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REVIEW ARTICLE

Inclusive schooling in Southeast Asian countries: a scoping review of the literature

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Abstract

Most of the Southeast Asian region is comprised of developing countries. This region has a short history of inclusive education implementation and differs from developed countries' more mature inclusive education systems. This review reveals how inclusive schooling has been implemented in Southeast Asian countries and the current practices in the region. We used scoping review methodology to examine peer-reviewed literature published between January 1994 and January 2017 on inclusive schooling in the Southeast Asian countries. The inputs-processes-outcomes (IPO) model was used to group and describe the extant research. Thirty-eight articles were identified that contributed to region of Southeast Asia inclusive education research. The majority ($n = 29$, 76%) were published after 2010. The articles were organised by IPO stage: *Inputs stage* (staff professional and teacher education, resources and finances, leadership, curriculum and policy); *Processes stage* (collaboration and shared responsibility, school practice, classroom practice and climate) and *Outcomes stage* (participation). The elements of staff professional and teacher education, and collaboration and shared responsibility were most frequently featured in the literature of the inputs and processes stages. Research information about the outcomes stage of inclusive schooling was sparse. The inclusive education literature from the region is still emerging. A greater focus on outcomes is recommended in future research and practice. Having outcome data will enable evaluation of the quality and effectiveness of inclusive education. If evaluation reveals problems, then aspects of the inputs and processes stages may need to be improved to achieve better outcomes.

Keywords Inclusive education · Scoping review · Southeast Asia · Inputs · Processes · Outcomes

Introduction

The Southeast Asian region can be defined by membership of the Association of Southeast Asia Nations (ASEAN) and includes 11 independent countries: Brunei, Cambodia, East Timor, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam (Lee 2016). The region has a great diversity of wealth and educational levels (Lee 2016; Romli et al. 2017), but is less visible in global politics and economics compared with India and China (Romli et al. 2017).

In simple terms, inclusive schooling means that all children are enabled to learn in the general education system and receive the individual learning support they require (Eleweke and Rodda 2002). The inclusion of students with disabilities in schools is a feature of education policy and practice of many countries (Kalyanpur 2011), including the Southeast Asia region. Despite emerging inclusion policies, reform and implementation, the developed and developing nations are implementing inclusive education practices at different rates (Lee and Low 2014). Some countries (e.g. Cambodia, Lao PDR, Myanmar and Vietnam) only gained political and economic stability recently (Grimes et al. 2012). Although being a highly developed country, Singapore considers its inclusive education system is in its early inception (Wong et al. 2015b). So, commitments to

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inclusive education for students with disabilities represent a new agenda and a significant challenge for these nations (Grimes 2013; Lee 2016).

Countries of Southeast Asia have a history of excluding vulnerable and minority groups from mainstream education (Grimes et al. 2011, 2012; Jelas 2000). The rationale for implementing inclusive education involves a belief system of respect for different groups, promotion of social fairness and developing human relationships with those groups (Hamill and Boyd 2002; Miles and Singal 2010). For example, Thailand listed six reasons why inclusive education is essential to their country: (1) human rights justice; (2) promoting the potential of students with disabilities; (3) developing social cohesion and peer relationships; (4) preparation for the transition to after-school life; (5) educating communities to accept people with disabilities and (6) fulfilling the international mandate of education for all (Bevan-Brown et al. 2014). It is expected that school-based inclusion experiences will be transmitted to everyday life in the mainstream community (Bevan-Brown et al. 2014).

To achieve inclusive education, Southeast Asian countries established a single collaborative body, the Southeast Asian Ministers of Education Organization (SEAMEO). The SEAMEO Special Educational Needs (SEAMEOSEN) is a regional hub, carrying out activities to improve special education and inclusive practice in all participating countries (SEAMEOSEN 2017). However, it is unclear what research is available to direct inclusive schooling in these countries.

Aim

This scoping review maps the range and scope of research on inclusive schooling, research strengths and gaps and identifies areas requiring further study to inform inclusive schooling in the Southeast Asian region.

Inclusive schooling in Southeast Asian countries

Southeast Asia's progress toward inclusive schooling is linked to international commitments (Lee and Low 2013; Kalyanpur 2011; Vorapanya and Dunlap 2014) and has taken place for up to two decades in most Southeast Asian countries (Waite 2015). The Salamanca Statement (UNESCO 1994) and the UN Convention on the Rights of Persons with Disabilities (CRPD 2006) have been significant guideline documents in Southeast Asian countries that assert inclusive education for people with disabilities as a fundamental human right. Eleweka and Rodda's international analysis (2002) identified three main factors that impede inclusive schooling implementation, (1) absence of enabling legislation, (2) inadequate funding, (3) lack of resources and training. These obstacles are still evident in developed countries and Southeast Asian countries (Bualar 2016; Lee and Low 2014).

Most Southeast Asian countries did not have specific legislation on inclusive schooling. Based on findings in Cambodia, universal access to inclusive education may be incongruent with existing the Southeast Asian sociopolitical structures (Kalyanpur 2011), which instead have a dual system involving both regular and special education (Lee and Low 2014). A dual system represents a pragmatic attempt to provide special education for students with disabilities (Walker 2016), but has risks for students, teachers and school principals (Lee and Low 2014). This situation involves tension between meeting world education priorities under the CRPD or societal demands about ensuring students have access to their neighbourhood school (Jelas and Mohd Ali 2014).

There are significant funding disparities between wealthier and developing Southeast Asian nations. Developing countries like Lao PDR and Vietnam are often reported to have insufficient funding (Grimes 2013; Villa et al. 2003). Thailand and Malaysia have allocated an extra allowance to teachers for educating students with disabilities in their classrooms (Vorapanya and Dunlap 2014; Lee and Low 2014). Researchers have examined whether it is more efficient for students with disabilities to be educated entirely in segregated classrooms or in mainstream classrooms (Koay 2014; Sukumaran et al. 2015).

A large and growing body of literature has investigated difficulties with inclusive education in countries with limited capabilities and social awareness of disabilities (Jelas and Mohd Ali 2014; Lee and Low 2013, 2014). In response, Singapore focussed on teachers' education while preparing pre-service teachers to work in both mainstream and special schools (Walker 2016). However, Thaver and Lim's (2014) survey found that pre-service teachers have less information and experience with disability, and negative attitudes towards inclusive education. Education authorities in Southeast Asian countries believed mainstream teachers required professional development to bolster appropriate beliefs toward inclusive education (Koay 2014; Walker 2016).

Examining Southeast Asian countries inclusive schooling status

The Inputs-Processes-Outcomes (IPO) model proposed by Kyrizopolou and Weber (2009) aims to identify the factors that influence the system of inclusive education. It is organised through three stages of implementation: inputs (what resources are available to support inclusive education), processes (what happens during practice) and outcomes (what

students achieve). These three stages provided a coherent framework within which to analyse this body of research.

