EdTech Hub

Clear evidence, better decisions, more learning.

ASEAN-UK SAGE | Supporting the Advancement of Girls' Education

RESEARCH PRIORITIES BRIEF

Future Research Directions on Tech-Enabled Alternative Education for OOSCY in Southeast Asia

Date April 2026

Authors
Andrew Swindell
Kate Radford
Pavarin Bhandtivej, Equitable Education Fund (EEF)
Gregory Tyrosvoutis, Inclusive Education Foundation (InEd)
Mark Timothy O. Manaois, Bureau of Alternative Education, Department of Education, the Philippines

DOI 10.53832/edtechhub.1197

UK International Development
Partnership | Progress | Prosperity

THE WORLD BANK

unicef for every child

About this document

Recommended citation

Swindell, A., Radford, K., Bhandtivej, P., Tyrosvoutis, G., & Manaois, M. (2026). *Future Research Directions on Tech-Enabled Alternative Education for OOSCY in Southeast Asia* [Research Priorities Brief]. EdTech Hub. https://doi.org/10.53832/edtechhub.1197. Available at https://docs.edtechhub.org/lib/QUVNI859. Available under Creative Commons Attribution 4.0 International.

Reviewers

Haani Mazari

About EdTech Hub

EdTech Hub is a global research partnership. Our goal is to empower people by giving them the evidence they need to make decisions about technology in education. Our evidence library is a repository of our latest research, findings, and wider literature on EdTech. As a global partnership, we seek to make our evidence available and accessible to those who are looking for EdTech solutions worldwide.

EdTech Hub is supported by UKAid, World Bank, and UNICEF. The views in this document do not necessarily reflect the views of these organisations.

This publication has been produced by EdTech Hub as part of the ASEAN-UK Supporting the Advancement of Girls' Education (ASEAN-UK SAGE) programme. ASEAN-UK SAGE is an ASEAN cooperation programme funded by the UK. The programme aims to enhance foundational learning opportunities for all by breaking down barriers that hinder the educational achievements of girls and marginalised learners. The programme is in partnership with the Southeast Asian Ministers of Education Office, the British Council, the Australian Council for Educational Research, and EdTech Hub.

This material has been funded by the UK; however, the views expressed do not necessarily reflect the UK Government's official policies.

Contents

Abbreviations and acronyms

AEP	Accelerated Education Programme
ALS	Alternative Learning System (Philippines)
ASEAN	Association of Southeast Asian Nations
EEF	Education Endowment Foundation
EiE	Education in emergencies
MoE	Ministry of education
OOSCY	Out-of-school children and youth
SEAMEO	Southeast Asia Ministers of Education Organization
SEL	Social and emotional learning

Key definitions

EdTech: Educational technology. "Technologies, including hardware, software, and digital content, that are either designed or appropriated for educational purposes" (↑Hennessy et al., 2021, p. 8). The term 'information and communication technology' (ICT) is also used to refer to hardware and software for learning, and how these are deployed for educational purposes is highlighted in each instance.

Out-of-school children and youth (OOSCY): The study adopts the definition used in the ASEAN Declaration on Strengthening Education for OOSCY (↑ASEAN Secretariat, 2016). Accordingly, OOSCY are recognised as children or young people in one or more of the following situations:

- Children and youth who do not have access to a school in their community;
- Children and youth who have not yet enrolled at a school, despite the availability of a school;
- Children and youth who have enrolled but do not attend school or are at risk of dropping out;
- Children and youth who drop out of the education system;
- School-based learners who are at risk of dropping out.

Southeast Asia: Countries that are member countries of the Southeast Asia Ministers of Education Organization (SEAMEO). These are Brunei Darussalam ('Brunei'), the Kingdom of Cambodia ('Cambodia'), the Republic of Indonesia ('Indonesia'), the Lao People's Democratic Republic ('Lao PDR'), Malaysia, the Republic of the Philippines ('the Philippines'), the Republic of Singapore ('Singapore'), the Kingdom of Thailand ('Thailand'), Timor-Leste, the Union of Myanmar ('Myanmar'), and the Socialist Republic of Viet Nam ('Vietnam') (↑SEAMEO, no date).

