

TechLEAD-VUCA

Technological Leadership in Volatile, Uncertain, Complex and Ambiguous-VUCA contexts (TechLEAD-VUCA) Research & Innovation Hub: Enacting evidence-informed policy & practice to Address Wicked Problems in Education

What is TechLEAD-VUCA?

TechLEAD-VUCA will enable empowered education leaders and stakeholders to establish systems and structures designed to embed responsible and transformative technology innovations (i.e. Artificial Intelligence – AI) in addressing the most persistent and intractable challenges of (1) food insecurity and (2) failing school attendance in Philippine public schools described as Depressed, Disadvantaged and Underserved (DDU). TechLEAD-VUCA will create new knowledge infrastructures and continue collaborative evidence-informed policy practice networks centred upon transformational educational leadership spearheaded by this UK Principal Investigator.¹

What has already been accomplished thus far?

A pilot intervention was launched (2024) in two DDU schools located in the division of Valenzuela City (Philippines)². AI has been utilised responsibly to monitor, predict and establish linkages between young learners' participation in school feeding programmes, their attendance rates, nutritional improvements and more importantly selected school outcomes. TechLEAD-VUCA will be built on the ongoing progress of this existing pilot intervention.

What problem/s does TechLEAD-VUCA intend to address?

TechLEAD-VUCA becomes much more relevant especially after the effects of the pandemic continue to be felt. Forced closure of schools exposed three major weaknesses: Firstly, is the prevalence of educational inequality – where some enjoy educational opportunities while those in challenging circumstances suffer deprivation. This inequality is represented by a continuing decline in attendance³ in schools. Secondly, is the woeful lack of fit of a top-down “one-size-fits- all” factory model” unable to cope with education systems. In the Philippines, the basic requirement of child nutrition is invisible, as this is displaced by problematic ‘western’ models of Kindergarten to Year 12 (or K-12) reforms⁴. Thirdly, is the urgent need to re-visit education not merely as a school-driven effort but as a family, community and whole of society undertaking. An indicator of this fragmentation -- is the absence of a 'space' for Professional Learning Communities (PLCs) effecting change through evidence-informed policy and practice to thrive.⁵

What are the objectives of this TechLEAD-VUCA ?

TechLEAD-VUCA will institutionalise a research & innovation hub constituting relevant key stakeholders represented by university (i.e. UoB and ACED), non-government organisations (e.g. Valenzuela City, Philippine Central Kitchen), national government (i.e. Philippine DepEd) and local government units (e.g. Valenzuela City Local Government Unit-LGU) to form part of an evidence-informed policy and practice PLC. Building on existing and ongoing collaborative and applied research networks spearheaded by this UK Principal Investigator (PI) along with key international partners⁶, the hub, designed as a cloud-based learning space will promote co-creation to strengthen an incipient knowledge system scaffolded by an AI-powered dashboard combining effective evidence-informed policy and practice. TechLEAD-VUCA will enable empowered education leaders and stakeholders to establish PLC systems and structures to

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¹ This UK Principal Investigator created and continues to champion the Transformational Educational Leadership in 21st Century Contexts (TransformLEAD) as a professional development/research project targeted for schools in Southeast Asia. For more information, see: <https://sites.google.com/view/transformlead21/home>

² For more information, see the following: <https://techleadvuca.web.app/about>

³ Jack, R., & Oster, E. (2023). COVID-19, School Closures, and Outcomes. *Journal of Economic Perspectives*, 37(4), 51-70.

⁴ Reyes, V., Hamid, O., & Hardy, I. (2022). When reforms make things worse: School leadership responses to poverty, disasters, and cultures of crises in the Philippine education system. *International Journal of Leadership in Education*, 25(2), 331-344.

⁵ Reyes, V. (2023). What is most important in education reform? The impact of leadership, innovation and partnerships. *International Journal of Leadership in Education*, 1-18.