Loreman (2013) commented that the 'IPO model is helpful in identifying which areas of the system specifically might be contributing to or detracting from the ultimate goal of achieving inclusive schooling' (p. 465). This model has been applied to inclusive education measurement in several European countries (Kyriazopoulou and Weber 2009). More recently it was used to review inclusive education in Alberta, Canada (Loreman 2013), and in Pacific Island countries (Forlin et al. 2015).

Loreman (2013) grouped research on inclusive schooling into 13 thematic areas in Canada. On conducting a more comprehensive overview of the previous literature; Loreman et al. (2014) added one new element "Roles of special schools" in their systematic review, which also validated the themes identified in the earlier work in Canada. These 14 thematic areas or 'elements' are listed in Table 1. More detailed information about each element and its definition can be found in the articles cited above.

Forlin et al.'s (2015) review of inclusive education research in the Pacific Islands established the relevance of the elements listed in Table 1 for describing inclusive education practice in these developing countries. Many developing countries in the Pacific Islands have experienced implementation challenges with inclusive schooling for students with disabilities (Forlin et al. 2015). The IPO model could serve as a tool to understand the stage and implementation of inclusive education in Southeast Asia and will be used in this scoping study to map the literature.

Methods

Scoping reviews are a rigorous, systematic method to synthesise information and eliminate bias, used mainly when a construct is not well defined, and researchers want a broad understanding of its nature (Levac et al. 2010). We applied the scoping review framework (Arksey and O'Malley 2005) which describes a combination of five stages; (a) identifying the research question, (b) determining relevant studies, (c) study selection, (d) charting the data and (e) finally collating, summarising and reporting the results.

Research questions

The original question of this scoping review was 'what we can learn about Southeast Asian countries inclusive schooling?'. The research questions were refined as follows. Using the elements of the IPO model: (1) What is the extent, range and nature of peer-reviewed research on inclusive schooling in each of the countries of Southeast Asia; (2) Which elements have been emphasised and what has been learned and (3) What gaps in research on inclusive schooling exist?

Search strategy

As recommended by Arksey and O'Malley (2005), we used a wide literature search with 'minimal limits on search terms to enable a breadth of coverage' (Willis et al. 2017, p. 2). An extensive search involved five databases: CINAHL, PubMed, SCOPUS, ERIC and PsycINFO. The connector and keywords used were "inclusive education" or "inclusion", "mainstreaming (education)", "inclusive school", "special needs", "public school", "developing countries", "southeast asia", "asia, southeastern" and the names of each the Southeast Asian nations. The initial search yielded 1464 articles, falling to 1360 after duplicates were deleted.

Study selection

Articles were screened for relevance. The researcher defines (and refines) the inclusion criteria, based on increasing familiarity with the literature (Arksey and O'Malley 2005). We screened to include English-language peer-reviewed journal articles published between January 1994 and January 2017; leaving 458 articles. Following multiple readings of titles and abstracts, and revision of research questions, 282 articles were excluded, leaving 176. For this review, articles had to meet requirements based on criteria listed by Waitoller and Artiles (2013) and Forlin et al. (2015). Articles were included if they (i) described the experience

Table 1 The IPO model

Stages of implementation		
Inputs	Processes	Outcomes
1. Policy	6. Climate	12. Participation
2. Staff professional development (PD) and teacher education	7. School practice	13. Student achievement
3. Resources and finance	8. Classroom practice	14. Post-school options
4. Leadership	9. Collaboration and shared responsibility	
5. Curriculum	10. Support to individual	
	11. Roles of special schools	

Elements present at the three stages of the implementation of inclusive education in the Loreman et al. (2014) review

of administrators, teachers or students in inclusive education programmes in a Southeast Asian country, (ii) related to students with any disability of school age (elementary or secondary) and (iii) involved inclusive public school settings within a single Southeast Asian country. As an example, Sharma et al. (2008) compared attitudes to the inclusive education of pre-service teachers from one of Southeast Asian country (Singapore), to Hong Kong, Australia and Canada. The article was not eligible for this review because it discusses nations outside the Southeast Asian region. Of the 176 articles, only 38 remained in the final selection. The screening and selection process is summarised in Fig. 1.

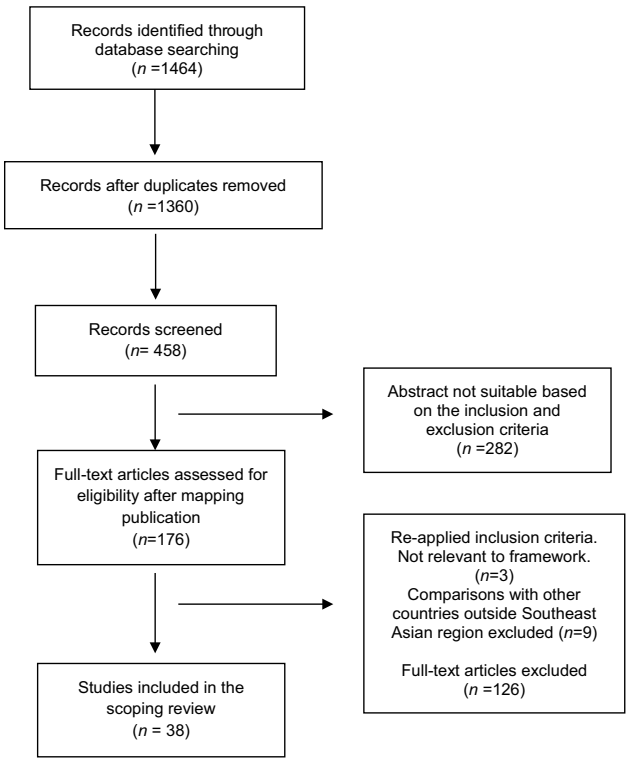

Fig. 1 Flowchart of study selection process

Selecting studies published in Malay

As noted previously, we selected English-language peer-reviewed journal articles for this scoping review. To evaluate the potential impact of also including peer-reviewed research published in local languages, we examined literature published in Malay. We chose Malay because of the notable number of English-language studies we identified from Malaysia (see Table 2) and because the first author is a native speaker of Malay. We searched the Malaysian citation index (MyCite) database which represents the Malaysian journals collection. This database has limited search capabilities, so we used two only keywords, '*pendidikan inklusif*' (inclusive education) and '*sekolah bantuan kerajaan*' (government-aided schools). The result showed 36 articles, with 10 of these articles being published fully in English. From the title and/or abstract reading, we applied the same inclusion criteria and identified only two papers written in Malay about Malaysian schools which were potentially suitable to be included in our review (e.g. Ahmad 2014). We concluded that little relevant non-English-language peer-reviewed literature on the topic is available in Malay. In addition, both Malay articles could have been classified into one of the Inputs elements of the IPO model, and so added little to the overall findings of our scoping review. On this basis, we

Table 2 Number of articles included in the scoping review by Southeast Asian country and inclusive education implementation stage and by national background of authors

Country	Inclusive education implementation stage			Total	National background of authors		
	Inputs	Processes	Outcomes		Home country	Home country + international	International only
Brunei	3	0	0	3	0	1	2
Cambodia	1	0	0	1	0	0	1
East Timor	0	0	0	0	0	0	0
Indonesia	1	0	0	1	0	1	0
Lao PDR	1	1	0	2	0	2	0
Malaysia	4	4	0	8	6	1	1
Myanmar	1	0	0	1	0	0	1
Philippines	0	1	0	1	1	0	0
Singapore	5	3	2	10	7	2	1
Thailand	6	1	0	7	3	2	2
Vietnam	0	2	2	4	1	2	1
Total	22	12	4	38	18	11	9

decided to proceed with the review based on publications in English.

