



All Children Reading–Asia (ACR–Asia)

Desk Review Activity 2.7

Inclusive Education Screening Tool and Pilot Activity – Desk Review

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List of Acronyms and Abbreviations

ACR	All Children Reading
CRPD	<i>UN Convention on the Rights of Persons with Disabilities</i>
DHS	Demographic and Health Survey
DPO	disabled persons organization
ILO	International Labour Organization
MICS	Multiple Indicator Cluster Survey
OHCHR	UN Office of the High Commissioner for Human Rights
TQ	Ten Questions
SWTS	School-to-Work Transition Surveys
UDL	Universal Design for Learning
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children’s Fund
USAID	US Agency for International Development
WHO	World Health Organization

1 Executive Summary

Children with disabilities are less likely to be enrolled in school in low- and middle-income countries in Asia and beyond. Further, in most school systems in these countries, children with disabilities are not identified as having a disability and thus do not receive necessary support, even when the country has an inclusive policy education. Poverty, limitations in the operationalization of national policies, traditional socio-cultural barriers, and the stigma attached to disabilities compound and complicate issues of school enrollment. Even when enrolled, children with disabilities experience challenges with quality inclusive education. Reports and studies indicate gaps in the identification of children with disabilities in school systems, gaps in teacher professional development and support, and a lack of specialized materials and resources. This desk review aims to provide critical information to policymakers and practitioners in US Agency for International Development (USAID) focal countries in Asia on the landscape of inclusive education for children with disabilities.

Four main sets of research questions guide this desk review:

- 1) What are the disability prevalence rates in USAID-supported countries across Asia, and where do gaps exist in available data on students with disabilities?
- 2) What are the primary and secondary school completion rates of children with disabilities?
- 3) What policies exist, how do they vary across countries in USAID-supported countries in Asia, and are they being effectively implemented?
- 4) What is the education landscape for children with disabilities in USAID-supported Asian countries? What interventions to date have shown promise in improving aspects of inclusive education for children with disabilities, and what are the costs associated with implementing such programs?

One challenge in gathering the data to address these questions is the lack of relevant and reliable data from across the Asian region. Specific data deficits exist on student enrollment and academic achievement, as well as on social and affective outcomes of inclusive education for students with disabilities. In the 2011 World Report on Disabilities, the World Health Organization (WHO) highlights challenges with the standardization of definitions related to disabilities, their categorizations, and related measurement, which prohibit systematic comparisons within and across countries in the region.

Disability Prevalence Rates Across Asia

Available data on prevalence, mainly from census efforts or household surveys that rely on self-reported information, indicate that prevalence rates for disability among school-aged children in the region range from a reported 0.3% in Thailand to 17.5% in Bangladesh. Further drawing on this data, countries most frequently reported mobility, vision impairment, developmental disability domains (including intellectual, mental, or cognitive, depending on each country's definition and terminologies), and hearing impairment, among the most prevalent disabilities. These government-reported data are likely to significantly underestimate disability prevalence rates. In contrast, estimates from the WHO note a disability prevalence rate of 15% worldwide.

Aside from the surveys and questionnaires used to establish disability prevalence rates at the national or sub-national level, countries in the Asia region are also making use of diverse tools and approaches to directly screen individual children for potential disabilities. The screening tools considered for this review range from predominantly observational tools, to observational tools with supportive materials, to clinically validated digital applications (apps)

on mobile devices. Based on the examples to date, and described in this report, the choice of screening tool appears to largely depend on the type of disability to screen for, the purpose of the screening activity, the age of the child, the screening context, and the resources available. Furthermore, individual tools also differ in their specificity, sensitivity, and predictive value. Several authors highlight that a single method or tool is unlikely to provide sufficient information on a child's strengths, weaknesses, and educational needs. Furthermore, in planning school-based individual screening programs, due consideration will need to be given to the potential risks of labeling and stigmatization, as well as the need for effective referral and follow-up. This includes comprehensive programs to support students' educational attainment and well-being.

Primary and Secondary School Completion Rates of Children with Disabilities

The availability of recent data on school completion rates for primary and secondary levels among persons with disabilities in Asia is limited, and comparisons are hindered by differing definitions and calculations for completion rates. Available data from low- and middle-income countries in Asia and beyond indicate a 15 percentage-point gap for girls and an 18 percentage-point gap for boys in primary school completion rates of children with and without disabilities. Depending on country, however, the completion rate of persons with disabilities may be nearly half of that of persons without. Indicatively, for Vietnam, the country's 2010 census data revealed a 48% primary school completion rate among persons with disabilities compared to an 83% completion rate for persons without disabilities. For the secondary school level, the country reported a 26% school completion rate for persons with disabilities, compared to a 57% completion rate among persons without disabilities.

Thus, where available, the data paint a clear picture: Persons with disabilities are significantly less likely to complete primary school, and even less so, secondary school, compared to persons without disabilities.

Inclusive Education Policies Across Asia

Countries in Asia have made major strides in the adoption of national legal frameworks that define the rights of persons with disabilities within their national context, as well as inclusive education policies to promote enrollment and educational attainment for persons with disabilities. Yet, data from the region indicate often insufficient implementation and monitoring of such laws, a perpetuation of a charity and medical model to inclusion in laws and policies, and social and cultural stigmas still presenting barriers to persons with disabilities in accessing legal entitlements.

While most countries across Asia have also adopted explicit inclusive education policies, not all are in line with the guidelines put forward in the United Nations' *Convention on the Rights of Persons with Disabilities*, which nearly all of these same countries have signed and ratified. As put forward by the United Nations Educational, Scientific and Cultural Organization, policies should at minimum (a) recognize inclusive education as a right; (b) maintain the right to education in the local mainstream school and special schools, if needed; (c) identify minimum standards in relation to access, identification, curriculum accommodation, and specialized supports/materials; (d) ensure that families and communities are active participants in inclusive education; and (e) enact, monitor, and evaluate related accountability mechanisms to ensure implementation.

This report found that where data were available, countries across Asia rarely included all these components in their national inclusive education policies. While the policies from Bangladesh, Burma, Cambodia, Nepal, and the Philippines stress inclusive education as a right (including in mainstream schools) and might highlight standards and expectations for teacher training in support of curriculum accommodation, policies rarely stipulate assessment accommodations, monitoring, or accountability mechanisms. Policies and

documentation on policy development processes also remain largely silent on collaboration with disabled persons organizations.

Interventions Aimed at Improving Inclusive Education at the Classroom Level

Reports and studies frequently highlight barriers to inclusive education at the classroom level. Research from the Asia region indicates gaps in teacher professional development and support and a lack of specialized materials and curricular resources. While the empirical evidence base on teacher attitude toward inclusion in Asia appears somewhat mixed, with both positive and negative results, reports on inclusion consistently highlight socio-cultural norms and attitudes as major barriers. Studies also found low levels of self-efficacy—or confidence—among teachers in teaching children with disabilities.

There is a diverse set of initiatives and projects implemented across Asia addressing some of these classroom-level barriers. However, empirically rigorous studies of their efficacy, especially concerning student learning outcomes and cost-effectiveness, are scarce to non-existent. Similarly, empirical studies from the Asia region and published in the last 10 years in English-language journals rarely targeted the availability and quality of adapted materials for children with disabilities alone. Such efforts appear to be subsumed in interventions aimed at improving teacher attitudes to inclusive education, at their self-efficacy in implementing inclusive education in their classroom, and at improving teacher adoption of inclusive instructional practices.

This report provides a comprehensive and detailed review of empirical literature on such interventions. This existing empirical evidence indicates a wide range of approaches to addressing barriers to inclusive education at the classroom level. The body of knowledge synthesized in this report paints a rich picture of implementations of inclusive education interventions in a diversity of contexts. Across the dimensions of teacher attitudes, subjective norms, and self-efficacy, as well as teachers' behavioral intentions and adoption of inclusive classroom practices, intervention approaches in the literature include

- co-teaching;
- stand-alone, in-person teacher professional development;
- school collaboration initiatives;
- school-wide efforts;
- collaborative consultation;
- online/hybrid teacher training; and
- in-person training with performance feedback.

From a methodological lens, the existing body of knowledge is marked by predominantly small convenience samples, and pretest-posttest mixed methods study designs. Studies used a range of existing and newly developed instruments for data collection. Data collection methods varied depending on the focal construct. Given the diversity of focal domains, instrumentation, and contexts, meta-analytical comparisons of intervention effects are not feasible. Nevertheless, this body of evidence points to stand-alone, in-person, in-service teacher training as a viable approach to addressing teacher attitudes to inclusion, teacher self-efficacy in inclusive instruction, teachers' behavioral intentions, and teachers' adoption of inclusive classroom practices. Measurable gains in teacher attitude, self-efficacy, and some instructional practices have been reported from interventions with as little as 3-4 days of total training time and over as little as 2–3 months of implementation.

However, to optimally support teachers, the referenced evidence base suggests in-person training be spaced and delivered over several weeks. Furthermore, training follow-up, potentially integrating elements of performance feedback, may further strengthen the

intervention. To sustain interventions and promote a more inclusive school climate addressing potential barriers from perceived subjective norms on inclusion, an important factor that emerged in the study was the engagement of school principals.

In terms of content and delivery format, Universal Design for Learning as a guiding framework promoting multiple ways of presentation, action, and expression was at the core of several successful interventions. Such interventions included carefully designed supportive documentation and explicit lesson accommodation guidance leveraging multiple formats, including manuals, slides, audio, or video elements. This literature analyzed for this review also suggests that teacher training delivery formats that provide multiple means of action and engagement through a combination of information sharing activities, group discussions, video study, structured reflection, and hands-on practice are particularly promising.

In conclusion, the aim of this report is that the detailed literature review (although studies were universally lacking cost data), combined with the data on disability prevalence, school completion, legal frameworks, and inclusive education policies presented here, might facilitate consideration and design of future interventions for inclusive education in the focal geographies in Asia.

2 Introduction and Background

In low- and middle-income countries in Asia and beyond, children with disabilities are enrolled in primary school in significantly lower numbers than are children without. Further, most with disabilities are not identified¹ by their school systems as having a disability and thus do not receive specialized support, despite the prevalence of inclusive education policies in these countries (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2016; World Health Organization [WHO], 2011). Notable factors that are associated with this problem include poverty (Kuper, Polack, Eusebio, Mathenge, Wadud, & Foster, 2008; Mitra, Posarac, & Vick, 2012), limitations in the operationalization of national policies (Malak, Hosne, Ahsan, Mahmuda, & Mohammad, 2013; Poernomo, 2016; Sri Lanka National Education Commission, 2016), traditional socio-cultural barriers, and the stigma attached to disabilities (United Nations Children's Fund [UNICEF], 2013).

In addition to human rights concerns and the potential inability to reach agreed-upon social development goals by 2030 (United Nations [UN], 2015), there is an economic cost to exclusion. Children with disabilities are not only less likely to be in school, but individuals with disabilities are also less likely to be employed (Mitra et al., 2012). This limits not only their earning potential but also the earning potential of the person(s) who provide care to individuals with disabilities (Banks & Polack, 2014). For select countries in the Asia region, the International Labour Organization (ILO) estimates the economic losses related to disabilities to be between 3-4.6% of gross domestic product, depending on country (Buckup, 2009).

¹ For the purpose of this report, the term "identified" encompasses that a child has been screened for a potential disability (which does not constitute a medical diagnosis but might result in a referral for a medical assessment) or has had a medical assessment and received a medical diagnosis. For a more comprehensive discussion on screening, see Section 2.2.

Even when enrolled, children with disabilities experience challenges with quality inclusive education. Reports and studies indicate gaps in the identification of children with disabilities in school systems (Strigel, 2017), gaps in teacher professional development and support (Hettiarachchi & Das, 2014; Kamenopoulou & Dukpa, 2018; Kurniawati, de Boer, Minnaert, & Mangunson, 2017; Lamichhane, 2017; Muega, 2016; Myanmar Education Consortium, 2015; UNICEF Viet Nam, 2015), and a lack of specialized materials and resources (Ahmmed, Sharma, & Deppeler, 2014; Bhathnagar & Das, 2014; Lahmichhane, 2013; Mullick, Deppeler, & Sharma, 2012).

For this desk review, inclusive education is understood as an approach that “seeks to address the learning needs of all children, youth and adults with a specific focus on those who are vulnerable to marginalisation and exclusion” (UNESCO, 2003, p. 4.) This desk review focuses on one marginalized group: children with disabilities. Disabilities are defined as “long-term physical, mental, intellectual or sensory impairments which, in interaction with various barriers, may hinder [individuals’] full and effective participation in society on an equal basis with others” (UN, 2006, p. 4). The terms disability and impairment are used interchangeably.²

The purpose of the Inclusive Education Screening Tool and Pilot Activity is to provide critical information to policymakers and practitioners in US Agency for International Development (USAID) focal countries in Asia on the landscape of inclusive education for children with disabilities.

The activity contains three main tasks: first, a desk review of the information currently available on students with disabilities in Asian countries; second, a pilot in the Philippines using screening tools that can detect children with vision and/or hearing difficulty; and third, a report that summarizes the results of the pilot and provides recommendations for utilizing screening tools in tandem with providing teachers with concrete ways in which they can support inclusive education of children with vision/hearing difficulty in their classrooms.

As inclusive education gains increasing priority within USAID and the countries in which USAID works, projects in Asia will have to develop appropriate strategies for how best to support ministries of education to better promote and enable inclusive early grade reading programs so that those programs are responsive to needs of students with all levels of abilities. To do so effectively, USAID sought an Asia-specific desk review to compile available information on prevalence of disabilities among school-aged children in Asia and the extent to which children with disabilities do or do not complete school. The review would include relevant documentation of the examples of systems and existing policies in USAID-supported Asian countries that are successfully providing accommodations in primary schools for students with disabilities.

The present report is the main deliverable for the desk review task. The desk review is guided by four main sets of research questions:

- 1) What are the disability prevalence rates in USAID-supported countries across Asia, and where do gaps exist in available data on students with disabilities?
- 2) What are the primary and secondary school completion rates of children with disabilities?
- 3) What policies exist, how do they vary across countries in USAID-supported countries in Asia, and are they being effectively implemented?

² Where other language, e.g., “special needs” or wording like “mental retardation,” is used in this report, this language stems from the original source of the information including government policies, strategies, or journal articles. For more guidance on terminology and disability communication, see USAID’s Disability Communication Tips published on the All Children Reading website: <https://allchildrenreading.org/wordpress/wp-content/uploads/2017/12/Disability-Communications-Tips.pdf>

- 4) What is the education landscape for children with disabilities in USAID-supported Asian countries? What interventions to date have shown promise in improving aspects of inclusive education for children with disabilities, and what are the costs associated with implementing such programs?

The USAID-supported Asian countries that make up the focal geographies of this report include Bangladesh, Burma (Myanmar), Cambodia, India, Indonesia, Kazakhstan, Kyrgyz Republic, Lao People's Democratic Republic (Lao PDR), Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Timor-Leste, Turkmenistan, Uzbekistan, and Vietnam.

3 Disability Prevalence Rates

3.1 National-Level Prevalence Rates

Research across the Asia region highlights the lack of relevant data on the prevalence of disability and gaps in empirical evidence on student-level issues and factors related to inclusive education. Specific data deficits exist on enrollment and academic achievement, as well as on social and affective outcomes of inclusive education for students with disabilities (Banks & Polack, 2014; Filmer, 2008; Wapling, 2016; UNICEF, 2013). In the 2011 World Report on Disabilities, the WHO highlights challenges with the standardization of definitions, categorizations, and related measurement. Similarly, a recent UNESCO (UNESCO, 2018) report on education and disability noted gaps regarding the availability of internationally comparable data and raised issues about data quality due to variations in the definition of disability and about sampling and sample sizes in survey designs.

Exhibit 1 outlines aggregated disability prevalence data across several countries in the region. Where possible, the most recent data were chosen. Most common datasets include national census data, household surveys, or socio-economic surveys. Data also stem from Multiple Indicator Cluster Surveys (MICS) commissioned by UNICEF, Demographic and Health Surveys (DHS) funded by USAID, or the School-to-Work Transition Surveys (SWTS) carried out by the ILO.

These surveys either used custom questions or adopted and adapted existing instruments such as the Washington Group instruments or MICS Child Disability Module,³ which is based on the UNICEF Ten Questions (TQ) screen (UNICEF, 2008). Rarely, prevalence data stem from large-scale medical examinations that constitute a diagnostic, rather than a self-report, of potential disabilities. As recognized in the literature, such self-report measures are likely to underestimate true prevalence rates (Male & Wodon, 2017). The TQ specifically shows sensitivity only for relatively severe disabilities (Cappa, 2011).

Illustrative of the potential degree of underestimation, Mactaggart, Kuper, Murthy, Oye, and Polack (2016) conducted a study in Cameroon and India aimed at examining the interrelationship between clinically measured impairments and self-reported functional limitations. For India, data were collected using cluster and compact segment sampling approaches from 4,056 persons in Telangana State in 2014. To screen participants, the researchers administered the *Washington Group Extended Set on Functioning* for adults and the draft *UNICEF/Washington Group Extended Set on Child Functioning and Disability* for children (see paragraph below). Children who were 8–17 years of age provided their own responses in the presence of a caregiver. Responses for younger children were given by the caregiver. In complement, the researchers applied clinical tools such as using the tumbling “E” chart to measure visual acuity and pure tone audiometry to measure auditory acuity. Where the screening found a case of potential impairment, an otoscopy examination was

³ Information on the Washington Group questions can be found at https://www.cdc.gov/nchs/washington_group/wg_questions.htm; Information on the MICS child disability module can be found at <http://mics.unicef.org>

conducted. The study also included an assessment of musculoskeletal functions. If the screening identified a potential impairment, an examination was conducted by a physiotherapist.

The study reported a 4.4% prevalence rate for hearing impairment in India, a 3.5% incidence rate of musculoskeletal impairment, and a 3.5% prevalence rate of visual impairment. These rates are higher than those reported in the India 2011 census, which determined a 2.2% prevalence rate using a single question to screen for disability among all age groups.

The study found that 45% of the participants identified as having a disability were both self-reported and clinically screened and examined to have a disability. A small proportion, 14%, of cases found to have a disability were only self-reported and not possible to confirm clinically (this might include cases reporting difficulty with remembering and concentrating on the Washington Group Questionnaire, for which no examination was included, or self-reported functional limitations that could not be confirmed clinically). However, 41% of the participants in the India study who were identified with a disability were only identified through the clinical screening process, and not from the self-reports. The authors reported a notable lack of overlap between the self-report and clinical screening measurement approaches. The self-report measure alone would have missed nearly half of the cases found to have a disability, whereas the clinical measure alone would have missed a seventh of the cases.