Education types: Drawing from the ↑United Nations Girls' Education Initiative (UNGEI) et al. (2021), we adopt the following definitions:

- **Alternative education:** alternative education includes planned, structured education programming for out-of-school children, adolescents, and youth that leads to equivalent, certified competencies in academic or technical/vocational subjects Alternative education is usually flexible to accommodate and meet the needs of out-of-school learners. Examples include:
  - Accelerated education programmes (AEPs): Flexible, age-appropriate programmes, run in an accelerated

timeframe, which aim to provide access to education for disadvantaged, over-age, out-of-school children and youth—particularly those who missed out on, or had their education interrupted due to poverty, marginalisation, conflict and crisis.

  - Alternative basic education.
  - Youth livelihoods training programmes.

- **Formal and non-formal education**
  - **Formal education** is education that is institutionalised, intentional and planned through public organisations and recognised private bodies and, in their totality, make up the formal education system of a country. Formal education programmes are thus recognised as such by the relevant national educational authorities or equivalent, e.g., any other institution in co-operation with the national or sub-national educational authorities. Formal education consists mostly of initial education. Vocational education, special needs education and some parts of adult education are often recognised as being part of the formal education system.
  - **Non-formal education (NFE)** is the overarching term that refers to planned, structured, and organised education programmes that are outside the formal education system. Some types of NFE lead to equivalent, certified competencies, while others do not. NFE programmes are characterised by their variety, flexibility, and ability to respond quickly to the new educational needs of learners in a given context, as well as by their holistic, learner-centred pedagogy. Informal learning (knowledge and skills naturally obtained through day-to-day interactions and activities) is not considered NFE.
- **Support services:** Drawing on the ↑United Nations Girls' Education Initiative (UNGEI) et al. (2021), we define support services as including programmes offered to students in addition to their formal or non-formal education studies. Examples include:
  - Tutoring and after-school support
  - Remedial education
  - Dropout prevention and learning readiness

  - Integrated curriculum elements, such as life skills, health education, disaster risk reduction, safety, psychosocial support and social-emotional learning, and peace education
  - Cash grants to facilitate enrolment and retention (e.g., for fees, uniforms, rewards for retention).

- **Transitional programmes:** Drawing from the ↑United Nations Girls' Education Initiative (UNGEI) et al. (2021), we define transitional programmes as short-term educational programmes that help learners transition into formal or alternative education pathways. On their own, they do not lead to certification or equivalent competencies and are often implemented by non-governmental organisations (NGOs). Examples include:
  - Learning readiness programmes
  - Catch-up programmes
  - Bridging programmes (e.g., language support)

1. Background

Across Southeast Asia, millions of children and youth remain excluded from education due to poverty, migration, disability, gender-related risks, conflict, and climate-related disruption. While governments have expanded access to alternative education pathways, many out-of-school children and youth (OOSCY) continue to face persistent barriers related to access, quality, continuity, and coherence with national education systems. Tech-enabled education has been increasingly used to address these barriers, yet its effectiveness and feasibility within public governance systems remain uneven and insufficiently understood.

To address this evidence gap, EdTech Hub conducted a regional study examining how tech-enabled approaches are designed and implemented to support education for OOSCY in Southeast Asia. The study employed a qualitative research approach to generate practice-grounded evidence that prioritised the views of policymakers, programme leaders, teachers, and implementers actively engaged with tech-enabled alternative education. Data was collected through key informant interviews and focus group discussions with 27 stakeholders across programmes in Cambodia, Indonesia, Thailand, and the Philippines.

The findings were published in March 2026 in the research brief *Tech-Enabled Alternative Education for Out-of-School Children and Youth (OOSCY): Evidence from Southeast Asia* (↑Swindell & Radford, 2026), presenting key insights and recommendations for policy and practice. The results ultimately point to five cross-cutting findings and recommendations for governments and programme implementers, as listed below.