A further issue arising from not including studies published in local languages is the degree to which authors of English-language publications had a well-developed awareness of the different social contexts and cultural backgrounds of the Southeast Asian country they were writing about. Our scoping findings (Table 2) showed the local researchers wrote nearly half ($n=18$) of the articles, with a further 29% ($n=11$) having authorship teams made up of local and international authors. It can reasonably be assumed that local authors have a sound understanding of the social and cultural nuances of education and inclusion in their own country, regardless of the language of publication. Thus, almost 80% of the studies we reviewed were well informed on these cultural factors. Some studies were authored only by international experts (albeit usually with strong local connections) and it is possible that some of these papers were less well informed by local cultural understanding, although this may be counterbalanced by their likely greater awareness of international policy, practice and research (see Grimes et al. 2012; Rydstrom 2010). Regarding local cultural factors and influences, it is noteworthy that there is not only one perspective on inclusion from within countries and regions, and that views can vary even from school to school (Miles and Singal 2010).

Charting the data

The data were extracted into a charting framework based on the IPO model containing implementation stages (inputs-processes-outcomes) and specific elements (see Table 1). Each of the 38 articles was classified into an implementation stage and an element according to its primary stage and a primary element.

Collating, analysing and reporting the results

We chose to emulate Forlin et al.'s (2015) analytic approach because the Southeast Asia region mostly has a similar status in its level of educational and economic development to Pacific Island countries. We did not attempt any qualitative thematic analysis but used the existing IPO elements. Throughout the analysis, we remained open to the possibility that the IPO stages and elements may not capture the content of articles adequately. However, we found that all 38 articles could be appropriately classified into one of the elements listed in Table 1. Our scoping review, therefore, provides another international context within which to determine the usefulness and relevance of the IPO model and its elements.

The first author examined each article to identify the stage and primary element that was relevant and classified the article accordingly. The primary element was based on each study's aims and findings. Then, two co- authors, independently classified 26 per cent ($n=10$) of the articles selected to represent one publication from each Southeast Asian country, to evaluate agreement on classification of the articles. The overall rate of agreement on the IPO stage and element was 80%, an acceptable level of interrater agreement (McHugh 2012).

Results: presentation of the scoping findings

In organising the results of this study, we first examined the three inclusive education stages and the number of articles from each Southeast Asian country. The 38 articles were analysed and organised by country, implementation stages and elements. The findings regarding the country and stage are summarised in Table 2, together with the nationality of the authors of each article.

Country

Focus country

Overall, as indicated in Table 2, nearly 26% ($n=10$) of the 38 articles came from Singapore, followed by Malaysia ($n=8$, 21%), Thailand ($n=7$, 18%), Vietnam ($n=4$, 10%), Brunei with three articles (8%) and Lao PDR ($n=2$, 5%). Other countries such as Cambodia, Indonesia, Myanmar and the Philippines each accounted for 3% ($n=1$ each). East Timor had no peer-reviewed articles published in refereed journals.

Nationality of authors

Our analysis in Table 2 showed 47% ($n=18$) of papers were authored solely by local citizens. The majority of these researcher teams came from Malaysia ($n=6$) and Singapore ($n=7$) (Table 2), the countries with the most studies and with well-developed local educational research capacity. A further 29% ($n=11$) of the articles were collaborations between the local researchers and international experts/advisors conducting research projects in the respective countries (e.g. Grimes et al. 2011, 2012; Villa et al. 2003; Vorapanya and Dunlap 2014). The remaining 24% ($n=9$) articles were written solely by international researchers (e.g. Grimes 2013; Kalyanpur 2011). However, it is important to note that a number of these researchers work in Southeast Asian Universities (e.g. Fitzgerald 2010; Walker 2016) or in an international University branch campus located in an individual Southeast Asian country (e.g. Bailey et al. 2014).

Overall, authorship was predominantly by local researchers, but we found that international expert scholars wrote the sole articles respectively from Cambodia and from

Myanmar, with no local authors. This situation indicates that more research is required in these two countries, with a likely need to develop research capacity so that local researchers (perhaps in collaboration with international experts) can publish their findings on inclusive schooling in international scientific journals.

Stages of implementation

Tables 3, 4 and 5 report the findings on the central element of each article. These findings are presented separately for each of the three inclusive education implementation stages, starting with the inputs stage (Table 3).

Detailed summary of findings

Based on the information shown in Tables 3 (inputs stage), 4 (processes stage) and 5 (outcomes stage), we summarise the detailed findings of the articles in the subsections below.

Design

More than a third ($n=13$, 34%) of the studies employed qualitative methods, 29% ($n=11$) used quantitative methods and 16% ($n=6$) implemented mixed methods. The remaining ($n=8$, 21%) of the published studies were literature reviews, policy reviews or situational analyses.

Publication year

The relatively short history of inclusive education practice in Southeast Asia is reflected in the publication dates of the literature examined. Almost all ($n=36$, 95%) studies were published throughout the 2000s. Indeed, the majority ($n=29$, 76%) of the 38 articles were published after 2010. Given these trends, we believe that inclusive education research will continue to expand in these nations.

Participant groups

Nine (24%) studies did not mention details about participants. Focus participants varied across studies, including pre-service teachers ($n=3$), in-service teachers ($n=19$), school leaders ($n=3$), peers without disabilities ($n=2$), students with disabilities ($n=9$) and their parents ($n=8$). Among the 19 studies with in-service teachers, four studies focused on early childhood, three on primary schools and two on secondary schools. Ten studies did not mention any specific level of school. Of the nine studies focused on students with disabilities, four explored high schools and five did not mention the school level. Most of the studies were not focussed on the experiences of various students in the inclusive schooling. We consider it essential, that their different perspectives and views are included in future research.

Findings on elements

All the 38 articles could be classified appropriately within one of the 14 elements as previously discussed. Overall, we found ten elements represented in the Southeast Asian literature, compared to Loreman et al.'s (2014) list of 14 elements. We identified a similar number of elements reported for the Pacific island countries (Forlin et al. 2015), but with differing weight on elements in each stage (see Table 6). The elements we identified in the IPO model highlight the status of Southeast Asian inclusive schooling compared to findings for other (groups of) countries.

