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EdTech for Learners with Cognitive and Learning Disabilities

A Rapid Evidence Review for the Southeast Asian Region

INTRODUCTION

This Rapid Evidence Review (RER) outlines the potential for using EdTech for various educational needs for Southeast Asian learners as part of the Association of Southeast Asian Nations and the United Kingdom's Supporting the Advancement of Girls' Education programme (ASEAN-UK SAGE). This is a UK Foreign, Commonwealth and Development Office (FCDO) programme for ASEAN member states and Timor-Leste. Other partners include the ASEAN Secretariat, the Southeast Asia Ministers of Education Office (SEAMEO), the British Council, EdTech Hub and the Australian Council for Educational Research (ACER).

OVERVIEW AND SCOPE

This RER examines the use of EdTech for students with cognitive and learning disabilities in Southeast Asia.¹² It summarises the benefits, limitations, and challenges of EdTech in the region based on a systematic search of academic and grey literature, which identified 18 relevant publications.³

- The term 'cognitive disabilities' covers a broad range of disorders and conditions (↑[IRIS Center, no date](#)). Cognitive disabilities often require extensive accommodations and support, as these disorders exist on a spectrum. In the RER, we explore the following three conditions: autism, Down syndrome, and attention deficit and hyperactivity disorder (AGHD).
- Learning disabilities is a general term covering a range of neurodevelopmental conditions that affect learning. These are separate from cognitive disabilities, although a student may have both cognitive and learning disabilities (↑[Swanson, 1991](#); ↑[Learning Disabilities Association of America, 2012](#)). Learning disabilities are varied; our review looked at three more commonly known learning disabilities: dyslexia, dysgraphia, and dyscalculia.

¹This spans Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam.

²For a review on students with hearing and visual impairments, see <https://docs.edtechhub.org/lib/M6A4ZHJ3>.

³Details on the inclusion criteria, as well as the associated limitations, can be explored in the methodology section of the report, see <https://docs.edtechhub.org/lib/HD58IXI3>.

Students with significant cognitive disabilities often require extensive and individualised accommodations and support for learning, whereas teacher knowledge remains limited. On Autism, a survey of 404 teachers (of which 100 had a degree in special education) across Bangkok, Thailand and a research report in Laos highlighted the need for adequate teacher training and teachers with specialised skills ([↑Little et al., 2014](#); [↑Fielding et al., 2017](#)). In Singapore, a study revealed limited parental knowledge on Autism, with English language being one of the barriers to access ([↑Han et al., 2021](#)). Improved equitable access to specialist schools across urban and rural schools also appears to be a key need in Cambodia, with access to support still limited even in urban areas ([↑Rose et al., 2023](#)).

Literature on the experiences of caregivers of children with Down syndrome in the Philippines explored parental reactions to their child's diagnosis. Researchers found that these emotions, which included grief, anger, anxiety, denial, and frustration, were generally negative ([↑Masanda & Masanda, 2019](#); [↑De Castro-Hamoy et al., 2022](#)). In Myanmar, barriers to service access included rural locations as well as financial and social difficulties ([↑Ko et al., 2021](#)).

The prevalence of ADHD in Southeast Asia overall was not identified, although one study estimated prevalence at 7.7% among primary school children in South Vietnam ([↑Pham et al., 2015](#)). This calls for a need for awareness among teachers and caregivers. A case study in Indonesia found that across 38 elementary school teachers, most had no to low knowledge of ADHD. Of the teachers who had awareness of ADHD, most could only provide general characteristics of the condition ([↑Hapsari et al., 2020](#)). [↑Hata et al. \(2023\)](#) claim that there is a lack of assistive technology for children with ADHD in Indonesia. Despite promising programmes, further work needs to be done to examine the potential of using technology to improve the learning of children with cognitive disabilities.

On learning disabilities, the literature on dyslexia suggests that research must be tailored to the unique linguistic needs and diversity of particular regions. Materials must be culturally responsive, and school pedagogic approaches must support the learning needs of students with this learning disability ([↑Balakrishnan et al., 2016](#); [↑See & Koay, 2014](#)).

In Thailand, Indonesia, and Malaysia, there has been a growing awareness of the need to diagnose and address dyslexia early ([↑Lerthattasilp et al., 2022](#)). Although research is limited, a handful of EdTech interventions have shown promising results, such as the impact of computer-based multisensory learning and video games on reading proficiency and attention skills among Malaysian dyslexic students ([↑Kast et al., 2011](#); [↑Yuzaidey et al., 2018](#)). Information on and interventions for dysgraphia and dyscalculia is more limited. However, a Thai-language dysgraphia assessment tool is an important step towards localising the international Handwriting Proficiency Screening Questionnaire (HPSQ) ([↑Thichanpiang et al., 2022](#)). For students with dyscalculia, limited research from Indonesia suggests that students are not well-supported and have poor learning outcomes ([↑Ratnaningsih et al., 2019](#)). In general, education systems need to evaluate the breadth of special education needs in their student population and the corresponding structural support to ensure all students are set up for success.

Recurring themes across countries and these disorders include the need to:



Increase teachers' knowledge and attitudes



Ensure equitable parental access to knowledge about conditions and treatments



Improve national expertise and service as well as ensure equitable access to these services — distance and cost were cited as common challenges ([↑Han et al., 2021](#); [↑UNESCO, 2020](#); [↑2023](#))



Ensure schools are equipped to provide appropriate accommodations

KEY FINDINGS

01

More research is required to determine the most effective EdTech interventions for the varied learning and socio-emotional needs of students with cognitive and learning disabilities. We must also understand how these interventions can be implemented with fidelity and tailored to Southeast Asia. This includes research into how EdTech may help or hinder socio-emotional development in students with cognitive and learning disabilities. Additionally, researchers should identify or reference specific disability types and needs rather than grouping students into a broad category (e.g., cognitive disability) when conducting their research. This will enable practitioners to identify better what works for specific disabilities and incorporate the corresponding interventions into tailored student support plans.

02

More data on learners with disabilities in Southeast Asia is needed. This is particularly crucial to determine the appropriate allocation of resources, given the cost of EdTech interventions and their infrastructural and systemic enablers. Examples of data include information on the process for appropriate disability identification, barriers to identification, and any variation in the concentration of students across different populations. EdTech may also be useful for the collection of such data.

03

Adaptive education systems are essential for learners with disabilities to succeed. Crucial components of such systems include but are not limited to:

- Schools that cultivate a culture of inclusivity.
- Adequately resourced and trained teachers and teaching aids, including those who can identify students requiring testing and who can adapt curriculum and materials to meet student needs.
- Systems that cultivate positive perceptions and beliefs about students with cognitive and learning disabilities through training and policies. These mindsets are often correlated with student success.

04

Learners with disabilities must be supported through a multifaceted approach by identifying policy gaps. In particular, education and healthcare systems should strive to think holistically about how children and their caregivers interact across the system, what set of experts are necessary, and the appropriate role of EdTech given a child's varied and intersectional needs.

05

Caregivers play a vital role in their child's education. EdTech can be leveraged to provide caregivers with relevant information and support. Research suggests that across Southeast Asia, caregivers require further information about their child's condition and how best to support them ([↑De Castro-Hamoy et al., 2022](#); [↑Han et al., 2021](#); [↑Ko et al., 2021](#)). Appropriately designed, technology could be a key facilitator for disseminating this information, with global research suggesting potential positive student outcomes. It could also be used to reduce stigma and misconceptions and increase access to resources and appropriate accommodations.

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ABOUT ASEAN-UK SAGE

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