1. **Mobile-first delivery, paired with community-based outreach, is the most effective way to improve access to quality learning for OOSCY.** Across contexts, mobile devices were described as the most practical entry point for participation. However, technology alone does not drive learning. Impact is strongest when mobile access is combined with differentiated, level-appropriate, accessible, and user-friendly content and sustained human facilitation.
2. **Clear certification and graduation pathways linked to career and TVET opportunities are the primary motivations for OOSCY re-engagement and persistence with education.** Recognised credentials aligned with national standards and connected to employment or further training were consistently described as

central to learner motivation. Education is valued when it leads to tangible livelihood opportunities rather than solely academic attainment.

3. **Cross-ministerial coordination is crucial for supporting programme implementation and creating efficiencies.** Collaboration across ministries, particularly of education and labour, is essential for certification recognition, transfer mechanisms, and sustained learner pathways. MoEs could establish a standing inter-ministerial OOSCY working group, co-chaired with the Ministry of Labour or equivalent, that meets regularly, maintains a shared data dashboard on enrolment and certification, and has authority to approve transfer mechanisms across education and TVET systems without requiring case-by-case ministry approvals.

4. **Sustainability after external funding remains a central feasibility concern.** Programme budgets submitted to donor partners should include an explicit transition plan, naming the ministry responsible for long-term ownership and the budget cycle in which it will appear.

5. Programmes were primarily discussed with a national lens, often using other countries as benchmarks for student learning. **Regional support and collaboration, however, are perceived as valuable and welcome for future research and implementation.**

As part of this research process, a participatory regional workshop was also held on 29 January 2026. This event brought together study participants and regional stakeholders to review the findings and reflect on implications for future work. The workshop created space for collaboration on where additional evidence, technical assistance, and regional collaboration are most needed to strengthen the design and implementation of tech-enabled alternative education systems.

Building on these discussions, this document outlines the following potential future research directions arising from the study and workshop.

1. A set of four regional research priorities, reflecting shared evidence gaps that currently constrain policymaking and programme development, particularly in relation to learning outcomes, completion pathways, financial sustainability, and implementation in fragile contexts.

2. Country and programme-specific priorities aligned with their national contexts and implementation needs.

Together, these priorities aim to guide future research and collaboration while supporting ministries, programme partners, and regional organisations working to strengthen education opportunities for OOSCY.

2. Regional research priorities

This section outlines four regional research priorities identified through the study and workshop discussions. These priorities reflect shared evidence gaps identified by stakeholders across countries as critical for strengthening the design, implementation, and sustainability of tech-enabled alternative education for OOSCY. Together, they highlight areas where further research and technical collaboration can support more informed policymaking and programme development across the region.

2.1. Priority 1: Generate quantitative evidence on learning outcomes of different tech-enabled approaches

Despite significant expansion of implementation, there is limited rigorous, comparative quantitative evidence on learning outcomes across different tech-enabled approaches for OOSCY, including impact on foundational literacy and numeracy gains.

Why generating quantitative evidence on learning outcomes is important or relevant

Governments are investing in multiple tech-enabled models without clear comparative outcome data. Strengthening the evidence base can improve monitoring and evaluation systems, support modality selection, and guide scalable, standards-aligned programme design.

Main objectives

This research will aim to generate quantitative comparative evidence on learning outcomes across tech-enabled approaches and to evaluate how formal education tools can be effectively adapted for OOSCY contexts. It also seeks to embed outcome measurement within programme implementation to strengthen national monitoring and evaluation (M&E) systems. Findings will inform evidence-based decisions on scale-up and modality prioritisation.

Research questions

1. What impact do tech-enabled education programmes have on the foundational literacy and numeracy of OOSCY?
2. How do learning outcomes for OOSCY differ across technologies (e.g., mobile vs radio) and education types (e.g., formal vs non-formal, accelerated programme vs support service)?

Research design

Research will entail large-scale quantitative assessments and longitudinal comparative studies implemented through participatory co-research with ministries and programme partners. Research activities can be embedded within programme M&E systems to strengthen institutional data capacity while testing adaptation strategies in active programme settings.