These findings show the appropriateness of our selection of the IPO model (Kyriazopoulou and Weber 2009) and the use of the 14 elements (Loreman et al. 2014) for summarising the issues discussed in inclusive education literature from Southeast Asia. Although Forlin et al. (2015) reported some differences in elements they selected relative our analysis of the Southeast Asian literature, there were many similarities, which might be expected because both Southeast Asia and the Pacific Islands include mostly developing countries. Some elements were absent in the Southeast Asian literature compared to Loreman et al. (2014), especially in the outcomes stage.

There was also the issue of whether the findings from non-English literature differ in essential ways from the English-language literature we reviewed. As we demonstrated in the Malay language literature search, inclusion of the two Malay articles it would not have made a notable difference, as their findings would also have been classified into one of the elements of inputs component of IPO model and therefore did not differ from our overall findings. For these reasons, we consider that our focus on publications in English was reasonable and sufficient.

Elements within the three stages

The classification of these elements is presented in Table 6. Most articles were categorised into the inputs stage, followed by the processes stage, with the fewest articles representing the outcomes stage. This section describes the different stages of implementation and elements of inclusive education in Southeast Asian countries.

Stage one: inputs

The inputs stage had the most articles, which is to be expected as inclusive education is still developing in the

Table 3 Descriptive summary of the articles in the inputs stage by element

Element	Author(s)	Country	Study aims	Methods	Participants	Key findings
Policy	Bualar (2016)	Thailand	To identify why Thailand government failed to implement inclusive education policy and enhance numbers of students with disabilities in mainstream classrooms	Policy review	No specification	Three main factors were identified (i) inconsistent of policy implementation (ii) poorly equipped general teachers at mainstream school without sufficient budgets or extensive training (iii) universal design does not suit Thailand's culture and education system
	Fitzgerald (2010)	Brunei	To appraise policy documents and understand inclusive education in Brunei's secondary schools	Literature review	Inclusive secondary school-aged students	Brunei seeks compliance with policy and legislation and identifies the best way to reinforce inclusive education practice. One example proposes special teachers as advisers in every inclusive secondary school. attitudes and inclusive pedagogy in regular classrooms is considered
	Jelas and Mohd Ali (2014)	Malaysia	Examine current policy and practice of inclusive education within the dual system (regular and special education) and how inclusion practice is promoted and challenged in Malaysia	Policy review	No specification	Inclusive education implemented based on international declarations but with a wrong interpretation resulting in continued exclusionary practices in Malaysia. Currently, learners with disabilities must adapt to the system instead of the education system adapting to the learner
	Kalyanpur (2011)	Cambodia	To examine current socio-political developments and the school system in Cambodia against Education for All and inclusive education	Situational analysis	No specification	Information on education for students with disabilities in Cambodia is elusive, inaccurate and fragmented

Table 3 (continued)

Element	Author(s)	Country	Study aims	Methods	Participants	Key findings
	Lee and Low (2014)	Malaysia	Review historical development of special education in Malaysia from a cultural and politico-historical perspective	Literature review	No specification	Malaysian policy has progressed towards international commitments. A gap exists in realisation of policy and execution of outcome measures in inclusive education
	Lim and Tan (1999)	Singapore	Make Singapore's education more visible worldwide, through inclusive education policy and practice	Literature review	No specification	Practices have changed to school autonomy of implementation and competition among schools
Staff Professional Development (PD) and Teacher Education	Agbenyega and Klibthong (2014)	Thailand	Investigate Thai preschool teachers' knowledge of inclusive early childhood education	Survey and interviews	Early childhood inclusive teachers ($n=175$)	Early childhood teachers need new knowledge and skills. Ensure quality teaching and learning through professional development in early childhood inclusive education practice
	Agbenyega and Klibthong (2015)	Thailand	Explore knowledge of inclusive education of preschool teachers in inclusion classrooms	Observations and Interviews	Early childhood inclusive teachers ($n=11$)	Collaborative inquiry helps preschool teachers, particularly with knowledge of inclusive practice
	Ali et al. (2006)	Malaysia	Investigate teachers' attitudes and knowledge towards inclusive education in Malaysia	Survey	Regular & special education teachers ($n=235$)	Teachers have positive attitudes towards inclusive education. Collaboration between the regular and the special education teachers is essential. Clear guidelines are needed for inclusive education practice for both types of teachers
	Bailey et al. (2014)	Malaysia	Explore inclusive education with teachers involved in remedial literacy and numeracy under Malaysia's Literacy and Numeracy Strategy (LINUS)	Survey	In-service primary school teachers ($n=300$)	LINUS teachers had minimal knowledge of the benefits of inclusion practice. They worried lack skill teachers is available to help students with disabilities. Government implementation of inclusion remains a distant goal without wider professional development

Table 3 (continued)

Element	Author(s)	Country	Study aims	Methods	Participants	Key findings
	Grimes (2013)	Thailand	Explore challenges and opportunities for supporting the development of inclusive teachers in Bangkok	Case studies in two schools-observation, semi-structured interviews, research diary	In-service teachers	Policy development, eligibility for schooling, labelling a student with complex needs and identifying and supporting individual needs is not coherent
	Haq and Mundia (2012)	Brunei	Examine trainee teachers' attitudes towards students with high support needs in Brunei	Survey	Pre-service teachers ($n=89$)	Participants had positive attitudes to inclusion but not accommodating students with sensory impairments, mental disorders, multiple disabilities and challenging behaviours. There were implications for future teacher education
	Koay (2014)	Brunei	Describe the evolution of teacher education in Brunei regarding inclusive education practice	Literature review	No specification	Revolution in teacher training on supporting inclusive education policy and practice. The purpose is for pre-service and in-service teachers to have the knowledge and skills
	Poon et al. (2016)	Singapore	Investigate perceptions of teachers and school professionals, and associated factors on the inclusion of high school students with special educational needs	Questionnaire	Teachers and staff in schools ($n=131$)	Confidence in teaching and supporting a student with disabilities is a significant predictor of an inclusive perception
	Sheehy and Budiyanto (2014)	Indonesia	Examine teachers attitude towards signed language supporting inclusive practice for children with severe learning disabilities	Questionnaire and semi-structured interview	In-service inclusive teachers ($n=69$)	Indonesian sign language developed for students with severe learning difficulties. Teachers impacted through positive attitudes toward the use of signing in teaching
	Sukbunpant et al. (2013)	Thailand	Examine Thai preschool teachers' views of inclusive education for children with disabilities	Questionnaire	Preschool teachers Survey ($n=528$) Semi-structured interviews ($n=20$)	Preschool teachers appeared to accept inclusive education but got little support from schools with less knowledge of special education. Preschool teachers found their training was more theoretical than practical

Table 3 (continued)

