies and a close partner of SZPU. In the first part of the visit, themed 'Digital Transformation of Partner Enterprises', Huawei representatives introduced the company's cutting-edge technologies and solutions that have facilitated the digital transformation of various sectors, including education, telecommunications, smart cities, healthcare, and manufacturing.

Part two of the visit, themed 'The Ecosystem of Digital Transformation', focused on the pivotal role of the Huawei ICT Academy in advancing digital transformation by fostering public-private partnerships. The Academy,

launched by Huawei in 2013, aims to build a talent supply chain that covers the entire learning, certification, and employment process. Through an open, shared talent ecosystem, the Academy is successfully addressing the industry's talent gap and establishing its prominence in the digital economy.

17th November 2023

Session 6: Development of Digital Learning Resources

(1) OER in UNESCO, UNEVOC and Other Platforms

- Mr. PAN Liucheng, Programme Specialist of UNESCO Chair on Digitalization in TVET

Mr. PAN offered a comprehensive guide to Open Educational Resources (OER), an important pillar for achieving quality education. He began by introducing UNESCO's policy and definition of OER, emphasizing the 5R (retain, reuse, revise, remix, and redistribute) permissions to make full use of such resources. In the second part, Mr. PAN provided an overview of how international organizations such as UNESCO and UNEVOC encourage the use of OER in their projects. He highlighted various examples of OER-integrated platforms, showing the diverse range of high-quality educational materials they offer. In the final part of his presentation, Mr. PAN discussed the specific challenges and opportunities of using OER for TVET. While acknowledging challenges such as ensuring quality, relevance, and equitable access, he underscored the tremendous opportunities OER can offer. Specifically, he noted OER's potential to enhance the flexibility and responsiveness of TVET programmes, cater to diverse learning needs, and contribute significantly to the digital transformation in TVET.

(2) UNESCO ICHEI: Advocating Digital Transformation of Higher Education

- Mr. SIT Fung, Head of IIOE Management Centre at UNESCO-ICHEI

Mr. SIT introduced UNESCO-ICHEI, a UNESCO Category II centre located in Shenzhen, China, and dedicated to the digital transformation of higher education. He emphasized the organization's mission to promote the use of digital technologies and services to improve the quality, relevance, and accessibility of higher education worldwide. Mr. SIT then introduced UNESCO-ICHEI's key initiatives, including a diverse range of educational projects and cross-sectoral partnerships for digital transformation. The flagship projects included UNESCO-Shenzhen Funds-in-Trust (SFIT), International Institute of Online Education (IIOE), smart classrooms established with private sector partners, and education research projects. The final part of Mr. SIT's presentation focused on IIOE. He outlined IIOE's main work areas, highlighting its purpose of promoting a collaborative ecosystem for public learning and improving the digital competence of higher education institutions (HEIs) and their workforce. Mr. SIT also shared details about IIOE's global networking of HEIs.

(3) Open Education Resource Development – A Case at SZPU: National-Level TVET Programme 'T&L Database of Innovation and Entrepreneurship'

- Dr. ZENG Xiuzhen, Programme Specialist of UNESCO Chair on Digitalization in TVET

Dr. ZENG presented a case of open education resource development, using SZPU's National-level TVET Programme 'Teaching and Learning Database of Innovation and Entrepreneurship' as an example. She outlined the policy background behind the national initiative supporting the creation and sharing of Open Educational Resources (OER). The next part of her presentation dealt with the national

strategies and measures for strengthening the TVET system and promoting the use of digital technologies and OER in TVET institutions. Dr. ZENG then focused on the TVET Programme Teaching & Learning Database. She shared the structure, features, and benefits of the database, emphasizing how it fosters an interactive and dynamic learning environment that enriches students' learning experiences. Finally, Dr. ZENG took the audience through the development process of the programme 'Teaching & Learning Database of Innovation and Entrepreneurship'. She outlined the steps from initial planning and designing to implementation and monitoring, and how every stage focused on aligning with national policies and the specific needs of TVET sectors.

Session 7: Sharing of Institutional Digital Transformation Strategies

In the final session, participants from different countries and institutions shared their institutional strategies for TVET digital transformation. Some common themes emerged from their presentations, reflecting the collective challenges and prospects these institutions faced during their digital transformation journey. Importantly, many pointed out that embracing digital technologies was not just about technological transformation, but also required an updating of pedagogical methods and a fundamental shift in the learning culture.

Furthermore, the conversation reflected a strong focus on enhancing online platforms for mutual learning and collaboration. The development of digital competence and upskilling of both educators and students was another recurring theme. The discussions also revealed underlying challenges such as infrastructure issues, the digital divide, and resistance to change. Thus, the strategies often included measures for addressing these barriers, such as public-private partnerships, targeted infrastructural development, and leadership initiatives. The collaborative spirit and shared learning were evident in the rich

discussions, pointing towards a more interconnected effort to harness the benefits of digital transformation in TVET.

Closing Remarks

- Prof. YANG Wenming, Coordinator of UNESCO Chair on Digitalization

At the Closing Ceremony, Prof. YANG warmly thanked everyone engaged in the 2023 Leadership Programme, stating that this event signified an important step by the UNESCO Chair at SZPU to empower TVET leaders, bridge the digital divide, and promote sustainable development worldwide. He further discussed with the participants potential directions for collaboration, including establishing the Chair's global network and conducting research and capacity building focusing on TVET digital transformation.

Certificate Presentation Ceremony

• Dr. XU Jianling, President of Shenzhen Polytechnic University

Dr. XU presented each participant with the Certificate of Participation and congratulated them on their successful completion of the Programme. He expressed his aspirations for the TVET leaders, hoping that they would integrate the knowledge and practices

of digital transformation acquired at SZPU into their respective institutions. Moreover, he advocated for the consistent and collaborative endeavours among different countries in furthering the digital transformation process in global TVET and higher education.