2.2. Priority 2: Strengthen evidence on completion pathways and sustained learner motivation

Improving career opportunities is a significant motivating factor for learners who are out of school. However, there is limited longitudinal evidence on whether alternative education and certification pathways translate into improved transitions into further education, TVET, and employment. There is also insufficient understanding of how the aspirations of OOSCY shape their motivation to learn and persevere with education and training.

Why is evidence on completion pathways and learner motivation important or relevant?

Pathways to employment are frequently identified but are not consistently effective due to cultural, structural, and labour-market barriers. Without tracer data and clearer insight into labour market alignment and sustained learner motivation, certification may not translate into improved livelihood outcomes.

Main objectives

This research will aim to generate longitudinal evidence on post-completion trajectories while examining how employment motivations influence enrolment, persistence, and completion. Findings could inform the design of more accessible and employment-responsive pathways.

Research questions

1. How do certifications and alternative pathways improve employment and income outcomes for OOSCY over time?
2. How do the aspirations of OOSCY for career or educational advancement influence their motivation to learn and their sustained participation in education and training?
3. What cultural or structural barriers limit transitions into work for OOSCY?

Research design

Research will entail longitudinal tracer studies co-designed with ministries, TVET institutions, employers, and learners. Participatory employer roundtables and graduate feedback mechanisms can directly contribute to and inform programme outreach, credential recognition strategies, and pathway alignment with labour market demand.

2.3. Priority 3: Build evidence on financial feasibility, cost-effectiveness, and return on investment (ROI) over time to foster national financing and ownership

Many current programmes for OOSCY rely on external donor support, raising questions about their long-term sustainability on government budgets alone. There is also limited evidence on per-learner costs, long-term fiscal implications, and comparative return on investment across technology-enabled and non-digital alternative education pathways.

Why building evidence on financial feasibility, cost-effectiveness and ROI is important or relevant

Strategic regional investment decisions require clarity on financial sustainability and economic returns. Ministries must determine where limited resources are most likely to yield the greatest long-term impact on human capital.

Main objectives

This research will aim to generate costing and economic evidence to inform medium- and long-term financing decisions for country-level ownership and budgeting. It seeks to compare financial feasibility across modalities, model both direct and indirect returns on investment, and

identify cross-ministerial costs and benefits associated with improved educational outcomes for OOSCY. Findings can guide prioritisation of national and regional resource allocation.

Research questions

1. What are per-learner costs across delivery modalities?
2. What are the long-term fiscal implications of institutionalising alternative education, training, and completion pathways for OOSCY?
3. How does ROI compare between digital and non-digital models?

Research design

Research will entail costing studies and fiscal modelling conducted collaboratively with ministries of education and finance. Participatory analysis workshops can support the interpretation of findings and integration into budgeting and planning processes.

2.4. Priority 4: Generate evidence on EdTech effectiveness and protection during emergency responses

There is limited evidence on the most vulnerable OOSCY learners living in contexts of conflict, climate emergency, and forced migration.

Why research on EdTech effectiveness during emergencies is important or relevant

Regional investment decisions must consider contextual feasibility, protection risks, and comparative effectiveness against non-digital modalities such as print or community-based delivery. Inclusive human capital development depends on safe and context-appropriate learning solutions.

Main objectives

This research will aim to assess the effectiveness and protection implications of EdTech in fragile and high-risk settings. It seeks to compare digital and non-digital modalities while identifying safeguarding considerations that must inform programme design and investment. Findings can guide safe and strategic regional resource allocation.

Research questions

1. How can EdTech effectively support learning continuity for working children and those in crisis-affected contexts (i.e., conflict or climate emergencies)?
2. What protection risks must accompany technology use?
3. How do digital and non-digital modalities compare in crisis-affected settings?
4. What are the potential challenges to the successful adoption and use of EdTech in delivering education during emergencies, and what solutions can help overcome them?
5. How can EdTech be leveraged to understand the scale of OOSCY in Southeast Asia and develop robust systems to track enrolment and retention in fragile contexts?

Research design

Research will entail context-specific mixed-methods studies using participatory approaches with community actors, protection specialists, and learners to ensure safeguarding considerations are embedded in programme refinement and policy guidance.