⁶ Oracion, C., Naidu, V. L., Ng, J., & Reyes, V. (2020). Advancing the K-12 reform from the ground: A case study in the Philippines. ADB Working Papers.

embed responsible and transformative technology innovations to accomplish two specific objectives: (1) Ensuring Food Security and (2) Improving Attendance:

Ensuring Food Security – The Philippines as a Lower- Middle Income Country (LMIC) has a dismal record: “one-third of children younger than 5 years of age have stunted growth and one-fifth are underweight.”⁷ Recognising that “schools play an important role in promoting nutrition,”⁸ this project will build on progressive small-scale innovations --championed by this UK PI -- that have addressed food insecurity in the Philippines. Using Machine Learning (ML) technology alongside the use of smart sensors linked to the Internet of Things (IoT) in a responsible manner, the project will generate relevant algorithms to attain optimal, effective and efficient ways in reducing food wastage and in achieving optimal food distribution.

Improving Attendance – In order to address the problem of low attendance made worse during and after the pandemic, TechLEAD-VUCA will use Predictive Analytics (PA). Using PA responsibly, the project will consolidate data from existing small-scale innovations – spearheaded by this UK PI and relevant international partners -- that have successfully ameliorated waning school attendance and scale these up. The overall goal is to create a customised system within the TechLEAD-VUCA hub that will systematically predict future trends in order to come up with strategic interventions. With a dynamic predictive analytic system in place, education stakeholders can access a real-time system and thus be able to adopt a forward-thinking approach, generate policies and practices enabling them to streamline their operations, minimise risks and seize opportunities towards enhancing overall attendance.

What is the experience of the Principal Investigator’s experience in this field?

As a university academic I undertake innovative research-informed approaches to teaching and learning⁹, educational leadership and administration¹⁰, advocate social justice initiatives in the Global South¹¹ and continue to be an active researcher. To date, I have successfully accumulated a total of more than GBP 1.2 million in competitive research income as principal investigator or co-PI for large-scale national studies, comparative international research projects as well as focused research interventions. Two of my current research projects revolve around data, technology and transformative educational leadership and how these are enacted in different education reform contexts. The first is a large-scale research project, as co-principal investigator, the *Australian Research Council (ARC)’s Discovery Grant (2021-2025): Beyond global discourses of data: Storying learning in marginalised schools*. The second is an ongoing multi-year research collaborative partnership (2018-2025) that targets DDU schools in developing countries (i.e., the Philippines and Indonesia). This project that I created and continue to lead is between the Philippine DepEd, the Ateneo de Manila University (Philippines), HEAD Foundation (Singapore) Asian Development Bank, and the Philippines’ Security Bank: *Transformational Leadership in 21st Century Contexts or TransformLEAD@21*.

How can your organization/institution help (Department of Education-DepEd)?

To lay the framework of creating institutionalised knowledge-building capacities that are grounded on evidence-informed policy and practice, vital access is essential. It would be great for your institution to allow TechLEAD-VUCA to gain access to your schools. At the moment, we have successfully piloted a digital dashboard that is AI-powered and managed by a small team of Information Technology specialists whose primary roles are to [i] create and maintain the AI-powered dashboard and related technological affordances and eventually [ii] hand-over the management and control of the AI-powered dashboard to relevant actors in DDU schools and (3) to train relevant education stakeholders (i.e. policy-makers, bureaucrats, school leaders) in pursuing contextualised and authentic transformative approaches to education. ■

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⁷ Laguna E. (2018) Sizing Up: *The stunting and child malnutrition problem in the Philippines*. Save the Children Philippines.

⁸ World Health Organization. (2021). *Nutrition action in schools: a review of evidence related to the Nutrition-Friendly Schools Initiative*.

⁹ Reyes V., Reading, C., Doyle, H., & Gregory, S. (2017). Integrating ICT into teacher education programs from a TPACK perspective: Exploring perceptions of university lecturers. *Computers & Education*, 115, 1-19.

¹⁰ Reyes, V. (2015). How do school leaders navigate ICT educational reform? Policy learning narratives from a Singapore context. *International Journal of Leadership in Education*, 18(3), 365-385.

¹¹ Reyes, V., & Tan, C. (2019). PISA and self-projection in Shanghai. *Understanding PISA’s attractiveness: Critical analyses in comparative policy studies*, 161-176.