Element	Author(s)	Country	Study aims	Methods	Participants	Key findings
	Thaver and Lim (2014)	Singapore	Investigate attitudes of pre-service teachers towards disability and inclusive education	Survey	Pre-service regular teachers ($n=1538$)	Found positive attitudes toward inclusive education. Lack of confidence about handling students with disabilities in the classroom is the main barrier to implementing inclusive classes
	Walker (2016)	Singapore	Explore teacher preparation in Singapore's dual education system	Literature review	Pre-service teachers	Preparation of Special Educational Needs (SEN) teachers should be aligned with inclusive education practice in the Dual Education system
	Yeo et al. (2016)	Singapore	Investigate primary teachers' experiences in the Singapore's inclusive schooling	Focus group interviews	In-service primary teachers ($n=202$)	Teachers negative experiences (challenging behaviour, instructional difficulties) are more dominant than positive experience (pupils' progress, new learning for educators)
Resources and finance	Grimes et al. (2011)	Lao PDR	Explore strategies for the introduction of child-centred approaches to teaching and learning across Lao	Questionnaire	School leaders ($n=539$)	Historical-cultural factors and Lao PDR's dependence on resources from multilateral agencies created barriers to new policy initiatives. Resources with the local material are essential to support teaching and learning
Leadership	Vorapanya and Dunlap (2014)	Thailand	Historical overview of special education and progress of inclusive education practice	Semi-structured interviews	School leaders ($n=10$)	Active participation by school leaders could improve inclusive education practice. The top-down approach is the usual practice in Thai culture. However, they experienced inadequate resources and support from top management

Table 3 (continued)

Element	Author(s)	Country	Study aims	Methods	Participants	Key findings
Curriculum	Waite (2015)	Myanmar	Exploring the evidence gap about access of children with disabilities to a school in Yangon	Semi-structured interviews, focus group, observation	Students with/without disabilities, parents of students with disabilities, teachers, school leaders ($n=222$)	Perceptions of students with disabilities based on notions of 'vulnerability and dependence' (p. 381). Most teachers are concerned about lack of support for teacher training, and the best curriculum available in the inclusive classroom for students with disabilities

Southeast Asian region. There were 13 studies (Table 3) on the staff PD and teacher education element, plus other articles on the policy, resources, school leaders and curriculum elements.

Policy

Policy is a critical element that emerged from the inputs stage, with evidence of increased interest in inclusive education in Southeast Asia through policy development (Agbenyega and Klibthong 2015). However, concerns remain about how to close the gap between policies and practices (Koay 2014; Lee and Low 2014). Effective implementation of inclusive schooling is challenging when the system is not well prepared (Jelas and Mohd Ali 2014), especially in secondary schools (Fitzgerald 2010). Evidence from Thailand and Malaysia showed that the practice of inclusive education varies widely from school to school (Bualar 2016; Lee and Low 2013). It is beyond the scope of the current review to examine these policies in depth (see Bualar 2016; Jelas and Mohd Ali 2014; Kalyanpur 2011).

Staff PD and teacher education

This element has been discussed extensively in the Southeast Asian literature. Much inclusive education research attempts to examine teacher skills and school staff support for inclusive schooling (Loreman et al. 2014). Most special teachers are trained separately from mainstream teacher training. Regular teachers are not exposed to special education during their pre-service training (Lee and Low 2013; Yeo et al. 2016). In Singapore, Walker (2016) explained that two types of professionals' work with students with disabilities in schools and require a diploma in special education. One is a classroom teacher in special schools, and the other is an allied educator and learning behaviour support worker who support teachers in a mainstream classroom (Walker 2016; Yeo et al. 2016).

Most Southeast Asian regular teachers receive no formal training in teaching students with disabilities either in-service (Sheehy and Budiyanto 2014) or pre-service (Ali et al. 2006; Thaver and Lim 2014). These findings were similar for teachers at preschool (Agbenyega and Klibthong 2015), primary school (Bailey et al. 2014; Yeo et al. 2016) and secondary school (Poon et al. 2016) levels. Teachers' lack of knowledge of disability is evident in schools without special education programmes (Jelas 2000; Lee and Low 2013). When Aybenyega and Klibthong (2014) interviewed preschool teachers, they consistently reported dissatisfaction in providing appropriate support to students with disabilities. A number of studies have found that teachers felt less confident because they lacked knowledge of inclusive teaching (Haq and Mundia

Table 4 Descriptive summary of the articles in the *processes* stage by element

Element	Author(s)	Country	Study aims	Methods	Participants	Key findings
Climate	Lee and Low (2013)	Malaysia	Explore Malaysia's implementation of inclusive education without formal policy legislation	Semi-structured interviews	Regular teachers in a primary school ($n=4$)	Delay in policy implementation of inclusive education affects restrictive practice in some schools. The practice of inclusive education varies widely among schools
	Lim et al. (2014)	Singapore	Examine how newly qualified para-professionals practice their early years in school	Online questionnaire, focus group, in-depth interviews	New graduate para-professionals ($n=30$).	Para-professional training for inclusive education needs more special education coursework
	Villa et al. (2003)	Vietnam	Investigate the evolution of special education policies and services and the introduction of inclusive education in Vietnam	Survey, observation, field notes, group and individual interviews	School principal ($n=9$); Teachers ($n=20$); Parents of students with disabilities ($n=28$); Parents of students without disabilities ($n=9$)	Climate for tackling inclusive education in Vietnam described along with remaining problems. Proposed system change model for promoting development of inclusive education throughout Vietnam
School practice	Grimes et al. (2012)	Lao PDR	Examine community-based school approaches and teacher knowledge of inclusion in Lao	Self-evaluation process	School communities (Teachers, students, parents)	Adapted Index for Inclusion tool to Lao perspectives. Concluded that many of the concepts are new for teachers and other professionals
	Rydstrom (2010)	Vietnam	Investigate implementing inclusive education in Vietnam	Qualitative study	Not mentioned	There is a problem with gender inequality in the classroom; girls with disabilities are vulnerable to bullying. Disability definition is problematic
Classroom practice	Hamdan et al. (2016)	Malaysia	Determine the challenges, readiness and role of special education teachers implementing teaching in inclusive classrooms	Survey	Special education teachers ($n=240$)	Co-teaching is the best method for inclusion classrooms. However the method needs to be modified to ensure that students with disabilities are not left behind
	Kaur et al. (2016)	Thailand	Investigate how general teachers planned their teaching for students with complex learning and behavioural disabilities	A case study: Observations, in-depth interviews and reflective journals	A student with disabilities ($n=1$), Inclusive teacher in a primary school ($n=1$).	Successful inclusive education practice relies on teacher attitudes. Developing countries have less funding and physical infrastructure, lack of school curriculum, less innovative teaching, resulting in conflict about inclusion in classroom practice

Table 4 (continued)