Aside from potential underestimation related to a lack of awareness about a child's disability, Cappa, Petrowski, and Njelesani (2015) raise additional considerations. According to the authors, the stigma related to disability may be one factor contributing to underestimation in self-report measures. Furthermore, some census or survey efforts employ screening questions, e.g., "do you have a disability," before asking additional questions (e.g., about the type of disability) that have shown to result in lower reporting rates for disability. According to Cappa et al., data collection efforts that include more detailed questions tend to result in higher reported prevalence rates (2015, p. 319). The authors further state that prevalence rates may have been affected where instruments were developed from a medical perspective on disability. Such measures often manifest in questions asking about the presence or absence of a disability, without considering environmental and situational barriers that might impose a disability, thus limiting full and effective participation. Cappa et al. further indicate how question formulation may lead to variations in interpretation and thus potential differences in the reporting of a disability (2015). Where questions were formulated to target only severe disabilities or a higher age range, respondents might not have reported childhood disability in their households.

Related to age-appropriateness of measures, in 2011, UNICEF and the Washington Group on Disability Statistics started to collaboratively develop a joint module, the *UNICEF/Washington Group Module on Child Functioning and Disability* rather than continue to use different question sets. The new module was released in October 2016 for use in surveys and census efforts (UNICEF, 2018). The new model was designed to specifically consider developmental differences in children, which were not accounted for in the original Washington Group questions or UNICEF TQ screen. The new module includes two sets of questions, one for children aged 2–4, and one for children aged 5–17 years.⁴

The substantive differences in measurement of disabilities across different census and survey efforts raise limitations in the comparability of results between countries, or even between surveys and studies in the same country (Cappa, et al., 2015). These differences are notable in **Exhibit 1**, which provides an overview of disability prevalence rates among school-aged children in focal countries. The WHO, building on population estimates from 2010 and prevalence rates from the *World Health Survey*⁵ and the *Global Burden of*

⁴ For more information on the UNICEF/Washington Group Module on Child Functioning and Disability, see <https://data.unicef.org/resources/module-child-functioning/>

⁵ For more information on the World Health Survey, see <http://www.who.int/healthinfo/survey/en/>

*Disease*⁶ survey from 2004, estimates a disability prevalence rate of 15% worldwide (WHO, 2011). As indicated in the exhibit, there is great variability in disability prevalence from this worldwide estimate across countries in Asia.

Exhibit 1. Overview of disability prevalence rates among school-aged children in focal countries

Country	Disability Prevalence	Scope	Year	Data Source	Comment
Bangladesh	17.5% (Government of the People's Republic of Bangladesh [Bangladesh], 2007)	National	2006	MICS3	Ages 2–9; various disabilities
Burma	7.7% (Government of Myanmar [Myanmar], 2015)	National	2015	SWTS	All ages; various disabilities
Cambodia	1.8% (Government of Cambodia [Cambodia], 2015)	National	2014	DHS	Ages 5–14; various disabilities
India	1.7% (Government of India [India], 2011)	Census	2011	Census	Ages 5–19; various disabilities; author's calculation
Indonesia	3% (Government of Indonesia [Indonesia], 2016)	National	2015	Intercensal Population Census	Ages 10–19 years; various disabilities; author's calculation
Kazakhstan	3% (United Nations Economic and Social Commission for Asia and the Pacific [ESCAP], 2015)	n/a	n/a	n/a	n/a
Kyrgyz Republic	20.2% (WHO, 2011)	n/a	n/a	n/a	n/a
Lao PDR	8.2% (Government of the Lao People's Democratic Republic [Lao PDR], 2008)	National	2006	MICS3	Ages 2–9; various disabilities
Mongolia	13.5% (Government of Mongolia [Mongolia], 2013)	National	2010	MICS4	Ages 2–14; various disabilities
Nepal	1.9% (Government of Nepal [Nepal], 2012)	Census	2011	Census	All ages; various disabilities; author's calculation
Philippines	1.57% (Government of the Philippines [Philippines], 2013)	Census	2010	Census	All ages; various disabilities
Sri Lanka	8.7% (Government of Sri Lanka [Sri Lanka], 2016)	Census	2012	Census	5 Years and older;

⁶ For more information on the Global Burden of Disease survey, see http://www.who.int/healthinfo/global_burden_disease/2004_report_update/en/

Country	Disability Prevalence	Scope	Year	Data Source	Comment
					various disabilities
Tajikistan	2.1% (ESCAP, 2015)	n/a	n/a	n/a	n/a
Thailand	0.33% (Government of Thailand [Thailand], 2012)	National	2012	Survey	Ages 0–14; various disabilities; author's calculation
Timor-Leste	4.6% (Government of Timor-Leste [Timor-Leste], 2010)	Census	2010	Census	All ages; various disabilities
Turkmenistan	0.3% (UNICEF Turkmenistan, 2015)	n/a	n/a	n/a	Author's calculations ⁷
Uzbekistan	2.0% (Government of Uzbekistan [Uzbekistan], 2006)	National	2006	MICS	Ages 2–9; various disabilities
Vietnam	1.55% (United Nations Population Fund [UNFPA], 2011)	Census	2009	Census	Ages 5–14; various disabilities; author's calculation

In contrast to the overview provided in **Exhibit 1**, **Exhibits 2–14** list disaggregated disability prevalence data by country and disability type, and where readily available, by gender. The data included were the most recent and/or comprehensive data sets available at the time of the desk review. The exhibits prioritize data for school-aged children where they were available for a given country.

Available data for Bangladesh (**Exhibit 2**) stem from the 2006 MICS. The survey included a set of items that make up the MICS Child Disability Module. The survey collected data from over 58,000 children aged 2–9 years. Survey results indicated a 17.5% prevalence rate for disability among this age group. Data by gender were not readily available.

⁷ Based on newspaper reports on population numbers from 2012 census (<https://en.hronikatm.com/2015/02/the-results-of-census-in-turkmenistan/>), and UNICEF Turkmenistan, 2015

Exhibit 2. Bangladesh (MICS3, 2006; custom questionnaire; n=58,592 children 2–9 years of age)

Disability	Percentage
Delay in sitting, standing, or walking	7.3%
Difficulty seeing, either in the daytime or night	0.9%
Appears to have difficulty hearing	2.1%
No understanding of instructions	1.8%
Difficulty in walking, moving arms, weakness or stiffness	2.8%
Have fits, become rigid, lose consciousness	5.0%
Not learning to do things like other children at his/her age	1.7%
Not speaking/cannot be understood in words	1.9%
Appears mentally backward, dull, or slow	1.6%
Percent of population/sample with at least one reported disability	17.5%

(Bangladesh, 2007)

Exhibit 3 details available data for Burma. These data come from the 2015 SWTS, which included an adapted version of the Washington Group Questionnaire; 23,425 households participated in the survey. The study authors reported a 7.7% disability prevalence rate among the participating households. The prevalence rate among women and girls in the households was 8.4%; among men and boys it was 6.9%. Data by age group were not readily available.

Exhibit 3. Burma (SWTS, 2015; adapted Washington Group Questionnaire; n= 23,425 households)

Disability	Total Percentage	Women and Girls	Men and Boys
Seeing	5.7%	6.3%	5.0%
Hearing	2.0%	2.2%	1.8%
Walking or climbing steps	3.4%	3.9%	2.8%
Remembering or concentrating	1.7%	1.9%	1.4%
Self-care	1.3%	1.4%	1.1%
Communicating because of physical, mental, or emotional health condition	0.9%	0.9%	0.9%
Percent of population/sample with at least one reported disability	7.7%	8.4%	6.9%

(Myanmar, 2015)

Available data for Cambodia (**Exhibit 4**) stem from the 2014 DHS. The survey included an adapted version of the Washington Group Questionnaire. The survey collected data from 16,446 children aged 5–14 years. The proportion of children who have been reported to have at least one disability was 1.8%. Data by gender were not readily available.

Exhibit 4. Cambodia (DHS, 2014; adapted Washington Group Questionnaire; n=16,446 children 5–14 years of age)

Disability	Total Percentage
Seeing	0.3%
Hearing	0.5%
Walking or climbing steps	0.3%
Remembering or concentrating	0.7%
Self-care	0.6%
Communicating because of physical, mental, or emotional health condition	0.5%
Percent of population/sample with at least one reported disability	1.8%

(Cambodia, 2015)

Based on data from the 2011 census, the Government of India reported a national prevalence rate for disability of 1.73% for 5–19-year-olds, of whom 0.76% were girls and 0.97% were boys. **Exhibit 5** shows prevalence rates by disability. The census used a custom questionnaire to collect data on the prevalence of a range of disabilities. The disability categories below are taken verbatim from the census dataset.⁸

Exhibit 5. India (census, 2011; custom questionnaire; n=380,163,787 children 5–19 years of age; author’s calculations)

Disability	Percentage	Girls	Boys
Seeing	0.3%	0.1%	0.2%
Hearing	0.3%	0.2%	0.2%
Speech	0.2%	0.1%	0.1%
Movement	0.2%	0.1%	0.1%
Mental retardation ⁹	0.1%	0.1%	0.1%
Mental illness	0.03%	0.01%	0.02%
Any other	0.3%	0.2%	0.2%
Multiple disabilities	0.2%	0.1%	0.1%
Percent of population/sample with a disability	1.73%	0.76%	0.97%

(India, 2011)

Exhibit 6 details available data for Indonesia. These data stem from the 2015 Intercensal Population Census and were collected using an adapted version of the Washington Group Questionnaire. Analysis indicated a national prevalence rate for disability of 3%. Data by gender were not readily available.

⁸ The India 2010 census datasets can be found at <http://www.censusindia.gov.in/2011-Common/CensusData2011.html>

⁹ This phrasing comes from the dataset and indicates developmental or cognitive functioning delays.

Exhibit 6. Indonesia (Intercensal Population Census, 2015; adapted Washington Group Questionnaire; n=44,607,528 children 10–19 years of age; author’s calculations)

Disability	Total Percentage
Seeing	0.4%
Hearing	0.2%
Walking/climbing	0.8%
Using hand/fingers	0.2%
Concentrating/remembering	0.4%
Emotional/interpersonal interaction	0.4%
Communicating	0.4%
Self-care	0.2%
Percent of population/sample with at least one reported disability	3%

(Indonesia, 2015)

Available data for Lao PDR (**Exhibit 7**) come from the 2006 MICS, which included the MICS Child Disability Module. The survey collected data from 7,099 children aged 2–9 years. The proportion of children who have been reported to have at least one disability was 8.2%. Data by gender were not readily available.

Exhibit 7. Lao PDR (MICS3, 2006; custom questionnaire; n=7,099 children 2–9 years of age)

Disability	Percentage
Delay in sitting, standing, or walking	1.3%
Difficulty seeing, either in the daytime or night	1.4%
Appears to have difficulty hearing	1.0%
No understanding of instructions	1.4%
Difficulty in walking, moving arms, weakness or stiffness	1.4%
Have fits, become rigid, lose consciousness	1.2%
Not learning to do things like other children at his/her age	3.0%
Not speaking/cannot be understood in words	1.3%
Appears mentally backward, dull, or slow	0.9%
Percent of population/sample with at least one reported disability	8.2%

(Lao PDR, 2008)

Exhibit 8 details available data for Mongolia. These data stem from the country’s 2010 MICS, which included the MICS Child Disability Module. The survey collected data from 9,131 children 2–14 years of age. The proportion of children who have been reported to have at least one disability was 13.5%, with a 12.8% prevalence rate among girls, and a 14.3% prevalence rate among boys.

Exhibit 8. Mongolia (MICS4, 2010; custom questionnaire; n=9,131 children 2–14 years of age)

Disability	Percentage	Girls	Boys
Delay in sitting, standing, or walking	2.0%	1.7%	2.2%
Difficulty seeing, either in the daytime or night	3.6%	3.9%	3.4%
Appears to have difficulty hearing	2.3%	2.0%	2.6%
No understanding of instructions	2.6%	2.3%	2.9%
Difficulty in walking, moving arms, weakness or stiffness	2.3%	2.1%	2.6%
Have fits, become rigid, lose consciousness	1.2%	1.0%	1.4%
Not learning to do things like other children at his/her age	2.5%	2.3%	2.8%
Not speaking/cannot be understood in words	3.4%	2.9%	3.9%
Appears mentally backward, dull, or slow	1.1%	0.9%	1.3%
Percent of population/sample with at least one reported disability	13.5%	12.8%	14.3%

(Mongolia, 2013)

Based on data from the 2011 census, the Government of Nepal reported a national prevalence rate for disability of 1.94%, with rates of 0.88% among girls and women and 1.06% among boys and men (**Exhibit 9**). The census used a custom questionnaire to collect data on the prevalence of a range of disabilities. Data by age group were not readily available.

Exhibit 9. Nepal (Census, 2011; custom questionnaire; n= 26,494,504; author’s calculations)

Disability	Total Percentage	Women and Girls	Men and Boys
Physical	0.7%	0.3%	0.4%
Blindness/low vision	0.36%	0.18%	0.18%
Deaf/hard of hearing	0.3%	0.14%	0.16%
Deaf-blind	0.04%	0.02%	0.02%
Speech problems	0.22%	0.10%	0.13%
Mental disability	0.12%	0.05%	0.06%
Intellectual disability	0.06%	0.02%	0.03%
Multiple disability	0.15%	0.07%	0.08%
Percent of population/sample with at least one reported disability	1.94%	0.88%	1.06%

(Nepal, 2012)

Exhibit 10 details available data for Sri Lanka. These data are from the country’s 2012 census. The census included an adapted version of the Washington Group Questionnaire. The government reported a national prevalence rate of disability of 8.7%. Among girls and women, the reported prevalence rate was 9.6%; among boys and men, 7.7%. Data by age group were not readily available.

Exhibit 10. Sri Lanka (Census, 2012; adapted Washington Group Questionnaire; n= 20,359,439 persons 5 years of age and older)

Disability	Total Percentage	Women and Girls	Men and Boys
Seeing	5.4%	6.0%	4.7%
Hearing	2.1%	2.3%	1.9%
Walking or climbing steps	3.9%	4.7%	3.1%
Remembering or concentrating	1.8%	2.1%	1.6%
Self-care	1.1%	1.1%	1.0%
Communicating because of physical, mental, or emotional health condition	1.0%	1.0%	1.0%
Percent of population/sample with at least one reported disability	8.7%	9.6%	7.7%

(Sri Lanka, 2016)

Data from Thailand stem from a 2012 national disability survey (**Exhibit 11**). The survey administered a custom questionnaire to index disability prevalence among a range of impairments. The government reported a 0.33% prevalence rate for disability among children aged 0–14 years. Data by gender were not readily available.

Exhibit 11. Thailand (National Disability Survey, 2012; custom questionnaire; n=13,307,404 children 0–14 years of age; author’s categorization and calculations)

Disability	Total Percentage
Seeing	0.02%
Hearing	0.02%
Communicating	0.01%
Mobility	0.05%
Cognitive/Mental	0.12%
Other	0.08%
Percent of population/sample with at least one reported disability	0.33%

(Thailand, 2012)

Exhibit 12 details available data for Timor-Leste. These data stem from the country’s 2012 census. The census included an adapted version of the Washington Group Questionnaire. The government reported a national prevalence rate of disability of 4.6%, 2.2% among girls and women, 2.4% among boys and men. The government also reported a disability prevalence rate of 0.8% for girls, and 0.9% for boys under the age of 15. Further data disaggregated by gender or age group were not readily available.

Exhibit 12. Timor-Leste (Census, 2010; custom questionnaire; n= 1,053,982; author’s calculations)

Disability	Percentage
Walking	2.0%
Seeing	2.8%
Hearing	1.7%
Mental/intellectual	1.3%
Percent of population/sample with at least one reported disability	4.6%

(Timor-Leste, 2010)

Available data for Uzbekistan (**Exhibit 13**) come from the 2006 MICS, which included the MICS Child Disability Module. The survey collected data from 8,185 children aged 2–9 years. The proportion of children who have been reported to have at least one disability is 2%. Data by gender were not readily available.

Exhibit 13. Uzbekistan (MICS3, 2006; custom questionnaire; n=8,185 children 2–9 years of age)

Disability	Percentage
Delay in sitting, standing, or walking	0.4%
Difficulty seeing, either in the daytime or night	0.2%
Appears to have difficulty hearing	0.2%
No understanding of instructions	0.4%
Difficulty in walking, moving arms, weakness or stiffness	0.3%
Have fits, become rigid, lose consciousness	0.5%
Not learning to do things like other children at his/her age	0.3%
Not speaking/cannot be understood in words	0.7%
Appears mentally backward, dull, or slow	0.3%
Percent of population/sample with at least one reported disability	2.0%

(Uzbekistan, 2006)

Exhibit 14 indicates data from the Vietnam 2009 census. The survey included an adapted version of the Washington Group Questionnaire. Survey findings indicated a 1.55% prevalence rate for disability among children aged 5–15 years. Data on prevalence rate of at least one reported disability disaggregated by gender were not readily available. The data presented in **Exhibit 14** include disability prevalence rates of 5–15-year-olds for whom severity levels of “at least some difficulty” or “cannot do at all” were reported. The census also included a category for “at least a lot of difficulty,” which UNFPA did not include in reporting of these data (UNFPA, 2011, p. 12).

Exhibit 14. Vietnam (Census, 2009; adapted Washington Group Questionnaire; n=14,179,990 children 5–15 years of age; author’s calculations)

Disability	Percentage	Female	Male
Seeing	0.7%	0.7%	0.7%
Hearing	0.7%	0.4%	0.5%
Walking	0.7%	0.4%	0.6%
Cognition	0.8%	0.7%	0.9%
Multiple domains	0.5%	0.4%	0.4%
Percent of population/sample with at least one reported disability	1.55%		

(UNFPA, 2011)

As illustrated above, there are significant differences in disability prevalence study design, sampling, instrumentation, analysis, and presentation across focal countries. The value of comparing disability prevalence rates across countries is thus limited. For many countries, available datasets or reports also did not include disaggregation by age group, gender, or level of disability.

To offer one comparative lens across countries, however, **Exhibit 15** provides an overview of the most prevalent disability domains reported for each country. In the absence of further detail on the specific definitions, the exhibit aggregates the range of disabilities described as intellectual, mental, or cognitive in the individual countries’ surveys as “developmental.” Countries most frequently reported mobility (10 countries), vision impairment (9 countries), developmental disability domains (8 countries), and hearing impairment (7 countries) among their three most prevalent disabilities.