3. Programme-specific research priorities

The following research priorities were submitted by participants from the Inclusive Education Foundation (InEd) in Thailand and the Alternative Learning System (ALS) in the Philippines.

3.1. Counting them in: Estimating the number of OOSCY and improving retention on Thailand's border

Thailand's Zero Dropout resolution has spurred nationwide efforts to curb student attrition, yet migrant children in the border districts of Tak Province remain severely underserved, with 3 in 10 school-aged migrants out of school in urban areas and nearly 1 in 2 in rural areas (↑Grunawalt et al., 2025). Documentation barriers, transportation constraints, language gaps, and household economic pressures create compounding obstacles that have resulted in 169,047 children and youth dropping out of primary education in border provinces (↑Iamnirath, 2024).

Why improved estimation of the number of OOSCY is important or relevant

Thailand's Office of Basic Education Commission (OBEC) mandates equal access to education for all school-age children, yet border provinces like Tak remain a gap that national policy is well positioned to address. Critically, no reliable estimate for the total number of OOSCY in these border areas exists, making it nearly impossible to adequately plan, resource, or evaluate any response. Without knowing the scale of the problem, even well-intentioned interventions risk missing those most in need.

Main objectives

The research will aim to produce a credible estimate of the number of OOSCY along Thailand's border, establishing a baseline from which policy and programmes can be designed. It will then seek to identify and document effective practices that improve student retention and learning outcomes in border schools in Tak Province, generating evidence-based recommendations for teacher training, resource allocation, and student support policies.

Research questions

1. How many out-of-school children and youth are there in the border districts of Tak Province, and what are the key characteristics of this population?
2. What effective practices have led to improved learning outcomes and student retention in the border districts of Thailand's Tak Province?

Research design

The study will combine original fieldwork, including community-level surveys and geolocation mapping, with analysis of existing government databases. The research will produce a clear estimate of the OOSCY population along the border, including strengthened digital monitoring and evaluation systems for continued real-time updates. This will be complemented by a rapid evidence review that synthesises data from Thai public schools on student retention, language proficiency assessments, and classroom observations, and compares them with international literature on effective practices in similarly diverse border and migrant education contexts.

3.2. Digital equity and learner mapping for 'last-mile communities'

Persistent socio-economic and geographic constraints in last-mile communities, including coastal and Geographically Isolated and Disadvantaged Areas (GIDAs), continue to widen the digital divide, thereby limiting the effective implementation of blended learning modalities.

Why digital equity and learner mapping is important or relevant

A comprehensive understanding of the barriers to education access faced by last-mile communities is critical to inform infrastructure investments and programme design. Without targeted interventions, OOSCY risk further marginalisation due to limited access to digital tools, connectivity, and requisite digital competencies.

Main objectives

To identify and analyse socio-economic and infrastructure-related barriers affecting access to digital learning in last-mile communities, and to evaluate the suitability and effectiveness of existing blended learning modalities for OOSCY.

Research questions

1. What socio-economic and contextual barriers hinder OOSCY in coastal and GIDA communities from accessing digital learning opportunities?
2. To what extent do connectivity issues (e.g., internet potential) and low levels of digital literacy affect participation and completion rates in the Alternative Learning System (ALS)?

Research design

Research will entail a context-responsive mixed-methods approach combining:

1. Infrastructure and connectivity mapping;
2. Quantitative analysis of learner access and completion data;
3. Qualitative participatory consultations with learners, ALS implementers (ALS Teachers, Community ALS Implementors, and Learning Facilitators), and community stakeholders in select high-priority regions.

3.3. Data-driven quality assurance and monitoring

Current monitoring and reporting mechanisms within the Alternative Learning System Information System (ALSIS) lack real-time capabilities, resulting in delays in data utilisation for timely policy and programme adjustments.

Why data-driven quality assurance research is important or relevant

Establishing an efficient and responsive data ecosystem is essential to support evidence-based decision-making. A functional feedback loop, where real-time learner performance data informs immediate programme

and policy refinements, is key to strengthening institutional responsiveness and accountability.