Element	Author(s)	Country	Study aims	Methods	Participants	Key findings
	Muega (2016)	Philippines	Explore the knowledge of multiple stakeholders of inclusive education	Survey, semi-structured interviews	Parents of students with disabilities ($n=20$); Inclusive teachers ($n=57$); inclusive school administrators ($n=14$)	Confused understanding remains about inclusive education and practice in real situations
Collaboration and shared responsibility	Jelas (2000)	Malaysia	Explore roles in inclusive education from the perception of teachers, parents and students	Case study. Semi-structured interviews. Observation	Regular and special education teachers, parents, students with disabilities in primary schools	Mainstream teachers and special teachers are disconnected. Parents had more favourable expectations based on their view of their children's learning abilities
	Sukumaran et al. (2015)	Malaysia	Investigate preschool teachers' perceptions and beliefs about inclusion	The Integrated Preschool Program Questionnaire (IPPQ)	Regular and Special Education Preschool teachers ($n=81$)	Both regular and special teachers agree preschool pupils with disabilities should be educated with typical peers
	Wong et al. (2015a)	Singapore	Explore the different roles of home and school and their partnership.	Semi-structured interviews	Parents of students with disabilities ($n=13$); students with mild disabilities ($n=10$); school staff in secondary schools ($n=30$)	Collaboration among parents and school teachers is increasing. Students with disabilities are visible in the community through a home-school partnership. Collaboration and shared responsibility from society is essential to bridge the gap between rhetoric and practice
	Wong et al. (2015b)	Singapore	Explore experiences and perceptions of parents of students with disabilities in mainstream secondary classrooms	Semi-structured interviews	Parents of students with disabilities in secondary schools. ($n=13$)	Parents of students with disabilities are demanding success in social and academic performance to prepare their child for the meritocratic Singapore society

Table 5 Descriptive summary of the articles in the *outcomes* stage by element

Element	Author(s)	Country	Study aims	Study design	Sample	Key findings
Participation	Nguyen et al. (2015)	Vietnam	Intervention to support inclusion for girls with disabilities in Vietnam	Fieldwork notes, interviews, participatory visual notes	Girls with disabilities ($n=21$).	Participants were worried about being isolated in the classroom, demonstrated low self-esteem and experienced bullying
	Poon et al. (2014)	Singapore	Explore the experience of students with high functioning autism (HFA) in Singapore secondary schools	Semi-structured interviews	Secondary students with HFA ($n=4$)	How to support youth with HFA and give the opportunity for their adjustment to issues of life in Singaporean mainstream schools
	Tran (2014)	Vietnam	Understand disabilities from the medical model, not the social model. Share school experiences of students with disabilities	Questionnaire and interviews	Students with disabilities, typically developing peers, parents of students with disabilities and teachers Questionnaire-($n=230$) Interviews ($n=36$)	School experiences could enhance social inclusion awareness for students with and without disabilities
	West et al. (2004)	Singapore	Explore the social and emotional needs of students with vision impairments (VI) in mainstream secondary schools in Singapore	Semi-structured interviews; daily diary entries	Students with VI in inclusive secondary schools ($n=9$)	Students with VI shared their feelings and experiences in inclusive classrooms. Adjustment to a new environment is needed to meet their social and emotional needs

Table 6 Elements present at the three stages of implementation of inclusive education in the Southeast Asian literature compared to elements from Loreman et al. (2014) and Forlin et al. (2015)

Literature Source	Stage of Implementation		
	Inputs	Processes	Outcomes
Southeast Asian countries 10 elements	1. Policy 2. Staff PD and teacher education 3. Resources and finance 4. Leadership 5. Curriculum	6. Climate 7. School practice 8. Classroom practice 9. Collaboration and shared responsibility	10. Participation
Alberta, Canada 14 elements (Loreman et al. 2014)	1. Policy 2. Staff PD and teacher education 3. Resources and finance 4. Leadership 5. Curriculum	6. Climate 7. School practice 8. Classroom practice 9. Collaboration and shared responsibility **10. Support to individual** **11. Roles of special schools**	12. Participation **13. Student achievement** **14. Post-school options**
Pacific Island countries 10 elements (Forlin et al. 2015)	1. Policy 2. Staff PD and teacher education 3. Curriculum	4. School culture* 5. School practice 6. Classroom practice 7. Collaboration and shared responsibility	8. Participation **9. Student achievement** **10. Post-school options**

Elements shown in bold type were not found in the 38 articles from Southeast Asian countries

*Synonym for climate element

2012; Sukbunpant et al. 2013). These studies suggest that, in the absence of special education training, inclusion involving general education teachers was challenging.

Mainstream teachers seemed to prefer to not have students with disabilities in their classroom. Ali et al. (2006) claimed that regular teachers were being forced by government policy to engage in inclusion that they were unsure of or not interested in. To overcome these concerns, Haq and Mundia (2012) asserted that governments should focus on appropriate teacher training and enhancing professional teamwork as critical supports towards quality inclusion.

Resources and finances

Funding and resources must be provided so inclusive education implementation works efficiently (Loreman et al. 2014). Developing countries like Lao PDR and Thailand are often reported to have insufficient funding (Grimes 2013; Vorapanya and Dunlap 2014). Teaching resources and learning support materials are used their own language and local context in Lao PDR (Grimes et al. 2011), but teachers lacked the confidence to use these resources with students with disabilities, an issue in turn linked to teachers' inclusive education training. Only one paper examined the resources element of inclusive schooling in Southeast Asia. Therefore, we recommended further study of learning materials for quality inclusion.

Leadership

School systems with an administration that is supportive of inclusion serve more students with disabilities in regular classes (Loreman 2013). Bailey et al. (2014) and Voraponya and Dunlap (2014) proposed that the school leader is the crucial person to assure that best-practice inclusive education is implemented. Both papers reported that most school leaders agreed on the necessity of having knowledge about inclusion and a vision of how inclusive education could improve the lives of children with disabilities in the school.

Leadership also influenced other elements such as resources and finances, collaboration and shared responsibility, and school practice such as classroom teaching approaches. In Southeast Asian countries, top-down school leadership is practised meaning what the principal does, becomes a role model for teachers. School leaders should develop positive attitudes by promoting collaboration in the entire school as experienced in Thailand (Vorapanya and Dunlap 2014) and other countries in Southeast Asia (Fitzgerald 2010; Poon et al. 2016). These issues need more development through further research.

Curriculum

Curriculum development can assist regular and special teachers to improve their practice to support students with disabilities in a regular classroom (Vorapanya and Dunlap 2014). Teachers need a robust curriculum to deliver

successful teaching (Grimes et al. 2011). In Myanmar, Waite (2015) reported that most teachers lacked support on curriculum accommodations for students with disabilities. Every Southeast Asian country needs to develop their national curriculum based on their culture and context. Lee and Low (2014) suggested that most developing nations have limited resources and emphasised that achievements in some Western countries required a long process of maturing inclusive education, and that it is impossible to merely duplicate the Western curriculum in Malaysia, which is only in the early stages of inclusive education. Overall, the literature noted that there is no clear evidence on whether the current curriculum met the needs of students with disabilities in each major disability diagnostic category (Waite 2015). The limited focus on curriculum suggests that this vital issue is yet to receive detailed attention.