Exhibit 15. Overview of disability prevalence by domain, categories simplified from Exhibits 2–14

Country	1 st most prevalent impairment	2 nd most prevalent impairment	3 rd most prevalent impairment
Bangladesh	Mobility	Developmental	Hearing
Burma	Seeing	Mobility	Hearing
Cambodia	Developmental	Self-care	Hearing & Communicating
India	Hearing	Seeing	Mobility
Indonesia	Mobility	Emotional / interpersonal interaction	Developmental
Lao PDR	Developmental	Seeing & Mobility	
Mongolia	Seeing	Communicating	Developmental
Nepal	Physical	Seeing	Hearing
Sri Lanka	Seeing	Mobility	Hearing
Thailand	Developmental	Mobility	Seeing
Timor-Leste	Seeing	Mobility	Hearing
Uzbekistan	Communicating	Developmental	Mobility
Vietnam	Developmental	Seeing	Mobility

3.2 Screening Individuals for Potential Disabilities

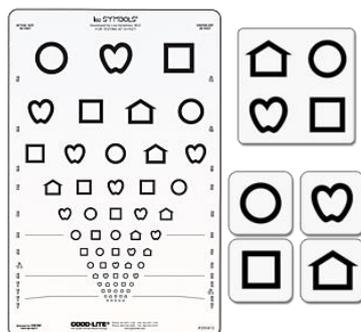
Aside from the surveys and questionnaires used to establish disability prevalence rates at the national or sub-national level, countries in the Asia region are also making use of diverse tools and approaches to screen individual children for potential disabilities. For this review, screening is defined as a process conducted by a non-medical person to determine whether a student might have a potential disability. Such screening activities would not result in, or replace, a medical diagnosis by a trained professional, but rather are used to determine the need for referral and further evaluation.

Screening approaches, by definition, are developed to be rapid and simplified measures; depending on disability they may thus only screen for some aspects of a disability. Measuring visual acuity when screening for a potential vision impairment, e.g., will not detect potential challenges with a child's depth perception. Furthermore, screening tools may be less sensitive (not detecting a possibly disability) or more sensitive (e.g., indicating a potential hearing impairment due to confounding ambient noise) than formal medical evaluation tools.

The screening tools considered for this review range from predominantly observational tools to clinically validated digital applications (apps) on mobile devices. This section focuses on tools that are currently being used by governments or organizations in select Asian countries to screen children for sensory impairments (hearing or vision) or developmental impairments. Aside from the relative high incidence of these types of disabilities in the Asia region, as indicated in Exhibit 15, screening for sensory disabilities is also a first step in a thorough learning disability screening protocol. A comprehensive screening and evaluation guide for learning disabilities for low and middle-income countries has recently been published providing detailed insight into diverse learning disability screening approaches and related considerations (Hayes, Dombrowski, Shefcyk, & Bulat, 2018). The guide also includes screening and evaluation checklists for teachers and screening teams.

3.2.1 Tools with observational items

An example of an observational tool used for disability screening in Asia is the Multifactorial Assessment Tool (MFAT) recently introduced by the Government of the Philippines. The tool is an activity-based observational measure for children. The MFAT is designed to be administered by teachers only to those students who might exhibit delays in their developmental advancement or learning. The tool contains items to screen for potential delays along five domains, including the cognitive, communication, socio-emotional, motor, and daily living skills domains. The MFAT also includes observational items for vision screening, for example whether the child holds materials too close to their eyes, squints when performing a task, or rubs the eyes. At the time of writing this report, the tool was just being piloted.



LEA SYMBOLS® Proportional Spaced Chart

Source: <https://www.good-lite.com/Details.cfm?ProdID=224>

Another observational approach to vision screening is the use of standardized charts to measure visual acuity. This approach to vision measurement is widely used in Asia and beyond, due to its simplicity and low cost in application. Such standardized charts show lines of symbols or letters of varying sizes. Generally, the screening entails placing the chart facing the child at a specific distance from the child (depending on chart) and asking the child to read out the letters/name the symbols until the line at which the child repeatedly cannot discriminate the symbol or letter anymore. The process is done

separately for each eye while the other is covered. While there is a range of charts available, a review of visual acuity measurement approaches indicated that the Lea chart may be most appropriate for younger children (Anstice & Thompson, 2013). A 2012 study comparing the Lea symbols chart to the Sheridan Gardiner chart with 775 pre-school-aged children in Malaysia obtained a sensitivity (correctly identifying subjects with impairment)¹⁰ of 97.5% and a specificity (accurately identifying subjects without impairment)¹¹ of 45% for the Lea chart (Omar & Knight, 2012). Standardized charts have been used in a range of studies and interventions in Cambodia, India, Indonesia, Thailand, and Vietnam among other Asian countries.

Sensitivity is the percentage of children with disabilities who are correctly identified by the screening test as having a disability.

Specificity is the percentage of children without disabilities who are correctly identified by the screening test as not having a disability.

3.2.2 Tools with supportive equipment or materials

An example of an observational tool with supportive equipment is the “voice test,” which has been specifically developed for hearing screening in low-resource environments. To date, however, it has only been empirically studied in South Africa. The voice test is predominantly an interview-based instrument but includes the use of a sound-level meter to measure background noise and to help screeners calibrate their voice levels to whisper, conversational, and loud voice. Under this approach, testing entails a quiet room at the school, with the tester standing behind the child. The child is to repeat random, age-appropriate words spoken in the varying voice levels by the tester. A small pilot test conducted in a pre-school environment with 205 3–7-year-old children in South Africa yielded a specificity of 96.8% and a sensitivity of 83.3% (Prescott, Omoding, Fermor, & Ogilvy, 1999). A recent review concluded that advantages in ease of administration of these tests, however, “were outweighed by the limitations such as lack of control of the sound source, speaker and environment variability, lack of standardization of material, failure to test wide frequency range and most importantly failure to acquire ear-specific response” (Dey, Davessar, Kumar, & Sharma, 2016, p. 76). Variations of the voice test, including the whisper test, coin click test, or ball pen click test appear to be still used by organizations in some countries in Asia, however, though empirical studies of these applications are lacking.

The Rapid Neurodevelopmental Assessment is another example of an observational tool to screen for impairments that makes use of supportive materials. The assessment explores a wide range of neurodevelopmental dimensions including primitive reflect, gross/fine motor skills, vision, hearing, speech, cognition, behavior, and seizure. The assessment



Simple RNDA tools

Source: Khan, N. Z. (2015). *The Rapid Neurodevelopmental Assessment (RNDA) at neonatal discharge*. Retrieved from <http://www.bnfbd.com/presentation-gallery/4.%20Prof.%20Naila%20Zaman%20Khan%20Update-11.pdf>

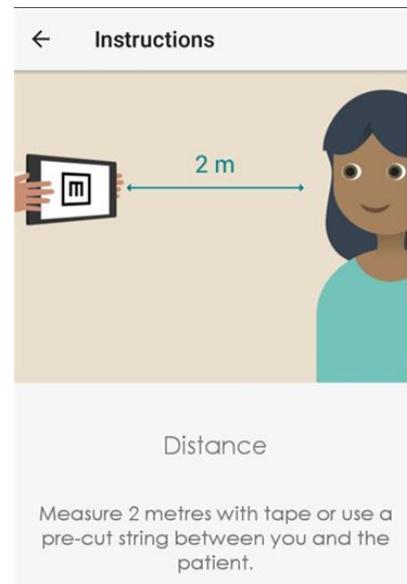
¹⁰ Sensitivity is the “percentage of children with disabilities who are correctly identified by the screening test (i.e., screen positive). Ideally, 70–80% of those with difficulties should be identified” (Glascoe in Robertson, Hatton, Emerson, & Yasamy, 2012).

¹¹ Specificity is the “percentage of children without disabilities who are correctly identified by the screening test as not having a disability (i.e., screen negative). Specificity close to 80% or higher is desirable” Glascoe in Robertson et al., 2012).

includes the use of materials such as rice grains, shapes, forms, and utensils. Application entails asking the child questions and using items while observing the child’s engagement with the materials. A validation study with 121 6–9-year-old children in Bangladesh yielded a specificity of 83% and a sensitivity of 70% (Khan et al., 2014).

3.2.3 Digital tools

As an example of a digital tool to support individual screening, Peek Acuity is a vision screening tool that utilizes the tumbling E optotype standardized vision screening charts described in 2.2.1, but on a mobile phone. In addition to facilitating scoring and data management using the mobile device, the tool also contains a vision impairment simulation to simulate the degree of potential visual acuity of a person with vision impairment to persons without a vision impairment. A recent validation study conducted with 393 children aged 6–16 years in Paraguay obtained a sensitivity of 48% and 83% specificity compared to a medical evaluation by a pediatric ophthalmologist. While sensitivity was relatively low, two alternative approaches for vision screening by non-medical professionals, a single line of tumbling E optotypes set at 20/40 and the Spot Vision Screener, yielded similar scores to Peek Acuity (De Venecia, Bradfield, Møller Trane, Bareiro, & Scalamogna, 2018). In the Asia region, Peek Acuity has been empirically studied in India, with additional screening programs planned in Indonesia, Pakistan, and the Philippines.



Peek Vision Instructions
Source: PeekVision

hearScreen is a mobile-phone/tablet-based hearing screening tool with increasing application in low- and middle-income contexts, originally developed in South Africa. hearScreen requires the use of a professionally calibrated noise-cancelling headset, in addition to the app on the mobile device. It allows for screening with a range of protocols, but by default entails a pure noise audiometric assessment at three different



hearScreen equipment
Source: <https://www.hearxgroup.com/hearscreen/>

frequencies for both ears. During screening, the child wears the headset and is asked to indicate when and in which ear she hears a sound by raising the respective arm. The application automatically re-tests any child with a potential hearing impairment to confirm results given the sensitivity of pure tone audiometry to ambient noise. In a validation study with 1,070 school-aged children in South Africa, hearScreen obtained a sensitivity of 75.0% and specificity of 98.5% compared to conventional screening audiometry (Faheema, Swanepool, Eikelboom, Myburgh, & Hall, 2016). This tool is currently being piloted in eight primary schools in the Philippines with support from USAID.

A 2015 review of smartphone-based applications for ear and hearing assessment (Bright & Pallawela, 2015) available on the Google and Apple app stores yielded six different apps

with validity studies, including hearScreen, as well as self-administration tools like uHear and ShoeBox for iOS. These apps showed varying results regarding their sensitivity and specificity, as well as their cost.

Based on the examples to date, the choice of screening tool appears to largely depend on the type of disability to screen for, the purpose of the screening activity, the age of the child, the screening context, and the resources available. As highlighted by Hayes et al. (2018), “no single method or tool can provide sufficient information about a student’s strengths and weaknesses and educational needs” (p. 16). Furthermore, individual tools also differ in their specificity, sensitivity, and predictive value. Such data are usually available from empirical validation studies and should be considered in the selection of a tool. **Exhibit 16** summarizes the selected tools, together with considerations for their use.

Exhibit 16. Select disability screening tools and application considerations

Disability	Screening Tool	Context Considerations	Resource Considerations
Vision impairment (visual acuity; near-, and far-sightedness)	<ul style="list-style-type: none"> ▪ Lea/Snellen charts ▪ Peek Acuity 	<ul style="list-style-type: none"> ▪ Widely used in Asia in health centers, school and community screening programs ▪ Newer to the region ▪ Increasingly used in school and community screening programs in low- and middle-income contexts 	<ul style="list-style-type: none"> ▪ Requires laminated chart, string/meter to measure screening distance ▪ Requires mobile phone/tablet and paid app license; string/meter to measure screening distance
Hearing impairment	<ul style="list-style-type: none"> ▪ Voice-based tests ▪ hearScreen 	<ul style="list-style-type: none"> ▪ Requires quiet room; literature highlights challenges with administration standardization ▪ Requires quiet room as sensitive to background noise 	<ul style="list-style-type: none"> ▪ A sound-level meter to measure background noise might increase sensitivity and specificity ▪ Requires mobile phone/tablet, calibrated headset, and paid app license ▪ Headset requires annual recalibration
Developmental impairment	<ul style="list-style-type: none"> ▪ Rapid Neurodevelopmental Assessment 	<ul style="list-style-type: none"> ▪ Requires consideration of the children’s general neurodevelopmental development in the context 	<ul style="list-style-type: none"> ▪ Requires materials like small objectives, shapes, forms, utensils

In planning school-based individual screening programs, due consideration will need to be given to the potential risks of labeling and stigmatization should students’ screening outcomes become wider knowledge or result in specific activities to improve the child’s educational experience that may be different from those of the other children (e.g., sitting suddenly in the front, receiving different materials or auditory supports, engaging differently with the teacher). As recommended by Bulat and Hayes (2017), school-based screening activities should be purposeful and coupled with disability awareness initiatives. Such initiatives can help school administrators, teachers, students, and communities better understand the purpose of the screening programs and general issues of diversity and disability. Similarly, Brouillette (2014) points out that “screening for disabilities raises hope

and expectations that once an impairment is identified, something will be done” (p. 8), highlighting the importance of a pathway for effective referral and follow-up.

Such screening follow-up might include parental information packages, resources for medical follow-up and screening by medical professionals, medical treatment, recommendations for assistive devices, individualized education plans, teacher support in adopting inclusive practices, accommodated instructional materials, classroom reorganization, or other approaches to removing accessibility barriers in the environment.

4 Primary and Secondary School Completion Rates of Persons with Disabilities

Children with disabilities in low- and middle-income countries in Asia and beyond have significantly lower primary school enrollment numbers compared to children without disabilities (UNESCO, 2016; WHO, 2011). In addition to gaps in enrollment, dropout rates among this population are also assumed to be disproportionately high (UNFPA, 2011; WHO, 2011). Combined, these factors are likely to lead to diminished school completion rates among children with disabilities.

The availability of recent data on school completion rates for primary and secondary levels among persons with disabilities in Asia is limited. Primary and secondary school completion data were readily available for Indonesia and Vietnam. Data comparisons are hindered by differing definitions and calculations for completion rates. Illustratively, the databases of the UNESCO Institute for Statistics include the indicator “survival to the last grade of primary.” The Institute defines the survival rate as the percentage of a cohort of students enrolled in the first grade of a given level or cycle of education in a given school year who are expected to reach a given grade. The MICS uses a definition of “the ratio of the total number of students, regardless of age, entering the last grade of primary education for the first time, to the number of children of the primary education completion age at the beginning of the current (or most recent) school year.” National census data may include a different definition or no definition at all. Aside from definition of the indicator, reports on both DHS and census efforts were found to be unclear on whether reported educational levels were completed entirely or just partially.

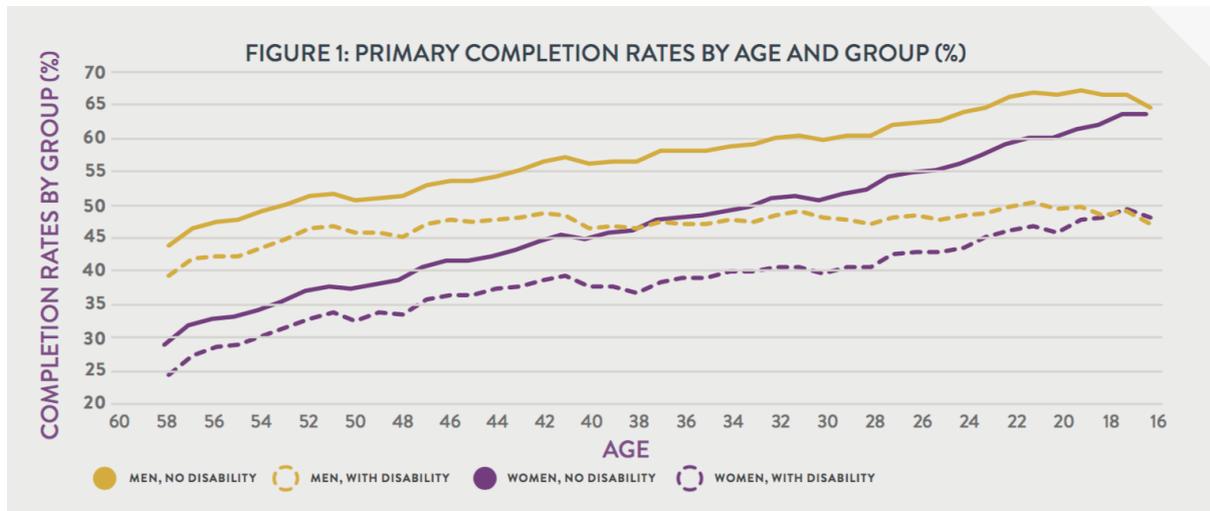
For Indonesia, Adioetomo, Mont, and Irwanto (2014) report that among persons participating in the survey with an incidence of mild disability, 31.7% finished primary school. Over 39% reported finishing secondary school as their highest level of educational attainment. Among women, the percentage was 37.9% for primary school and 28.6% for secondary school. Among men, 28.7% reported completing primary education and 45.6% completing secondary education. These data indicate a significant gender gap. The authors used data from the *Indonesia Survey on the Need for Social Assistance Programmes for People with Disability 2012*, which was not a random sample and might be slightly skewed to include a larger proportion of persons with more severe disabilities (Adioetomo et al., 2014).

For Vietnam, the 2014 report from UNFPA (2011 based on the country’s 2010 census data indicated a 48% primary school completion rate among persons with disabilities and a 26% school completion rate for the secondary level. This compares to an 83% completion rate for primary and a 57% completion rate for secondary among persons without disabilities.