Main objectives

To assess, enhance, and institutionalise real-time monitoring and feedback systems within ALSIS to support data-driven quality assurance and continuous programme improvement.

Research questions

1. How can ALSIS be optimised to improve the timeliness, accuracy, and usability of data reporting?
2. What systemic and operational bottlenecks hinder the effective flow of data from Schools Division Offices (SDOs) to the national level for policy action?

Research design

Research will entail a phase in technical and systems analysis involving:

1. Diagnostic assessment of current ALSIS architecture and workflows.
2. Identification of gaps in data collection, processing, and reporting.
3. Pilot implementation of real-time reporting and a dashboard module in select Schools Division Offices (SDOs), followed by performance evaluation.

3.4. Gamification and digital pedagogical/andragogical innovations

Conventional digital learning modules often struggle to sustain engagement and motivation among OOSCY, leading to low retention and completion rates.

Why gamification and digital pedagogical innovation research is important or relevant

Innovative pedagogical/andragogical approaches, such as gamification, offer promising strategies to enhance learner engagement, motivation, and persistence in ALS.

Main objectives

To evaluate the effectiveness of gamified learning approaches in improving learner engagement, motivation, and retention in the Basic Literacy Program (BLP), and the Accreditation and Equivalency (A&E) Program — Elementary.

Research questions

1. To what extent does the integration of gamification elements improve learner engagement and retention in digital ALS modules?
2. Which gamification strategies (e.g., badges, leaderboards, points systems, interactive storytelling) are most effective for ALS learners?

Research design

Research will entail a quasi-experimental research design involving:

1. Comparative analysis of learner performance and engagement between standard digital modules and gamified versions.
2. Use of quantitative metrics (e.g., completion rates, time-on-task, assessment scores).
3. Supplementary qualitative feedback from learners and ALS implementers.

3.5. Effectiveness of learning modalities on learning outcomes in the ALS Accreditation and Equivalency (A&E) programme

The ALS 2.0 ICT Strategic Plan identifies the expansion of technology-enabled learning as central to improving programme quality and relevance. However, there is limited empirical evidence on whether online and blended learning modalities lead to improved Accreditation and Equivalency (A&E) Test pass rates and deeper competency attainment under the Revised ALS Curriculum. Historical A&E Test performance levels suggest persistent learning quality challenges that ICT integration is intended to address, yet the effectiveness of such modality in the ALS context remains insufficiently examined.

Why investigating the effectiveness of learning modalities is important or relevant

Section 8 (ALS Programs) of Republic Act (RA) No. 11510, otherwise known as the ALS Act (↕Congress of the Philippines, 2020), outlines the different learning modalities such as modular instruction, online/digital/mobile learning, radio or television-based instruction, face-to-face learning sessions and tutorials, and blended approaches. Generating rigorous evidence on the comparative effectiveness of these modalities across diverse learner profiles is essential to guide ICT investments, curriculum design, and delivery strategies within ALS.

Main objectives

1. Compare A&E outcomes (e.g., A&E test pass rates, competency mastery) across different learning modalities.
2. Determine learner characteristics that influence the effectiveness of each modality.
3. Document instructional practices and implementation challenges in technology-mediated ALS delivery.

Research questions

1. Do ALS learners in blended or online modalities achieve significantly higher A&E Test outcomes compared to those in purely face-to-face settings?
2. Which digital tools and platforms are most strongly associated with improved competency attainment?
3. How does ALS learner digital literacy influence the effectiveness of ICT-integrated instruction?
4. What implementation challenges do ALS implementers encounter, and how do these affect learner outcomes?

Research design

Research will entail a quasi-experimental, pre- and post-test comparative study across select ALS programmes in the National Capital Region (NCR), Regions III, VII, and XI.

Three cohorts will be examined:

1. Face-to-face
2. Blended
3. Fully online.

Pre- and post-test measures will include the Functional Literacy Test (FLT) and the A&E Practice Test. Qualitative data will be collected through classroom observations, focus group discussions, and learner interviews.

