

Research Assessment Exercise 2020

Impact Case Study

University: [The Education University of Hong Kong |

Unit of Assessment (UoA): [1 Education (incl. curriculum & instruction, education administration & policy and other education)]

Title of case study: [The inclusion of green skills into policy, TVET teaching and learning in the Asia-Pacific region]

(1) Summary of the impact

[This programme of research into green skills revealed that countries in the Asia-Pacific region lack the skills to implement and sustain low-carbon economies and led directly to changes in policy and educational practices to address this problem in technical vocational education and training (TVET). The research has resulted in the development of an innovative framework for conceptualising *generic green skills* and given policymakers, government officials and institutions the support they need to incorporate these vital skills into TVET curricula to directly benefit communities and societies. |

(2) Underpinning research

[The urgency for a sustainable development combined with reactions to climate change from industry and society at large has urged many governments in the Asia-Pacific develop policies that work towards low-carbon economies. The resulting structural changes in labour markets demand that new skills are incorporated into TVET. However, evidence-informed strategies for the effective implementation of these new skills remain obscure. With funding from international influencers like UNESCO [R2, R3]; the Asian Development Bank (ADB) [R1]; and the Asia-Pacific Economic Cooperation (APEC) [R4], alongside local competitive external grants (GRF#18601515), Pavlova, director of the UNESCO-UNEVOC Centre of Hong Kong since 2013, researched skills required for green economic growth; identified how greening occurs in industries and how TVET can become greener; and recommended changes in policy and practice for improved green skills development in the labour force to reduce the negative environmental impacts of economic development in the region.

In a project funded by ADB from 2012 to 2014 and conducted with Professor Maclean, Pavlova mapped existing practices on green skills in TVET in Indonesia, India, Sri Lanka and Vietnam [R1], alongside green skills demands in construction, transport, energy and hospitality industries. Green skills are related to reducing environmental impact and supporting economic restructuring with the purpose of attaining cleaner, more climate resilient and efficient economies that preserve environmental sustainability and provide decent work conditions.

The project resulted in three ADB briefs that provided policy directions for developing member countries (DMCs) on greening-related skills development. Led by Pavlova for the UNESCO-UNEVOC International Centre, a project in 2015 [R3] developed a framework for conceptualising generic green skills—the first of its kind—to ensure these skills are included in the TVET curriculum. By focusing on the ways generic green skills are embedded in TVET for construction and agriculture – two important sectors for greening economies across five countries [R2, R3] – the framework identified the extent to which these skills are addressed in TVET programmes, so governments could strategize for improved green skills development. Pavlova also co-led the project *Systematic Design of Green Skills Development in TVET*, hosted by China’s Ministry of Education for APEC in 2015, where she proposed recommended reforms to Chinese TVET programmes [R4].

The dominance of small and micro-enterprises in terms of greening national economies regionally prompted new research on the way forward. From 2014 to 2018, Pavlova and Singh led a project for UNESCO’s Institute for Lifelong Learning to examine existing practices and the conditions necessary

to make a positive impact. Covering the catering, automotive, waste management and PVC industries in seven countries, the study developed a systematic framework that included measures for addressing the development of green skills and incorporated their recognition, validation and accreditation into policies and practices. This framework is a benchmarking tool for countries to evaluate their position and develop action plans. The generic green skills concept [R5] has offered a blueprint for policymakers in relation to skills development for greening economies, and facilitates a holistic approach for developing green skills and including them in curricula. |

(3) References to the research

[R1] Pavlova, M. (2018). A holistic approach to greening TVET: a case study and analysis of Bac Thang Long Economic Technical College practices in Viet Nam. In R. Maclean, S. Jagannathan, & B. Panth (Eds.), *Education and Skills for Inclusive Growth, Green Jobs and the Greening of Economies in Asia* (pp. 99-117). Singapore: Springer. (The book contains consulting reports submitted by Pavlova to the ADB.)

[R2] Pavlova, M. (2017). Green skills as the agenda for the competence movement in vocational and professional education. In M. Mulder (Ed.), *Competence-based Vocational and Professional Education. Bridging the Worlds of Work and Education* (pp. 931-951). Dordrecht, the Netherlands: Springer.

[R3] Pavlova, M. (2015). *Green Skills-top up approaches: How TVET Institutions are responding in Asia and the Pacific region*. Bonn: UNESCO-UNEVOC International Centre.

[R4] Pavlova, M., & Zhang J. J. (2016). 綠色技能：職業教育課程體系變革的一種綜合性方法 [Green skills: an integrated approach of the curriculum system reform of vocational education]. 職教論壇雜誌社 [Vocational & Technical Education Forum], 15, 87-96. (This journal is regarded among the most influential in the area of vocational education in China.)

[R5] Pavlova, M. (2018). Fostering inclusive, sustainable economic growth and “green” skills development in learning cities through partnerships. *International Review of Education: Journal of Lifelong Learning*, 64(3), 339-354.

Research funding: [R1] was funded by the ADB; [R2, R3] by UNESCO-UNEVOC Centre (Bonn); [R4] by APEC and Central Institute for Vocational & Technical Education, Ministry of Education, People’s Republic of China; [R5] by the General Research Fund (EdUHK#18601515). Further research support by EdUHK includes external grant submissions [R1, R2, R5] and time release [R3]. |

(4) Details of the impact

Pavlova’s research has impacted (1) the TVET policy debate; (2) green skills in strategic development plans; (3) national educational training and standards (e.g. Mongolia, Nepal, Malaysia); and (4) TVET institutional practice.