A recent report by the World Bank/Global Partnership for Education (Male & Wodon, 2017) on disability gaps in educational attainment and literacy analyzed data from 19 low- and middle-income countries. The analysis was based on census data collected between 2008 and 2011 (and may thus not account for changes in recent years). The authors found a 15 percentage-point gap for girls and an 18 percentage-point gap for boys in primary school completion rates of children with and without disabilities. The authors further noted that the gaps in both completion rates and literacy achievement between children with and without

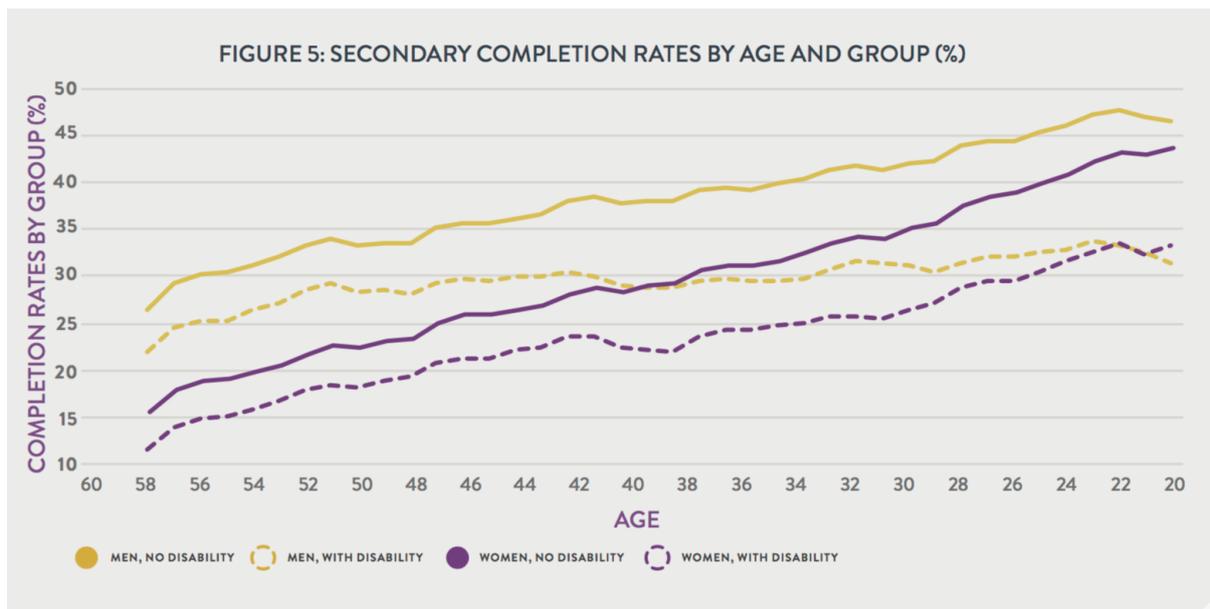
disabilities have been increasing over time. These trends are shown in **Exhibit 17** for the primary education level. **Exhibit 18**, below, highlights trends in school completion rates by gender for persons with and without disabilities for the secondary level.

Exhibit 17. Primary school completion rates of children with disabilities and without, by gender



(Male & Wodon, 2017)

Exhibit 18. Secondary school completion rates of children with disabilities and without, by gender



(Male & Wodon, 2017)

The findings from Male and Wodon (2017) reflect similar results in the recent UNESCO report (UNESCO, 2018) analyzing data from surveys conducted between 2005–2015 in 49 countries. Comparing DHS data from 5 of these countries (Cambodia, Colombia, Gambia, Maldives, and Uganda), the report noted an average completion rate for primary education of 73% for children without disabilities. The average completion rate of primary education for children with disabilities was found to be 56%.

In summary, where available, the data paint a clear picture: Persons with disabilities are significantly less likely to complete primary school, and even less so, secondary school, compared to persons without disabilities.

5 Inclusive Education Policies

Countries in Asia have made major strides in the past decade to develop and adopt national inclusive education policies to promote enrollment and educational attainment for persons with disabilities. For the development of inclusive education in the Asia region, several international events and documents are of importance. Among these, in 1989, the *UN Convention on the Rights of the Child* included specific mention of the rights of children with disabilities, including their right to education in a “manner conducive to the child’s achieving the fullest possible social integration and individual development” (UN Office of the High Commissioner for Human Rights [OHCHR], 1989).

In 1994, the World Conference on Special Needs Education convened in Salamanca, Spain. The conference resulted in the *Salamanca Statement and Special Needs Education Framework*, ratified by nearly a hundred participating governments, including many in Asia. The Salamanca statement urged governments to work toward schools as “institutions which include everybody, celebrate differences, support learning, and respond to individual needs” (UNESCO, 1994, p. iii).

In 2006, the *UN Convention on the Rights of Persons with Disabilities* (CRPD) established a legal framework for persons with disabilities confirming a move away from a the view of “persons with disabilities as ‘objects’ of charity, medical treatment and social protection towards viewing persons with disabilities as ‘subjects’ with rights, who are capable of claiming those rights and making decisions for their lives based on their free and informed consent as well as being active members of society.” The CRPD explicitly claimed those rights for children and for their access to education, requiring signatories to provide “inclusive, quality and free primary education and secondary education on an equal basis with others in the communities in which they live” (UN Department of Economic and Social Affairs, 2006).

More recently, the United Nations Sustainable Development Goals, adopted by over 150 countries in 2015, include specific 2030 targets related to inclusive education of children with disabilities. These targets include eliminating disparities and building and upgrading learning environments that are disability sensitive.

5.1 Legal Frameworks to Protect the Rights of Persons with Disabilities

Most countries in Asia have been signatories to these international policies and frameworks. A review for CRPD revealed that all but four countries (Kyrgyz Republic, Tajikistan, Timor-Leste, and Uzbekistan) have ratified the framework as of this year. Furthermore, and often following their ratification of the CRPD, countries have also adopted national legal frameworks that define the rights of persons with disabilities within their national context.

However, human rights reports, country reviews, and reports from disabled persons organizations (DPOs) indicate often insufficient implementation and monitoring of such laws. Illustratively, in **Burma** and **Mongolia**, the legal frameworks appear to perpetuate a charity and medical model to inclusion, rather than the rights-based, self-determination model ratified under the CRPD (UNICEF, 2016; United Nations Committee on the Rights of Persons with Disabilities, 2015). For **Cambodia**, although laws for the protection of the rights of persons with disabilities have been passed, disability does not appear to be well defined in those laws, leading to challenges in enacting and implementing the legislation (Hackett, Hudson, West, & Brown, 2016).

Reports on **Indonesia** suggest that while comprehensive laws to protect the right of persons with disabilities to exist, social and cultural stigmas continue to present barriers to persons with disabilities in accessing legal entitlements (United States Department of State, 2016a).

For **Lao PDR**, the *United States Department of State Country Report on Human Rights Practices* highlights gaps in protecting persons with disabilities from employment discrimination (United States Department of State, 2016b). Similarly, for **Pakistan**, reports note limitations in the implementation of applicable laws, e.g., in monitoring adherence to legal quotas related to employment of persons with disability (United States Department of State, 2016c). In **Thailand**, the government has established an *Empowerment of Persons with Disabilities Fund* into which fines are paid by companies that do not meet the legally required quota for employment of persons with disabilities. However, reports indicate gaps in effective usage of the fund and monitoring and implementing applicable legislation (United Nations Working Group on Business and Human Rights, 2018).

For **Vietnam**, the 2015 law protects the rights of persons with disabilities from discrimination, in alignment with the CRPD, and actively encourages their employment. However, there appear to remain gaps in communication, implementation, and monitoring of the legislation (UNICEF Viet Nam, 2015). Reports from the **Philippines** also indicate challenges in monitoring and implementing applicable legal frameworks at national level (United States Department of State, 2016d).

Across countries in Asia reports on human rights and inclusive education reflect concerns that even where existing, legal provisions remain too tentative in the protection of the right of persons with disabilities regarding their access to quality education services. This is reflected in large disability gaps in school attendance and high ratios of disabled to non-disabled out-of-school children (Mizunoya, Mitra, & Yamasaki, 2016). Multi-country analyses also highlight that “good data must be constructed to assist policy efforts to promote the inclusion of disabled children in mainstream schooling. There is a need to reduce structural failures in access to education for disabled OOSC [out-of-school children], by bridging the gap between policy initiatives and implementation” (Mizunoya et al., 2016, p.7).

5.2 Inclusive Education Policies and Plans

Most countries across Asia have also adopted explicit inclusive education policies in addition to legal frameworks protecting the rights of persons with disabilities. Yet, not all policies and plans are in line with the CRPD or are comprehensive enough to satisfy guidelines published by the Committee on the CRPD and UNESCO on important aspects of inclusion that are to be reflected in national inclusive education policies. Such aspects include the following (adapted from Bulat & Hayes, 2017):

- Recognizing inclusive education as a right
- Maintaining the right to education in the local mainstream school and special schools if needed
- Identifying minimum standards in relation to access, identification, curriculum accommodation, and specialized supports/materials
- Ensuring that families and communities are active participants in inclusive education
- Monitoring and evaluating, as well as implementing, accountability mechanisms to ensure implementation

The Committee on the CRPD developed guidance to help countries develop and adapt appropriate systems and legal frameworks for education aligned with the stipulations of the CRPD. A simplified version in form of a checklist can be found in the *Disabilities Inclusive Education System and Policies Guide for Low- and Middle-Income Countries* published by RTI International (Bulat & Hayes, 2017).

Considering these existing guidelines, **Exhibit 19**, below, provides an overview of inclusive education policies and plans for some of the report's focal countries. The exhibit indicates whether key aspects of the minimum requirements outlined by UNESCO are being included. The exhibit presents a best effort based on examining English-language primary and secondary data during the desk review. It may inadvertently include misclassifications or omissions where, for example, documentation only existed in a local language or was otherwise not accessible to the author.

As can be seen from the exhibit, while **Bangladesh** does not appear to have a specific inclusive education policy and plan, it included considerations of disability inclusion in its 2010 national education policy. The policy encourages schooling for "challenged children" in mainstream schools where possible, and enrollment in special schools if attending mainstream schools is not possible due to the disability. According to the policy, "challenged children are those who are blind, deaf and dumb and physically and mentally handicapped" (Government of the People's Republic of Bangladesh, 2010, p. 51), which raises concern about the policy's consideration of CRPD guidelines and terminology. The policy outlines initial strategies on aspects of curriculum accommodation, teacher training, and free or cost-reduced education materials. Gaps exist in addressing issues of assessment accommodation, provision of specialized materials and aids, monitoring and accountability mechanisms, as well as collaboration with DPOs and families.

Burma also does not appear to have a dedicated policy framework for inclusive education. The 2014 national education law and 2015 disability law are the guiding frameworks for inclusive education. While the government has signed and ratified the CRPD, the laws governing inclusive education in Burma appear to promote special education and establishment of special schools (Myanmar Education Consortium, 2015). The country's new national education plan builds on these legal instruments and articulates a vision for a more inclusive school system (Government of Myanmar, 2016). The plan focuses on accessibility of the physical infrastructure, inclusive education in technical and vocational education and training, and aspects of teacher training and capacity for inclusion. A discussion of reasonable curriculum and assessment accommodations and collaboration with DPOs and families appear to be missing from the plan.

There exists a comprehensive review of applicable policies and strategies as part of a detailed sector analysis for education of children with disabilities in **Cambodia** (RTI International, 2018). Accordingly, Cambodia has a dedicated inclusive education policy from 2008 that is currently undergoing revision. The policy (Government of the Kingdom of Cambodia, 2008) includes specific consideration of providing early identification and interventions for children with disabilities, creating and implementing an inclusive education program including provision of assistive devices and learning aids, as well as modifications and alternative assessments on national tests. The strategy also highlights increasing enrollment of girls with disabilities, raising awareness about disabilities and teacher training. The policy does not include explicit implementation monitoring or accountability mechanisms, nor guidance on curriculum accommodation and assessment adaptation aside from national examinations.

While **India** has had a national policy for persons with disabilities since 2006, there does not appear to be a dedicated policy governing inclusive education. The 2012 Right to Education amendment specifically highlighted the right of children with disability to be educated in their neighborhood schools. The government also implements specific schemes addressing aspects of inclusive education. Currently, the most notable scheme is for promoting inclusion in the secondary sector. Current policy frameworks, however, do not appear to sufficiently cover aspects of curriculum and assessment accommodation, teacher training, monitoring, and accountability of inclusion (Government of India, 2016a) in line with the CRPD. A new national education policy is currently being finalized. While not yet publicly available the policy is slated to address aspects of inequality including for children with disabilities (Government of India, 2016b).

In **Nepal**, the government passed a comprehensive *Inclusive Education Policy for Persons with Disabilities* in 2016 (USAID Nepal, 2017). The new policy comprehensively addresses many of the key aspects for a national inclusive education policy outlined by UNESCO (2009), notably recognizing inclusive education as a right, mandating reasonable curriculum and assessment accommodation, highlighting access to specialized materials and aids, outlining strategies for teacher training, describing mechanisms for implementation monitoring, and assigning responsibility. Barriers to effective implementation of the policy appear to specifically relate to access to reliable and actionable data to inform policy and practice, gaps in institutional and technical capacity to adequately implement the policy, and socio-cultural barriers and the stigma attached to disability (USAID Nepal, 2017).

The Government of the **Philippines** issued new legislation in 2017, mandating inclusive education for children and youth with special needs. The main vehicle to achieving inclusive education are inclusive education learning resource centers that are to be the “source of appropriate instructional materials, tools, devices, gadgets, and equipment that educators can use in their classrooms to ensure that students with special needs are properly supported and enabled to learn alongside their peers” (Government of the Philippines, 2017). The bill also promotes early identification, individual education plans (which are assumed to entail curriculum and assessment accommodation), collaboration with families, and teacher and principal training. The new bill also outlines funding approaches and responsibilities. No mention of monitoring mechanisms for the new bill has yet been made.

As presented in **Exhibit 19**, many focal countries in Asia have explicit inclusive education policies or strategic plans to action. However, gaps prevail in the degree to which they comprehensively address key aspects of inclusive education as set forth in the UNESCO guidelines for inclusive education policies and in the Committee for the CRPD guidelines for national systems and legal frameworks.

Furthermore, studies and reports from low- and middle-income countries, including in Asia, raise concerns about the practicality of many of the inclusive education policies adopted and strategic plans put forward (Wapling, 2016). Key implementation challenges at the school level include gaps in operationalizing policies to translate into systemic efforts for teacher pre-service and in-service training, as well as practical approaches to curriculum and assessment accommodation. Resource limitations to fund ambitious policies and plans are also repeatedly cited (UNICEF, 2016; Vorapanya & Dunlap, 2014).

Exhibit 19. Key aspects of inclusive education policies (UNESCO, 2009) as found in policies of select countries in Asia

Country	Right to education	Right to education in local mainstream school	Right to education in special school	Curriculum accommodation	Assessment accommodation	Specialized materials / aids	Teacher training and support	Monitoring mechanisms	Accountability mechanisms	DPO / family collaboration
Bangladesh	X	X	X	X			X			
Burma	X	X	X				X			
Cambodia	X	X	X			X	X			X
Nepal	X	X	X	X	X	X	X	X	X	
Philippines	X	X		X	X	X	X			X

6 Studied Inclusive Education Interventions in the Region

Aside from aspects of disability measurement, as well as legal and policy frameworks at international and national levels, reports and studies frequently highlight socio-cultural barriers to inclusive education in the region (UNDP, 2013; UNICEF, 2014). Combined, gaps in legal frameworks, the operationalization of inclusive education policy, early identification, and resource limitations, in addition to socio-cultural barriers, present challenges to quality inclusive education.

At the classroom level, this manifests in gaps in teacher professional development and support (Hettiarachchi & Das, 2014; Kamenopoulou & Dukpa, 2018; Kurniawati et al., 2017; Lamichhane, 2017; Muega, 2016; Myanmar Education Consortium, 2015; UNICEF Viet Nam, 2015) and a lack of specialized materials and curricular resources (Ahmmed et al., 2014; Bhathnagar & Das, 2014; Lamichhane, 2013; Mullick et al., 2012). While the empirical evidence base on teacher attitude toward inclusion in Asia appears somewhat mixed, with both positive (Bhatnagar & Das, 2014; Kurniawati, Minnaert, Mangunsong, & Ahmed, 2012) and negative results (Grimes, Stevens, & Kumar 2015; Poernomo, 2016), reports on inclusion consistently highlight socio-cultural and attitudinal barriers as major barriers (UNICEF, 2013; UNICEF, 2016; UNICEF Bangladesh, 2014; UNICEF Myanmar, 2016; UNICEF Viet Nam; WHO, 2011).

Studies also found low levels of self-efficacy—or confidence—among teachers in teaching children with disabilities (Yada & Savolainen, 2017). This is notable given that other studies found that “Indian educators’ intentions to change curriculum was influenced by their self-efficacy in using inclusive instructions. This indicates that educators with high levels of self-efficacy in using inclusive teaching strategies are more likely to make positive changes in the way they teach in the classroom” (Sharma & Jacobs, 2016, p. 21). Ultimately, these challenges manifest in the limited adoption of inclusive instructional practices by teachers in mainstream classrooms (Eden Center for Disabled Children, 2015; Khamis, 2011), undermining the educational experience of children with disabilities.

Across the region, efforts have been made to address these classroom-level barriers to inclusion. Despite a diverse set of initiatives and projects implemented across Asia, however, empirically rigorous studies on the efficacy, especially concerning student learning outcomes and cost-effectiveness of such initiatives are scarce (Wapling, 2016).

To promote rigor in the design, implementation, and evaluation of inclusive education initiatives, the following sections present a literature review of empirical studies published in the last 10 years in English-language journals. Based on the above-mentioned barriers to quality inclusive education at the classroom level, studies were included that evaluated interventions aimed to improve (1) teachers’ attitudes to inclusion, (2) teachers’ self-efficacy in teaching children with disabilities, or (3) teachers’ adoption of inclusive instructional practices in the classroom, addressing an important subset of the constraints to quality of inclusive education at the classroom level. No studies were found of interventions targeted at increasing availability and quality of adapted materials for children with disabilities.

This literature review is underpinned by a conceptual framework of behavior change, notably the Theory of Planned Behavior (Ajzen, 1991). The theory appears particularly valuable in the context, given its specific consideration of how aspects of attitude and self-efficacy influence a person’s behavioral intention and how, in turn, such behavioral intentions become predictors of behavior. The Theory of Planned Behavior thus functions as a causal model for teachers’ adoption of inclusive instructional practices in the classroom, which in turn are assumed to positively affect student learning outcomes. **Appendix A** provides a more detailed discussion of the theory.

Where available, studies from Asia and low- and middle-income contexts were prioritized for inclusion in the review. The existing, published evidence base of studied interventions on inclusive education in the Asia region, however, is limited. Thus, where interventions provided promising insights or findings, studies from other countries were also considered.

This diversity of countries in which studies have been implemented may mask critical contextual factors to their implementation and findings, including teacher access to specialized materials, quality of the initial teacher training, teacher support mechanisms, and smaller class sizes. Such factors are rarely described in individual study accounts. The literature review thus does not make specific recommendations as to which interventions may be more appropriate for the Asian context, compared to others. Given the diversity also among the focal geographies of this report, such determination should be made on a country by country and case by case basis.

The following sections of this chapter discuss studied and published interventions addressing teacher attitudes toward inclusion, and their self-efficacy in teaching students with disabilities, as well as empirical evidence of interventions aimed at improving teacher adoption of inclusive instructional practices. One limitation of this literature review is that few of the studies published to date, as already noted earlier, included considerations of the impact of specific interventions on student learning outcomes (Wapling, 2016).

6.1 Interventions Addressing Teacher Attitudes Toward Inclusion

Approaches to improving teacher attitudes regarding inclusive education in the existing literature include co-teaching (Rivera, McMahon, & Keys, 2014), school-wide efforts (Al-Manabri, Al-Sharhan, Elbeheri, Jasem, & Everatt, 2013), and stand-alone in-service teacher professional development (Kandhari & Chowdhry, 2016, Kurniawati et al., 2017; Lifshitz, Glaubman, & Issawi, 2004; Sari, 2007; Seçer, 2010; Sucuoğlu, Bakkaloğlu, Akalin, Demir, & İçsen-Karasu, 2015). Co-teaching entails two teachers teaching a single inclusive classroom. Like school-wide efforts, co-teaching may include in-service teacher professional development activities, but goes beyond stand-alone training approaches.