3.6. Digital literacy competencies of ALS implementers and their readiness to implement ICT-integrated instruction

Existing assessments indicate that many ALS implementers lack confidence and proficiency in integrating ICT into instruction. Despite mandates under RA 11510 for sustained capacity building, there is no comprehensive national baseline on ALS implementer digital literacy aligned with the Philippine Professional Standards for Teachers (PPST), limiting the design of targeted training programmes.

Why digital literacy competency research is important or relevant

ALS implementer capacity is a critical determinant of effective ICT integration. Establishing a national baseline will enable the design of differentiated competency-based professional development programmes aligned with identified needs and policy mandates.

Main objectives

1. Establish a national baseline of ALS implementer digital literacy aligned with PPST ICT competencies;
2. Identify prevalent competency gaps across regions and deployment contexts;
3. Examine the relationship between teacher ICT competencies and learner outcomes.

Research questions

1. What is the current level of ALS implementer digital literacy nationwide?
2. Which ICT competency domains exhibit the most significant gaps?
3. How do ALS implementer ICT competencies correlate with learner engagement and Accreditation and Equivalency (A&E) performance?

4. What forms of training and support are most relevant to ALS implementers?

Research design

Research will entail a sequential, explanatory, mixed-methods design:

1. Phase 1: National survey (n≈1,200) using a validated ICT competency assessment tool.
2. Phase 2: In-depth interviews and classroom observations with selected teachers across varying competency levels.
3. Data analysis will include descriptive statistics, comparative analysis, and regression modelling.

3.7. Digital Accreditation and Equivalency (A&E) assessments and certifications: Feasibility, validity, and equity of computer-based testing

The A&E Assessments and Certifications remain predominantly paper-based, limiting accessibility and flexibility. While computer-based testing (CBT) offers potential improvements in efficiency and reach, concerns regarding validity, accessibility, and equity for learners with limited digital exposure remain unaddressed.

Why digital accreditation and equivalency research is important or relevant

As the primary certification mechanism of ALS, the Accreditation and Equivalency (A&E) Assessments and Certifications must ensure fairness, validity, and accessibility. Evidence on the feasibility and implications of CBT is critical prior to large-scale implementation to prevent unintended inequities.

Main objectives

1. Assess psychometric equivalence between CBT and paper-based A&E Assessments and Certifications.
2. Evaluate equity implications across diverse learner groups.
3. Identify minimum infrastructure and readiness requirements for CBT implementation.

Research questions

1. Are there significant differences in performance between CBT and paper-based test-takers?
2. How do learners with low digital literacy experience CBT?
3. Which learner groups are most at risk of disadvantage, and what mitigation strategies are needed?
4. What infrastructure and teacher preparedness are required for equitable implementation?

Research design

Research will entail a sequential mixed-methods design:

1. Phase 1: Randomised equivalence trial using parallel test forms and a cross-over design.
2. Phase 2: Qualitative think-aloud protocols and interviews.
3. Phase 3: Infrastructure audit of select Community Learning Centres (CLCs).

3.8. Integration of digital citizenship in the revised ALS curriculum: Implementation status and learner outcomes

Digital Citizenship is embedded as a core learning strand in the Revised ALS curriculum; however, there is limited evidence on its actual implementation and learner competency attainment, particularly in low-connectivity contexts.

Why exploring digital citizenship is important or relevant

Digital citizenship is essential for meaningful participation in digital learning environments and society. Understanding implementation gaps will support curriculum refinement, resource allocation, and teacher capacity-building.

Main objectives

1. Assess the extent and quality of Digital Citizenship instruction in the ALS.
2. Measure learner competency attainment aligned with curriculum standards.
3. Identify enabling and constraining factors affecting implementation.

Research questions

1. To what extent is Digital Citizenship integrated into ALS instructional practice?
2. What is the current level of learner competency in this learning strand?
3. What resources and support do ALS implementers require?
4. How do outcomes vary based on learner background and digital exposure?