Stage two: processes component

In this section, we explore what has happened in implementing inclusive education. Based on elements found in the Southeast Asian research on the process component, we found no studies that focus primarily on *support to individuals* and *roles of special school* (Table 6). This knowledge gap needs to be reduced with more research.

Climate

A welcoming social climate is critical to the success of inclusive education (Lim et al. 2014). A climate is developed by the positive beliefs, attitudes and culture of all members of the educational community, particularly at the school and classroom levels. Bualar (2016) noticed teachers' views and professional development influence attitudes towards inclusive education. Lee and Low (2013) reported that Malaysia experienced inclusive education in some schools with no formal federal government support. They called this "unconscious inclusion" and proposed that delayed policy implementation could affect the inclusive education climate nationally. Attitudes are critical to the success of inclusive education practice (Lee and Low 2013; Lim et al. 2014). Most Southeast Asian literature agreed that positive attitudes on disability appear with extensive training and adequate practice (Poon et al. 2014; West et al. 2004).

School practice

This element relates to practices in schools, with the logic being that a 'whole school' approach is necessary for success (Loreman et al. 2014), not just encouraging inclusive practice in individual classrooms (Hamdan et al. 2016), or gender (Rydstrom 2010). Grimes et al. (2011) suggested that school and classroom practice has a significant effect on the success of inclusive education in Lao. The Lao National Project was intended to enable and support schools to attempt inclusive practice and emphasised learning from collaboration and experience between teachers and school communities (Grimes et al. 2011). By taking control of practice for themselves, with the whole school and community participating, inclusion would become much stronger (Grimes et al. 2011).

Classroom practice

The Philippines has focussed on classroom practice for inclusive education through training workshops, teaching–learning aids and other initiatives (Muega 2016). Muega (2016) reported that teachers accepted the idea of improvisation in inclusion pedagogy to respond to the varied nature of inclusion practice, although their knowledge, resources and self-preparation was not always adequate to achieve inclusive education outcomes. A recent study of Malaysian special teachers proposed that a co-teaching approach could impact inclusive classroom practice (Hamdan et al. 2016). Hamdan et al. (2016) also showed that teachers of students with disabilities learn by doing in their mainstream classroom because of limited training and resources, a situation evident in many Southeast Asian countries (Kaur et al. 2016; Muega 2016; Sukumaran et al. 2015).

Collaboration and shared responsibility

A vital aspect of successful inclusive education is collaboration at all levels (Forlin et al. 2015). In Singapore, partnerships between home and school were used to provide continuity for students with disabilities (Wong et al. 2015a). Wong et al. (2015a) argued parents are experts on their child as a person, and teachers are experts on the child's education. As other Southeast Asian scholars (Grimes et al. 2011; Muega 2016) recommended, Wong et al. (2015b) also suggested that support from the larger society is essential to close the gap between belief and practice in inclusive education.

Stage three: outcomes

The only outcomes element represented in the Southeast Asian literature was *participation*. *Student achievement* and *post-school options* elements were not evident in the Southeast Asian studies reviewed (Table 6).

Participation

Participation in the programme impacts the quality and amount of inclusion (Loreman 2013). Predominantly, research in this area measured students' involvement in all

the activities that other students engage in (Loreman et al. 2014). It encompasses both academic and social participation in school.

Evaluation of the success of mainstream education typically focused more on exams and less on the issue of disability and participation (Villa et al. 2003). Exploring each outcomes element could significantly promote the well-being of students with disabilities, especially adolescents (Poon et al. 2014), so researchers and policymakers should consider these issues. Most studies (Nguyen et al. 2015; Poon et al. 2014; Tran 2014; West et al. 2004) used interviews (Table 5); but none used direct observation to confirm how these students interacted with peers inside and outside the classroom. It is essential to determine how confident and comfortable students with disabilities are in mainstream classes alongside peers (Waite 2015).

Discussion

The IPO model was applied to the literature on inclusive schooling in Southeast Asian countries. It was helpful in explaining what had been emphasised and identifying the strengths and gaps in the existing literature in Southeast Asian studies. In general, the Southeast Asian literature showed that most countries were committed to implementing inclusion for at least some students with disabilities. Application of the IPO model with Pacific Island countries (Forlin et al. 2015) and Southeast Asian countries show its value when examining inclusive education in developing countries.

The present review showed that only 10 of 14 IPO elements were present in the Southeast Asian literature as primary focus areas. We assert that the current lack of several prominent elements is a fair reflection of the *developing* status of inclusive education in Southeast Asian countries. Representation of all 14 elements should only be expected in sophisticated inclusive education systems. This claim is supported because Forlin et al. (2015) found only 10 of the 14 elements were illustrated in the literature about Pacific Island countries. Likewise, by looking at the research from individual Southeast Asian countries (Table 2), the most developed country (Singapore) had the most studies across the entire range of stages of implementation. Even so, Wong et al. (2015b) considered the Singaporean inclusive education system is only in its infancy. Consistent with this analysis is the finding of no studies from East Timor, a country that may have the least developed inclusive education system (Table 2).

Based on our research questions, we analyse the significant findings from each IPO stage, having consideration for both present and missing elements, starting with the inputs stage.

Inputs stage analysis

This stage had the most articles. We learned inclusive schooling is challenging without the human resources and the needed skills to make it successful. Contributing to this situation in developing countries are issues of teachers' and school staff's attitudes and skills, constraints on resources and finances and a lack of leadership (Bailey et al. 2014; Kalyanpur 2011). These challenges could explain why studies of teachers' education and training are the most common in the inputs stage. Such issues may recur, even in developed countries such as Singapore (e.g. Lim and Tan 1999; Poon et al. 2014; Thaver and Lim 2014), with rising expectations about inclusion after initial practices are implemented.

Most Southeast Asian countries have specific inclusive education policies and legislation, but implementation in many countries is restricted (Bualar 2016; Lee and Low 2014; Jelas and Mohd Ali 2014). To provide a more comprehensive picture, we suggest future national policy analyses for each Southeast Asian state on the policy details regarding the right of persons with disabilities to inclusive education.

Processes stage analysis

Our scoping review suggests that *support to individuals* and *roles of special schools* were missing as primary elements at this stage. Several articles mentioned support to individuals (e.g. Kaur et al. 2016; Waite 2015), however, the articles were not primarily focused on this element. Kaur et al. (2016) discussed socio-emotional, cognitive and physical support strategies for students with disabilities in inclusive classrooms. If the inclusive system does not have an appropriate curriculum, this shortcoming can be partly offset by providing extra support to individuals (Loreman et al. 2014).

Special schooling has been practised in Southeast Asian countries for more than four decades (Bualar 2016; Lee and Low 2014). The Southeast Asian research did not discuss the relationship between special schools and inclusive schooling. The shift from special schools towards inclusive education has become prevalent internationally (Kaur et al. 2016; Rose and Forlin 2010). One choice is that special schools could serve as resource hubs for mainstream schools (Loreman et al. 2014; Rose and Forlin 2010). This idea could help influence other elements such as collaboration and shared responsibility, resources and finances, support to individuals and climate.