Existing intervention studies on co-teaching focus predominantly on teachers' attitudes to co-teaching itself (Scruggs & Mastropieri, 2017; Scruggs, Mastropieri, & McDuffie, 2007), rather than considering teachers' attitudes to inclusive education. A notable exception is research conducted by Dusty and Schneider Dinnesen (2012) and Rivera et al. (2014). These studies both took place in the US and therefore are less relevant to the very different context of the focal geographies in Asia. Furthermore, a recent systematic review of inclusive education in low- and middle-income countries appears to be silent on co-teaching as a viable intervention approach in such contexts (Wapling, 2016).

School-wide initiatives are understood as changes at the student, teacher, and school leadership level, as well as in the school's systems and structures. The empirical literature on school-wide efforts to improve teacher attitudes to inclusion in low- and middle-income countries is limited and appears less relevant. The following sections thus focus on the current evidence base on stand-alone teacher training initiatives to improve teacher attitudes toward inclusive education.

In contrast to the scarcity of intervention literature on co-teaching and school-wide approaches, a robust body of knowledge exists on stand-alone in-service teacher professional development as an approach to improving teacher attitudes toward inclusive education. This research comes from low-, middle-, and high-income countries. **Exhibit 20** provides an overview of select studies from this body of knowledge, highlighting country, sample and sample size, overall study design, relevant measures, cost considerations, and intervention strategies for each. As can be seen from the table, results from these studies are based on convenience samples with either a pre-test–post-test design or teacher control group design. **Appendix B** of this report provides a narrative summary of measurement

approaches in each study to complement the columns on “Overall Study Design and Measures”.

Exhibit 20. Overview of intervention studies using stand-alone teacher training to address teacher attitudes

Authors/ Country	Sample	Overall Study Design and Measures	Intervention Strategies
Kandhari and Chowdhry (2016) / India	100 teachers from regular schools	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Newly constructed scale ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group-based in-service teacher training ▪ Focus on information sharing ▪ Group discussions
Kurniawati et al. (2017) / Indonesia	67 teachers from 11 regular schools (33 intervention, 34 control group)	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Teacher control group ▪ Newly constructed scale ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group-based in-service teacher training ▪ Focus on information sharing ▪ Group discussions ▪ Video-enhanced activities
Lifshitz et al. (2004)/ Israel and West Bank	66 teachers from Israel, 192 teachers from the West Bank, of whom are 125 regular school teachers, 103 inclusive teachers	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Gemmel-Crosby and Hanzlik questionnaire ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group-based in-service teacher training ▪ Focus on information sharing ▪ Group discussions ▪ Video-enhanced activities
Sari (2007) / Turkey	122 teachers from 24 regular schools, (61 intervention, 61 control group)	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Teacher control group ▪ Opinions Relative to Mainstreaming scale ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group-based in-service teacher training ▪ Focus on information sharing ▪ Group discussions
Seçer (2010) / Turkey	66 pre-school teachers from 33 regular pre-schools	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Opinions Relative to Mainstreaming scale ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group-based in-service teacher training ▪ Focus on information sharing ▪ Group discussions

Authors/ Country	Sample	Overall Study Design and Measures	Intervention Strategies
Sucuoğlu et al. (2015) / Turkey	30 pre-school teachers from 14 regular pre-schools	<ul style="list-style-type: none"> ■ Quantitative ■ Pre-test–post-test ■ Opinions Relative to Mainstreaming scale ■ No costs considerations published 	<ul style="list-style-type: none"> ■ In-person, group-based in-service teacher training ■ Focus on information sharing ■ Group discussions ■ Video-enhanced activities ■ Structured reflection sessions ■ Comprehensive manuals, lesson planning templates

Exhibit 20 highlights intervention strategies applied in the referenced studies. Interventions all entailed in-person, group-based, in-service teacher training with a focus on information sharing and group discussions with select studies featuring additional activities. Additional training delivery activities included video-enhanced activities (Kurniawati et al., 2017; Lifshitz et al., 2004; Sucuoğlu et al., 2015) or structured reflection sessions (Sucuoğlu et al., 2015). The next section discusses findings from the referenced studies in consideration of length and format of the training intervention and findings.

6.1.1 *In-service teacher training length and format*

Results from this existing body of evidence indicate that high-intensity, short-term, in-service teacher training with at least 21 hours of contact time over the course of 8 days can significantly improve some of the measured aspects of teachers' attitudes toward inclusive education (Sari, 2007). The study by Sari (2007) included a convenience sample of 122 Turkish teachers, half of whom were assigned to a control group. Sari measured teacher attitudes using the Opinions Relative to Mainstreaming scale before and after training. The study found significant improvements in teachers' attitudes on the attitudinal factors related to teachers' competencies for inclusion, as well as their perceived benefits of inclusive education. The study did not find significant improvements in teacher attitudinal factors related to classroom management, expectations for students' competencies, and negative effects of inclusion. Similarly, mixed results were found in other high-intensity, short-term, in-service training of 28–30 hours delivered over 3–5 days (Lifshitz et al., 2004; Seçer, 2010). In this body of research, attitudes also significantly improved on aspects such as perceived benefits of inclusion, but not on the classroom management or teacher competency components of the attitude scale (Seçer, 2010).

In contrast, in-service teacher training interventions of similar length, but spaced over longer periods, appear to yield more consistent improvements in teacher attitudes (Kurniawati et al., 2017; Sucuoğlu et al., 2015). In this body of research, the in-service teacher training of 30–48 hours was spaced in 4–16 sessions over 8–16 calendar weeks. Although using different scales to measure teacher attitudes, these studies found statistically significant improvements on all factors of their attitude scales (Sucuoğlu et al., 2011), or all but one (Kurniawati et al., 2017).

Kurniawati et al. (2017) did not find statistically significant improvements in the behavioral component (i.e., actions toward inclusion) of their attitude scale. The authors explained this finding by suggesting that improving knowledge and affective aspects of attitudes may not be sufficient to improve behavioral intentions of teachers. They also identified gaps in their intervention in promoting teacher self-efficacy as a critical component of teachers' behavioral

intentions. The authors suggested that external factors such as large class sizes and a lack of resources and teacher support may contribute to lingering concerns about the practical implementation of inclusive education in mainstream classrooms.

Notably, among the three studies using the same or similar instruments to measure regular classroom teachers' attitudes, which took place in the same country (Turkey), improvements in teacher attitude appear to have been strongest in the study by Sucuoğlu et al. (2011). In contrast to the studies by Sari (2007) and Seçer (2010), Sucuoğlu et al. (2011) designed their intervention to be delivered over a longer period—a total of 48 hours delivered in sessions of 3 hours each over 16 weeks—and appeared to have used a wider range of engagement mechanisms, including lectures, discussions, video-based activities, and structured reflection. The next section discusses findings from these studies in consideration of training content.

6.1.2 In-service teacher training content

Concerning the content of training aimed at addressing teacher attitudes toward inclusive education, interventions to date included sessions on characteristics of specific disabilities (Kandhari & Chowdhry, 2016; Kurniawati et al., 2017; Seçer, 2010; Sucuoğlu et al., 2011) and individualized education programs (Kurniawati et al., 2017; Seçer, 2010; Sucuoğlu et al., 2011). Training interventions also focused on collaboration with school and parent stakeholders (Kurniawati et al., 2017; Seçer, 2010; Sucuoğlu et al., 2011) and issues of policy and legislation in inclusive education (Kandhari & Chowdhry, 2016; Lifshitz et al., 2004). Furthermore, the interventions by Kurniawati et al. (2017), Lifshitz et al. (2004), and Sucuoğlu et al. (2011) specifically included teaching methods and strategies.

Results from this research indicate that these topics appear to meet teachers' needs concerning the knowledge components of their attitudes toward inclusive education. Specifically, interventions focusing their content on the characteristics of specific disabilities (Lifshitz et al., 2004) and knowledge of accommodations and teaching strategy (Kurniawati et al., 2017; Lifshitz et al., 2004; Sucuoğlu et al., 2011) appeared to yield significant improvements in teachers' attitudes toward inclusive education. Specific training on collaboration with parents also emerged as an important factor shaping teachers' attitudes (Sucuoğlu et al., 2011).

In summary, among various approaches to improving teacher attitudes toward inclusive education such as co-teaching, school-wide efforts, and stand-alone in-service teacher professional development, the latter appears to have the more robust evidence base stemming from a range of country contexts to date. Among the various formats of in-person teacher training, the literature points to the efficacy of programs that are 3–4 days in length and delivered in various sessions over several weeks to improve teachers' attitude toward inclusive education (Sucuoğlu et al., 2015). Concerning training content, results from this body of knowledge suggest a focus on characteristics of specific disabilities and knowledge of teaching strategies, delivered to include information sharing, group discussions, reflection, and practice to help teachers overcome attitudinal barriers (Kurniawati et al., 2017; Lifshitz et al., 2004; Sucuoğlu et al., 2011). The limited number of studies, their small samples, and their quasi-experimental approaches, however, remain a limitation to the generalizability of these findings. The next section synthesizes the applicable literature on interventions aimed at addressing teacher self-efficacy in inclusive education.

6.2 Interventions Addressing Teacher Self-Efficacy in Inclusive Education

Approaches to addressing teachers' self-efficacy in inclusive instruction include collaborative consultation (DeVore, Miolo, & Hader, 2011; Dinnerbeil, Spino, & McInerney, 2011; Goetz, 2001; Miller, Wienke, & Savage, 2000) and stand-alone, short-term, in-service teacher professional development (Chao, Chow, Forlin, & Ho, 2017; Chao, Forlin, & Ho, 2016; Forlin

& Sin, 2010 Owens-Twaites, 2013). Self-efficacy in this context refers to teachers' confidence in their ability to adopt inclusive instructional behaviors. According to Ajzen's Theory of Planned Behavior, self-efficacy is also related to contextual factors that might affect behavior (Ajzen, 1991). For this review, such contextual factors may include timetables, student assessment, class size, and access to relevant materials, affecting teacher adoption of inclusive instructional practices.

Collaborative consultation entails inclusive education specialists conducting regular school visits to an assigned number of schools to provide support to regular teachers in inclusive classrooms (Miller et al., 2000). This approach already exists in a few low- and middle-income countries, including Cambodia (Bulat & Hayes, 2017), India (Tiwari, Das, & Sharma, 2015), Kenya, Malawi, and Uganda (Wapling, 2016) as an itinerant teacher model. In most of these countries, however, the model is not implemented nationwide. Empirical intervention studies (with comparison groups or pre-test–post-test designs) on collaborative consultation to date only appear to come from high-income countries. Given the limitation in contexts in which this collaborative consultation research has taken place, this literature review explores stand-alone in-service teacher professional development as an approach to addressing teachers' self-efficacy in inclusive instruction in more detail.

Stand-alone in-service teacher professional development as an intervention approach to addressing teacher self-efficacy in inclusive education enjoys a robust evidence base from a range of contexts (Chao et al., 2016; Chao et al., 2017; Forlin & Sin, 2010; Lifshitz et al., 2004; Owens-Twaites, 2013). Studied interventions even in Asia, however, took place predominantly in higher-income countries to date as no examples from low- and middle-income contexts could be availed. **Exhibit 21** provides an overview of key study components, including country, sample and sample size, overall study design, relevant measures, cost considerations, and intervention strategies for each. Appendix B of this report provides a narrative summary of measurement approaches in each study to complement the column on “Overall Study Design and Measures” in Exhibit 20.

Exhibit 21. Overview of intervention studies using stand-alone in-service teacher training to address self-efficacy

Authors/ Country	Sample	Overall Study Design and Measures	Intervention Strategies
Chao et al. (2016)/ Hong Kong	417 regular school teachers	<ul style="list-style-type: none"> ■ Mixed methods ■ Pre-test–post-test ■ Teacher Efficacy for Inclusive Practices scale ■ Focus groups ■ No costs considerations published 	<ul style="list-style-type: none"> ■ In-person, group-based in-service teacher training ■ Focus on information sharing ■ Group discussions
Chao et al. (2017)/ Hong Kong	347 regular school teachers	<ul style="list-style-type: none"> ■ Quantitative ■ Pre-test–post-test ■ Teacher Sense of Efficacy Scale (12-item adapted) ■ No costs considerations published 	<ul style="list-style-type: none"> ■ In-person, group-based in-service teacher training ■ Focus on information sharing ■ Group discussions

Authors/ Country	Sample	Overall Study Design and Measures	Intervention Strategies
Forlin and Sin (2010)/ Hong Kong	517 regular school teachers	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Teacher Efficacy for Inclusive Practices scale ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group- based in-service teacher training ▪ Focus on information sharing ▪ Group discussions ▪ Reflections and practical assignments
Lifshitz et al. (2004)/ Israel and West Bank	66 teachers from Israel, 192 teachers from the West Bank, of whom 125 are regular school teachers, 103 inclusive teachers	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Gemmel-Crosby and Hanzlik questionnaire ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group- based in-service teacher training ▪ Focus on information sharing ▪ Group discussions ▪ Video-enhanced activities
Owens-Twaites, (2013)/ US	25 teachers	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Teacher Sense of Efficacy Scale (24- item) ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group- based in-service teacher training ▪ Focus on information sharing ▪ Group discussions ▪ Discussion of baseline results of teacher self-efficacy ▪ Books

6.2.1 *In-service teacher training length and format*

Results from the current body of knowledge indicate that high-intensity, short-term in-service teacher training with 28–30 hours of contact time delivered over the course of 3–5 consecutive days in a mix of lecture and group discussions can significantly improve some teachers' self-efficacy in inclusive education (Forlin & Sin, 2010; Lifshitz et al., 2004). At this level of intensity, several studies yielded statistically significant improvements on all dimensions of teacher self-efficacy and across instruments (Chao et al., 2016; Chao et al., 2017; Forlin & Sin, 2010; Lifshitz et al., 2004). In contrast, the US intervention by Owens-Twaites (2013), which was implemented in 12 sessions over 3 months, did not result in statistically significant improvements in teachers' self-efficacy on any of the factors measured by the Teacher Sense of Efficacy Scale. To explain these findings, the author suggested that teachers may have already felt high degrees of confidence because of other ongoing teacher training activities, which may have limited the effectiveness of the intervention (Owens-Twaites, 2013). The next section discusses findings from the referenced studies in consideration of the content of their training interventions.

6.2.2 *In-service teacher training content*

Findings across studies indicate the efficacy of teacher training that entails sessions on policy and legislation, student identification, and practical strategies for inclusive instruction (Chao et al., 2016; Chao et al., 2017; Forlin & Sin, 2010; Lifshitz et al., 2004). The study by Owens-Twaites (2013), which failed to show significant gains in participating teachers' self-efficacy, included 4 sessions discussing student outcomes, teacher self-efficacy baseline outcomes, and scheduling and planning issues of inclusive education. Furthermore, 3

different sessions focused on the history of inclusion, components of inclusion, and components of co-teaching. The intervention appears to have featured 3 out of 12 sessions on student identification, strategies for differentiated instruction, and teacher observation and reflection.

This contrasts with the training content focus by Forlin and Sin (2010), Chao et al. (2017), and Chao et al., (2016), which prioritized teachers' in-depth understanding of students' learning needs and the practical application of inclusive strategies and skills (although these studies did not provide data on specific time-allocations per topic). This research notably reported statistically significant gains in teacher self-efficacy.

In summary, approaches in the empirical literature aimed at improving teacher self-efficacy in teaching inclusive education in diverse contexts include collaborative consultation (Miller et al., 2000) and stand-alone, short-term, in-service teacher professional development (Chao et al., 2016; Lifshitz et al., 2004; Owens-Twaites, 2013). The evidence base for short-term teacher training is more robust to date, stemming from a range of country contexts. This contrasts with the earlier-reported mixed results from utilizing this intervention approach in addressing teachers' attitudes toward inclusive education, where training delivered over longer periods of time appeared more effective. Studies referenced here, however, are also not designed to make causal inferences, and results are thus not generalizable.

Yet, the referenced studies focused on self-efficacy suggest that programs that are 3–4 days in length, even if delivered as a one-time multi-day training, may lead to significant gains in teacher self-efficacy in inclusive instruction (Chao et al., 2016; Chao et al., 2017; Forlin & Sin, 2010; Lifshitz et al., 2004). Training content and delivery format, however, appear to play a role in promoting teacher self-efficacy and suggest a focus on policy and legislation, student identification, and practical strategies for inclusive instruction (Chao et al., 2016; Chao et al., 2017; Forlin & Sin, 2010; Lifshitz et al., 2004).

Previous sections considered the existing evidence base on interventions that address teacher attitudes and self-efficacy in inclusive education. The next section sheds light on teachers' behavioral intentions toward inclusive education and how they might manifest in measurable improvements in the adoption of inclusive practices in their classrooms.

6.3 Interventions Addressing Teacher Adoption of Inclusive Instructional Practices

In the literature, approaches to addressing teachers' behavioral intentions, that is, their willingness to implement inclusive education, predominantly include various forms of stand-alone teacher training. These forms of professional development include online or hybrid teacher in-service training initiatives to promote inclusive lesson planning (Baldiris Navarro, Zervas, Fabregat Gesa, & Sampson, 2016; Courey, Tappe, Siker, & LePage, 2013; McGhie-Richmond & Sung, 2013).

No research to date, however, appears to have implemented online or hybrid approaches and not only measured teachers' intentions (usually in form of lesson plans), but also teachers' resulting behavior in the classroom. Changes in teacher classroom practices were measured in several interventions that entailed stand-alone, in-person, in-service teacher training (Elder, Damiani, & Oswago, 2016; Hundert, 2007; Katz, 2015; Sucuoğlu et al., 2011) or in-person training with performance feedback strategies (Akalın & Sucuoğlu, 2015; Brown, Gatmaitan, & Harjusola-Webb, 2014; Duchaine, Jolivette, & Fredrick, 2011).

6.3.1 Online or hybrid teacher in-service training addressing teachers' intentions

The empirical evidence on using online or hybrid teacher in-service training as an approach to addressing teachers' behavioral intentions in inclusive education is informed by studies from predominantly middle- and higher-income countries. **Exhibit 22** provides an overview

of key study components, including country, sample and sample size, overall study design, relevant measures, cost considerations, and intervention strategies for each. Appendix B of this report provides a narrative summary of measurement approaches in each study to complement the column on “Overall Study Design and Measures” in Exhibit 21.