The research has been widely disseminated through training workshops for government officials and TVET management representatives. Commissioned by international agencies focused on changing and developing member states, the workshops were conducted in collaboration with government representatives, the TVET sector, and research teams across the Asia-Pacific region. Pavlova’s engagement has seen countries in the region implement green skills policies and plans for sustainable economic development, with impacts on four levels.

Advocating green TVET policy debate. The results of the ADB project strengthened links between research, policy and practice to enhance the quality and relevance of green skills development systems in DMCs by helping the ADB to “advance...[its] efforts in strengthening links [between environment, energy, education, and employment] by optimising the role of education and skills development, especially as large-scale projects in clean energy, sustainable transport, climate

change, and education” [S1]. Furthermore, “the project facilitated evidence-based *knowledge sharing...strengthened [governments’] capacity to design, and implement skills development and TVET reforms that incorporate green skills ...[and] positioned ADB as an important partner that can help its DMCs pursue their national plans of investing in human capital*” [S2]. In 2018, Pavlova also supported UNESCO, at an Asia-Pacific network consolidation workshop, to strengthen collaboration between TVET institutions and to improve institutional capacities and practices on greening. Her advocacy has also gained media attention [S3].

Inclusion of the greening agenda in strategic development plans of international organisations. Pavlova’s global impact is evidenced by invitations for her participation to ensure the strategic plans of international organisations included aspects of greening [S4]. At the 8th Meeting of the International Policy Advisory group in 2016, “the ‘greening’ agenda was well-promoted by Dr Pavlova, [contributing] to the increased prioritisation of the issue and the inclusion of sustainability as one of the four pillars of the new ADB Strategy 2030” [S4]. Strategy 2030 guides ADB’s investment and funding activities for 34 member countries until that year, in particular, the “‘greening agriculture’ and green skills for infrastructure projects are likely to grow in importance,...thus will have a direct impact on greener development” [S4]. Her “insights, feedback, and inputs during the review, deliberation, and recommendation processes of the expert meeting ... resulted in the committed inclusion of green skills theme in regional training programs”, such as the Colombo Plan Staff College (CPSC) Strategic Plan 2018-2023 [S5]. “All 16 CPSC member countries now focus on greening concepts and competencies in training programmes for TVET staff” [S5].

Policy development at a national level. Pavlova’s involvement with ADB has propelled its green skills agenda. Specifically, she has facilitated the development of new approaches to ADB skills development, such as establishing centres of excellence in green skills training on preparing for low carbon economies [S4]. In 2015, Pavlova’s policy briefing workshop in Mongolia, based on regional research [R3], identified a need to green TVET in the country. Supported by the Mongolian Ministry of Labour, both green skills for inclusion in TVET curriculum development and provision for staff training are included in the TVET development National Programme for 2016-2021 [S6]. Dr Ramhari Lamichhane, Director General of CPSC, noted that resulting from Pavlova’s policy advocacy, “the 2015 national seminar on green skills in Nepal brought revisions to curriculum and development of occupational skill standards focusing on green competencies in occupations such as auto-mechanics, solar photovoltaic technicians, hospitality management, and agro-forestry” [S7]. In 2017, she was invited to design and run a programme for Nepal ministries and TVET institutions’ representatives on greening TVET. In the same year, she was also invited by UNESCO-UNEVOC International Centre to organise a green skills training workshop for the Asia-Pacific region aimed to strengthen the capacity of TVET to address the greening of curricula.

Following this workshop, Dr Afferro bin Ismail stated “that Dr Pavlova’s work convinced me that greening is central to the sustainable development of Malaysia, [and] I shared her work and insights with Malaysia’s Ministry of Education. [The Ministry], strongly committed to incorporating her research findings...has commissioned the green components in the current development of Malaysia’s national framework for TVET Educator Standards” [S8]. The developing framework is expected to impact over 1,000 TVET institutions in Malaysia.

Introduction of green skills into TVET institutional practice. Aside from influencing policy debate and development through the APEC project, more than eight VET providers in China have reformed their curricula to include green skills in seven specialties [S9].

(5) Sources to corroborate the impact

[S1] Bambang Susantono, Vice-President, Knowledge Management & Sustainable Development, ADB. (2018). Foreword. In R. Maclean, S. Jagannathan, & B. Panth (Eds.), *Education and Skills for Inclusive Growth, Green Jobs and the Greening of Economies in Asia* (p. vi). Singapore: Springer.

[S2] Completion Report. Project Number: 45103-001 Technical Assistance Number: 7879. Jun. 2016.

[S3] Green means Clean. *Gulf Times*. Jun. 2019; and Can we really recycle in Hong Kong? *Youth HK Magazine*. Dec. 2017.

[S4] Testimonial, Ms Karina Veal, Senior Education Officer, ADB. Jun. 2018.

[S5] Testimonial, Dr Ramhari Lamichhane, the Director-General, CPSC. Apr. 2018.

[S6] Testimonial, D. Bujinlkham, UNESCO-UNEVOC Centre Director, Mongolia, from the *Expert meeting on Green Skills* (UNESCO Beijing and the Ministry of Labor, Mongolia). Sep. 2018.

[S7] Email communication with Dr Ramhari Lamichhane, Director-General, CPSC. Apr. 2018.

[S8] Letter, Dr Affero bin Ismail, Senior Researcher, Centre of Excellence for TVET, Universiti Tun Hussein Onn Malaysia, Malaysia. Nov. 2018.

[S9] Testimonial, Yufeng Liu, Director, Division of International Cooperation & Comparative Education Research, Central Institute for Vocational & Technical Education, Ministry of Education, China. Mar. 2019. |