Research design

Research will entail a concurrent mixed-methods, multi-site study including:

1. Quantitative assessments of learner competencies and ALS implementer practices.
2. Classroom observations and focus group discussions.
3. Cross-analysis by learner and CLC characteristics.

3.9. Financing and sustainability of ICT infrastructure in ALS Community Learning Centres (ALS CLCs)

ICT infrastructure represents a major cost driver in ALS digitalisation, yet funding remains constrained and fragmented. Despite policy provisions enabling multiple funding sources, evidence on cost-effective and sustainable financing models is limited.

Why financing and sustainability of ICT infrastructure are important or relevant

Sustainable financing is critical to ensure the long-term functionality of ICT investments. Without viable models, infrastructure risks becoming obsolete due to maintenance and operational constraints.

Main objectives

1. Evaluate the cost-effectiveness of various ICT provision models.
2. Assess utilisation of available funding mechanisms such as the Special Education Fund (SEF).
3. Develop a sustainable, multi-stakeholder financing framework.

Research questions

1. What are the comparative costs and cost-effectiveness of different ICT provision models?
2. How extensively is the Special Education Fund (SEF) utilised for ALS ICT, and what barriers exist?
3. What partnership models have proven effective in supporting ALS ICT initiatives?
4. Which financing configurations best ensure sustainability, equity, and local ownership?

Research design

Research will entail a comparative case study and cost-analysis approach:

1. Retrospective financial analysis of ICT expenditures;
2. Total Cost of Ownership (TCO) modelling across CLC typologies;
3. Case studies of select Schools Division Offices (SDOs);
4. Stakeholder interviews and cross-case synthesis.

References

These references are available digitally in our evidence library at https://docs.edtechhub.org/lib/QUVNI859

ASEAN Secretariat. (2016). *ASEAN Declaration on Strengthening Education for Out-of-School Children and Youth (OOSCY)*. ASEAN Main Portal. https://asean.org/asean-declaration-on-strengthening-education-for-out-of-school-children-and-youthooscy/. (details)

Congress of the Philippines (2020). An Act Institutionalizing the Alternative Learning System in Basic Education for Out-of-School Children in Special Cases and Adults and Appropriating Funds Therefor, Republic Act No. 11510 (2020). https://lawphil.net/statutes/repacts/ra2020/ra_11510_2020.html. (details)

Grunawalt, P., Kanawng Sut Hkawng Naw, Nan Mu Ta Loung, & Eh Htee Hta Hser. (2025). *Expanding Access: An Education Needs Assessment of Border Communities in Tak Province, Thailand*. The Inclusive Education Foundation. https://www.inedfoundation.org/research-publication/expanding-access%3A. (details)

Hennessy, S., Jordan, K., Wagner, D. A., & EdTech Hub Team. (2021). *Problem Analysis and Focus of EdTech Hub's Work: Technology in education in low- and middle-income countries* (Working Paper No. 7). EdTech Hub. https://doi.org/10.5281/zenodo.4332693. Available from https://docs.edtechhub.org/lib/PBXBB7LF. (details)

Iamnirath, P. (2024). *SEAMEO Secretariat*. SEAMEO Secretariat. https://www.seameo.org/category/7/484. (details)

Southeast Asian Ministers of Education Organization (SEAMEO). (2022, January 19). *History of SEAMEO Members*. https://www.seameo.org/img/SEAMEO_General/About_SEAMEO/History_HTML/seameomc/mcindex.htm. (details)

Swindell, A., & Radford, K. (2026). *Tech-Enabled Alternative Education for Out-of-School Children and Youth (OOSCY): Evidence from Southeast Asia* [Technical Report]. EdTech Hub. https://doi.org/10.53832/edtechhub.1191. Available from https://docs.edtechhub.org/lib/63QAD5XV. Available under Creative Commons Attribution 4.0 International. (details)

United Nations Girls' Education Initiative (UNGEI), Education Cannot Wait (ECW), & Inter-Agency Network for Education in Emergencies (INEE). (2021). *EiE GenKit*. Education Cannot Wait. https://www.educationcannotwait.org/resource-library/eie-genkit-core-resource-package-gender-in-education-in-emergencies. (details)