Exhibit 22. Overview of intervention studies using online or hybrid in-service training to address teachers’ intentions

Authors/ Country	Sample	Overall Study Design and Measures	Intervention Strategies
Baldiris Navarro et al. (2016)/ Colombia	47 regular school teachers in three cohorts	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Spooner et al. lesson rubric ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ Hybrid (part online, part in-person teacher training)
Courey et al. (2013)/ US	45 regular school teachers	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Newly constructed lesson rubric ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ Fully online teacher training
McGhie-Richmond and Sung (2013)/ Canada	10 regular school teachers	<ul style="list-style-type: none"> ▪ Mixed methods ▪ Pre-test–post-test ▪ Spooner et al. lesson rubric ▪ Document analysis ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ Fully online teacher training

The referenced studies utilized different methods to assess changes in inclusive lesson design, all built on the Universal Design for Learning (UDL) framework. UDL is based on the understanding that individual variability is not an exception, but a representation of natural human diversity (Rose & Gravel, 2011). In this sense, Rose and Gravel (2011) indicated, “because most curricula are unable to adapt to individual variability, we have come to recognize that curricula, rather than learners, are disabled, and thus we need to ‘fix’ curricula not learners” (p. 1). There are three UDL principles: (1) provide multiple means of representation; (2) provide multiple means of action and expression; and (3) provide multiple means of engagement (Rose & Gravel, 2011). With that UDL lens, the referenced research focused on teacher capacity in designing lessons that promote the three UDL principles (Baldiris Navarro et al., 2016; Courey et al., 2013; McGhie-Richmond & Sung, 2013).

Online/hybrid in-service teacher training length and format

Training interventions ranged from participation in one online course of 3 hours’ total duration (Courey et al., 2013) to one online course over the duration of one semester (McGhie-Richmond & Sung, 2013). The hybrid intervention consisted of 18 hours of in-person and 12 hours of online training delivered over the course of two calendar months (Baldiris Navarro et al., 2016). Although not generalizable given their small sample sizes, results from these studies indicate that the online/hybrid teacher training format, starting at 3 hours of training time and with at least two calendar months between baseline and endline data collection, supported teachers in making measurable changes in lesson plan design

(Baldiris Navarro et al., 2016; Courey et al., 2013; McGhie-Richmond & Sung, 2013). Across studies, teachers increased the number of relevant instructional modifications in line with UDL principles between baseline and endline data collection (Baldiris Navarro et al., 2016; Courey et al., 2013; McGhie-Richmond & Sung, 2013).

Although implemented in different contexts, results from studies using the same measurement tool to evaluate instructional changes suggest that participating teachers in the hybrid intervention with a total of 30 hours of training implemented over two months (Baldiris Navarro et al., 2016) showed greater gains in the number of relevant instructional modifications in their lesson plans between baseline and endline data collection than did the participants in the online course with 3 hours of total training time (Courey et al., 2013). The next section discusses findings from these studies in consideration of their training content.

Online/hybrid in-service teacher training content

Concerning the content of the two interventions, the referenced studies both built on UDL as a conceptual framework to also inform training content. The interventions included an introduction to UDL, its main principles, and their application in lesson planning. Both interventions provided some form of template or guidelines for inclusive lesson design. The online delivery platforms and course designs modeled UDL principles by including a range of content presentation formats such as video and audio (Courey et al., 2013), or discussion forums for peer support and multiple forms of action and expression (Baldiris Navarro et al., 2016). In addition, the hybrid intervention featured sessions to design accessible open educational resources and how to validate them against standard accessibility guidelines (Baldiris Navarro et al., 2016). The training intervention by McGhie-Richmond and Sung (2013) integrated more general content on inclusive education and the needs of special needs students in regular classrooms. This intervention placed a strong focus on participants' independent discovery of the efficacy of UDL and reflections on their lesson plans.

Results from this body of literature, although limited again in generalizability, suggest that online or hybrid in-service teacher training with a strong focus on UDL principles, combined with explicit templates for lesson planning, appears to be effective in increasing teachers' behavioral intentions toward inclusive education. Given the large discrepancies in contact time (30 hours versus 3 hours), potentially related variances in course content, and differences in measurement in this small body of research, results from these studies are not conclusive regarding what value additional content areas (skills in developing lesson plans as standard-based open education resources, and general content on inclusive education and special needs education) may have added in increasing teachers' intentions toward inclusive education. Meanwhile, the literature on stand-alone, in-person, in-service teacher training to increase teachers' intentions and their actual adoption of inclusive instructional practices, as presented in the next section, appears more comprehensive.

6.3.2 In-person, in-service teacher training addressing teachers' adoption of inclusive practices

The empirical evidence on various forms of stand-alone, in-person, in-service teacher training to addressing teachers' intentions toward inclusive education and their actual adoption of inclusive instruction practices stems from low- and higher-income countries. **Exhibit 23** provides an overview of key study components, including country, sample and sample size, overall study design, relevant measures, cost considerations, and intervention strategies for each. Appendix B of this report provides a narrative summary of measurement approaches in each study to complement the column on "Overall Study Design and Measures" in Exhibit 22.

Exhibit 23. Overview of intervention studies using in-person, in-service training to address teachers’ adoption of inclusive practices

Authors/ Country	Sample	Overall Study Design and Measures	Intervention Strategies
Elder et al. (2016)/ Kenya	13 regular school teachers, 5 principals	<ul style="list-style-type: none"> ▪ Mixed methods ▪ Pre-test–post-test ▪ Informal classroom observations ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group-based in-service teacher training ▪ Focus on community-building and instructional strategies ▪ Structured reflection
Hundert (2007)/ US	4 regular school teachers	<ul style="list-style-type: none"> ▪ Mixed methods ▪ Multiple baseline design ▪ Eco-Behavioral System for Complex Assessments of Pre-school Environments ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person pair training via teacher supervisor ▪ Comprehensive manuals, lesson planning templates
Katz (2015)/ Canada	58 teachers in 10 regular schools	<ul style="list-style-type: none"> ▪ Mixed methods ▪ Pre-test–post-test ▪ Comparison group ▪ Newly constructed teacher self-report surveys ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ Block 2 of Three-Block Model ▪ In-person, group-based in-service teacher training ▪ Lesson planning practice ▪ Professional learning community meetings
Sucuoğlu et al. (2015)/ Turkey	30 pre-school teachers from 14 regular pre-schools	<ul style="list-style-type: none"> ▪ Quantitative ▪ Pre-test–post-test ▪ Newly constructed classroom observation tool ▪ No costs considerations published 	<ul style="list-style-type: none"> ▪ In-person, group-based in-service teacher training ▪ Focus on information sharing ▪ Group discussions ▪ Video-enhanced activities ▪ Structured reflection sessions ▪ Comprehensive manuals, lesson planning templates

As can be seen from Exhibit 23, while some training was group-based (Elder et al., 2016; Katz, 2015; Sucuoğlu et al., 2015), in one intervention training included pairs of teachers co-teaching a single classroom (Hundert, 2007). Teacher supervisors, rather than researchers, conducted the teacher training in the study by Hundert (2007), while Elder et al. (2016) included school principals in the teacher training delivered by the authors. The next section discusses findings from these studies in consideration of their training length and format.

In-person, in-service teacher training length and format

Training interventions ranged from 2.25 hours of total training time (Hundert, 2007) to 48 hours of total training time (Sucuoğlu et al., 2015). All training was delivered in a spaced

format, featuring 3 sessions (Hundert, 2007), 4 sessions (Elder et al., 2016; Katz, 2015), and up to 16 training sessions (Sucuoğlu et al., 2015) over a timeframe of 2–16 weeks (Hundert, 2007; Sucuoğlu et al., 2015). Katz (2015) spaced 2.5 days of in-service teacher training into 4 training sessions but also included one-on-one sessions, as well as monthly follow-up meetings to encourage the formation of a professional learning community among participating teachers.

Although not generalizable given their small sample sizes, results from these studies suggest that in-person, in-service teacher training starting at 2.25 hours in duration, delivered in several sessions over at least two weeks, can measurably improve teachers' adoption of inclusive instructional practices. The referenced studies found statistically significant gains in teachers' adoption of select inclusive instructional practices, but not all such practices. Illustratively, Katz (2015) noticed a significant shift in instructional time spent on differentiated tasks versus non-differentiated tasks, as well as increases in time spent with small group instruction. On average, whole-class instruction decreased from 35 minutes to 5 minutes between baseline and endline in a 60-minute lesson (Katz, 2015).

Similarly, Hundert (2007) found that teachers increased the time they spent with student groups containing a child with a disability during playtime six-fold between baseline and immediately following the training. The author suggested that the inclusion of the teachers' supervisors as teacher trainers as a core design element of the intervention might have been central to these gains. It is also noteworthy that this intervention had features of a co-teaching approach, as the study included pairs of teachers (one classroom teacher and a part-time resource teacher responsible for individualized education program development), rather than individual classroom teachers. However, despite these promising findings, Hundert (2007) did not find gains on all observed teacher behaviors.

Sucuoğlu et al. (2011) found measurable (but not statistically significant) increases in teachers' interactions with children with special needs, as well as in teacher actions that provide learning opportunities for these students. Conversely, the researchers registered decreases in teacher praise for social behaviors of children with special needs (Sucuoğlu et al., 2011). Sucuoğlu et al. (2011) discussed their results, suggesting that:

This finding seems to confirm the conclusions of the existing literature which emphasized that education programs featuring hands-on experience, consultancy, and feedback can result in more positive changes on teacher behaviors (Crane-Mitchell & Hegde, 2007; Hundert, 2007). If the PIP [the training program] used in this study had included opportunities for hands-on experiences and feedback for the teachers, more changes might have been seen (p. 335).

The mixed results found by Hundert (2007), on the other hand, might be explained in an examination of the content of the teacher training sessions, as described in the next section.

In-person, in-service teacher training content

Concerning the content focus of the referenced interventions, the studies by Katz (2015) and Elder et al. (2016) drew on UDL as a conceptual or guiding framework. These interventions included either explicit or implicit content elements on UDL principles and the use of practical teaching strategies and inclusive lesson planning to better meet diverse students' needs. In addition, Elder et al. (2016) focused on community-building strategies and a training design that promoted indigenous knowledge and a sense of empowerment among teachers. The training by Sucuoğlu et al. (2011) focused on a range of topics starting from policy issues on inclusive education, identification and characteristics of students with specific disabilities, individualized education programs, inclusive teaching strategies, and classroom management, as well as included sessions on communication skills and working with families. Conversely, the training by Hundert (2007) prioritized teacher behavior and activities (e.g., organizational and material arrangements for inclusive group work) that promote peer interaction during play sessions.

As outlined earlier in this section, results from this body of evidence, although limited by small sample sizes, appear to be mixed regarding improvements in teachers' adoption of inclusive instructional practices in their classrooms. Illustratively, despite the above-mentioned gains in teachers' inclusive instructional practices directed at inclusive groups, Hundert (2007) did not find increases in teacher behaviors that focused on individual students with disabilities. The author does not provide a discussion of this finding, but it might be explained by the narrow focus of the training intervention on peer interaction.

Elder et al. (2016) on the other hand reported that following their four training sessions drawing on the UDL framework and including the practice of a range of instructional strategies, teachers' adoption of inclusive instructional practices also resulted in increased engagement by students without disabilities. The authors suggested that "universally designed and inclusive strategies benefit all students in the class, not only students with disabilities" (Elder et al., 2016, p. 424). Similarly, participating teachers in the study by Katz (2015) reported decreases in students' challenging behaviors, increases in peer interaction, and overall improvements in class and school climate following their adoption of UDL principles for lesson design and implementation.

In summary, the empirical literature on addressing teachers' behavioral intentions and actual inclusive practices in the classroom includes online or hybrid approaches to in-service teacher training (Baldiris Navarro et al., 2016; Courey et al., 2013; McGhie-Richmond & Sung, 2013) and stand-alone, in-person teacher training (Elder et al., 2016; Hundert, 2007; Katz, 2015). Empirical studies across these approaches report measurable improvements in teachers' intentions (as demonstrated in their design of inclusive instructional lesson plans; Baldiris Navarro et al., 2016; Courey et al., 2013), and more notably, in teachers' adoption of targeted inclusive instructional practices (Elder et al., 2016; Hundert, 2007; Katz, 2015).

Among these approaches, stand-alone, in-person teacher training enjoys a more robust evidence base, including demonstrated efficacy in low-income contexts (Elder et al., 2016). Yet, the evidence base on this approach is mixed concerning the scope and strength of the effect on teacher adoption of inclusive practices (Hundert, 2007; Sucuoğlu et al., 2011), particularly in the absence of more rigorous studies. Nevertheless, the referenced studies suggest that in-service teacher training can be effective in promoting teacher adoption of inclusive instructional practices if delivered with at least 2.25 hours of total training time in more than one session, and in a timeframe of at least two weeks (Hundert, 2007).

Notably, this body of literature points to the efficacy of UDL as a conceptual framework to underpin intervention content and design across approaches (Baldiris Navarro et al., 2016; Courey et al., 2013; Elder et al., 2016; Katz, 2015). Studies found UDL approaches promote teachers' intentions to adopt inclusive instructional practices. Furthermore, as Elder et al. (2016) suggested, leveraging UDL as a framework for curriculum accommodation may benefit not only students with special needs but all students in inclusive classrooms. Consequently, effective interventions among the referenced studies suggest an important role for comprehensive manuals and lesson planning templates, as well as multiple content formats to strengthen teacher training efforts.

7 Conclusion

The comprehensive literature review provided in the previous chapter points to promising interventions to improve teacher attitudes and self-efficacy for inclusion and teacher adoption of inclusive instruction practice, addressing a subset of the factors contributing to barriers to inclusive education at the classroom level, and in turn, the low school enrollment of children with disabilities.

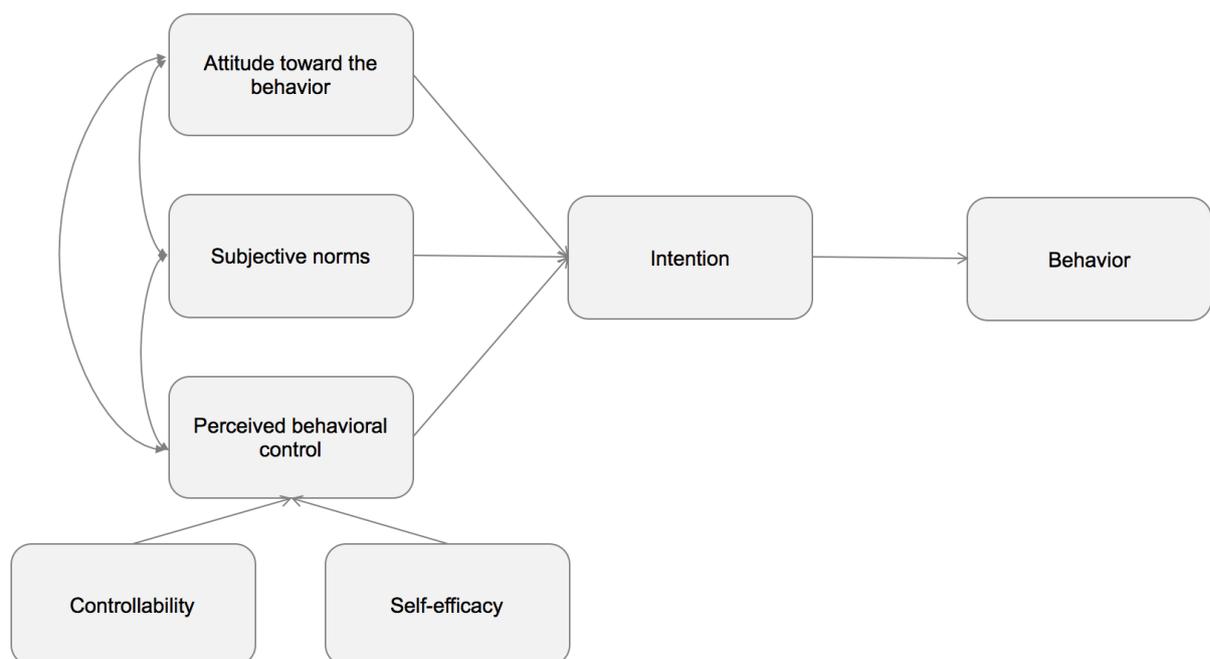
While this review was specifically focused on peer-reviewed and published empirical literature, reports on disability inclusion in low- and middle-income countries point to many

examples of promising, although potentially less rigorously studied and published interventions, from the region (Bulat & Haynes, 2017; UNESCO, 2017; WHO, 2011).

It is hoped that the detailed literature review (although studies were universally lacking cost data), combined with the data on disability prevalence, school completion, legal frameworks, and inclusive education policies presented in this report, might facilitate consideration and design of future interventions for inclusive education in the focal geographies in Asia.

Appendix A – The Theory of Planned Behavior

Icek Ajzen developed the Theory of Planned Behavior as part of an effort to research and predict the relationship between individual's *attitudes*, their behavioral *intentions*, and their actual *behaviors* (Ajzen, 1985). According to Ajzen, behaviors tend to originate from an intention to execute the specific behavior. This intention, in turn, is influenced by an individual's attitude toward the planned behavior, as well as the social *norms* and expectations of their community. Furthermore, research on behavior indicates that an individual's sense of control over the factors that affect their ability to exercise the behavior plays a role in whether behaviors are adopted (Ajzen, 1985). Sense of control is conceptualized as *perceived behavioral control* in the Theory of Planned Behavior and is derived from two main components: *controllability* of the contextual factors surrounding the behavior and the individual's sense of *self-efficacy*—that is, their confidence in their ability to execute on the behavior (Ajzen, 1991). Ajzen (1991) also describes the relationship between the factors in this framework, highlighting that the stronger an individuals' behavioral intention, the more likely its actual enactment. The figure below illustrates the Theory of Planned Behavior, adapted from Ajzen (1991, p. 182).



The Theory of Planned Behavior has a history of application in research on inclusive education to explain and predict intentions and behaviors in diverse national contexts. Illustratively, MacFarlane and Marks Woolfson (2013) applied the theory to study teachers' attitudes and behavior toward the inclusion of children with social, emotional, and behavioral difficulties in 61 mainstream schools in Scotland. The study found that the subjective norms teachers experienced in their schools predicted their behavior regarding inclusion. Results also indicated that positive teacher attitudes and higher levels of teacher self-efficacy correlated with higher degrees of intention to engage with the children with social, emotional, and behavioral difficulties in their classroom (MacFarlane & Marks Woolfson, 2013).