Collaboration and shared responsibility was a most frequent element in the Southeast Asian literature, but one valuable point within this element was missing. We found no evidence of linking between the school leaders and inclusive teachers. Both stakeholder groups manage inclusive education practice. Voraponya and Dunlap (2014) noted the importance of school leaders' roles. Agbenyega

and Klibthong (2014) added that, with a lack of confidence and knowledge, teachers could oppose implementation of inclusion. This potential mismatch could lead to an adverse impact, for instance, a conflict between school leaders who are trying to implement inclusive education and inclusive teachers who may oppose aspects of the policy.

Outcomes stage analysis

All four identified studies related to the participation element. Nguyen et al. (2015), Poon et al. (2014) and West et al. (2004) all reported on the challenges for students with disabilities concerning social participation in high school. Even though some studies of participation were present, research was limited (e.g. no studies from Malaysia; no studies using direct observation of students with disabilities). More varied approaches to explore participation are needed in the Southeast Asian context.

One interesting participation-related finding suggested possible gender differences in the experience of school inclusion. In Vietnam, Nguyen et al. (2015) found 11 of 21 girls with disabilities complained about negative experiences in schools. Nguyen et al.'s (2015) study emphasised the value of giving students with disabilities opportunities to voice their feelings about inclusion. Without comparative data for boys, it is not possible to say whether gender differences were present, but this issue seems worthy of future research attention.

The absence of the *post-school options* and *student achievement* elements meant that there was no peer-reviewed evidence for education decision-makers about students' lives after they finished school. A crucial benchmark is whether inclusive education resulted in good outcomes in adulthood. In future research, it would be useful to document what post-school options are available, as well as students' satisfaction with their educational experience and their academic achievement.

Analysis of three inter-related stages of inclusive education implementation

Research from countries like Cambodia, Indonesia and Malaysia revealed policymakers driving inclusive education by evolving national policy guidelines that are related to the local context and the national educational system (Kalyanpur 2011; Lee and Low 2013; Sheehy and Budiyanto 2014). Bualar (2016) emphasised that policy inconsistency occurs when a sufficient budget or comprehensive training programmes were lacking. As recommended, these countries need to translate their policies into real actions (Bualar 2016) by deploying all the critical implementation elements.

In developing countries with developing inclusive education systems, inputs come first; then processes can be developed, which are needed before outcomes are available for researchers to measure. Our findings support this logical analysis. There were a declining percentage of elements addressed across the three stages of implementation. Table 6 shows 100% (5/5) of the Inputs elements were addressed, 67% (4/6) of the Processes elements and 33% (1/3) of the Outcomes elements.

The outcomes stage of the model is critical to measuring the success of inclusive education practice. Outcomes data are critical to provide feedback and evaluation of elements at the inputs and processes stages (Forlin et al. 2015; Kyriazopoulou and Weber 2009). The findings of outcomes-based evaluations may lead to changed inputs or processes that can be tested by re-assessing outcomes to provide further feedback and improvement.

The IPO model brings together logically interconnected elements. One example comes from the climate element in the process stage. Climate can relate to issues of teacher education and professional development (inputs stage), which subsequently impact processes of implementing inclusive schooling. Several studies (e.g. Agbenyega and Klibthong 2014; Haq and Mundia 2012; Sukbunpant et al. 2013) reported that welcoming of inclusive education implementation in mainstream classes depends on how much pedagogical training general teachers received, and on access to a sophisticated curriculum that focused on the learning capabilities of students with disabilities.

Limitations of the study

We acknowledge that the research reviewed may not capture every aspect of inclusive educational practice. In particular, most of the research included in this review involved indirect measures of inclusive education, including interviews and surveys and did not involve observations to examine inclusive educational practices. Further, the time needed to complete and publish research, and to review the published literature, can mean that very recently emerging practices may not be reflected in currently available peer-reviewed research. However, the rigor of the scoping review methodology and the robustness of the IPO model contribute to the thoroughness and accuracy of our review findings.

Other limitations of this review should be noted. The present study may have been limited by what studies were available until January 2017 and in the peer-reviewed literature in English. It is possible that inclusion of grey literature, or of publications in local languages, may have led to partly different findings or to an improved understanding of the situation in some countries. However, finding relevant peer-reviewed literature in multiple different local languages was

not feasible for several reasons. One barrier was that journals in less prominent languages may not be indexed in major international search engines. For example, Scopus listing requires at least an English version of the abstract. Our examination of the Malaysian literature via a local search engine revealed that very few peer-reviewed articles were written in Malay and met our selection criteria. Further, the few Malay articles added no new IPO elements and were confined to the most frequently addressed IPO stage, the Inputs stage.

Conclusions, recommendations and implications for Southeast Asian education

This review demonstrates the feasibility of using scoping review methods to examine Southeast Asia's inclusive schooling literature. Measuring inclusive practice is a complex and dynamic process, in part because inclusive schooling in Southeast Asia is a rapidly evolving area.

The IPO model demonstrated that benchmarking inclusion not only involves looking at practices, policy and their relationship (Forlin et al. 2015; Waite 2015). It also requires information about each element, and individual experiences of inclusion practice. Our analysis of the current Southeast Asian situation showed that IPO is a helpful organising tool in providing guidance to researchers and administrators in the regional education sector to support and plan inclusive schooling of students with disabilities. It also enabled us to point out where research attention has or has not been focussed, in particular, the limited or non-existent focus on important elements of the outcomes stage. Consequently, one clear implication for Southeast Asian educational research and practice is to monitor and evaluate a range of outcomes of inclusive schooling, including student achievement and post-school outcomes. This outcomes information could also provide useful feedback to inform changes in inputs, such as staff professional development and teacher education, and changes in processes, such as classroom practice.

The inclusive education literature from Southeast Asian nations is still emerging. This situation reflects the developing nature of inclusive education itself within Southeast Asia, where there is a short history of implementation of inclusion. Most schools have little experience with including students with disabilities in regular classes. As a result, regular education teachers and staff are not prepared well, and non-disabled students in Southeast Asian public schools are not used to having a classmate with disability. Students with disabilities are frequently placed in segregated education in their early years of school. The current situation may be seen to represent reasonable progress even though much more remains to be achieved.

This scoping review presented a general overview of the Southeast Asian literature, including mapping the contribution of individual countries by inclusive education stage and element. Such research is much better developed in certain countries such as Singapore, Malaysia and Thailand. However, we emphasised the under-developed outcomes stage is critical to measure the success of inclusive education. At present, there is too little information on outcomes to allow for between-country comparisons. Future research should examine the full range of elements of inclusive schooling practice in Southeast Asia and continue to develop the other elements in the outcomes stage. Such an approach would result in the evidence-informed decisions using the best available information in the decision-making process.

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