The Theory of Planned Behavior also informed research by Ojok and Wormnaes (2013) aimed at investigating attitudes toward and willingness for the inclusion of children with intellectual disabilities among teachers of regular classrooms in rural Uganda. The study found a strong positive correlation between teachers' attitudes toward inclusion of students

with intellectual disabilities and their willingness to teach these children (Ojok & Wormnaes, 2013).

Research by Kurniawati, deBoer, Minnaert, and Mangunson (2017) applied the key tenets of the Theory of Planned Behavior to their discussions of the effect of a teacher in-service training program on inclusive education in Indonesia. The authors explored the outcomes of a 32-hour training program on teachers' attitudes, knowledge, and teaching strategies for students with disabilities. The research found improvements in teachers' attitudes and self-efficacy in inclusive education. The authors indicated, building on the Theory of Planned Behavior, that teachers' attitudes and knowledge (internal factors aligned with the theory's dimensions of attitude and self-efficacy), as well as time and opportunity (external factors related to the theory's aspects of subjective norms and controllability) to implement inclusive education, should be considered in intervention design (Kurniawati et al., 2017).

Appendix B – Methodological Summaries for Exhibits 19–22

The below paragraphs provide a summative account of the kind of instruments used in the studied interventions described in detail in Section 5 of the report.

Methodological summary for Exhibit 19: Overview of intervention studies using stand-alone teacher training to address teacher attitudes

Studies used a mix of newly constructed and existing instruments. Kurniawati, deBoer, Minnaert, and Mangunson (2017) developed a new attitude scale with two factors, a cognitive-affective factor and a behavioral factor, to teachers' attitudes toward inclusion. Lifshitz, Glaubman, and Issawi (2004) used the Gemmel-Crosby and Hanzlik questionnaire, which is a five-factor Likert scale along several categories of disability, including physical disabilities, sensory disabilities, deafness and blindness, learning disabilities, and behavioral/emotional disabilities. Sari (2007), Seçer (2010), and Sucuoğlu, Bakkaloğlu, Akalin, Demir, & İçcen-Karasu (2015) used the Opinions Relative to Mainstreaming scale. This scale is a five-factor Likert scale indexing teachers' attitudes along factors such as classroom management, teacher competencies, advantages of inclusion, student competencies and potential, and negative effects of inclusion.

Methodological summary for Exhibit 20: Overview of intervention studies using stand-alone in-service teacher training to address self-efficacy

As can be seen from Exhibit 20 of the report, studies addressing teacher self-efficacy predominantly used existing scales for measurement. The Teacher Efficacy for Inclusive Practices scale is an 18-item Likert scale with three factors: teacher self-efficacy in using inclusive instruction, teacher self-efficacy in managing behavior, and teacher self-efficacy in working collaboratively (Chao, Forlin, & Ho, 2016; Forlin & Sin, 2010). The Teacher Sense of Efficacy Scale used in the Chao, Chow, Forlin, and Ho (2017) study in Hong Kong was adapted to the context as a 12-item Likert scale with two factors: teacher self-efficacy in teaching and learning, and teacher self-efficacy in classroom management. This scale, however, was not specific to inclusive education, which the authors mentioned as a study limitation given other research indicating that teacher self-efficacy may be a context and domain-specific construct (Chao et al., 2017). The Teacher Sense of Efficacy Scale used by Owens-Twaites (2013) is the original 24-item Likert scale version with three factors: efficacy in student engagement, teacher efficacy in instructional practices, and teacher efficacy in classroom management. The self-efficacy component of the Gemmel-Crosby and Hanzlik questionnaire used in Lifshitz et al. (2004) is a 5-factor Likert scale along several categories of disability, including physical disabilities, sensory disabilities, deafness and blindness, learning disabilities, and behavioral/emotional disabilities.

Methodological summary for Exhibit 21: Overview of intervention studies using online or hybrid in-service training to address teachers' intentions

The Spooner et al. rubric applied in two of the studies listed in the exhibit entails a 3-point scale (0 = no clear description of instructional modification provided in the lesson plan; 1 = one or more instructional modifications provided; 2 = three or more instructional modifications provided) along the three main UDL principles of representation, expression, and engagement (Baldiris Navarro, Zervas, Fabregat Gesa, & Sampson, 2016; Courey, Tappe, Siker, & LePage, 2013). The rubric has a maximum score of six for lesson plans that featured three or more instructional modifications on each of the three UDL dimensions. Baldiris Navarro et al. (2016) conducted such quantitative analysis of lesson plan modifications for two lesson plans per participating teacher in their study, one at baseline and one at endline. Courey et al. (2013) applied the rubric three times, once at baseline, once directly after the training intervention, and once at endline.

The self-developed instrument by McGhie-Richmond and Sung (2013) similarly quantified the number of changes related to UDL principles, but did so in absolute terms by principle, that is, a teacher making a total of four changes in line with the UDL principle of multiple means of representation, scored a total of four points on this dimension. The authors proceeded similarly for the other two UDL principles. In addition to this quantitative analysis of at least two lesson plans per teacher, one at baseline and one at endline, McGhie-Richmond and Sung (2013) also qualitatively analyzed a two-page teacher reflection assignment to reveal potential themes in teachers' articulation of the instructional changes they made in their lesson plans and the application of UDL principles. The next section discusses findings from the referenced studies in consideration of training length and format.

Methodological summary for Exhibit 22: Overview of intervention studies using in-person, in-service training to address teachers' adoption of inclusive practices

As can be seen from Exhibit 22 of the report, while most referenced studies conducted post-intervention classroom observation data collection immediately or within days of the intervention (Elder, Damiani, & Oswago, 2016; Sucuoğlu et al., 2011), Hundert (2007) implemented a multiple baseline design with an additional data collection after three months to investigate potential maintenance effects. Hundert (2007) leveraged items from the Eco-Behavioral System for Complex Assessments of Pre-school Environments (Carta, Greenwood, & Atwater as cited in Hundert, 2007), which included observational items for teacher behavior, such as their physical proximity to children with or without disabilities during instruction and their verbal and nonverbal behavior toward student groups with or without children with a disability. Observational measures newly developed by Elder et al. (2016) and Katz (2015) similarly indexed teacher behaviors, notably their student engagement and grouping strategies. New measures also indexed teachers' approving or disapproving behaviors toward students with disabilities (Sucuoğlu et al., 2011) or teachers' creation of learning opportunities for these students (e.g., questioning; Sucuoğlu et al., 2011).

Works Cited

- Adioetomo, S. M., Mont, D., Irwanto (2014). *Persons with disabilities in Indonesia. Empirical facts and implications for social protection policies*. Retrieved from [http://www.tnp2k.go.id/images/uploads/downloads/Disabilities%20report%20Final%20sept2014%20\(1\)-1.pdf](http://www.tnp2k.go.id/images/uploads/downloads/Disabilities%20report%20Final%20sept2014%20(1)-1.pdf)
- Ahmed, M., Sharma, U., & Deppeler, J. (2014). Variables affecting teachers' intentions to include students with disabilities in regular primary schools in Bangladesh. *Disability and Society, 29*(2), 317–331. doi:10.1080/09687599.2013.796878
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. doi:10.1016/0749-5978(91)90020-T.
- Akalin, S., & Sucuoğlu, B. (2015). Effects of classroom management intervention based on teacher training and performance feedback on outcomes of teacher-student dyads in inclusive classrooms. *Educational Sciences: Theory and Practice, 15*(3), 739–758. doi:10.12738/estp.2015.3.2543
- Al-Manabri, M., Al-Sharhan, A., Elbeheri, G., Jasem, I. M., & Everatt, J. (2013). Supporting teachers in inclusive practices: Collaboration between special and mainstream schools in Kuwait. *Preventing School Failure, 57*(3), 130–134. doi:10.1080/1045988X.2013.794325
- Anstice, N. S., & Thompson, B. (2013). The measurement of visual acuity in children: An evidence-based update. *Clinical and Experimental Optometry, 97*(1), 3–11. doi:10.1111/cxo.12086
- Baldiris Navarro, S. B., Zervas, P. P., Fabregat Gesa, R. R., & Sampson, D. D. (2016). Developing teachers' competences for designing inclusive learning experiences. *Journal of Educational Technology and Society, 19*(1), 17–27. Retrieved from <http://www.ifets.info>
- Banks, L. M., & Polack, S. (2014). *The economic costs of exclusion and gains of inclusion of people with disabilities: Evidence from low and middle income countries*. Retrieved September 15, 2016, from <http://disabilitycentre.lshtm.ac.uk/files/2014/07/Costs-of-Exclusion-and-Gains-of-Inclusion-Report.pdf>
- Bhatnagar, N., & Das, A. (2014). Regular school teachers' concerns and perceived barriers to implement inclusive education in New Delhi, India. *International Journal of Instruction, 7*(2), 89-102. Retrieved from <http://www.e-iji.net>
- Bright, T., & Pallawela, D. (2015). Validated smartphone-based apps for ear and hearing assessments: A review. *Journal of Medical Internet Research – Rehabilitation and Assistive Technologies, 3*(2). doi:10.2196/rehab.6074
- Brouillette, R., (2011). *Manual for screening Cambodian children for disabilities*. Save the Children. Retrieved from <https://resourcecentre.savethechildren.net/library/manual-screening-cambodian-children-disabilities>
- Brown, T. L., Gatmaitan, M., & Harjusola-Webb, S. M. (2013). Using performance feedback to support paraprofessionals in inclusive preschool classrooms. *Young Exceptional Children, 17*(2), 21–31. doi:10.1177/1096250613493189

- Buckup, S. (2009). *The price of exclusion: The economic consequences of excluding people with disabilities from the world of work*. International Labour Organization. Retrieved from http://www.ilo.org/employment/Whatwedo/Publications/working-papers/WCMS_119305/lang--en/index.htm
- Bulat, J., & Hayes, A. (2017). Disabilities inclusive education systems and policy guide for low- and middle-income countries. RTI International. Retrieved from <https://www.rti.org/rti-press-publication/disabilities-inclusive-education-systems-and-policies-guide-low-and-middle-income>
- Cappa, C. (2011). *Measuring child disability in low- and middle-income countries: the MICS experience* [presentation]. Retrieved from https://www.cdc.gov/nchs/ppt/citygroup/meeting11/wg11_session5_3_cappa.pdf
- Cappa, C., Petrowski, N., & Njelesani, J. (2015). Navigating the landscape of child disability measurement: A review of available data collection instruments. *European Journal of Disability Research, 9*, 317-390. doi:10.1016/j.alter.2015.08.001
- Chao, C. G., Chow, W. E., Forlin, C., & Ho, F. C. (2017). Improving teachers' self-efficacy in applying teaching and learning strategies and classroom management to students with special education needs in Hong Kong. *Teaching and Teacher Education, 66*, 360–369. doi:10.1016/j.tate.2017.05.004
- Chao, C. G., Forlin, C., & Ho, F. C. (2016). Improving teaching self-efficacy for teachers in inclusive classrooms in Hong Kong. *International Journal of Inclusive Education, 20*(11), 1142–1154. doi:10.1080/13603116.2016.1155663
- Courey, S. J., Tappe, P., Siker, J., & LePage, P. (2013). Improved lesson planning with Universal Design for Learning (UDL). *Teacher Education and Special Education, 36*(1), 7–27. doi:10.1177/0888406412446178
- De Venecia, B., Bradfield, Y., Møller Trane, R., Bareiro, A., & Scalamogna, M. (2018). Validation of Peek Acuity application in pediatric screening programs in Paraguay. *International Journal of Ophthalmology, 11*(8), 1384–1389. doi:10.18240/ijo.2018.08.21
- DeVore, S., Miolo, G., & Hader, J. (2011). Individualizing inclusion for preschool children using collaborative consultation. *Young Exceptional Children, 14*(4), 31–43. doi:10.1177/1096250611428424
- Dey, R., Davessar, J. L., Kumar, S., & Sharma, T. (2016). Behavioral screening tests to detect hearing loss in school aged children: A review. *International Journal of Community Health and Medical Research, 2*(2), 73–79. doi:10.21276/ijchmr.2016.2.2.11
- Dinnerbeil, L., Spino, M., McInerney, W. (2011). Using implementation checklists to reinforce the use of child-focused intervention strategies. *Young Exceptional Children, 14*(2), 22–31. doi:10.1177/1096250611407140
- Duchaine, E. L., Jolivette, K., & Fredrick, L. D. (2011). The effect of teacher coaching with performance feedback on behavior-specific praise in inclusion classrooms. *Education and Treatment of Children, 34*(2), 209–227. doi:10.1353/etc.2011.0009

- Dusty, C. E., & Schneider Dinnesen, M. (2012). Co-teaching in inclusive classrooms using structured collaborative planning. *Kentucky Journal of Excellence in College Teaching and Learning*, 10, 36–52. Retrieved from <http://encompass.eku.edu/kjectl>
- Eden Center for Disabled Children. (2015). *A space to learn for all children? Inclusive education and children with disabilities in Yangon, Myanmar*. Retrieved from http://www.burmalibrary.org/docs21/MIMU-2015-03-Inclusive_education_and_children_with_disabilities_in_Yangon_Myanmar-en.pdf
- Elder, B. C., Damiani, M. L., & Oswago, B. O. (2016). From attitudes to practice: Utilising inclusive teaching strategies in Kenyan primary schools. *International Journal of Inclusive Education*, 20(4), 413–434. doi:10.1080/13603116.2015.1082648
- Faheema, M-A., Swanepool, D. W., Eikelboom, R. H., Myburgh, H. C., & Hall, J. (2016). Clinical validity of hearScreen™ smartphone hearing screening for school children. *Ear and Hearing*, 37(1). doi:10.1097/AUD.0000000000000223
- Filmer, D. (2008). Disability, poverty, and schooling in developing countries: Results from 14 household surveys. *World Bank Economic Review*, 22(1), 141–163. doi:10.1093/wber/lhm021
- Forlin, C., & Sin, K. (2010). Developing support for inclusion: A professional learning approach for teachers in Hong Kong. *International Journal of Whole Schooling*, 6(1), 7–26. Retrieved from http://www.wholeschooling.net/Journal_of_Whole_Schooling/IJWSIndex.html
- Goetz, D. M. (2001). *An evaluation of the effect of inservice training and collaborative consultation on classroom teachers' ability to accommodate children with behavioral challenges in the regular education classroom* (Doctoral Dissertation). Retrieved from <http://www.proquest.com/en-US/products/dissertations/individuals.shtml>
- Government of Cambodia. (2015). *Cambodia Demographic and Health Survey 2014*. Retrieved from <https://dhsprogram.com/pubs/pdf/FR312/FR312.pdf>
- Government of India. (2011). *2011 Census data* [datasets]. Retrieved from <http://www.censusindia.gov.in/2011-Common/CensusData2011.html>
- Government of India. (2016a). *National policy on education 2016. Report of the committee for evolution of the new education policy*. Retrieved from <http://www.nuepa.org/New/download/NEP2016/ReportNEP.pdf>
- Government of India. (2016b). *Some inputs for draft national education policy 2016*. Retrieved from http://mhrd.gov.in/sites/upload_files/mhrd/files/nep/Inputs_Draft_NEP_2016.pdf
- Government of Indonesia. (2016). *Measuring disability in Indonesia* [Presentation]. Retrieved from <https://unstats.un.org/unsd/demographic-social/meetings/2016/bangkok--disability-measurement-and-statistics/session-6/indonesia.pdf>
- Government of the Kingdom of Cambodia. (2008). *Policy on education for children with disabilities*. Retrieved from <http://www.moeys.gov.kh/en/press-releases/policy-on-education-for-children-with-disabilities.html>
- Government of the Lao People's Democratic Republic. (2008). *Multiple Indicator Cluster Survey 2006*. Retrieved from <https://mics-surveys->

prod.s3.amazonaws.com/MICS3/East%20Asia%20and%20the%20Pacific/Lao%20People%27s%20Democratic%20Republic/2006/Final/Lao%20PDR%202006%20MICS_English.pdf

Government of Mongolia. (2013). *Child development 2010 survey. Multiple Indicator Cluster Survey 2010 Final Report*. Retrieved from https://mics-surveys-prod.s3.amazonaws.com/MICS4/East%20Asia%20and%20the%20Pacific/Mongolia/2010/Final/Mongolia%202010%20MICS_English.pdf

Government of Myanmar. (2015). *Myanmar labour force, child labour and school to work transition survey 2015. Executive summary report*. Retrieved from http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-yangon/documents/publication/wcms_516117.pdf

Government of Myanmar. (2016). *National education strategic plan 2016-2021*. Retrieved from https://www.britishcouncil.org/sites/default/files/myanmar_national_education_strategic_plan_2016-21.pdf

Government of Nepal. (2012). *National population and housing census 2011 (National Report)*. Retrieved from <https://unstats.un.org/unsd/demographic-social/census/documents/Nepal/Nepal-Census-2011-Vol1.pdf>

Government of the People's Republic of Bangladesh. (2007). *Bangladesh. Multiple Indicator Cluster Survey 2006*. Retrieved from https://www.unicef.org/bangladesh/2006-08_MICS_2006_Vol_I.Final.pdf

Government of the People's Republic of Bangladesh. (2010). *National education policy 2010*. Retrieved from <https://reliefweb.int/sites/reliefweb.int/files/resources/02.National-Education-Policy-2010-English.pdf>

Government of the Philippines. (2013). *Persons with disability in the Philippines (results from the 2010 census)*. Retrieved from <https://psa.gov.ph/content/persons-disability-philippines-results-2010-census>

Government of the Philippines. (2017). *Bill of the Inclusive Education for Children and Youth with Special Needs Act*. Retrieved from <https://www.aseanlip.com/philippines/general/legislation/bill-of-the-inclusive-education-for-children-and-youth-with-special-needs-act/AL15463>

Government of Sri Lanka. (2016). *Disability in Sri Lanka* [presentation]. Retrieved from <https://unstats.un.org/unsd/demographic-social/meetings/2016/bangkok--disability-measurement-and-statistics/Session-6/Sri%20Lanka.pdf>

Government of Thailand. (2012). *The 2012 national disability survey*. Retrieved from http://web.nso.go.th/en/survey/disabi/data/2012_Full%20Report.pdf

Government of Timor-Leste (2010). *Timor-Leste population and household census, 2010. Analytical report on disability*. Retrieved from http://www.statistics.gov.tl/wp-content/uploads/2013/12/Disability_Monograph.pdf

Government of Uzbekistan. (2006). *Uzbekistan. Multiple Indicator Cluster Survey 2006*. Retrieved from <https://mics-surveys->

prod.s3.amazonaws.com/MICS3/Europe%20and%20Central%20Asia/Uzbekistan/2006/Final/Uzbekistan%202006%20MICS_English.pdf

- Grimes, P., Stevens, M., & Kumar, K., (2015). *An examination of the evolution of policies and strategies to improve access to education for children with disabilities, with a focus on inclusive education approaches, the success and challenges of such approaches and implications for the future policy direction*. Background paper prepared for the Education for All Global Monitoring Report 2015. Retrieved from <http://unesdoc.unesco.org/images/0023/002324/232454E.pdf>
- Hackett, J. D., Hudson, R. F., West, E. A., & Brown, S. E. (2016). *Cambodian inclusive education for vulnerable populations: Toward an ecological perspective policy*. *Journal of International Special Needs Education*, 19(1), 3–14.
- Hayes, A., Dombrowski, E., Shefcyk, A., & Bulat, J. (2018). *Learning disabilities screening and evaluation guide for low- and middle-income countries*. RTI Press Publication No. OP-0052-1804. Research Triangle Park, NC: RTI Press. doi:10.3768/rtipress.2018.op.0052.1804
- Hettiarachchi, S., & Das, A. (2014). Perceptions of 'inclusion' and perceived preparedness among school teachers in Sri Lanka. *Teaching and Teacher Education*, 43, 143–153. doi:10.1016/j.tate.2014.07.003
- Hundert, J. P. (2007). Training classroom and resource preschool teachers to develop inclusive class interventions for children with disabilities: Generalization to new intervention targets. *Journal of Positive Behavior Interventions*, 9(3), 159–173. doi:10.1177/10983007070090030401
- Kamenopoulou, L., & Dukpa, D. (2018). Karma and human rights: Bhutanese teachers' perspectives on inclusion and disability. *International Journal of Inclusive Education*, 22(3), 323–338. doi:10.1080/13603116.2017.1365274
- Kandhari, N., & Chowdhry, R. (2016). A pre-post study: Attitude of teachers' towards inclusive education. *Indian Journal of Health and Wellbeing*, 7(1), 161–163. Retrieved from <http://www.i-scholar.in/index.php/ijhw>
- Katz, J. (2015). Implementing the three block model of Universal Design for Learning: Effects on teachers' self-efficacy, stress, and job satisfaction in inclusive classrooms K-12. *International Journal of Inclusive Education*, 19(1), 1-20. doi:10.1080/13603116.2014.881569
- Khamis, G. (2011). Teachers' beliefs and practices observed in inclusive classes. *Electronic Journal for Inclusive Education*, 8(2). Retrieved from <https://corescholar.libraries.wright.edu/cgi/viewcontent.cgi?article=1132&context=ejie>
- Khan, N. Z., Muslima, H., El Arifeen, S., McConachie, H., Shilpi, A. B., Ferdous, S., & Darmstadt, G. L. (2014). Validation of a rapid neurodevelopmental assessment tool for 5 to 9 year-old children in Bangladesh. *The Journal of Pediatrics*, 164(5), 1165–1170.e6. doi:10.1016/j.jpeds.2013.12.037
- Kuper, H., Polack, S., Eusebio, C., Mathenge, W., Wadud, Z., & Foster, A. (2008). A case-control study to assess the relationship between poverty and visual impairment from cataract in Kenya, the Philippines, and Bangladesh. *PLoS Medicine*, 5(12), 1716–1728. doi:10.1371/journal.pmed.0050244

- Kurniawati, F., de Boer, A. A., Minnaert, A. G., & Mangunsong, F. (2014). Characteristics of primary teacher training programmes on inclusion: A literature focus. *Educational Research*, 56(3), 310–326. doi:10.1080/00131881.2014.934555
- Kurniawati, F., de Boer, A. A., Minnaert, A. G., & Mangunsong, F. (2017). Evaluating the effect of a teacher training programme on the primary teachers' attitudes, knowledge and teaching strategies regarding special educational needs. *Educational Psychology*, 37(3), 287–297. doi:10.1080/01443410.2016.1176125
- Kurniawati, F., Minnaert, A., Mangunsong, F., & Ahmed, W. (2012). Empirical study on primary school teachers' attitudes towards inclusive education in Jakarta, Indonesia. *Social and Behavioral Sciences*, 69, 1430–1436. doi:10.1016/j.sbspro.2012.12.082
- Lamichhane, K. (2013). Disability and barriers to education: evidence from Nepal. *Scandinavian Journal of Disability Research*, 15(4), 311–324. doi:10.1080/15017419.2012.703969
- Lamichhane, K. (2017). Teaching students with visual impairments in an inclusive educational setting: A case from Nepal. *International Journal of Inclusive Education*, 21(1), 1–13. doi:10.1080/13603116.2016.1184323
- Lifshitz, H., Glaubman, R., & Issawi, R. (2004). Attitudes towards inclusion: The case of Israeli and Palestinian regular and special education teachers. *European Journal of Special Needs Education*, 19(2), 171–190. doi:10.1080/08856250410001678478
- MacFarlane, K., & Marks Woolfson, L. M. (2013). Teacher attitudes and behavior toward the inclusion of children with social, emotional and behavioral difficulties in mainstream schools: An application of the theory of planned behavior. *Teaching and Teacher Education*, 29, 46–52. doi:10.1016/j.tate.2012.08.006
- Mactaggart, I., Kuper, H., Murthy, G. V. S., Oye, J., & Polack, S. (2016). Measuring disability in population based surveys: The interrelationship between clinical impairments and reported functional limitations in Cameroon and India. *PLoS ONE*, 11(10), 1–18. doi: 0.17037/DATA. 116.
- Malak, S., Hosne, B. A., Ahsan, H., Mahmuda, S., & Mohammad, M. R. (2013). *Inclusive education in Bangladesh: Policy and practice*. Paper presented at joint AARE Conference, Adelaide 2013. Retrieved from <https://www.aare.edu.au/data/publications/2013/Malak13.pdf>
- Male, C., & Wodon, Q. (2017). *The price of exclusion: Disability and education. Disability gaps in education attainment and literacy*. The World Bank. Retrieved from <http://documents.worldbank.org/curated/en/396291511988894028/Disability-gaps-in-educational-attainment-and-literacy>
- McGhie-Richmond, D., & Sung, A. N. (2013). Applying Universal Design for Learning to instructional lesson planning. *International Journal of Whole Schooling*, 9(1), 43–59. Retrieved from http://www.wholeschooling.net/Journal_of_Whole_Schooling/IJWSIndex.html
- Miller, K. J., Wienke, W. D., & Savage, L. B. (2000). Elementary and middle/secondary educator's pre and post training perceptions of ability to instruct students with disabilities. *Rural Special Education Quarterly*, 19(3–4), 3–14. doi:10.1177/8756870500019003-402

- Mitra, S., Posarac, A., & Vick, B. (2013). Disability and poverty in developing countries: A multidimensional study. *World Development*, 41, 1–18. doi:10.1016/j.worlddev.2012.05.024
- Mizunoya, S., Mitra, S., & Yamasaki, I. (2016). *Towards inclusive education: The impact of disability on school attendance in developing countries*. Innocenti Working Paper No.2016-03, UNICEF Office of Research, Florence. Retrieved from <https://www.unicef-irc.org/publications/pdf/IWP3%20-%20Towards%20Inclusive%20Education.pdf>
- Muega, M. A. G. (2016). Inclusive Education in the Philippines: Through the eyes of teachers, administrators, and parents of children with special needs. *Social Science Diliman*, 12(1), 5-28. Retrieved from <https://upd.edu.ph>
- Mullick, J., Deppeler, J., & Sharma, U., (2012). Inclusive education reform in primary schools in Bangladesh: Leadership challenges and possible strategies to address the challenges. *International Journal of Whole Schooling*, 8(1), 1–17. Retrieved from http://www.wholeschooling.net/Journal_of_Whole_Schooling/IJWSIndex.html
- Myanmar Education Consortium. (2015). *Analysis of inclusive education in Myanmar*. Retrieved from <https://mecmigration.files.wordpress.com/2016/05/mec-inclusive-education-analysis-report-july-20151.pdf>
- Ojok, P., & Wormnaes, S. (2013). Inclusion of pupils with intellectual disabilities: Primary school teachers' attitudes and willingness in a rural area in Uganda. *International Journal of Inclusive Education*, 17(9), 1003–1021. doi:10.1080/13603116.2012.728251
- Omar, R., & Knight, V. F., (2012). Comparison of Lea Symbols Chart and Sheridan Gardiner Chart in assessing vision screening among pre-school children: A Malaysia perspective. *Journal of the Medical Association of Thailand*, 95(3), 412–417. Retrieved from <http://www.jmatonline.com>
- Owens-Twaites, L. (2013). *The effects of staff development on teacher self-efficacy and student achievement in an elementary inclusion program* (Doctoral Dissertation). Retrieved from <http://www.proquest.com/en-US/products/dissertations/individuals.shtm>
- Poernomo, B. (2016). The implementation of inclusive education in Indonesia: Current problems and challenges. *American International Journal of Social Science*, 5(3), 144–150. Retrieved from http://www.aijssnet.com/journals/Vol_5_No_3_June_2016/17.pdf
- Prescott, C. A. J., Omoding, S.S., Fermor, J., & Ogilvy, D. (1999). An evaluation of the 'voice test' as a method for assessing hearing in children with particular reference to the situation in developing countries. *International Journal of Pediatric Otorhinolaryngology*, 51(3), 165–170. doi: 10.1016/s0165-5876(99)00263-3
- Rivera, E. A., McMahon, S. D., & Keys, C. B. (2014). Collaborative teaching: School implementation and connections with outcomes among students with disabilities. *Journal of Prevention and Intervention in the Community*, 42(1), 72–85. doi:10.1080/10852352.2014.855067
- Robertson, J., Hatton, C., Emerson, E., & Yasamy, M. T. (2012). The identification of children with, or at significant risk of, intellectual disabilities in low- and middle-

- income countries: A review. *Journal of Applied Research in Intellectual Disabilities*, 25(2), 99–118. doi:10.1111/j.1468-3148.2011.00638.x
- Rose, D. H., & Gravel, J. (2011). *Universal Design for Learning (UDL) guidelines: Full-text representation*. Retrieved from Universal Design for Learning Center Website: <http://www.udlcenter.org/aboutudl/udlguidelines/downloads>
- RTI International. (2018). *Cambodia situational analysis of the education of children with disabilities in Cambodia report*. Report developed for USAID under AID-OAA-TO-16-00017 Number: REQ-ASIA-16-00017.
- Sari, H. (2007). The influence of an in-service teacher training (INSET) programme on attitudes towards inclusion by regular classroom teachers who teach deaf students in primary schools in Turkey. *Deafness and Education International*, 9(3), 131–146. doi:10.1179/146431507790559996
- Sharma, U., & Jacobs, K. (2016). Predicting in-service educators' intentions to teach in inclusive classrooms in India and Australia. *Teaching and Teacher Education*, 55, 13–23. doi:10.1016/j.tate.2015.12.004
- Scruggs, T. E., & Mastropieri, M. A. (2017). Making inclusion work with co-teaching. *Teaching Exceptional Children*, 49(4), 284–293. doi:10.1177/0040059916685065
- Scruggs, T. E., Mastropieri, M. A., & McDuffie, K. A. (2007). Co-teaching in inclusive classrooms: A metasynthesis of qualitative research. *Council for Exceptional Children*, 73(4), 392–416. doi:10.1177/001440290707300401
- Seçer, Z. (2010). An analysis of the effects of in-service teacher training on Turkish preschool teachers' attitudes towards inclusion. *International Journal of Early Years Education*, 18(1), 43–53. doi:10.1080/09669761003693959
- Sri Lanka National Education Commission. (2016). *Study on the development of special education and non-formal education*. World Bank. Retrieved from <http://nec.gov.lk/wp-content/uploads/2016/04/10-Final-.pdf>
- Statistics Indonesia (2015). *Population of Indonesia. Result of the 2015 Intercensal Population Survey*. Retrieved from https://bps.go.id/website/pdf_publicasi/Penduduk-Indonesia-hasil-SUPAS-2015_rev.pdf
- Strigel, C. (2017). *Assistive Technology Capacity Building Initiative - Endline Report - Reading for Ethiopia's Achievement Developed Technical Assistance (READ TA)*. RTI International. USAID Cooperative Agreement No.: AID-663-A-12-00013. Retrieved from <https://shared.rti.org/content/endline-report-ethiopia-assistive-technology-initiative-early-reading-classrooms>
- Sucuoğlu, N. B., Bakkaloğlu, H., Akalin, S., Demir, Ş., & İçsen-Karasu, F. (2015). The effects of the preschool inclusion program on teacher outcomes in Turkey. *Journal of Early Childhood Teacher Education*, 36(4), 324–341. doi:10.1080/10901027.2015.1105328
- Tiwari, A., Das, A., Sharma, M. (2015). Inclusive education a “rhetoric” or “reality”? Teachers' perspectives and beliefs. *Teaching and Teacher Education*, 52, 128–136. doi:10.1016/j.tate.2015.09.002

- United Nations (UN). (2006). *United Nations convention on the rights of persons with disabilities*. Optional Protocol. Retrieved from <http://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>
- UN. (2015). *Sustainable Development Goals*. Retrieved from <https://www.un.org/sustainabledevelopment/>
- UN Committee on the Rights of Persons with Disabilities. (2015). Concluding observations on the initial report of Mongolia. Retrieved from http://www.mfa.gov.mn/wp-content/uploads/2015/06/CPRD_PR_I-1.pdf
- UN Department of Economic and Social Affairs. (2006). *Convention on the Rights of Persons with Disabilities (CRPD)*. Retrieved from <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html>
- United Nations Development Programme (UNDP). (2013). *Promoting the rights of persons with disabilities in central Asia: Institutional experiences and the way forward*. Retrieved from <http://hrbaportal.org/wp-content/files/Promoting-the-Rights-of-Persons-with-Disabilities-in-Central-Asia.pdf>
- United Nations Economic and Social Commission for Asia and the Pacific [ESCAP]. (2015). *Disability at a glance 2015. Strengthening employment prospects for persons with disabilities in Asia and the Pacific*. Retrieved from http://www.unescap.org/sites/default/files/SDD%20Disability%20Glance%202015_Final.pdf
- United Nations Educational, Scientific and Cultural Organization. (1994). *The Salamanca statement and framework for action on special needs education*. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0009/000984/098427eo.pdf>
- UNESCO. (2003). *Overcoming exclusion through inclusive approaches in education. A challenge and a vision*. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0013/001347/134785e.pdf>
- UNESCO. (2009). *Policy guidelines on inclusion in education*. Retrieved from <http://unesdoc.unesco.org/images/0017/001778/177849e.pdf>
- UNESCO. (2016). *Global education monitoring report 2016. Education for people and planet: Creating sustainable futures for all*. Paris: UNESCO.
- UNESCO. (2018). *Education and disability: Analysis of data from 49 countries*. Retrieved from <http://uis.unesco.org/sites/default/files/documents/ip49-education-disability-2018-en.pdf>
- United Nations Fund for Children (UNICEF). (2008). *Monitoring Child Disability in Developing Countries. Results from the Multiple Indicator Cluster Surveys*. Retrieved from https://www.unicef.org/spanish/protection/Monitoring_Child_Disability_in_Developing_Countries.pdf
- UNICEF. (2013). *The state of the world's children 2013. Children with disabilities*. Retrieved from https://www.unicef.org/sowc2013/files/SWCR2013_ENG_Lo_res_24_Apr_2013.pdf

- UNICEF. (2016). *Rapid review on inclusion and gender equality in Central and Eastern Europe, the Caucasus and Central Asia*. Retrieved from https://www.unicef.org/eca/sites/unicef.org/eca/files/2017-10/Rapid_Review_On_Inclusion_Report.pdf
- UNICEF. (2018). *A new way to measure child functioning*. Retrieved from <https://data.unicef.org/topic/child-disability/module-on-child-functioning/>
- UNICEF Bangladesh. (2014). *Situation analysis on children with disabilities in Bangladesh*. Retrieved from https://www.unicef.org/bangladesh/SACDB_Report_FINAL.pdf
- UNICEF Myanmar. (2016). *Situation analysis of children with disabilities in Myanmar 2016*. Retrieved from https://www.unicef.org/myanmar/Full_report_in_English.pdf
- UNICEF Turkmenistan. (2015). *Turkmenistan situation analysis of the boys and girls with disabilities*. Retrieved from https://www.unicef.org/turkmenistan/Issue_2_new.pdf
- UNICEF Viet Nam. (2015). *Readiness for education of children with disabilities in eight provinces in Viet Nam*. Retrieved from https://www.unicef.org/vietnam/EN_Report.pdf
- UN Office of the High Commissioner for Human Rights (OHCHR). (1989). *Convention on the rights of the child*. Retrieved from <https://www.ohchr.org/Documents/ProfessionalInterest/crc.pdf>
- UN Population Fund (UNFPA). (2011). *People with disabilities in Viet Nam. Key Findings from the 2009 Viet Nam population and housing census*. Retrieved from http://vietnam.unfpa.org/sites/default/files/pub-pdf/Disability_ENG.pdf
- UN Working Group on Business and Human Rights. (2018). *Statement at the end of visit to Thailand by the United Nations Working Group on Business and Human*. Retrieved from <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=22915&LangID=E>
- United States (US) Agency for International Development (USAID) Nepal. (2017). *Notice of funding opportunity. Reading for All: Disability inclusive education for Nepali children*. Retrieved from https://2012-2017.usaid.gov/sites/default/files/documents/1861/RFA_Diablility_Inculsive_Educati_on_for_Nepali_Citizen_Oct.pdf
- US Department of State. (2016a). *Indonesia human rights report*. Retrieved from <https://www.state.gov/documents/organization/265550.pdf>
- US Department of State. (2016b). *Laos human rights report*. Retrieved from <https://www.state.gov/documents/organization/265560.pdf>
- US Department of State. (2016c). *Pakistan human rights report*. Retrieved from <https://www.state.gov/documents/organization/265758.pdf>
- US Department of State. (2016d). *Philippines 2017 human rights report*. Retrieved from <https://www.state.gov/documents/organization/277355.pdf>
- Vorapanya, S., & Dunlap, D. (2014). Inclusive education in Thailand: Practices and challenges. *International Journal of Inclusive Education*, 18(10), 1014–1028. doi:10.1080/13603116.2012.693400

- Wapling, L. (2016). *Inclusive education and children with disabilities: Quality education for all in low and middle income countries*. CBM. Retrieved from http://www.cbm.org/article/downloads/54741/Quality_Education_for_All_LMIC_Evidence_Review_CBM_2016_Full_Report.pdf
- World Health Organization (WHO). (2011). *World report on disability*. Geneva: WHO. Retrieved from http://www.who.int/disabilities/world_report/2011/en/
- Yada, A., & Savolainen, H. (2017). Japanese in-service teachers' attitudes toward inclusive education and self-efficacy for inclusive practices. *Teaching and Teacher Education*, 64, 222-229. doi:10.1016/j.tate.2017.02.005